INFORMATION MANAGEMENT AND BUSINESS REVIEW

TECHNOLOGY AND ENTREPRENEURSHIP: REVITALIZING BUSINESS SUSTAINABILITY MODELS

Vol. 15 No. 3 (SI) ISSN 2220-3796

Editorial

Information Management and Business Review (IMBR) provides a digital forum for researchers to share their knowledge and publish research work in the fields of information management, business, management and related disciplines. The work submitted for publication consideration in IMBR should address empirical and theoretical developments in the subjects related to the scope of the journal in particular and allied theories and practices in general. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal and that all listed authors approve its submission to IMBR. It is IMBR policy to welcome submissions for consideration, which are original, and not under consideration for publication by another journal at the same time. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. The current issue of IMBR is a special issue in collaboration with Universiti Teknologi MARA (UiTM), Malaysia and comprises papers of scholars from different universities of Malaysia, Indonesia and UK. Exploring the Nexus of Work-Life Balance Sub-Factors and Job Satisfaction, Relationship between Remote Work and Job Satisfaction, Understanding Entrepreneurial Orientation based Research, Investigating the Effect of CEO Age on the Bank Performance, Challenges of Using Online Distance Learning Platforms, Roles of Emotional Intelligence in Developing Optimism, Household Sustainable Consumption Intention, Towards Quality Education, Competition in the Malaysian Banking System, Technology Entrepreneurship Intention among Students, Financial Risk and International Inbound Tourism, Financial Development and Corruption level, Revitalising Business Sustainability through Full-Range Leadership Approach, Factors Influencing Technology Usage among Event Attendees, CEO Experience and Commercial Banks' Performance, Framework on Customer Satisfaction, Sustainable Waste Management, Energy Efficiency of Kenaf Cultivation, Musyarakah Mutanaqisah, Impact of Remittances on Human Capital, Influence of Social Media on Self-Esteem, Sporting Tourism Events Attributes, Online Food Delivery Sentiment Analysis, Perceptions of Disability among University Students, Exploring Online Food Delivery, Role of Logispreneurs in Advancing Waste Management, Factors Affecting Personal Bankruptcy, Digital Banking Adoption Intention Model, Impact of Internet Access and Accessibility Initiatives in Facilitating Students, Integration of Knowledge and Theory of Planned Behavior, Conceptual Model for Sustainable Green Port Practices, Organizational Justice and Employee Retention, Exploring Antecedents of Destination Loyalty, Impact of Job Stress, Work-Life Balance and Work Environment on Job Satisfaction, Port Competitiveness from Shipping Lines Perspectives, Technostress Creators and Employee's Well-Being, Status Consumption and Materialism influencing Attitude towards Counterfeit Fashion Product, Nexus between Robo-Advisor Service Quality and Customer Satisfaction, Analysis of Technopreneurship Research, Determinants of Microcredit Interest Rate, Factors Influencing Online Buying Intention, Workplace Aggression and Anxiety, Risk Issues in Esports Events and Determinants of Work-Life Balance, Green Supply Chain Management Practices and Organizational Performance, Causes of Work Stress, Supply Chain Management Practices, Nexus between Government Assistance and Savings, Monetary Policy, Macroeconomic and Anomalies Interactions, The Influence of Digital Marketing on Consumer Behavior, Impact of Patriotism, Volunteerism and Perceived Empowerment on Community Engagement, Factors Affecting Employees' Quitting Intention, Knowledge Management Capabilities and Hotel Performance and a Philanthropic Behavior among Youths are some of the major practices and concepts examined in these studies. All the submitted papers were first assessed by the committee of Universiti Teknologi MARA and editorial team of the journal for relevance and originality of the work and then blindly peer-reviewed by the external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity of the purpose. The special issue will therefore be a unique proposition, where scholars will be able to appreciate the latest results in their field of expertise, and to acquire additional knowledge in other relevant fields.

Editor In Chief

Ijaz Ur Rehman PhD

Editorial Board

- Boubker Sbihi PhD, I-school ESI, Rabat, Morocco
- KOH Noi Keng PhD, National Institute of Education, Nanyang Technological University, Singapore
- Nurhuda Haji Nizar, PhD, Universiti Teknologi MARA, Puncak Alam, Malaysia
- Ayhan Kapusuzoglu PhD, Yildirim Beyazit University, Turkey
- Apostu Iulian PhD, University of Bucharest, Romania
- Dong Hwa Kim PhD, Hanbat National University, Daejeon, Republic of Korea
- Teodoro A. Macaraeg Jr PhD, University of Caloocan City, Manila, Philippines
- Benedict Valentine Arulanandam PhD, University Putra Malaysia, Malaysia
- Yousef Daradkeh PhD, Prince Sattam bin Abdulaziz University, KSA
- Syarifah Mastura Syed Abu Bakar PhD, Universiti Teknologi MARA, Malaysia
- Norashikin Hussein, PhD, Universiti Teknologi MARA, Puncak Alam, Malaysia
- M Azhar Khan PhD, Hokkaido University, Japan
- Mohammad Kazemi Reza PhD, University of Tehran, Iran
- Nur Athirah Sumardi PhD, Universiti Teknologi MARA, Malaysia

TABLE OF CONTENTS

Description	Pages
Title	I
Editorial	II
Editorial Board	III
Table of Contents	IV
Papers	VII
Exploring the Nexus of Work-Life Balance Sub-Factors and Job Satisfaction: A Study on Executives in the Commercial Banking Sector Nurasnida Miswadi, Aida Azlina Mansor	1
The Relationship between Remote Work and Job Satisfaction: The Mediating Role of Perceived Autonomy Nor Lelawati Jamaludin, Sakinah Ahmad Kamal	10
Understanding Entrepreneurial Orientation based Research: A Proposed New Theoretical Framework Ehsan Fansuree Surin, Oswald Timothy Edward, Sayuthi Shaaran, Rohana Ngah	23
The Older, the Wiser? Investigating the Effect of CEO Age on the Bank Performance in Malaysia Mei-Shan Chua, Siti Nurhidayah Roslen, Pang Mary	36
Challenges of Using Online Distance Learning Platforms in Higher Education: Perception of Business Students Norashikin Hussein, Syezreen Dalina Rusdi, Idaya Husna Mohamad, Muhamad Khalil Omar, Ainie Hairianie Aluwi	42
The Roles of Emotional Intelligence in Developing Optimism among Public University Students in Perak, Malaysia Nur Athirah Sumardi, Narehan Hassan, Mazuin Mat Halif & Natasha Dzulkalnine	50
Household Sustainable Consumption Intention Roslilee Ab. Halim, Soo-Cheng Chuah	59
Towards Quality Education: Physical Notes VS Digital Notes in Health Expectancy, Eco-Friendly Environment and Notes Accessibility Conditions Natasha Dzulkalnine, Mohamed Nor Azhari Azman, Nur Athirah Sumardi, Nur Qudus	67
Does Competition Matter in the Malaysian Banking System? Nur Afizah Muhamad Arifin, Roslina Mohamad Shafi, Imani Mokhtar	78
Technology Entrepreneurship Intention among Higher Education Institutions Students: A Literature Review Lina Nadia Abd Rahim, Nur Atiqah Zakiyyah Ramlee, Ehsan Fansuree Mohd Surin, Hardy Loh Rahim	85
Financial Risk and International Inbound Tourism: A Malaysian Illustration Siti Nurhidayah Mohd Roslen, Chua Mei Shan, Azlul Kalilah Zaghlol, Rafiatul Adlin Hj Mohd Ruslan	95
Does Financial Development and Corruption reduce the level of Income Inequality? Evidence from Malaysia Norhasimah Shaharuddin, Mohd Hafiz Abd. Wahab, Nik Rozila Nik Masdek, Norzitah Abdul Karim, Bushra Mohd Zaki, Salwaty Jamaludin	108
Revitalising Business Sustainability through Full-Range Leadership Approach: A Supply Chain Management View Nur Syahirah Naharuddin, Ahmad Rais Mohamad Mokhtar	117
Factors Influencing Technology Usage among Event Attendees Nurakmal Ramli, Azmatun Nadiah Hamdan, Syafiqah Mohd Razani, Ezza Ezzati Ramli, Syahirah Salsagap, Fitri Aimal Nasaruddin, Muhammad Nabil Hazizan	126
CEO Experience and Commercial Banks' Performance in Malaysia–Evidence from Inside, Outside and Total Working Experience Mei-Shan Chua, Siti Nurhidayah Roslen, Nurhuda Nizar & Rafiatul Adlin Mohd Ruslan	132
A Theoretical Framework on Customer Satisfaction in an Automotive Lubricant Market Noor Aida Shazwani Abd Razak, Shariff Harun, Siti Norida Wahab	139
Sustainable Waste Management in Malaysia: Leveraging Supply Chain Solutions for a Greener Future Azlina Muhammad, Babudass M. Naidu, Veera Pandiyan Kaliani Sundram, Muhammad Zaly Shah Muhammad Hussain, Li Lian Chew, Faizatul Akmam Amirrudin	147

Energy Efficiency of Kenaf Cultivation in Kelantan, Malaysia by Using Data Envelopment Analysis Rabiatul Munirah Alpandi, Fatin Farazh Yaacob, Siti Mariam Melissa Abdullah, Siti Hawa Yusof, Muhammad Syafiq Mohd Salam	155
Musyarakah Mutanaqisah: A Systematic Literature Review Muhammad Ridzuan Abdul Aziz, Suraya Ika Tamrin, Abidah Saad, Mohammad Zulfakhairi Mokhtar, Nor Shahrul Nizam Muhamad Nor	163
The Impact of Remittances on Human Capital in Sub-Saharan Countries Chong Siew Huay, Yasmin Bani	172
Influence of Social Media on Self-Esteem among International Business Students in One of the Public Universities Nor Lelawati Jamaludin, Nur Zania Azurin Abdullah Sani, Mohd Syamim Che Muhamad Hariri, Syed Ashrene Syed Omar	179
Preferred Sporting Tourism Events Attributes among Sports Tourists Wan Soraya binti Wan Abdul Ghani, Raziff Jamaluddin, Masrur Mohd Khir	187
Online Food Delivery Sentiment Analysis from the Restaurant Point of View Anuar Sulaiman, Abdul Khabir Rahmat, Irwan Ibrahim, Fadilah Jamaludin	197
Perceptions of Disability among University Students Saadiah Juliana Saadun, Mohd Zulkifli Abdullah, Mohammad Shahril Mohamed Besir, Aziz Jamal, Noor Zaihan Mat Hasan, Nor Azzura Nordin, Jazmin Qistina Imran Nanang	205
Exploring Online Food Delivery: An Examination through Bibliometric and Visualization Analysis Anuar Sulaiman, Abdul Khabir Rahmat, Abdul Hakim bin Abdul Razak	212
The Role of Logispreneurs in Advancing Waste Management in Malaysia: Towards a Sustainable Reverse Logistics and Green Future Azlina Muhammad, Babudass M. Naidu, Veera Pandiyan Kaliani Sundram, Muhammad Zaly Shah Muhammad Hussein, Li Lian Chew, Sisvan Gopalakrishna Pillai0, Irwan Ibrahim	222
Factors Affecting Personal Bankruptcy among Malaysians Norliza Che-Yahya, Nor Akila Mohd Kassim, Siti Sarah Alyasa-Gan, Beche Nediam Nori	229
Digital Banking Adoption Intention Model in Malaysia: A Pilot Study Siti Norbaya Mohd Rashid, Shereen Noranee & Azlin Zanariah Bahtar	244
Impact of Internet Access and Accessibility Initiatives in Facilitating Students' M40 and B40 Groups' Needs during COVID-19 Prevention Measure Period Abdul Kadir Othman, Nur Najjah Abd Rahim, Norzawani Ibrahim, Nik Zirwatul Fatihah Ismail, Nur Amalina Abd Rahim, Tasnimul Islam	251
The Integration of Knowledge and Theory of Planned Behavior towards Purchase Intention among Consumers Mohd Redhuan Dzulkipli, Siti Noorsuriani Maon, Annurizal Anuar	259
A Conceptual Model for Sustainable Green Port Practices: A Case Study of Northport (Malaysia) Berhad Iznoorhakmal bin Ibrahim, Siti Ayu Jalil, Siti Salwa Salleh	267
Organizational Justice and Employee Retention: A Theoretical Framework for Malaysian and Indonesian Higher Learning Institutions Shariff Harun, Septi Fahmi Choirisa, Nosica Rizkalla	280
Exploring Antecedents of Destination Loyalty: A Comprehensive Analysis of Island Destination Image, Brand Awareness and Satisfaction Ayu Rohaidah Ghazali, Norol Hamiza Zamzuri, Mohd Hafiz Hanafiah, Atikah Wijaya, Suwito Eko Pramono	289
Unraveling the Impact of Job Stress, Work-Life Balance and Work Environment on Job Satisfaction: A Study on Malaysian Anti-Corruption Commission Investigation Officers Abdul Faeez Izdihar, Dilla Syadia Ab Latiff, Noor'ain Mohamad Yunus	303
Port Competitiveness at Sapangar Bay Container Port from Shipping Lines Perspectives in BIMP EAGA Region Siti Noraishah Azizan, Shahrin Nasir, Hafidzi Zakaria	312
Technostress Creators and Employee's Well-Being at a Telecommunication Company in Sarawak, Malaysia Viannie Clairie Jimmy, Suhaila Mohamed, Norashikin Hussein, Nur Aizureen Anwar, Noor Azura Dahalan	329

The Role of Status Consumption and Materialism in Influencing Attitude towards Counterfeit Fashion Product Mohadzlishah bin Mazli, Mohd Fikri bin Ishak, Ariff Azly bin Muhamed	344
Navigating the Future: Exploring the Nexus between Robo-Advisor Service Quality and Customer Satisfaction Muhammad Azman Ibrahim, Rafiatul Adlin Mohd Ruslan, Mohamad Fariz Abdullah, Arman Hj Ahmad	351
Bibliometric Analysis of Technopreneurship Research in Scopus Database Nur Atiqah Zakiyyah Ramlee, Lina Nadia Abd Rahim, Hardy Loh Rahim, Nursaadatun Nisak Ahmad	359
Unraveling the Determinants of Microcredit Interest Rate Rafiatul Adlin Mohd Ruslan, Syahiru Shafiai, Mei-Shan Chua, Siti Nurhidayah Mohd Roslen	369
Factors Influencing Online Buying Intention among Royal Malaysian Police (RMP) Officers Sofia Anis Anisha Mohd Nazri, Abdul Kadir Othman	376
Stop! I am Shaking: Workplace Aggression and Anxiety among Interns in Klang Valley Mohamad Shahril Mohamad Besir, Mohd. Zulkifli Abdullah, Saadiah@Juliana Saadun, Siti Noraini Mohd. Tobi, Nor Zaihan Mat Hasan@Mat Hussin, Ayman Hazim Huzahim	387
Risk Issues in Esports Events: A Proposal for a Research Framework Nur Afiqah Ahmad Kamaruddin, Masrur Mohd Khir, Hazira Mohd Nasir	396
Employee Retention in Pharmaceutical Companies in Malaysia Azlina Saedin, Syarifah Mastura Syed Abu Bakar, Natasha Dzulkalnine, Abidah Saad, Harpajan Singh, Shamsul Azren Mohd Shukur	410
The Determinants of Work-Life Balance among Nurses in Public Hospital in Klang Valley Nazri Harris Bin Shamshir Ali, Sharifah Fazirah Syed Ahmad, Nur Raihan Che Nawi, Sarinah Sabar, Liatul Izian Ali Husin	418
Supply Chain Risks, Green Supply Chain Management Practices and Organizational Performance: A Research Direction Norzawani Ibrahim, Suheil Che Sobry, Nik Zirwatul Fatihah Ismail, Afif Zuhri Muhammad Khodri Harahap	429
A Study on the Causes of Work Stress among Malaysia Civil Defense Force (MCDF) Personnel Khamarul Arifin Mohd Zainal Abidin, Maliza Delima Kamarul Zaman, Shamsul Azren Mohd Shukur	439
Achieving A Competitive Advantage Supply Chain Management Practices and Responsiveness Rosliniwati Muhammad, Shatina Saad	451
Nexus between Government Assistance and Savings: Preliminary Analysis of Households in Malaysia Nurul Syifaa Mohd Shakil, Nur Azirah Zahida Mohamad Azhar, Norashida Othman, Ahmad Zuhairi Zainuddin, Lucky Rachmawati, Tony Seno Aji, Hendry Cahyon	462
Monetary Policy, Macroeconomic and Anomalies Interactions Post COVID in Developed and Eastern European Stock Markets Zetty Zahureen Mohd Yusoff, Nur Zahidah Bahrudin, Ani Wilujeng Suryani	470
The Influence of Digital Marketing on Consumer Behavior in the Context of Online Shopping in the Klang Valley, Malaysia Ahmad Zuhairi Zainuddin, Luqman Nulhakim Bin Sulaiman, Muhamad Fadzil Bin Malek, Muhammad Qusyairi Binn Zamri, Norzawani Ibrahim	480
Exploring the Impact of Patriotism, Volunteerism and Perceived Empowerment on Community Engagement in Sports Events Azzura Nordin, Aziz Jamal, Nor Zaihan Mat Hasan Mat Hussin, Mohd Zulkifli Abdullah, Saadiah Juliana Saadun	490
The Study on the Factors Affecting Employees Quitting Intention in Malaysian Manufacturing Sector Khairubi Mahmad, Maliza Delima Kamarul Zaman	497
The Effect of Organizational Innovation Mediates between Knowledge Management Capabilities and Hotel Performance: A Conceptual Analysis Syed Jamal Abdul Nasir Syed Mohamad, Nor Shahrul Nizam Muhamad Nor, Amily Fikry, Muhammad Ridzuan Abdul Aziz	510
Factors Influencing Philanthropic Behavior among Youths in Malaysia Norellani Binti Sukri, Afiza Azura Mohamad Arshad, Chuah Soo Cheng, Zaidi Mohd Aminuddin, Azlin Shafinaz Arshad	525

PAPERS

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Exploring the Nexus of Work-Life Balance Sub-Factors and Job Satisfaction: A Study on Executives in the Commercial Banking Sector

Nurasnida Miswadi & Aida Azlina Mansor*
Faculty of Business and Management, Universiti Teknologi MARA, Selangor, Malaysia
asnidamiswadi87@gmail.com, *aidaazlina@uitm.edu.my

Abstract: This research paper aims to investigate the relationship between work-life balance and job satisfaction among executives in the commercial banking sector. The study considers three sub-factors of work-life balance, namely flexible work arrangements, organizational culture, and motivation, to analyze their impact on employee job satisfaction. Questionnaires were distributed to executives in a commercial bank located in Johor Bahru, resulting in 213 responses. The collected data confirmed the relationship between the examined constructs and provided support for the hypothesized relationships of work-life balance sub-factors with job satisfaction. The study emphasizes the importance of analyzing and enhancing work-life balance through flexible working arrangements, motivation, and organizational culture to promote job satisfaction and maximize human capital resources within organizations. The outcomes of this study can serve as a benchmark for management seeking to improve job satisfaction levels among employees. Notably, while previous research has explored work-life balance, limited attention has been given to its subtopics and their impact on job satisfaction within commercial banks. This study addresses these gaps in understanding and provides valuable insights into work-life balance and job satisfaction in the banking sector.

Keywords: *Work-life balance, job satisfaction, flexible work arrangements, organizational culture and motivation.*

1. Introduction and Background

Effective employee management plays a crucial role in the success of an organization. Udo and Udoka (1992) argue that having the right number and categories of employees is essential for employees to achieve their personal and organizational objectives. The management of employees directly influences organizational performance (Igwe et al., 2014). Enhancing management practices within an organization can have a profound impact on employees' work-life balance, resulting in a range of positive outcomes. These include improved recruitment efforts, higher rates of employee retention, increased levels of commitment and job satisfaction, reduced absenteeism, and enhanced overall productivity. By prioritizing and implementing effective management strategies, organizations can create a supportive work environment that promotes work-life balance and contributes to the well-being and success of their employees. This, in turn, fosters a positive organizational culture and strengthens the organization's ability to attract and retain top talent. Existing research has demonstrated that achieving a favorable work-life balance has a positive impact on employees' personal lives as well as their job performance and moral decision-making while at work (Smith et al., 2016).

Adriano and Callaghan (2020) concur that enhancing work-life integration can lead to improved employee job satisfaction and retention, thereby reducing organizational turnover. Achieving work-life balance is a matter of great importance for employees across the financial sector, particularly for women. Organizations need to implement policies and programs that effectively manage work-life balance to enhance the synergy between work and personal life domains. Zheng et al. (2015) suggest that individuals' utilization of such policies and programs complements their strategies for managing the various aspects of their lives. Gaining a deeper understanding of the role played by work-life balance offers a means beyond conventional workplace-focused approaches for human resource management to influence individual and organizational outcomes. Consequently, further research on this critical topic is necessary. In today's fast-paced world, employees are faced with the challenge of balancing their work commitments with other aspects of their lives. Interactions between psychosocial elements like employees' emotional intelligence, work-induced stress, and support for work-life balance converge to shape the continuum of organizational commitment (Chigeda, Ndofirepi, & Steyn, 2022). Prolonged periods of desk work and long working hours can have significant consequences for both physical and emotional well-being.

Research indicates that individuals who spend four or more hours sitting each day face a 125 percent higher risk of heart disease and a 50 percent increased risk of mortality from any cause (Berkowitz & Clark, 2014). Furthermore, extended work hours and other stressful job situations have been found to quadruple the risk of depression, as identified by researchers at University College London. Thus, in the contemporary landscape, the notion of work-life balance must hold paramount importance for all employers, particularly for those experiencing a surge in organizational members and the subsequent surge in work demands they entail (Saim, Rashid, Ma'on, 2021). Given these concerns, the primary objective of this study is to examine the impact of work-life balance on job satisfaction among executives in the commercial banking sector in Johor Bahru. The study will specifically focus on the sub-factors of work-life balance, including flexible working arrangements, organizational culture, and motivation, as independent variables, while job satisfaction will be the dependent variable. The aim is to shed light on the experiences of employees in the banking sector and understand how work-life balance may influence satisfaction in the workplace.

2. Literature Review

Work-Life Balance: The concept of work-life balance refers to the effective segmentation or integration of various life domains, allowing individuals to maintain a satisfactory overall quality of life, experience enjoyment, and minimize tension when faced with competing job demands. Essentially, work-life balance entails successfully fulfilling multiple roles while preserving a positive quality of life (Bacon & Blyton, 2006). Attaining work-life balance has been found to enhance the well-being of both individuals and organizations. Achieving balance occurs when the domains of work and personal life harmoniously align (Emslie & Hunt, 2009). Prior studies conducted by Vyas and Shrivastava (2017) have highlighted several influential factors that impact work-life balance, such as social support, organizational roles, stress issues, information technology (IT), work and family conflicts, and work overload. The concept of work-life balance has long been a subject of interest among researchers. It has been observed that employees who sacrifice their non-work quality of life tend to experience decreased job satisfaction (Slimane, 2017). Therefore, the objective of this research is to examine how specific sub-factors of work-life balance, namely motivation, flexible working arrangements, and organizational culture, affect job satisfaction among employees in the commercial banking sector.

Flexible Work Arrangement: Flexible work schedules offer numerous advantages to employees, ultimately benefiting businesses as well. Aside from reducing absenteeism and enhancing employee retention, flexible work schedules encourage employees to pursue continuous learning opportunities, thus contributing to the overall expertise of the company. Research has shown that human resource policies and procedures that prioritize employee happiness have a positive impact on productivity (Renee Baptiste, 2008). The significance of promoting a healthy work-life balance for employees has been on the rise, leading companies to introduce family-friendly policies and flexible schedules. Gholipour et al. (2010) note that flexible working arrangements are increasingly utilized by companies as a means to attract top talent. Granting employees greater control over how they manage their workdays, as highlighted by Scandura & Lankau (1997), has been linked to increased job satisfaction, reduced stress levels, and lower employee absenteeism. Employers who prioritize job satisfaction, offer competitive compensation, and address the work-life balance needs of their employees gain a competitive advantage (Gariety & Shaffer, 2001). By accommodating employees' biological clocks through flexible work arrangements, individuals can reduce commuting costs, spend more time with their families, and pursue personal interests (Olmstead & Smith, 1994).

Motivation: Dunnette and Herzberg's (1967) motivation-hygiene theory categorizes achievement, recognition, and the work itself as intrinsic motivators, while company management, supervision, and financial rewards are considered extrinsic motivators. Job satisfaction plays a vital role in attaining professional success, as highlighted by Rashid et al. (2016). Research conducted by Andreassi et al. (2014) has revealed that higher wages, adequate bonuses, and the opportunity to interact with like-minded and respected individuals contribute to increased job satisfaction. Additionally, employees express higher levels of satisfaction when they receive effective supervision and engaging work. Conversely, Singhapakdi et al. (2015) found that excessive paperwork, unfair benefits, and lower pay compared to peers lead to decreased job satisfaction. Colwell et al. (2008) emphasize the positive impact of employees' positive attitude toward customers on the overall success of a financial institution. According to Alderfer et al. (1968), pay-for-

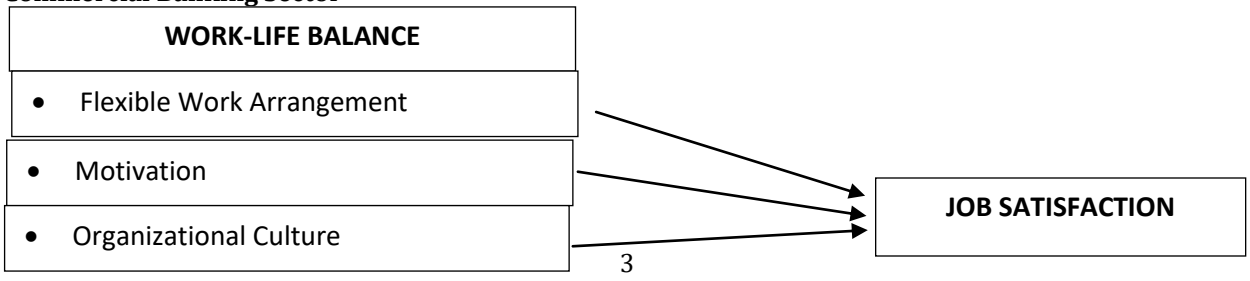
performance initiatives influence job satisfaction. Furthermore, Pool (1997) establishes a correlation between motivation and job satisfaction, illustrating that motivated employees tend to report higher levels of job satisfaction.

Organizational Culture: The organizational culture plays a crucial role in effective management and organizational analysis as it serves as a guiding framework for the actions and attitudes of individuals within the organization (Alvesson, 2012). The strength of the organizational culture is influenced by various factors, including the type of organization, its structure, and its approach to leadership (Sørensen, 2002). Organizational culture holds significant importance as it directly impacts success factors such as quality, efficiency, product reliability, customer service, and innovation (Tierney and Schein, 1986). Yafang Tsai et al. (2009) state that an organization's culture greatly influences the leadership style adopted by both managers and employees (MacIntosh & Doherty, 2010). Research exploring the relationship between organizational culture and employee satisfaction consistently reveals that satisfied employees are more inclined to actively express their appreciation for the company's distinctive ideology (Alvesson, 2012). Additionally, according to Behery et al. (2012), a positive organizational culture and job satisfaction have the potential to enhance employees' performance. While previous research has primarily focused on Western companies, this study aims to investigate whether the Westernized definition of organizational culture and its impact on job satisfaction can be applied to a non-Western country. By exploring the relationship between organizational culture and job satisfaction, this research seeks to determine the extent to which organizational culture influences job satisfaction in a non-Western context.

Job Satisfaction: Beardwell and Thompson (2014) discovered a correlation between having a positive attitude and experiencing job satisfaction, while the opposite was true for individuals with a negative attitude, leading to job dissatisfaction. Job contentment stands as a significant component of a fulfilling work life (Naim and Lenka, 2018). Research conducted by Andreassi et al. (2014) indicates that employees tend to be more satisfied with their jobs when they receive higher salaries and an adequate number of bonuses and maintain positive relationships with their coworkers. Conversely, Singhapakdi et al. (2015) found that employee satisfaction levels were lower when they encountered excessive paperwork, received less favorable benefits, and were paid less than their colleagues. Negative experiences with performance appraisals can lead to reduced job satisfaction and an increased likelihood of employees considering quitting their jobs (Kamal and Lukman, 2017). Therefore, it is recommended to implement a high-quality performance appraisal system to positively influence job satisfaction. Job satisfaction is attained when there is a strong alignment between an employee's preferences and abilities and the requirements of the job (Keith and Newsto, 1994).

Several studies have found that improved job satisfaction can be achieved through more flexible work schedules, training opportunities for leaders, and responsiveness to employee concerns (or resentments). Meanwhile, an increase in employee dissatisfaction with their jobs is caused by factors such as work complexity, a lack of opportunities for personal growth, and insufficient support from upper management (Nwobia & Aljohani, 2017). Referring to Roberts and Roseanne (1998), Employees will be more satisfied with their jobs if they believe their expertise, knowledge, and opinions will be fully exploited in a structured workplace that offers opportunities for growth and monetary reward. The conceptual framework for this study aims to illustrate the relationship between work-life balance and job satisfaction among executives in the commercial banking sector. It incorporates the key factors and variables that will be examined in the research. The conceptual framework proposes that when executives in the commercial banking sector experience a favorable work-life balance, characterized by flexible work arrangements, supportive organizational culture, and motivation, they are more likely to exhibit higher levels of job satisfaction.

Figure 1: Conceptual Framework for Work-Life Balance and Job Satisfaction among Executives in the Commercial Banking Sector



3. Research Methodology

This study investigated the relationship between work-life balance and job satisfaction among executives in the commercial banking sector in Johor Bahru. The primary data collection employed a multi-stage sampling technique. The respondents for the survey were executives engaged in customer-oriented experiences. This research study focused on examining job satisfaction among executives engaged in customer-oriented experiences within the commercial banking sector. The sampling process involved selecting respondents from a population of 450 bank employees across 30 commercial banks in Johor Bahru. Initially, a list of 100 commercial banks was compiled as the primary sampling units, from which 30 banks were chosen as secondary sampling units. According to the sample size calculation method proposed by Krejie and Morgan (1970), a total of 205 respondents were determined as the required sample size for this research study. Finally, a list of all employees within these selected commercial banks was obtained as the ultimate sampling units, and data was collected from these employees. In terms of selecting research respondents, a non-probability sampling approach, specifically convenience sampling, was adopted. Convenience sampling involves choosing individuals from a nearby population based on their availability and accessibility. The selection of respondents was based on convenience and accessibility, as supported by Sundram et al. (2016).

4. Results

The data analysis section examines the collected data to explore the relationship between work-life balance and job satisfaction among executives in the commercial banking sector. Through statistical techniques and analytical tools, this analysis aims to uncover insights and patterns within the dataset. The primary data was collected through a survey conducted on executives engaged in customer-oriented experiences within the banking sector. The focus is on understanding the impact of work-life balance sub-factors, such as flexible working arrangements, organizational culture, and motivation, on job satisfaction. The findings will contribute to the existing knowledge and provide practical implications for enhancing work-life balance and job satisfaction in the commercial banking industry.

Profile of Respondents: Table 1 presents a summary of the demographic and other relevant characteristics of respondents.

Table 1: Demographic and Characteristics of Respondents

DEMOGRAPHIC VARIABLE	CATEGORY	PERCENT (%)
Gender	Male	38.0
	Female	62.0
Ethnicity	Malay	72.8
	Chinese	21.1
	Indian	4.7
	Others	1.4
Age	20-30 years old	24.4
	31-40 years old	64.8
	41-50 years old	9.4
	51-60 years old	1.4
Education Level	High school	12.7
	Diploma	56.3
	Bachelor degree	27.7
	Master degree	.9
	Doctoral	.9
Years Of Work Experience	1 - 5 years	21.1
	6 - 10 years	41.3
	11 - 15 years	30.5

	16 years and above	7.0
Job Level	Junior Executive	26.8
	Senior Executive	62.0
	Assistant Manager	5.6
	Manager	2.3
	Others	3.3
Frequency Time Leave Office Daily	5.45 pm	16.9
	Between 6.00 to 7.00 pm	38.5
	Between 7.00 to 8.00 pm	30.5
	Between 8.00 to 9.00 pm	12.7
	Between 9.00 pm and above	1.4
Frequency Attend Office During Weekend	Never	28.2
	Once a month	48.8
	2-3 times a month	21.1
	Every weekend	1.4
	Other	.5

Descriptive Statistics: As part of the descriptive statistics analysis, the mean was utilized to measure the central tendency and arithmetic average of the scores in this study (Sundram et al., 2016). This method, as described by Sundram et al. (2016), is widely used and straightforward in measuring attitude. The results for the level of job satisfaction among Executives in the Commercial Bank in Johor Bahru are presented in Table 2.

Table 2: Descriptive Statistics for job satisfaction

Variable	Mean
Job Satisfaction	3.4704

Job satisfaction, the dependent variable in this study, was measured using a Likert scale consisting of 26 questions. Each question utilized a 5-point Likert scale, ranging from "1" for strong disagreement to "5" for strong agreement. The three subscales considered in this study were treated as independent variables and were also measured in a scaled format. The findings, presented in Table 2, indicate that the mean overall level of job satisfaction among the 213 respondents was 3.4704, which can be approximated to 4. This suggests that most of the respondents agree that they are satisfied with their current job). According to the findings of Strong and Harder (2009), job satisfaction plays a crucial role in employee retention. This study also revealed significant associations between job satisfaction, organizational commitment, and intention to resign. Data analysis further indicated that 78% of the respondents have been in the same line of work for more than six years, suggesting high job satisfaction, loyalty to their employers, and no immediate plans to leave. The study underscores the importance of work-life balance for organizational success, as it enhances employee engagement and reduces turnover, in line with the findings of Jaharuddin and Zainol (2019).

Analysis of Correlation between Flexible Work Arrangements, Organizational Culture, and Motivation, on Employee Job Satisfaction: The strength of association between the two variables was assessed using Pearson's correlation coefficient. Pearson's r ranges from -1 to 1, with values closer to -1 or 1 indicating a stronger linear relationship between the variables. Cohen (1988) provides guidelines for interpreting the effect size of correlations, stating that a correlation of 0.10 is considered small, 0.30 is considered medium, and 0.50 is considered large. In Table 3, the correlation coefficients and their corresponding effect sizes are presented, allowing for the interpretation of the relative strengths of the relationships between the variables.

Table 3: Result of Correlation Analysis

Variables		Job Satisfaction
Flexible Working Arrangements	Pearson Correlation	.261**
	Sig. (2-tailed)	.000
Organizational Culture	Pearson Correlation	.697**
	Sig. (2-tailed)	.000
Motivation	Pearson Correlation	.589**
	Sig. (2-tailed)	.000

The data analysis conducted in this study revealed that the relationship between flexible working arrangements and job satisfaction was found to be weak (r=0.261). On the other hand, the relationship between organizational culture and job satisfaction exhibited signs of a moderate relationship (r=0.697). Additionally, the relationship between motivation and job satisfaction also showed signs of a moderate relationship. Muchiti and Gachunga (2015) discovered that employees who have greater control over their work schedules tend to experience higher levels of engagement, commitment, retention, and job satisfaction. Similarly, Scandura and Lankau (1997) found that flexible work arrangements have positive outcomes such as reduced stress, tardiness, and absenteeism, as well as increased job enrichment, job satisfaction, and productivity. However, in the Malaysian banking sector, where standardization of working hours and infrastructure is prevalent, managers rarely promote flexible work arrangements among employees (Mansor and Idris, 2015). In the absence of opportunities for flexibility at work, employees may attempt to enhance their work-life balance by reducing their workload or calling in sick when they are not ill (Battisti & Vallanti, 2013). The research conducted by Yafang Tsai et al. (2009) examined the correlation between organizational culture and job satisfaction, which aligns with the findings of our study. Additionally, the findings of Alvesson (2012), Towers (2006), and Lund (2003) further support the relationships between organizational culture and job satisfaction.

It is also noteworthy that subordinates with higher levels of job satisfaction tend to exhibit a stronger inclination toward the impact of organizational culture, as supported by Fleisher et al. (2014). Similarly, Johnson and McIntyre (1998) also highlight the significant influence of employee involvement on job satisfaction. These findings underscore the importance of organizational culture, as it plays a vital role in shaping the working environment and ultimately influencing employee job satisfaction and productivity. Dhamija, Gupta, and Bag (2018) conducted a study that revealed a positive relationship between perceived job motivators and employees' level of job satisfaction. This implies that higher satisfaction with perceived job motivators increases the likelihood of higher job satisfaction levels among employees. In this study, the majority of respondents expressed satisfaction with the overall salary and benefits package provided by their employer, including medical insurance and travel incentives. According to Dunnette and Herzberg's (1967) theory of motivation-hygiene, certain factors known as motivators, such as recognition, achievement, responsibility, the nature of the work itself, advancement and growth, contributes to job satisfaction. Gu and Siu (2009) also found that salary and benefits have a significant impact on job satisfaction. These findings align with the research conducted by Stringer et al. (2011), which demonstrated a positive correlation between intrinsic motivation and job satisfaction. When employees are highly motivated, they are more likely to invest greater effort and exhibit increased commitment to the organization.

Discussion: The results of this study have important implications for organizations in the commercial banking sector. While flexible working arrangements may not have a significant impact on job satisfaction among executives, organizations must prioritize and foster a positive organizational culture. Creating a supportive and engaging work environment can contribute to higher levels of job satisfaction and potentially improve retention rates among executives. Moreover, the strong relationship between motivation and job satisfaction highlights the importance of nurturing and encouraging intrinsic motivation within the workplace. Organizations should provide opportunities for growth, recognition, and meaningful work experiences to enhance executives' motivation levels and ultimately increase job satisfaction. The findings also emphasize the need for continuous efforts to maintain job satisfaction among executives. By ensuring that job motivators such as salary and benefits packages, recognition, and opportunities for advancement are adequately addressed, organizations can contribute to higher job satisfaction levels. However, it is important

to note that this study was limited to executives in the commercial banking sector in a specific geographical area. Future research should consider expanding the scope to include a broader range of industries and regions to gain a more comprehensive understanding of the relationship between work-life balance and job satisfaction. Overall, the findings of this study contribute to the existing knowledge on work-life balance and job satisfaction among executives in the commercial banking sector and provide valuable insights for organizations seeking to enhance employee satisfaction and retention.

5. Managerial Implications and Recommendations

Based on the findings of this study on work-life balance and job satisfaction among executives in the commercial banking sector, several managerial implications and recommendations can be drawn to enhance employee satisfaction and promote a positive work environment. Prioritize Organizational Culture: Organizations should prioritize developing a positive and supportive organizational culture. This can be achieved by promoting open communication, providing opportunities for growth and development, and fostering a sense of teamwork and collaboration. A strong organizational culture can positively impact job satisfaction and overall employee well-being. Offer Flexible Working Arrangements: While the study found a weak relationship between flexible working arrangements and job satisfaction, it is still important for organizations to offer flexibility in work schedules. This can include options such as remote work, flexible hours, and part-time arrangements. Providing flexibility can help employees achieve a better work-life balance and enhance their job satisfaction. Focus on Motivation: Motivation plays a significant role in job satisfaction. Organizations should implement strategies to enhance employee motivation, such as recognizing and rewarding achievements, providing opportunities for career advancement, and assigning meaningful and challenging tasks. By implementing these managerial implications and recommendations, organizations can create a work environment that fosters job satisfaction among executives in the commercial banking sector. This, in turn, can lead to higher levels of employee engagement, productivity, and overall organizational success.

Conclusion: In conclusion, this study on work-life balance and job satisfaction among executives in the commercial banking sector provides valuable insights into the factors that influence employee satisfaction and organizational success. The findings highlight the importance of a positive organizational culture, motivation, and flexible working arrangements in enhancing job satisfaction. Organizations should prioritize creating a supportive work environment, offering opportunities for growth and development, and promoting work-life balance to improve job satisfaction among executives. By implementing these recommendations, organizations can enhance employee engagement, retention, and overall performance. Further research and continuous efforts in addressing work-life balance and job satisfaction are crucial for organizations to adapt and thrive in an evolving work landscape.

References

Adriano, J. & Callaghan, C. W. (2020). Work-life balance, job satisfaction and retention: Turnover intentions of professionals in part-time study. *South African Journal of Economic and Management Sciences*, 23(1), 1-12.

Alderfer, C. P., Porter, L. W. & Lawler, E. E. (1968). Managerial attitudes and performance. *Administrative Science Quarterly*, 13(1), 177. https://doi.org/10.2307/2391269

Alvesson, M. (2012). Understanding Organizational Culture (2nd ed.). SAGE Publications Ltd.

Bacon, N. & Blyton, P. (2006). The effects of co-operating or conflicting over work restructuring: Evidence from employees. *The Sociological Review*, 54(1), 1–19. https://doi.org/10.1111/j.1467-954x.2006.00599.x

Battisti, M. & Vallanti, G. (2013). Flexible wage contracts, temporary jobs, and firm performance: Evidence from Italian firms. Industrial Relations: *A Journal of Economy and Society*, 52(3), 737–764. https://doi.org/10.1111/irel.12031

Beardwell, J. & Thompson, A. (2017). Human Resource Management: A contemporary approach. Pearson Education.

Behery, M., Paton, R. A. & Hussain, R. (2012). Psychological contract and organizational commitment: The mediating effect of transformational leadership. Competitiveness Review: *An International Business Journal*, 22(4), 299-319.

Berkowitz, B. & Clark, P. (2014, January 20). The health hazard of sitting. The Washington Post. https://www.washingtonpost.com/apps/g/page/national/the-health-hazards-of-sitting/750/

Chigeda, F., Ndofirepi, T. M. & Steyn, R. (2022). Continuance in organizational commitment: The role of emotional intelligence, work-life balance support, and work-related stress. *Global Business and Organizational Excellence,* 42(1), 22-38.

Cohen, J. (1988). Set correlation and contingency tables. *Applied Psychological Measurement*, 12(4), 425-434.

Colwell, S. R., Aung, M., Kanetkar, V. & Holden, A. L. (2008). Toward a measure of service convenience: Multiple-item scale development and empirical test. *Journal of Services Marketing*, 22(2), 160-169. https://doi.org/10.1108/08876040810862895

Dhamija, P., Gupta, S. & Bag, S. (2019). Measuring of job satisfaction: The use of quality of work life factors. Benchmarking: *An International Journal*, 26(3), 871–892. https://doi.org/10.1108/bij-06-2018-0155

Dunnette, M. D. & Herzberg, F. (1967). Work and the nature of man. *Administrative Science Quarterly*, 12(1), 170. https://doi.org/10.2307/2391218

Emslie, C. & Hunt, K. (2009). 'Live to work' or 'work to live'? A qualitative study of gender and work-life balance among men and women in mid-life. *Gender, Work & Organization*, 16(1), 151–172. https://doi.org/10.1111/j.1468-0432.2008.00434.x

Fleischer, N. L., Merialdi, M., van Donkelaar, A., Vadillo-Ortega, F., Martin, R. V., Betran, A. P. & Marie S. O´ Neill. (2014). Outdoor air pollution, preterm birth, and low birth weight: Analysis of the World Health Organization global survey on maternal and perinatal health. *Environmental Health Perspectives*, 122(4), 425-430.

Gariety, B. S. & Shaffer, S. (2001, March). Wage differentials associated with Flextime - Bureau of Labor Statistics. Monthly Labor Review. Retrieved from https://www.bls.gov/opub/mlr/2001/03/art4full.pdf

Gholipour, A., Bod, M., Zehtabi, M., Pirannejad, A. & Kozekanan, S. F. (2010). The feasibility of job sharing as a mechanism to balance work and life of female entrepreneurs. *International Business Research,* 3(3), 133. https://doi.org/10.5539/ibr.v3n3p133

Gu, Z. & Chi Sen Siu, R. (2009). Drivers of job satisfaction as related to work performance in Macao casino hotels. *International Journal of Contemporary Hospitality Management*, 21(5), 561-578. https://doi.org/10.1108/09596110910967809

Igwe, A., Onwumere, J. U. J. & Egbo, O. P. (2014). Effective human resource management as a tool for organizational success. *European Journal of Business and Management*, 6(39). https://doi.org/https://www.iiste.org/Journals/index.php/EJBM/article/view/18837/19159

Jaharuddin, N. S. & Zainol, L. N. (2019). The impact of work-life balance on job engagement and turnover intention. *The South East Asian Journal of Management,* 13(1). https://doi.org/10.21002/seam.v13i1.10912

Johnson, J. J. & McIntye, C. L. (1998). Organizational culture and climate correlates of job satisfaction. *Psychological Reports*, 82(3), 843–850. https://doi.org/10.2466/pr0.1998.82.3.843

Kamal, M. Y. & Lukman, Z. M. (2017). The relationship between attracting talent and job satisfaction in selected public higher learning institutions. *International Journal of Management Research and Reviews*, 7(4), 444.

Karin Andreassi, J., Lawter, L., Brockerhoff, M. & J. Rutigliano, P. (2014). Cultural impact of human resource practices on job satisfaction. *Cross Cultural Management,* 21(1), 55–77. https://doi.org/10.1108/ccm-05-2012-0044

Keith, D. W. J. & Newsto, J. W. (1981). Human behavior at work: Organizational behavior. McGraw-Hill.

Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.

Lund, D. B. (2003). Organizational culture and job satisfaction. *Journal of Business & Industrial Marketing*, 18(3), 219-236.

MacIntosh, E. W. & Doherty, A. (2010). The influence of organizational culture on job satisfaction and intention to leave. *Sport Management Review,* 13(2), 106–117.

Mansor, M. & Idris, A. (2015). Employee retention in the Malaysian banking industry: Do flexible practices work? *South African Journal of Business Management*, 46(1), 1-9.

Muchiti, E. & Gachunga, H. (2015). Influence of work-life balance on employee productivity in Kenya: A case of Milimani Law Courts Nairobi. *Strategic Journal of Business and Change Management,* 2(48), 1-20. https://strategicjournals.com/index.php/journal/article/view/2330

Naim, M. F. & Lenka, U. (2018). Development and retention of Generation Y employees*: A conceptual framework. Employee Relations*, 40, 433-455. https://doi.org/10.1108/ER-09-2016-0172

Nwobia, I. E. & Aljohani, M. S. (2017). The effect of job dissatisfaction and workplace bullying on turnover intention: Organization climate and group cohesion as moderators. *International Journal of Marketing Studies*, 9(3), 136. https://doi.org/10.5539/ijms.v9n3p136

Olmsted, B. & Smith, S. (1994). Creating a flexible workplace: How to select and manage alternative work options (2nd ed.). AMACOM. https://doi.org/10.5860/choice.32-5750

Pool, S. W. (1997). The relationship of job satisfaction with substitutes of leadership, leadership behavior, and work motivation. *The Journal of Psychology,* 131(3), 271–283. https://doi.org/10.1080/00223989709603514

Rashid, N. M., Sah, N. F. M., Ariffin, N. M., Ghani, W. S. W. A. & Yunus, N. S. N. M. (2016). The influence of bank's frontlines' personality traits on job performance. *Procedia Economics and Finance,* 37, 65–72. https://doi.org/10.1016/s2212-5671(16)30094-6

Renee Baptiste, N. (2008). Tightening the link between employee wellbeing at work and performance. *Management Decision*, 46(2), 284–309. https://doi.org/10.1108/00251740810854168

Roberts, H. E. & Foti, R. J. (1998). Evaluating the interaction between self-leadership and work structure in predicting job satisfaction. *Journal of Business and Psychology*, 12, 257-267.

Saim, M. A. S. M., Rashid, W. E. W. & Ma'on, S. N. (2021). Technostress Creator And Work Life Balance: A Systematic Literature Review. *Romanian Journal of Information Technology & Automatic Control/Revista Română de Informatică și Automatică,* 31(1).

Scandura, T. & Lankau, M. J. (1997). Relationships of gender, family responsibility and flexible work hours to organizational commitment and job satisfaction. *Journal of Organizational Behavior,* 18(4), 377–391. https://doi.org/10.1002/(sici)1099-1379(199707)18:4<377::aid-job807>3.0.co;2-1

Singhapakdi, A., Lee, D. J., Sirgy, M. J. & Senasu, K. (2015). The impact of incongruity between an organization's CSR orientation and its employees' CSR orientation on employees' quality of work life. *Journal of Business Research,* 68(1), 60–66. https://doi.org/10.1016/j.jbusres.2014.05.007

Slimane, N. S. B. (2017). Motivation and job satisfaction of pharmacists in four hospitals in Saudi Arabia. *Journal of Health Management*, 19(1), 39–72. https://doi.org/10.1177/0972063416682559

Smith, K. T., Smith, L. M. & Brower, T. R. (2016). How work-life balance, job performance, and ethics connect: Perspectives of current and future accountants. *Research on Professional Responsibility and Ethics in Accounting*, 20(2), 219–238. https://doi.org/10.1108/S1574-076520160000020008

Sørensen, J. B. (2002). The strength of corporate culture and the reliability of firm performance. *Administrative Science Quarterly*, 47(1), 70–91. https://doi.org/10.2307/3094891

Stringer, C., Didham, J. & Theivananthampillai, P. (2011). Motivation, pay satisfaction, and job satisfaction of front-line employees. *Qualitative Research in Accounting & Management,* 8(2), 161-179.

Strong, R. & Harder, A. (2009). Implications of maintenance and motivation factors on Extension agent turnover. *Journal of Extension*, 47(1), 1-8.

Sundram, V. P. K., Chandran, V. G. R. & Bhatti, M. A. (2016). Supply chain practices and performance: The indirect effects of supply chain integration. *Benchmarking: An International Journal,* 23(6), 1445-1471.

Tierney, W. G. & Schein, E. H. (1986). Organizational culture and leadership. *The Academy of Management Review,* 11(3), 677. https://doi.org/10.2307/258322

Towers, I., Duxbury, L., Higgins, C. & Thomas, J. (2006). Time thieves and space invaders: Technology, work and the organization. *Journal of Organizational Change Management,* 19(5), 593-618.

Udo, G. J. & Udoka, S. J. (1992). Network management: A critical success factor for implementing computer-integrated manufacturing. *Computers & Industrial Engineering*, 23(1-4), 409–412. https://doi.org/10.1016/0360-8352(92)90148-d

Vyas, A., & Shrivastava, D. (2017). Factors affecting work-life balance: A review. *Pacific Business Review International*, 9(7), 194-200.

Yafang Tsai, Shih-Wang Wu. & Hsien-Jui Chung. (2009). The exploration of the relationship between organizational culture and style of leadership. In 2009 6th International Conference on Service Systems and Service Management. https://doi.org/10.1109/icsssm.2009.5174951

Zheng, C., Molineux, J., Mirshekary, S. & Scarparo, S. (2015). Developing individual and organizational work-life balance strategies to improve employee health & well-being. *Employee Relations,* 37(3), 354-379.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Relationship between Remote Work and Job Satisfaction: The Mediating Role of Perceived Autonomy

Nor Lelawati Jamaludin[1]*, Sakinah Ahmad Kamal[2]
[1]Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia
[2]Faculty of Business and Management, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia
*norlelawati0019@uitm.edu.my, sakinah_ahmadkamal@yahoo.com.my

Abstract: The job satisfaction of employees is one of the main keys to leading the success of an organization. It represents how you feel about your job and what you think about your job. Despite the continuous effort by the Malaysian government, the outcome of the implementation and occurrence of remote work practices towards job satisfaction in Malaysia is equivocal. Therefore, the main objective of this study is to investigate whether the impacts of remote work led to employee job satisfaction performance. This study also looks at whether perceived autonomy mediates the relationship between remote work and job satisfaction. The respondents are from one oil and gas company in Kuala Lumpur. The data were collected using an online survey among (n = 185) employees from various departments in the organization. A Statistical Package for the Social Sciences (SPSS) was developed to examine how the variables were related. Results showed that: (1) remote work has a significant relationship with job satisfaction and (2) Perceived Autonomy mediates the relationship between remote work and job satisfaction. The novelty of this research is the contribution of the present body of knowledge through the development of the adapted model of remote work-job satisfaction concerning the oil & gas industry. The findings also could guide the stakeholders and policymakers in formulating a plan and action towards the betterment of the remote work process that can elevate the job satisfaction of the organization.

Keywords: *Remote Work, Perceived Autonomy, Job Satisfaction, Oil and Gas Industry, SPSS.*

1. Introduction and Background

The concept of job satisfaction has garnered significant attention in organizational psychology and management science, with several operational definitions. This fundamental employee attitude significantly impacts an individual's mental, emotional, and behavioral dimensions in both their professional and personal lives. It is a key construct of an organization's psychology to achieve goals since many working people nowadays spend much of their time at work, especially in the private sector (Paposa & Kumar, 2015; Unanue et al., 2017). However, despite the continuous effort by the Malaysian government, the outcome of the implementation and occurrence of remote work practices towards job satisfaction in Malaysia is equivocal. Therefore, the main objective of this study is to investigate whether the impacts of remote work led to employee job satisfaction performance. This study also looks at whether perceived autonomy mediates the relationship between remote work and job satisfaction. Job satisfaction of the employees is an essential component of organizational success particularly in managing the human resources of the organization (Gitoho, 2015). Several elements can influence the level of individual job satisfaction.

As suggested by Gitoho (2015), these variables range from an opportunity for career advancement in terms of promotions and training, a good working environment and the management-employee relationship. Moreover, other variables that can also influence employees' job satisfaction are employee turnover, absenteeism, employee morale, workload and new challenges faced by employees (Gitoho, 2015). Despite the benefits of the findings in both academia and practice, empirical evidence on job satisfaction in different employment sectors such as oil and gas is still plausible (Mohd Suki et al., 2020). The oil and gas industry remains a pivotal sector within Malaysia's economy, boasting a robust ecosystem that effectively supports the domestic and regional oil and gas value chain. This ecosystem encompasses a variety of entities, including international oil companies, independent organizations, and service and manufacturing enterprises (Bhattacharya & Hutchinson, 2022). Thus, the study of job satisfaction among oil and gas employees holds significant importance due to this industry's crucial nature for the country. Additionally, a comprehensive understanding of employee job satisfaction within the oil and gas sector contributes to developing a more sustainable and resilient industry.

Fostering a positive work environment, and contributing to the country's economic growth and energy security (Huddar, & Joshi, 2022). Previous research has recognized that employees within the oil and gas sector encounter a distinct working landscape that differs significantly from the traditional nine-to-five office environment (Destrée, 2023). These individuals face unique challenges such as boredom during offshore assignments, operating within a single-task work environment, coping with emotional and work-related stresses, limited opportunities for family time, and exposure to operational hazards at offshore oil and gas facilities (Singh, 2017; Thai & Latta, 2010; Yuen et al., 2018). Nevertheless, there has been minimal progression in the theorizing of the impact of remote work on employee job satisfaction in Malaysia's oil and gas industry. Tapping into the experiences of Malaysian employees' job satisfaction by examining remote work, is considered vital in the effort to minimize the attrition rate in the high-risk and competitive oil and gas industry. While certain industries, like software development, have transitioned smoothly to remote work, numerous oil and gas companies still need to keep a portion of their highly skilled operations and maintenance workers on-site.

However, those companies that embrace innovative tools and structures to enhance remote work capabilities have the potential to enhance their future operating models. This can be achieved by attracting top talent and reducing costs. Accordingly, research by Focus Malaysia (2018) has specified that the demand for jobs in the oil and gas sector is positive. Indeed, Malaysia recorded growth in its online hiring in this sector by 13% in 2018. The trend towards remote work is progressively gaining traction, propelled by the growing utilization of digital technologies. This shift is particularly prominent as businesses increasingly transition into the Industry 4.0 era and integrate automation into their operational workflows. The general idea of remote work centres around, the agility and flexibility given to employees to control their work time, place, and method. Research has suggested that remote work fulfills basic human needs (Hashim et al., 2020). Following this, the report has confirmed that having flexible working arrangements such as remote work is one of the key factors for Malaysian employees' job satisfaction (Ida, 2020). In the survey by market research firm Vase, one of the overwhelming reasons why Malaysian employees are dissatisfied at their workplace is the lack of flexible working arrangements (Ida, 2020).

In relation to this, the survey titled 2021 EY Work Reimagined Employee Survey showed that 9 in 10 Malaysians express a desire for flexibility regarding their work location and schedule (Global, 2021). Moreover, 7 out of 10 Malaysians responded that adopting flexible work arrangements, such as remote work, will have a positive impact on productivity and creativity (Global, 2021). Moreover, various surveys conducted by human resource agencies have revealed that factors influencing job satisfaction extend well beyond mere financial compensation. Consequently, overall job satisfaction, work-life balance, and access to remote working are closely interconnected and hold greater significance for employees (Hashim et al., 2020). According to Kazekami (2019), there is a positive correlation between remote work and job satisfaction. Factors such as overall satisfaction, perceived advantages of remote work, career opportunities, and self-reported productivity are identified by Nakrosiene et al. (2019) as important considerations in remote work. It is anticipated that remote work will lead to higher levels of job satisfaction and productivity, ultimately resulting in increased income levels and continued economic impact on local communities (Gallardo & Whitacre, 2018). Therefore, the previous discussion shows that remote work plays a role that leads to job satisfaction (Kazekami, 2019).

Following this, several researchers (Schall, 2019; Nakrosiene et al., 2019) also stress that remote work will positively influence job satisfaction. Despite these findings, the research on remote work and job satisfaction has been chiefly conducted in manufacturing, information technology, financial institutions, and the educational sector (Khairudin & Aziz, 2020; Munusamy, 2016; O'Keefe et al., 2016) but study related to remote work conducted in oil and gas industry is hard to be found (Khairudin & Aziz, 2020). Thus, the relationship between remote work and job satisfaction is one of the challenges that have to be looked into in the oil and gas industry in Malaysia. However, the disagreement around remote workers' performance has acquired wide media attention. Traditionally, it has been argued that working from home helps employees be more productive due to fewer office distractions, and others argued that working from home is not the optimal setting since it allows for more home distractions (Larson et al., 2020; Schall, 2019; Fonner & Roloff, 2010). According to some researchers (Charalampous et al., 2019; Tuzovic & Kabadayi, 2020), remote work literature is based on problematic assumptions about the impact of remote work on individuals and

organizations. Numerous academics have discovered contradictory findings on employee job satisfaction when examining the consequences of remote employment (Schall, 2019; Prasad et al., 2020).

Therefore, a more robust understanding of the repercussions of remote work is crucial for the future of the workplace if organizations are to stay sustainable and competitive in the age of advancing technology. Remote work has been studied by many researchers to presently examine the possible benefits and disadvantages of remote work since it is transforming work dynamics (Brynjolfsson et al., 2020; Béland et al., 2020). Additionally, any institution's success is contingent upon the performance of its employees, which is contingent upon a variety of circumstances. The existing literature primarily focuses on a simplified and direct relationship between remote work, work-life balance, and job satisfaction (Bellmann & Hübler, 2020; Prasad et al., 2020; Charalampous et al., 2019, Schall, 2019; Hafeez & Akbar, 2015). However, researchers discovered that remote work has positive effects on proximal outcomes for employees, such as increased perception of autonomy (Aziz-Ur-Rehman & Siddiqui, 2019; Gajendran & Harrison, 2007). Nevertheless, it is important to consider contextual factors that may influence these hypothesized effects. Research indicates that remote workers perceive higher levels of autonomy compared to non-remote workers, (Gajendran & Harrison, 2007).

According to the job enrichment perspective, professional employees experience perceived autonomy more at remote work (Olson & Primps, 1984). Initially, Lott (2015) suggested that remote work and autonomy coexist and predict work intensity. In contrast, Ter Hoeven & Van Zoonen (2015) emphasized the link between remote work and perceived autonomy in their study, which aimed to explain the inconclusive impact of remote work. For remote workers to prosper in terms of well-being and productivity, perceived autonomy is a fundamental psychological demand. According to the Self-Determination Theory, an organization that gives employees autonomy promotes autonomous motivation. An organization that provides autonomy increases the performance and satisfaction of employees (Forbes Coaches Council, 2018). Previous studies have reported that perceived autonomy is a favorable work condition that allows employees to choose to fulfill job responsibilities (Lin & Ping, 2016). A study by Nwoksu Chiamaka and Tochukwu (2013), as cited in Lin and Ping (2016) and Karunarathne (2021), found that employees' perceived autonomy tends to influence their psychological states of experienced meaningfulness of work, felt the responsibility and knowledge of results. Factors found to be mediating remote work and job satisfaction have been explored in several studies.

A study by Gajendran and Harrison (2007) found that distal outcomes, such as performance, job satisfaction, turnover intent, and role stress were partially mediated by the perception of autonomy. Further, research also suggested that remote work and work-life balance had a relationship with job satisfaction (Aziz-Ur-Rehman, & Siddiqui, 2019) and these outcomes are mediated by perceived autonomy (Schall, 2019; Allen et al., 2003). This rationale clearly emphasizes the potential influence of autonomy in nurturing the relationship between remote work and job satisfaction. This research will focus on perceived autonomy as the mediator between remote work and job satisfaction. The focus on perceived autonomy makes sense given the nature of the job, which involves having greater freedom to work outside the normal norm of working in a single conventional place, such as an office, as opposed to working from home (Charalampous et al., 2019). Working outside a designated location may encourage individuals to make more autonomous and self-directed decisions regarding their employment and responsibilities (Charalampous et al., 2019, Schall, 2019; Aziz-Ur-Rehman, & Siddiqui, 2019). This is because perceived autonomy would be regarded as a valuable employment asset for remote workers (Schall, 2019). Thus, the investigations into relationships are also justified.

According to an analysis of major international scientific journal databases, the research focused on job satisfaction in the oil and gas sector is quite substantial (Ojeiduma, 2020; Mohd Suki et al., 2020; Al Sumaiti, 2010). In addition, most recent studies focus more on issues such as leadership styles (Ojeiduma, 2020; Alias et al., 2018). Only a few others are reviewing previous research to identify the influence of remote work, and work-life balance on job satisfaction (Khairudin, & Aziz, 2020; Aziz-Ur-Rehman & Siddiqui, 2019; Schall, 2019) but none focuses specifically on oil and gas industry. Thus, further investigations on the relationship between remote work and job satisfaction are defensible. In addition, to date, only a few researchers have examined the potential mediators of remote work; therefore, with the current state of knowledge on remote

work in the oil and gas industry in Malaysia, this research aims to contribute to the limited literature on this topic by examining the relationship between remote work and job satisfaction. Further, the current research examines the mediating role of perceived autonomy on the relationship between remote work and job satisfaction.

2. Literature Review

A study has shown that one of the key drivers of employees' job satisfaction is to have flexible working arrangements (Ida, 2020). A survey by market research firm Vase states that one reason employees feel dissatisfied with their work is due to a lack of job flexibility (Ida, 2020). In addition, another study shows that distal outcomes, such as performance, job satisfaction, turnover intent, and role stress were partially mediated by the perception of autonomy (Gajendran & Harrison, 2007). Other researchers also suggested that remote work had a relationship with job satisfaction and these outcomes are mediated by perceived autonomy (Schall, 2019; Allen et al., 2003; Feldman and Gainey, 1997). This theory certainly accentuates the potential influence of autonomy in nurturing the relationship between remote work and job satisfaction. Thus, the investigations into the said relationship are also justified.

Remote Work and Job Satisfaction: The relationship between remote work and job satisfaction has garnered significant attention recently as organizations increasingly adopt flexible work arrangements. Remote work refers to the ability to work outside the traditional office setting, often enabled by technological advancements and communication tools. On the other hand, job satisfaction reflects an individual's subjective evaluation of their work experience and encompasses various aspects of employee well-being and engagement. The effects of remote work on job satisfaction have been reported to have mixed conclusions whether it has positive or negative effects (Bailey & Kurland, 2002, Bellman & Hubler, 2020). For instance, some researchers emphasize the positive effect of remote work on job satisfaction (Gajendran & Harrison, 2007; Gimenez Nadal et al., 2018; Wheatley, 2017). A study by Smith and Johnson (2020) found that employees who can work remotely reported higher levels of job satisfaction than those who work exclusively in a traditional office environment. This finding is supported by a meta-analysis conducted by Brown et al. (2019), which synthesized data from multiple studies and revealed a consistent positive relationship between remote work and job satisfaction across various industries and occupations and other studies found support for the linear correlation between remote work and job satisfaction.

Implying that people who work remotely more are more content with their jobs. Other researchers, however, have demonstrated that remote work affects job satisfaction or that individuals who work remotely more frequently are less happy with their employment (Cooper & Kurland, 2002; Pinsonneault & Boisvert, 2001). In contrast, Golden (2006) discovered a correlation between telecommuting and job satisfaction. According to the data, job satisfaction increases to a limited amount when remote work increases. (Golden & Veiga, 2005) and it will lead to decreases in job satisfaction when there is a further increase in remote work (Golden, 2006). Based on these findings, job satisfaction would be subsequently affected as the quality of employee relations decreases due to managers and telecommuters not being cautious when employees telecommute substantially. Golden (2006) claims that remote work presumably increases job satisfaction to a limited extent. In their study, Golden and Veiga (2005) hypothesized that employees will feel greater job satisfaction with less remote work and decreased job satisfaction with more remote work. However, other researchers found that remote work was positively connected with job satisfaction (Bellmann & Hübler, 2020; Allen et al., 2015). According to the study, as remote work increased, employees' levels of job satisfaction improved as well.

Additionally, Schall's (2019) findings indicate that the benefits of remote work may affect employees' overall job satisfaction. Additionally, remote work offers opportunities for reduced distractions and interruptions commonly found in the traditional office environment. It has been reported that remote workers had fewer interruptions from colleagues, resulting in increased focus and productivity and higher job satisfaction (Grant & Campbell, 2020; Raghuram et al., 2019). Furthermore, remote work gives individuals a sense of control and agency, increasing job satisfaction (Kossek et al., 2019; Morgeson & Humphrey, 2006). It is important to note that the relationship between remote work and job satisfaction may vary depending on individual and contextual factors. For example, the nature of the job itself, the level of social interaction required, and the

supportiveness of the organizational culture can all influence the extent to which remote work positively impacts job satisfaction (Gajendran & Harrison, 2007; Golden et al., 2021).
H1: There will be a positive relationship between remote work and job satisfaction.

Remote Work-Perceived Autonomy-Job Satisfaction: Previous studies have revealed that perceived autonomy completely mediates the relationship between remote work and job satisfaction (Schall, 2019; Gajendran & Harrison, 2007). This recent evidence suggests that remote work gives employees greater control over their work schedules and processes, fostering a sense of autonomy that positively influences job satisfaction. Remote work has been found to have a positive correlation with job satisfaction, and perceived autonomy plays a mediating role in this relationship (Aziz-Ur-Rehman & Siddiqui, 2019; Gajendran et al., 2014; Johnson et al., 2021). Moreover, a meta-analysis study by Gajendran et al. (2014) found that the more time employees spend working remotely, the greater their sense of autonomy. This increased autonomy was associated with higher levels of job satisfaction. The researchers highlighted the importance of perceived autonomy as a valuable job resource for remote employees. Additionally, Gajendran and Harrison (2007) found that remote work has small but beneficial effects on employees' proximal outcomes, including higher perceptions of autonomy. They also discovered that perceptions of autonomy were partially influenced by distal outcomes such as performance, job satisfaction, turnover intention, and role stress.

Furthermore, a recent study by Johnson et al. (2021) investigated the relationship between remote work, perceived autonomy, and job satisfaction among knowledge workers. The findings revealed a significant positive correlation between remote work and perceived autonomy, as well as a positive correlation between perceived autonomy and job satisfaction. The study also identified perceived autonomy as a mediating factor in the relationship between remote work and job satisfaction, indicating that the positive impact of remote work on job satisfaction is partially explained by the enhanced sense of autonomy experienced by remote workers. In a study conducted by Golden (2006), the relationship between remote work and job satisfaction was explained based on the Job Characteristic Model. The researcher stated that autonomy is a crucial job characteristic that leads to job satisfaction. Therefore, employees who experience remote working will have high autonomy, which positively affects their job satisfaction in accordance with the job characteristic model.
H2: Perceived autonomy will mediate the relationship between remote work and job satisfaction.

3. Research Methodology

Sample and Procedure: The sample will include employees at one oil and gas company in Kuala Lumpur. Only full-time employees with experience working remotely were included. Participation was optional, and all data will be collected through a survey link via Google Survey. The participants will come from a variety of departments. The proposed data analysis technique for this examination is SPSS. The total population is estimated to be 765. The sampling method that the researcher used is convenience sampling. According to Krejci and Morgan (1970), with an approximate total population of 340, the minimum sample size needed is 185.

Measurement of the Variables

Remote Work: Four items were created to measure whether participants engaged in virtual workplace arrangements based on a study by Schall (2019) and Sumaiti, (2010) using the 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). The items were, “Do you feel engaged in virtual workplace arrangements during the workweek” and “Working from home will help me to establish a better work-life balance”.

Job Satisfaction: The Brayfield-Rothe Job Satisfaction Index (Brayfield & Rothe, 1955) is a five-item scale that was selected to measure the overall job satisfaction levels of all employees. This was evaluated using the 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). Items included “I feel fairly satisfied with my present job” and “I find real enjoyment in my work.”

Perceived Autonomy: The Work Design Questionnaire (Morgeson & Humphrey, 2006) is a nine-item scale that was chosen to measure the employees’ perceptions of autonomy in three different areas (work-

scheduling autonomy, decision-making autonomy, and work methods autonomy). This was evaluated using the 5-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). Items included "The job allows me to make my own decisions about how to schedule my work" and "The job gives me a considerable opportunity for independence and freedom in how I do the work."

Data analysis Strategy: The data for this analysis was evaluated in accordance with multiple regression standards and procedures.

4. Results

Data Screening: Before conducting the regression analysis, the relevant assumptions of this statistical analysis were tested. A reliability test was conducted to focus on the consistency of the measuring instrument in supplying the results for this research study. Despite the general acceptance of the value of 0.7 as the cut-off point of the reliability measure, the satisfactory level of reliability also depends on how a measure is used. 'In the early stages of research on predictor tests or hypothesized measures of a construct, one saves time and energy by working with instruments that have only modest reliability, for which purpose reliabilities of 0.60 or 0.50 will suffice (Sekaran,2003). Next, the multivariate outliers testing was conducted using the Mahalanobis Distance. An examination of the Mahalanobis distance scores indicated two multivariate outliers, according to the Chi-square statistics table P=.001 and the 1 independent variable is 10.83. No outliers were identified in the initial data screening.

In addition, results from the Skewness and Kurtosis test, show that the residuals are all distributed normally. According to Coakes (2013), normality analyses reveal that the data had a normal distribution since the skewness and kurtosis values for each variable were below 3. Next, the Durbin-Watson value was 2.470 indicating non-autocorrelation occurs between the residuals in the regression models. Further, the VIF results prove that the multicollinearity issue does not occur in this research. Generally, according to Vittinghoff (2005), a VIF above 4 or tolerance below 0.25 indicates that multicollinearity might exist, and further investigation is required. When VIF is higher than 10 or tolerance is lower than 0.1, there is significant multicollinearity that needs to be corrected. The higher VIF based on the result is 3.962 for the virtual workplaces. Finally, the assumption of homoscedasticity is supported in this research.

Demographic: Demographic information is presented in Table 1. Overall, there was a total of 185 participants. The participants' ages ranged from 22 – 65 years (M = 33.44, SD = 10.87) with a median age of 29 years. The sample consisted of 60.5% females, 33.5% males, and .5% identified as "other." About 23% of the respondents were newly employed with their organizations, with their tenure being less than a year, followed by 24.9% between 1-2 years, 21.1% between 3-4 years, 16.8% between 5-10 years, and 9.2% having been with their organizations for more than 10 years. In terms of job tenure, 27.0% reported being in their job role for less than a year, 32.4% between 1-2 years, 16.8% between 3-4 years, 10.8% between 5-10 years, and 7.6% had been in their job role for more than 10 years. The participants varied in organizational position within their organizations, with 8.1% as administrative, 15.1% as entry-level, 22.7% as between entry-level/mid-management, 20.7%, as middle management, 8.1% as upper management, 3.2% as executive, and 17.3% as other. The majority of respondents were full-time employees (80.0%), followed by part-time (14.6%), contract (6.5%), intern (2.7%), and casual (1.1%).

Table 1: Demographic and Characteristics of Participants (N = 185)

	Variable	n	%
Gender	Male	62	33.5%
	Female	112	60.5%
	Other	1	.5%
Org tenure	Less than a year	42	22.7%
	1 – 2 years	46	24.9%

	3 – 4 years	39	21.1%
	5 – 10 years	31	16.8%
	> 10 years	17	9.2%
Job tenure	Less than a year	50	27.0%
	1 – 2 years	60	32.4%
	3 – 4 years	31	16.8%
	5 – 10 years	20	10.8%
	> 10 years	14	7.6%
Position	Admin	15	8.1%
	Entry	28	15.1%
	Entry/mid mgmt	42	22.7%
	Mid mgmt	37	20.0%
	Upper mgmt	15	8.1%
	Executive	6	3.2%
	Other	32	17.3%

Note. Mgmt is abbreviated for management; Org is abbreviated for organizational.

Descriptive Statistic: Means and standard deviations for all the variables are presented in Table 2. The purpose of conducting this analysis was to check the central tendency and variability for each variable. Among the participants, 77% indicated that they engaged in remote work activities during the average work week, while 23% of the participants did not. The respondents' ratings of their overall job satisfaction were moderately high (M = 5.49, SD = 1.05). Ratings of participants' perceived autonomy were moderately high as well (M = 4.04, SD= .77).

Pearson Correlation: In Table 2, correlations are displayed that test the relationships among the study variables. Remote work and job satisfaction had a moderately positive, significant relationship, r (168) = .16, p < .05, indicating that those who were engaged in remote work experienced higher job satisfaction. Remote work and perceived autonomy had a moderately, positive significant relationship, r (168) = .32, p < .01, such that those who were engaged in remote work experienced higher job autonomy. The relationship between perceived autonomy and job satisfaction was found to be strong, positive, and significant, r (168) = .55, p < .01, indicating that a higher perception of independence was related to higher satisfaction with one's job. Overall, these results indicated that employees who engaged in remote work perceived their jobs to be more autonomous and experienced higher job satisfaction levels.

Table 2: Descriptive Statistics, Pearson Correlations among Variables

Remote Work	
Job Satisfaction	
Perceived Autonomy	

Note: *p < .05, ** p < .01, *** p < .001.

Hypotheses Testing

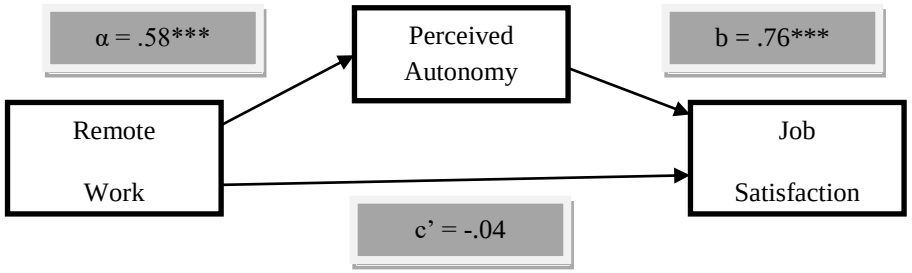
Regression Analysis: Hypothesis 1 states the relationship between remote work and job satisfaction would be curvilinear, such that as remote work increases job satisfaction would improve; but only to a point, beyond which further remote work would lead to a decrease in job satisfaction. A regression analysis was conducted

to test this hypothesis. In the regression analysis, remote work was entered into the analysis and was found to be significantly related to job satisfaction, accounting for 9% of the variance for job satisfaction (R^2 = .09, R^2 adj = .08, F (1,179) = 16.56, p < .01). This demonstrated that higher levels of remote work were related to higher levels of job satisfaction. Overall, the results from these analyses provided support for a significant, positive, and linear relationship between remote work and job satisfaction; therefore Hypothesis 1 was supported.

The Mediating Effect of Perceived Autonomy: Hypothesis 2 stated that perceived autonomy would mediate the relationship between remote work and job satisfaction. To test this mediation effect, multiple regression analyses were conducted using the four-step approach proposed by Baron and Kenny (1986) who ran three regression analyses to observe the significance of the unstandardized regression coefficients (b's) in each step. According to Baron and Kenny (1986), "this model assumes a three-variable system such that causal paths are feeding into the outcome variable: the direct impact of the independent variable (Path c) and the impact of the mediator (Path b) ...independent variable to the mediator (Path a)" (p. 1176). In addition, a Sobel test was conducted to test the indirect effect of perceived autonomy on the relationship between remote and job satisfaction (path ab). In step one of the analysis, the regression of remote work on job satisfaction, without perceived autonomy as the mediator, was significant, R2 = .03, F (1,170) = 6.06, p < .05 – path c was confirmed. In step two, the regression of remote work on the mediator's perceived autonomy was significant as well, R2 = .10, F (1,170) = 18.91, p < .001 – the path was confirmed.

In step three, perceived autonomy (the mediator), was also significant and uniquely related to job satisfaction, β = .56, t = 8.20, p < .001 – path b was confirmed. Additionally, remote work was no longer found as significant when accounting for perceived autonomy in step two, β = -.02, t = -2.23, p = .82 – path c' was confirmed. After conducting the Sobel test, full mediation was found (z = 3.95, p < .001). It is legitimate to conclude that perceived autonomy mediates the association between remote work and job satisfaction even if the total effect (c) is not significant. In fact, there is a relatively large consensus among statisticians that the total effect (c) should not be used as a 'gatekeeper' for tests of mediation (e.g., Hayes, 2009; Shrout & Bolger, 2002). Overall, these analyses suggested that the relationship between remote work and job satisfaction was fully mediated by perceived autonomy. In other words, the ability to work remotely gave increased perceptions of autonomy with their work schedule, decision-making, and how their work was conducted, which in turn increased their overall job satisfaction levels. Evidence of perceived autonomy as a mediator between the remote work and job satisfaction relationship was found; therefore Hypothesis 2 was supported (see Figure 2).

Figure 2: Mediation Model for Job Satisfaction Using Perceived Autonomy as the Mediator and Remote Work as a Predictor



Note: * p < .05, ** p < .01, *** p < .001.

To sum, Hypothesis 1 stated that a curvilinear relationship would exist between remote work and satisfaction, meaning as remote work increased, job satisfaction would increase, but only to a point, beyond which further increase in remote work would lead to a decrease in job satisfaction. These results challenge previous findings that have found either a curvilinear relationship (Golden, 2006) or a negative relationship between remote work and job satisfaction (Cooper & Kurland, 2002; Pinsonneault & Boisvert, 2001). One possible reason for not finding a curvilinear relationship might be due to the sample. The results of this analysis supported Hypothesis 1. Hypothesis 2 stated that an employee's perception of autonomy would mediate the relationship between remote work and job satisfaction, such that remote work would lead to a

higher perception of autonomy, which in turn would be associated with higher job satisfaction. Consistent with past research, the results of this study showed that perceived autonomy fully mediated the relationship between remote work and job satisfaction (Gajendran & Harrison, 2007). These results suggested that employees who engaged in remote work had a perception of having more perceived autonomy, which led them to become more satisfied with their jobs. The results of this analysis supported Hypothesis 2.

Discussion: The purpose of the current study was to examine the relationship between remote work and job satisfaction among working professionals (H1). More specifically, the purpose was to address the mediating effects of perceived autonomy on the relationship between remote work and job satisfaction (H2). As a result, this study shines a light on current insight into employees' attitudes toward remote work along with its outcomes. The current study makes several theoretical contributions. The results of the current study help to explain why remote work leads positively to job satisfaction which supported H1. In line with the literature by Golden (2006), the current study adds to the literature on remote work and job satisfaction in accordance with the JCM model (1976). The JCM model helps explain why working remotely may benefit the employee and increase their job satisfaction. The findings from the current study on the mediating roles of perceived autonomy (H2) indicated that employees who worked remotely had higher perceptions of autonomy, which in turn experienced greater satisfaction with their jobs.

Therefore, one practical implication of the study is that employers should give their personnel the option to work remotely more often, especially if they want their employees' job satisfaction levels to increase. In addition, employers should offer workers enough tools and support to enable them to successfully balance their home and professional lives. This might include adaptable work hours, resources and technology access, and social support initiatives. Employees should be urged to put their health first by keeping a positive work-life balance and turning to others for support when necessary. Also, having more satisfied employees may affect retention rates, such as less turnover. This may help replacement costs, which may ultimately improve the bottom line of the business. According to a 2017 Retention Report, conducted by Work Institute, 75% of the causes of employee turnover are preventable (Bolden-Barrett, 2017). Therefore, companies may want to create formal/informal telecommuting programs to retain employees, meet their needs, and in return, have happier, more dedicated employees.

Strengths and Limitations

Strengths: One of the strengths of the study was the large sample size. With 185 participants total, the individuals varied in age, gender, job position, organizational tenure and work arrangement. This allowed the findings of the study to increase external validity; that is, the present findings are likely to generalize a population of working professionals. Another strength was the study builds upon the previous findings on remote work and its relationship to job satisfaction and provides a better understanding as to why remote work leads to higher job satisfaction. More specifically, this study delivers a current perspective on who is engaging in remote work, when are they engaging in remote work, and for how long during the work week.

Limitations: One of the major limitations of the study was the use of self-report measures such as the job satisfaction and perceived autonomy scales. The issue with a self-report study is that individuals may exaggerate or minimize how they feel when answering questions on a survey, which may compromise the validity of the study.

5. Conclusion and Recommendations

Recommendations: Future research on remote work should consider examining productivity as a possible outcome of remote work or examining other potential mediating workplace variables, such as employee engagement in the relationship between remote work and job satisfaction. This will give organizations information about the effects of remote work on worker productivity and employee engagement that they can use to enhance their policies and procedures around remote work. They will add to the body of knowledge already available on remote work and offer advice to organizations on how to improve its efficacy and foster employee engagement and productivity. This will assist businesses in understanding the advantages and difficulties of remote employment. It would be interesting to examine productivity as an outcome of remote

work because of the ongoing debate, as some argue that working remotely allows employees to focus more on work due to fewer office distractions (more productive) (Mann, Varey, & Button, 2000; Sokolic, 2022), while others argue that working remotely create more home distractions (less productive) (Fonner & Roloff, 2010; Sokolic, 2022). Also, future research on remote work should consider examining employee engagement as a potential mediator in the relationship between remote work and job satisfaction since there is limited research in this area (see Neuber, et al., 2022). Remote work may motivate employees which may generate higher levels of engagement, which in turn may generate higher levels of job satisfaction.

Conclusion: The main goal of the study was to investigate how remote work impacts employees' job satisfaction levels. The findings suggest that engaging in remote work increases employees' job satisfaction levels. In addition, perceived autonomy was investigated as a potential mediator. The results suggest that employees who engage in remote work have greater perceptions of autonomy, which leads them to become more content with their occupations. In summary, engaging in remote work may benefit employees by providing a more autonomous work environment. In return, this may also benefit the employer by having a more satisfied workforce. Overall, the results of the study may help future organizations decide whether to invest in telecommuting programs within their businesses.

References

Alias, N. E., Nokman, F. N., Ismail, S., Koe, W. L. & Othman, R. (2018). The Effect of Payment, Recognition, Empowerment and Work-Life Balance on Job Satisfaction in Malaysia's Oil and Gas Industry. *International Journal of Academic Research in Business and Social Sciences*, 8(9), 639–656

Allen, D. G., Renn, R. W. & Griffeth, R. W. (2003). The impact of telecommuting design on social systems, self-regulation, and role boundaries. In G. Ferris & J. Martochhio (Eds.), Research in personnel and human resources management (125–163). Boston: JAI Press.

Aziz-Ur-Rehman, M. & Siddiqui, D. A. (2019). Relationship between Flexible Working Arrangements and Job Satisfaction Mediated by Work-Life Balance: Evidence from Public Sector Universities Employees of Pakistan. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3510918

Bailey, D. E. & Kurland, N. B. (2002). A review of telework research: findings, new directions, and lessons for the study of modern work. *Journal of Organizational Behavior*, 23(4), 383–400. https://doi.org/10.1002/job.144

Baron, R. M. & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Béland, L. P., Brodeur, A. & Wright, T. (2020). The short-term economic consequences of COVID-19: exposure to disease, remote work, and government response.

Bellmann, L. & Hübler, O. (2020). Working from home, job satisfaction and work–life balance – robust or heterogeneous links? International Journal of Manpower, ahead-of (ahead-of-print), 1–18. https://doi.org/10.1108/ijm-10-2019-0458

Bhattacharya, P. & Hutchinson, F. E. (2022). Malaysia's Oil and Gas Sector: Constant Expectations despite Diminishing Returns. *ISEAS – Yusof Ishak Institute,* 21, 2335-6677. https://www.iseas.edu.sg/articles-commentaries/iseas-perspective/2022-21-malaysias-oil-and-gas-sector-constant-expectations-despite-diminishing-returns-by-british-bhattacharya-and-francis-e-hutchinson/

Brayfield, A. H. & Rothe, H. F. (1951). An index of job satisfaction. Journal of Applied Psychology, 35, 307-311.

Brown, T., VanderWeele, T. & Hong, S. (2019). Assessing mediation using marginal structural models in the presence of confounding and moderation. *Statistics in Medicine,* 38(21), 4092-4112.

Brynjolfsson, E., Horton, J., Ozimek, A., Rock, D., Sharma, G. & TuYe, H.-Y. (2020). COVID-19 and Remote Work: An Early Look at US Data. National Bureau of Economic Research, 1–26. https://doi.org/10.3386/w27344

Charalampous, M., Grant, C. A., Tramontano, C. & Michailidis, E. (2019). Systematically reviewing remote e-workers' well-being at work: a multidimensional approach. *European Journal of Work and Organizational Psychology*, 28(1), 51-73.

Cooper, C. D. & Kurland, N. B. (2002). Telecommuting, professional isolation, and employee development in public and private organizations. *Journal of Organizational Behavior,* 23(4), 511–532. https://doi.org/10.1002/job.145

Feldman, D. C. & Gainey, T. W. (1997). Patterns of telecommuting and their consequences: Framing the research agenda. *Human Resource Management Review*, 7, 369–388. https://doi.org/10.1016/S1053-4822 (97)90025-5

Focus Malaysia. (2018). Oil & gas industry online hiring up for 19 months. Retrieved from: http://www.focusmalaysia.my/Snippets/ oil-gas-industry-online-hiring-up-for-19-months.

Fonner, K. L. & Roloff, M. E. (2010). Why teleworkers are more satisfied with their jobs than are office-based workers: When less contact is beneficial. *Journal of Applied Communication Research*, 38, 336-361. https://doi.org/10.1080/00909882.2010.513998

Forbes Coaches Council. (2018). Motivating millennials (and everyone else, for that matter). Forbes Magazine. Retrieved 20 January 2020 from https://www.forbes.com/sites/forbescoachescouncil/2018/03/14/motivating millennial- and-everyone-else-for-that-matter/

Gallardo, R. & Whitacre, B. E. (2018). 21st century economic development: Telework and its impact on local income. *Regional Science Policy and Practice,* 10(2), 103–123. https://doi.org/10.1111/rsp3.12117

Gajendran, R. S. & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology*, 92, 1524-1541. https://doi.org/10.1037/0021-9010.92.6.1524

Giménez-Nadal, José & Molina, José. & Velilla, Jorge. (2018). Telework, the Timing of Work, and Instantaneous Well-Being: Evidence from Time Use Data. IZA Discussion Papers.

Gitoho, S. Q. (2015). Influence of Leadership Styles on Employee Job Satisfaction: A Case Study of Firms Listed in the Nairobi Securities Exchange.

Global, E. (2021, May 12). More than half of employees globally would quit their jobs if not provided post-pandemic flexibility. Ernst & Young Global Ltd. https://www.ey.com/en_gl/news/2021/05/more-than-half-of-employees-globally-would-quit-their-jobs-if-not-provided-post-pandemic-flexibility-ey-survey-finds

Golden, T. D., Veiga, J. F. & Dino, R. N. (2021). The impact of remote work on work-family conflict, job satisfaction, and turnover intentions: A time period-based approach. *Journal of Applied Psychology*, 106(2), 212-225.

Golden, T. D., Veiga, J. F. & Simsek, Z. (2006). Telecommuting's differential impact on work-family conflict: Is there no place like home? *Journal of Applied Psychology,* 91, 1340–1350. https://doi.org/10.1037/0021-9010.91.6.1340

Golden, T. D. (2006). The role of relationships in understanding telecommuter satisfaction. *Journal of Organizational Behavior,* 27, 319-340. https://doi.org/10.1002/job.369

Golden, T. D. & Veiga, J. F. (2005). The impact of extent of telecommuting on job satisfaction: Resolving inconsistent findings. *Journal of Management,* 31(2), 301–318. https://doi.org/10.1177/0149206304271768

Grant, A. M. & Campbell, E. M. (2020). Work-life integration is a balancing act that requires support from supervisors. *Journal of Business and Psychology,* 35(6), 689-706.

Hashim, R., Bakar, A., Noh, I. & Mahyudin, H. A. (2020). Employees' Job Satisfaction and Performance through Working from Home during the Pandemic Lockdown. *Environment-Behavior Proceedings Journal,* 5(15), 461-467.

Harry Obi – Nwosu, Joe-Akunne Chiamaka, O. & Oguegbe Tochukwu, M. (2013). Job Characteristics as Predictors of Organizational Commitment among Private Sector Workers in Anambra State, Nigeria. *International Journal of Asian Social Science,* 3(2), 482–491. http://aessweb.com/pdf-files/482-491.pdf

Ida, L. (2020). For Malaysian employees, flexi hours, work-life balance top reasons for happiness; salary levels leading cause of dissatisfaction. Retrieved fromhttps://www.malaymail.com/news/malaysia/2020/08/13/for-malaysian-employees-flexi-hours-work-life-balance-top-reasons-for-happi/1893469

Johnson, R. E., Jiang, K., Lepak, D. P., Hu, J. & Baer, J. C. (2021). Achieving high-quality remote work: The roles of perceived autonomy support and perceived autonomy. *Journal of Applied Psychology,* 106(6), 845-860.

Karunarathne, W. A. L. S. (2021). The impact of perceived autonomy on job satisfaction: A study among banking sector employees. *Journal of Business and Technology*, 1(1), 11-18.

Kazekami, S. (2019). Mechanisms to improve labor productivity by performing telework. *Telecommunications Policy*, 44(2), 101868. https://doi.org/10.1016/j.telpol.2019.101868

Khairudin, N. N. Q. M. & Aziz, N. (2020). The correlation between telecommuting and work-life balance in oil and gas industry. *Journal of Physics: Conference Series*, 1529(2), 022057. https://doi.org/10.1088/1742-6596/1529/2/022057

Kossek, E. E. & Lautsch, B. A. (2018). Work–Life Flexibility for Whom? Occupational Status and Work–Life Inequality in Upper, Middle, and Lower-Level Jobs. *Academy of Management Annals*, 12(1), 5–36. https://doi.org/10.5465/annals.2016.0059

Larson, B. Z., Vroman, S. R. & Makarius, E. E. (2020). A guide to managing your (newly) remote workers. Harvard Business Review, 18.

Lin, J. T. P. & Ping, N. C. L. (2016). Perceived job autonomy and employee engagement as predictors of organizational commitment. *The Undergraduate Journal of Psychology*, 29(1), 1-to.

Mohd Suki, N., Rony, N. I. & Mohd Suki, N. (2020). Do gender and income really moderate on employees' job satisfaction? Insights from Malaysia's oil and gas industry. *International Journal of Management Science and Engineering Management,* 15(1), 47-58.

Morgeson, F. P. & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, 91(6), 1321–1339. https://doi.org/10.1037/0021-9010.91.6.1321

Munusamy, T. (2016). Influence of Teleworking Acceptance on Employee's Work Life in Malaysia's ICT Sector. *International Journal of Accounting and Business Management,* 4(2), 146–158. https://doi.org/10.24924/ijabm/2016.11/v4.iss2/146.158

Nakrošienė, A., Bučiūnienė, I. & Goštautaitė, B. (2019). Working from home: characteristics and outcomes of telework. *International Journal of Manpower*, 40(1), 87–101. https://doi.org/10.1108/ijm-07-2017-0172

Ojeiduma, N. (2020). The Relationship between Leadership Style and Job Satisfaction in Multinational Oil and Gas Services (Order No. 28256114). Available from ProQuest Dissertations & Theses Global. (2468643447). https://ezaccess.library.uitm.edu.my/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fdissertations-theses%2Frelationship-between-leadership-style-job%2Fdocview%2F2468643447%2Fse-2%3Faccountid%3D42518

O'Keefe, P., Caulfield, B., Brazil, W. & White, P. (2016). The impacts of telecommuting in Dublin. *Research in Transportation Economics*, 57, 13–20. https://doi.org/10.1016/j.retrec.2016.06.010

Olson, M. (1983). Remote office work: changing work patterns in space and time. Commun. *ACM,* 26, 182-187.

Paposa, K. K. & Kumar, Y. M. (2015). Impact of performance management system on job satisfaction of faculty members: A Study on Technical Education Institutes of Nagpur. *Management and Labor Studies*, 40(1–2), 159–175. https://doi.org/10.1177/0258042x15601538

Pinsonneault, A. & Boisvert, M. (2001). The Impacts of Telecommuting on Organizations and Individuals. Telecommuting and Virtual Offices, 163–185. https://doi.org/10.4018/978-1-878289-79-7.ch010

Prasad, K., Vaidya, R. W. & Mangipudi, M. (2020). Effect of occupational stress and remote working on psychological well-being of employees: an empirical analysis during covid-19 pandemic concerning information technology industry in Hyderabad. *Indian Journal of Commerce & Management Studies*, 11(2), 1–11. https://doi.org/10.18843/ijcms/v11i2/01

Raghuram, S., Wiesenfeld, B. M. & Garud, R. (2019). A home away from the office? Understanding informal workplace learning in distributed work arrangements. *Academy of Management Journal*, 62(5), 1524-1551.

Schall, M. A. (2019). The Relationship between Remote Work and Job Satisfaction: The Mediating Roles of Perceived Autonomy, Work-Family Conflict, and Telecommuting Intensity. Master's Theses. 5017. Published. https://doi.org/10.31979/etd.2x82-58pg

Sekaran, U. (2003). Research Methods for Business: A Skill-Building Approach (4th Ed.). John Wiley & Sons.

Singh, B. (2017). Why maritime jobs are not preferred anymore? Maritime insight. Retrieved from: https://www.marineinsight.com/ careers-2/why-maritime-jobs-are-not-preferred-anymore/

Smith, J. & Johnson, L. (2020). The impact of remote work on job satisfaction: A comparative study. *Journal of Organizational Psychology,* 45(3), 123-145.

Ter Hoeven, C. L. & Van Zoonen, W. (2015). Flexible work designs and employee well-being: examining the effects of resources and demands. *New Technology, Work and Employment,* 30(3), 237–255. https://doi.org/10.1111/ntwe.12052

Thai, V. V. & Latta, T. (2010). Employment brand strategy for the shortage of seafarers. *International Journal of Shipping and Transport Logistics,* 2(4), 411–428.

Tuzovic, S. & Kabadayi, S. (2020). The influence of social distancing on employee well-being: a conceptual framework and research agenda. *Journal of Service Management*, 32(2). https://doi.org/10.1108/JOSM-05-2020-0140

Unanue, W., Gómez, M. S., Cortez, D., Oyanedel, J. C. & Mendiburo-Seguel, A. (2017). Revisiting the Link between Job Satisfaction and Life Satisfaction: The Role of Basic Psychological Needs. Frontiers in Psychology, 8. https://doi.org/10.3389/fpsyg.2017.00680

Wheatley, D. (2016). Employee satisfaction and use of flexible working arrangements. Work, *Employment and Society,* 31(4), 567–585. https://doi.org/10.1177/0950017016631447

Yuen, K. F., Loh, H. S., Zhou, Q. & Wong, Y. D. (2018). Determinants of job satisfaction and performance of seafarers. *Transportation Research Part A*, 110(2018), 1–12.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Understanding Entrepreneurial Orientation based Research: A Proposed New Theoretical Framework

Ehsan Fansuree Surin[1*] Oswald Timothy Edward,[2] Sayuthi Shaaran[3] & Rohana Ngah[4]
[1,3,4] Faculty of Business and Management, Unversiti Teknologi MARA, Puncak Alam Campus, Bandar Puncak Alam, Selangor Darul Ehsan, Selangor, Malaysia
[2]Faculty of Business and Management, Universiti Teknologi MARA, Johor Darul Takzim, Malaysia
*efansuree@uitm.edu.my, oswaldt@uitm.edu.my, sayusha78@gmail.com, rohanangah@uitm.edu.my

Abstract: Entrepreneurial orientation-based research is reviewed and in-depth examined especially in the entrepreneurship theme. Research on the impact of entrepreneurial orientation (EO) on organizational performance has generated numerous important findings. Despite abundant attention given to research on the relationship between entrepreneurial orientation and organizational performance, the results are still inconsistent. Current progress on entrepreneurial orientation-based research is lacking in terms of theoretical integration therefore unable to produce a unified framework. This paper reviews the literature review thoroughly to build a novel theoretical framework that proposes the linkages of entrepreneurial orientation, innovation management, business environment as well as organizational performance. By using resource-based view (RBV) and contingency theory, the relationship between the variables has been established. The proposed unified theoretical framework will provide useful insight into the direct impact of entrepreneurial orientation on organizational performance. Moreover, the direct relationship is moderated by two variables namely innovation management and business environment. This unified theoretical framework would benefit from an amalgamation between process and outcome-oriented research in the entrepreneurship field.

Keywords: *Entrepreneurial Orientation, Organizational Performance, Innovation Management, Business Environment.*

1. Introduction and Background

In academic literature, the process of entrepreneurial behavior is known as an entrepreneurial orientation that leads to business prosperity, growth, and performance (Covin and Wales, 2018) and it is also linked to the strong and wealth of the economic environment of countries (Andrade-Valbuena et al., 2019). Thus, this remarkable entrepreneurial orientation concept has become the most cumulative studied research area in the body of entrepreneurship knowledge (Andrade-Valbuena et al., 2019; Covin & Wales, 2018; Gupta & Gupta, 2015; Laudano et al., 2018; Martens et al., 2016).

More recently, numerous studies have been conducted to study the relationship between entrepreneurial orientation and organizational performance. Surprisingly, the results are continually inconsistent. Some studies reported that entrepreneurial orientation had a positive (Covin and Wales, 2018; Lumpkin et al., 2009; Martens et al., 2016; Rauch et al., 2009; Gupta and Batra, 2016) and some shown otherwise (Kohtamaki et al., 2019; Laskovaia et a., 2019; Milovanovic, 2022; Renko et al., 2009; Wales et al., 2013). Therefore, there is no agreement to conclude on this relationship.

Further investigation, several factors contributed to these conflicting results. Firstly, the conflict is due to the different types of dimensions used to measure entrepreneurial orientation and organizational performance (Mertens et al., 2016; Lombergh et al., 2017). Secondly, the different contexts of investigation are also leading to these discrepancies. For example, the inconsistencies relationship between entrepreneurial orientation and organizational performance are due to context of developed and developing countries (Luu and Ngo, 2019, Ngah et al., 2018), family versus non-family-based business (Rachmawati and Suroso, 2022), newness of firms (Su et al., 2011), differences in industry (Rauch et al., 2009) and the size of the firms (Wales et al., 2013). As a result, the contradictions present a major gap in developing 0a well-accepted entrepreneurial orientation framework.

Due to this, there is a call to examine the potential the potential variables that would modify the original relationship (Milovanovic, 2022; Schepers et al., 2014). Prior research showed a lack of a unified framework

that connects the entrepreneurial orientation-moderator/s-organizational performance. The relationship between these two variables is not simply 'the more, the better' effect. This will open gaps in the knowledge and remain largely neglected. Therefore, we did the literature review to identify the potential moderators of the said relationship for a better understanding of the entrepreneurial orientation framework.

With the increase of entrepreneurial orientation at the firm's level, it is important to investigate how firms may benefit from practicing it. Empirical research has mostly found that firms with a high degree of entrepreneurial orientation perform much better (Covin and Wales, 2018; Lumpkin et al., 2009). The positive relationship between entrepreneurial orientation and organizational performance is robust from different types of measurement of entrepreneurial orientation to different types of measurement of performance (objective versus subjective), or 0either it can be successful or useless in some circumstances (Rauch et al., 2009).

Therefore, grounded by the resource-based theory proposed by Barney (1991), the purpose of this paper is to present a new framework to examine the entrepreneurial orientation- organizational performance relationship. In doing so, first, we reviewed the literature on the said relationship. Secondly, we reviewed the literature on the potential moderation of innovation management and business environment. It will be followed by the proposed theoretical framework and its elaboration. The theories which related to the framework have been presented then. Finally, this paper presented a discussion on the discrepancies in the findings of the relationship between entrepreneurial orientation and organizational performance as well as the contributions.

2. Literature Review

Entrepreneurial Orientation and Organizational Performance: The term entrepreneurial orientation is defined as the organization's behavior that reflects or acts like an entrepreneur or the organization's commitment to entrepreneurial force (Fox, 2005). It also refers to a firm strategic posture capturing specific practices, processes and activities that allow an organization to create value through the participation of entrepreneurial efforts (Lumpkin and Dess, 1996). Therefore, entrepreneurial orientation has been treated as a phenomenon of organizations and is the key to capturing the standards and processes of entrepreneurship existing in the organization (Mertens et al., 2016).

Covered in various disciplines such as psychology (McClelland, 1987), economics (Kirchhoff, 1992), sociology and anthropology and management (Miller, 2011), researchers use different terminologies such as strategic orientation or posture (Covin et al., 2006), corporate entrepreneurship (Zahra et al., 2000) and entrepreneurial orientation (Lumpkin and Dess, 2009). Entrepreneurial orientation is the most widely used concept and in studies has gradually moved from the study of entrepreneur traits to the distinctive attributes of an entrepreneurial organization (Karyotakis and Moustakis, 2016).

Efforts to understand the dimensions of entrepreneurial orientation should be coupled with an effort suggested by the scholars. For example, Rauch et al. (2009) suggest the unidimensional approach by combining proactiveness, innovativeness and risk-taking. The authors suggested that only an organization that has high levels of all three dimensions can be considered as an entrepreneurial organization. This is because the three entrepreneurial orientation dimensions are highly intercorrelated with each other and associated with organizational performance in similar ways (Miller, 2011).

On the other hand, Lumpkin and Dess (1996) reviewed the concept of entrepreneurial orientation unidimensional approach and suggested that all three dimensions could vary independently. Scholars have suggested a multidimensional approach as an alternative approach such as autonomy and competitive aggressiveness. The introduction of these dimensions is due to the different cultural contexts and organizations may have high levels of some of the dimensions and low levels of others (Aliyu et al., 2015; Arbaugh et al., 2002). In a multidimensional approach, the five dimensions are central to the understanding of entrepreneurial orientation. As the five dimensions are independent, they may relate differently to organizational performance (Covin and Wales, 2018; Kusumawardhani, 2013). This new radical thinking emphasizes entrepreneurship in a management framework that pronounced the beginning of theoretical distribution within the entrepreneurial orientation concept (Wiklund, 1999).

Research also suggests that there are potential benefits to entrepreneurial orientation for entrepreneurial firms. For example, entrepreneurial orientation acts as a driver for organizational productivity and growth (Aloulou and Fayolle, 2005), adding value to the organization as it visualizes the strategic vision and managerial philosophies (Wales et al., 2011) and disrupting the bureaucratic style towards transformation in organization (Wu, 2011). Scholars also profess that entrepreneurial orientation is considered a command for the organization to engage in successful entrepreneurship practices as it helps managers orientate their organization to gain a competitive advantage over rivals (Uddin et al., 2014; Sajjad et al., 2023). We suggest that entrepreneurial orientation heterogeneous distribution within the organization can craft and contribute new ideas, enhancing team commitment and ownership, and integrating for better business endeavors (Mertens et al., 2016; Soares and Perin, 2020; Wales, 2016). Therefore, we suggest the following hypothesis;
H_1: There is a positive relationship between entrepreneurial orientation and organizational performance.

Innovation Management as Moderator: Innovation management is defined as the extent to innovation practices can achieve its expected goal. The level of innovation management is determined through the organization's process, managerial and marketing innovation (O'Cass and Weerawardena, 2009) and strong devotion towards innovative practices within the organization (Wiklund and Sheperd, 2005). In strategic management research, innovation management is about generating new ideas in conceptualizing new methods of doing things and selecting relevant or good ideas for best practice and implementation (Bessant and Tidd, 2007). Due to this statement, innovation management is one of the key elements for a company's survival (Fontana and Musa, 2017).

In this paper, we theorize that innovation management is contingent upon the relationship between entrepreneurial orientation and organizational performance. There is a 'fit" between the relationship between a firm's capability and innovation-organizational performance (Adams et al., 2006; Yang, 2012). The intense competition forces the business to be more aggressive; especially in creative and innovative ways therefore will enable to them compete in the market (Arokodare and Falana, 2021). Identifying the weaknesses in the product or the process in the organization is vital so that it will lead to innovation activities (Lee et al., 2019). However, the success of the innovation would not been achieved without a proper innovation practice. Therefore, no matter how well the entrepreneurs trace the product or process problems, they will not be successful if they do not have good innovation management.

The innovation management concept is three sequential phases that involve idea generation, idea selection, idea development and idea diffusion of established concept (Hansen & Birkinsaw, 2007). Within the three sequential phases, an organization needs to perform cross-unit sourcing, internal sourcing and external sourcing, including selection, development and company-wide dispersion of ideas. Therefore, integrating the right mix of the innovation process can enable organizations to renew themselves, to adapt and adjust to the business environment accordingly. Therefore, we suggest the hypothesis as;
H_2: Innovation management will moderate the relationship between entrepreneurial orientation and organizational performance.

Business Environment as Moderator: The business environment is anything that surrounds the system and it could benefit the firm or vice versa (Hans, 2018). The business environment is dynamic so it keeps changing and is somehow difficult to predict. The business environment where the organization is operated is not the same as others for example the organization that operates in Europe is not the same in terms of legal being imposed compared to those operated in Asia. Failure to understand the business environment could lead to the wrong decision-making (Kollmann et al., 2007).

In an early investigation on business environment-based research, Mintzberg (1982) identifies business environment factors as contingent upon the strategy of the organization. As cited by Prescott (1986), "The concept of fit has served as an important building block for theory construction in strategic management. In the fit as moderation perspective, the effect that the predictor has on the criterion variable (firm performance) depends on the moderating variable (environment)." The concept of 'fit' shows the achievement of the firm depends on the firm's reaction to the business environment (Anderson and Eshima, 2013).

In this paper, we define the business environment as factors that come from outside of the firm that affect the entrepreneurial outcome. The external factors consist of political, economic, social as well as technological factors (Anthony, 1988). The proposed view on superior performance is that any strategy must adapt to the environment on which the organization depends, which will decisively influence the organization.

Scholars have discussed the concept of benign versus hostile in measuring the business environment (Naman and Slevin, 1993; Covin et al., 1999). Covin et al. (1989) have described the benign business environment as a stable market resulting in higher achievement in profit and facing less competition. The level of customer loyalty is high and easy to predict. Meanwhile, the business environment hostility encompasses the riskiest and most stressful market is and characterized by a high rate of business failure. The firm that operates in this business environment somehow can be in an uncertain situation as a result of uncontrollable factors such as technology and government regulation (Covin and Slevin, 1989). Therefore, the firm should adjust its tactics by strategically positioning itself to adapt to the current situation.

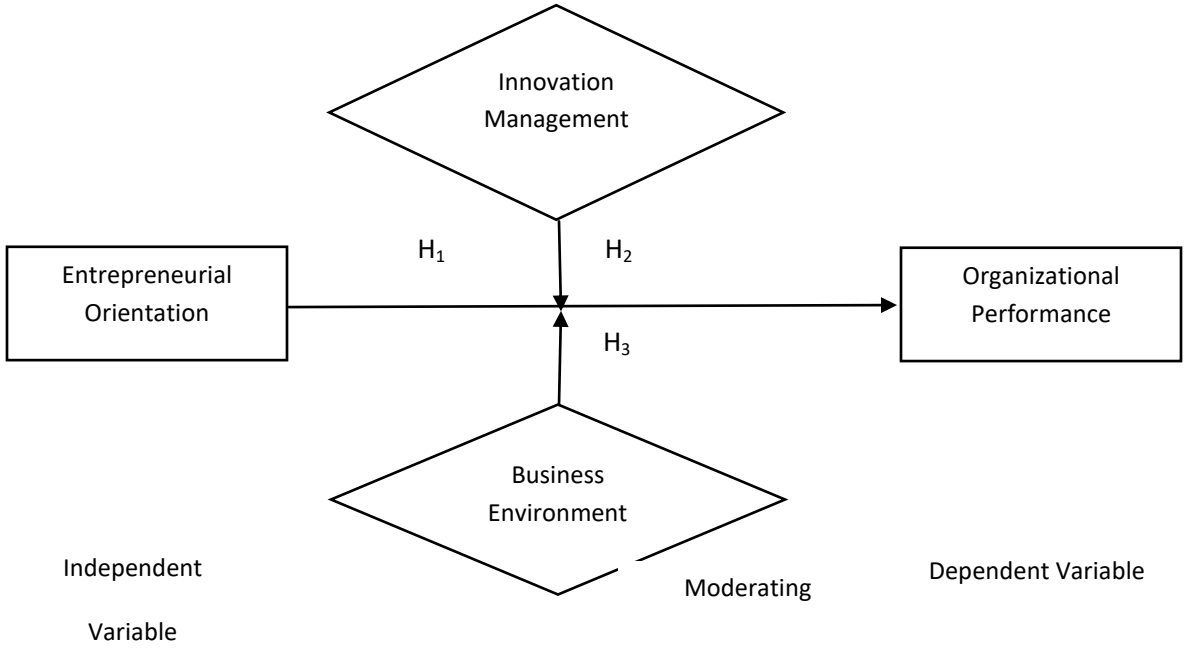
Even though the hostility of the business environment may result in underachieving in performance, scholars have shown the results oppositely. For example, scholars have discovered the significant impact of a hostile environment on firm performance for manufacturing businesses (Kach, 2013). Calantone et al. (1997) on the other hand have discovered that hostility provides pressure however the entrepreneurs strike back with strategies to develop the new product development. The management in handling the environmental hostilities can be improved and result in the firm's survival (Alvarez-Torres et al., 2019; Tajeddini and Mueller, 2018). Therefore, we formulate the hypothesis as;

H_3: Business environment will moderate the relationship between entrepreneurial orientation and organizational performance.

3. Proposed Theoretical Framework

By using Miller and Friesen's (1984) works, the journey of entrepreneurial firms is not straightforward. The journey integrates the characteristics of the business environment, strategies and entrepreneurs' capabilities which will be blended towards the organization's achievement. We presented the theoretical framework in Figure 1. The Independent variable consists of entrepreneurial orientation which signifies the capability of a firm's overall strategic orientation. This view aligned with Wiklund's (1998) in his doctoral thesis that portrays the entrepreneurs' entrepreneurial orientation as the willingness of a firm to engage in entrepreneurial behavior.

Figure 1: Theoretical Framework



The moderating variables consist of business environment and innovation management. The characteristics of the business environment itself such as benign and hostile may affect the decisions of the firms by adopting entrepreneurial behavior. On the other hand, innovation management enables the firm to respond quickly to the competitive movement of other firms. The higher level of responsiveness to detect earlier of the competitive movement may warrant the coordination of the organization units to be more innovative. The development of our theoretical framework is based on two theories; resource-based theory and contingency theory. We provide an overview of the theories in the next section.

Theories Related to Framework: The framework has been governed by two theories; RBV and contingency theory. The subtopic will discuss the theories and their application in the entrepreneurship field.

RBV: Historically, the RBV was developed by Penrose (1959) and elaborated a firm's growth established on its limited resources in operating its business. Inspired by this study, Wernerfelt (1984) introduced new RBV terms to emphasize firms' superior performance by looking at how firms utilized their valuable resources to conceive and implement their business strategy (Abdul Kohar, 2013). Barney (1991) suggested the assumptions that support the framework of RBV i.e. the strategic resources within the industry may be heterogeneous and these available resources might be valuable, rare, imperfect imitability and non-substitutable. Strategic resources can be seen as rare when they create value for the firm. Rare resources are regarded as special resources which are difficult to find among the existing competitor firms in the same industry whereas imperfect imitability encompasses the difficulty of competitor firms to copy or imitate the resources. The final criterion which is non-substituted suggests that resources cannot be easily been substituted by another alternative resource. It becomes hard for the competitors' firms to replace the resources with the alternative and hence the firm will retain their superior position in the market. The possession of the strategic resources will explain the variability of achievement of the firms compared to others (Helfat and Peteraf, 2003).

By using the RBV, a firm should understand to what extent the strategic resources as a firm's capabilities will contribute the value for sustain in the market (Barney, 1991). A firm's resources can be tangible and intangible (Molloy et al., 2011). Tangible resources refer to visible assets which contribute to the development of the business such as fixed assets whereas intangible resources include the strategic knowledge, capability and entrepreneurial orientation in managing the firms (Keranen and Jalkala, 2013; Runyan et al., 2006). Consistent with the argument of Barney (1991), we proposed the entrepreneurial orientation as the resource capabilities of the firms to comprehend and implement the strategies for the firm's sustainability. As such, we argue that entrepreneurial orientation is the source of the firm's capabilities which it turns to become valuable assets for leveraging the competitive advantage (Hitt et al., 2003).

Despite the richness of RBV to apprehend the roles of the resources for the sustainability of the firms, however, there is a critique on the actual process of value creation for the firms. There is less understanding of how firms obtain, combine and leverage resources, especially in certain circumstances (Sirmon et al., 2007). Moreover, the process of certain resources becoming more superior to others is less understood (Priem and Butler, 2001). Gaya et al. (2013) suggest recognizing the role of resources in making the firm more competitive through an activity-resource-based view. To detect the superiority of the firm is through the activity of utilizing both tangible and intangible assets. The process of achieving firm competitiveness is when the entrepreneurs use their intangible assets such as strategic ability to lower the cost per unit. Besides the firms are urged to acquire new and develop the current tangible and must fit with their firm's strategies (Gaya et al., 2013).

Therefore, understanding how firms use their resources is vital as every firm is significantly different in deployment which allows them to be more flexible and innovative (Salavou et al., 2004). Flexibility and innovativeness in utilizing their resources can help the firms to be more entrepreneurial. Larger firms can be more flexible in utilizing their resources so they are more competitive whereas small firms are living on the sharp end when they can be knocked out from the market if they make a wrong decision in perilousness and innovativeness.

Theory of Contingency: Contingency is a philosophical belief and has been defined as the possibility that something happens on the way whilst entrepreneurial firms try to achieve their business objectives. There is a notion of no single best way to organize the business or to make the decision as it depends on the intervention of internal and external factors (Katsikeas et al., 2016). Therefore, entrepreneurs should adjust their strategies so that they will fit with the factors that provide the impact to their business operation. Business performance can be optimal only by varying according to contingent factors.

Several authors show that the theory of contingency has been applied to organizational performance (Robinson and McDougall, 2001; Tsai and Yang, 2012; Zahra and Garvis, 2000). It denotes the role of the firm in planning the strategies that allow them to improve their efficiency (Chong and Chong, 1997; Scott, 2003). The performing firms have survived in the business by adjusting their strategies and fitting with the uncertainty of internal and external business environment (Lawrence and Lorsch, 1973). This type of entrepreneurial firm faces pressure from both internal and external factors, especially after post COVID-19 pandemic. For example, the older firm may create efficiency in their operation and lower the cost per unit. However, there is no guarantee for the older firm to sustain the business when they operate in an unstable business environment, especially during COVID-19. Therefore, to remain competitive, the firm should adjust its strategies to changing contextual factors (Sumer et al., 2012).

Entrepreneurs must understand the importance of contingency factors and their implications on the organization to sustain the business. The interaction between the internal and external factors on business operation may result in an uncertain position of the firm compared to the competitors. The unpredictable changes in competitors' activities may signal the entrepreneurs to coordinate the effort over the entire organization to implement a new business approach. Among the new business, approach is innovation. The innovation activities become a wake-up call for the unit which emphasizes the efficiency of operation and effectiveness of the output (Sanzo et al., 2012). As the competition in the market becomes tougher, entrepreneurs must think about how to cope with competition. Therefore, to maintain its position in the market, innovation management shall be improved.

Scholars have discussed the influence of the business environment that leads to the unpredictability of the achievement of entrepreneurial firms (Awang et al., 2009; Kovacs et al., 2016). Firms operated normally experiencing more stable conditions for example experiencing more profit, customer loyalty, and low competition among key players in the industry (Covin et al., 1999). Conversely, hostile business environments are indicated by unpredictable market competition, raw material shortage as well as changes in customers' tastes (Covin and Slevin 1989). Reality nowadays, firms who are concentrating on food and beverage are in safe condition due to the static demand for necessary goods especially during the COVID pandemic. Essentially, the customers have become more complex in terms of their purchasing trend and this should be monitored by the entrepreneurs so that their business is not left behind. The logic is when firms operate in a hostile business environment, it creates pressure on the firm to move forward (Martin et al., 2016). Hence, entrepreneurial firms should adjust their strategies so that their offering must match the requirements of the customer.

Eisenhardt and Sull (2001) recommended an alternative strategy to cope with the hostile business environment. The firms should be more flexible and disciplined and require a set of strategic regulations that can help the subordinate face the threat without interference from entrepreneurs. The subordinates are free to decide without referring to the top management. So, the slow progress of problem-solving will become faster. The advent of vision and top-down strategies must incorporate all tiers in the firms. The flexibility to adapt to a hostile business environment is called "emergent strategy making" (Mason, 2007).

4. Discussion and Contributions of this Paper

The relationship between entrepreneurial orientation and organizational performance has been central to entrepreneurship literature. More recently, researchers have started to put a greater focus on variables influencing the intensity or direction of the entrepreneurial orientation and organizational performance relationship. However, a debate has developed surrounding the nature of this relationship. While numerous

research done however the discoveries of the inconsistencies are stalemate. Current work seeking to explain the vagueness of organizational performance achievement is due to several factors.

Firstly, we found that the variability usage of dimension in measuring the entrepreneurial orientation. We provide some historical views of this construct. Entrepreneurial orientation (one-dimensional approach) was first introduced by Miller (1983), acting as operationalization which contains a firm's pro-activeness, risk-taking, and innovativeness. Two additional dimensions were added later by Lumpkin and Dess (1996) to describe an entrepreneurial firm that is autonomous and competitively aggressive. The latter adds to the original entrepreneurial orientation dimensions that propose to multidimensional construct. In a study by Anderson et al. (2015), they found out that entrepreneurial orientation dimensions as a multidimensional construct were due to two non-interchangeable dimensions: managerial attitude undertaking risk and entrepreneurial behavior (proactiveness and innovativeness), where both are essential to entrepreneurial orientation at organizational level existence. The two approaches can co-exist to provide unique insights (Covin & Lumpkin, 2011; Miller, 2011) and nonetheless, it is also to provide the importance of knowledge accumulation (George & Marino, 2011). So far, the majority of studies adopted the unidimensional approach focusing on the relationship between entrepreneurial orientation and organizational performance (Abu-Rumman et al., 2021; Anderson et al., 2015; Fadda, 2018; Martens et al., 2016) and some used several dimensions, for example, the usage of innovativeness, pro-activeness and risk-taking (Asad et al., 2020; Haider et al., 2017). Therefore, the inconsistencies in the findings related to organizational performance are revealed.

Secondly, as far as we are concerned, the inconsistencies of usage in measuring organizational performance are also leading to the inconsistencies above-mentioned relationship. For instance, the majority of the published works on entrepreneurial orientation are related to small and medium enterprises (SMEs) (Laskovaia et al., 2018; Milovanovic, 2022). However, the non-readiness of SMEs to publish their financial standing is always been cited in the literature. Even though the financial records are been prepared, however, the audited assessments are poorly conducted (Abu-Rumman et al., 2021). Therefore, the alternative to reporting the achievement of the performance is based on the perception of certain financial indicators. For example, among financial indicators that are always been used are return on investment, return on assets and net profits for a given accumulated year (Onwe et al., 2020). Non-standardization of measurement usage has led to conflicting results.

Thirdly, efforts are found to link the entrepreneurial orientation theme to family-based organizational performance. Even though the majority of research shows entrepreneurial orientation as the predictor of organizational performance (for example the works of Rachmawati and Suroso, 2022; Rauch et al., 2009), the other investigation shows otherwise. Scholars found that innovativeness and risk-taking (dimensions of entrepreneurial orientation) are insignificant predictors of family organizational performance (Hernadez-Linarez et al., 2019; Stenholm et al., 2015). The usability of these dimensions is directly for existence during the economic crisis and has not been used for expansion purposes (Alonso-Dos-Santos and Llanos-Conteras, 2018). The involvement of family members in the business is regarded as a liability towards entrepreneurial efforts where the motive of business existence is to protect the family's wealth. Therefore, this will lead to reluctance to risk-taking (Naldi et al., 2007) and retain the traditional strategies (Miller et al., 2003). Due to the above-mentioned arguments, it is clear that conflicting results are found raising the question of what are suitable measures to describe the entrepreneurial orientation for family-based organizations.

Fourth, the contradicting results are also been linked to the contextual factor especially when examining the entrepreneurial orientation with the stages of venturing. For example, Su et al. (2011) revealed that entrepreneurial orientation is found to an inversely U-shaped with organizational performance. This is due to the liability of newness for the ventures especially when confronted with resources, less networking and due to the size of businesses itself. The finding is contradicted for the established firms where it was discovered that the relationship is positively related to organizational performance. To have a better understanding, the expansion of an organization should be in line with its size and capability as well as its entrepreneurial level so that any harmful situation can be avoided (Wales et al., 2013).

Another contextual factor that leads to inconclusive results is the level of achievement of the country. It is discovered that the relationship of entrepreneurial orientation with organizational performance for

developing countries is mixed. For example, Luu and Ngo (2019) found that entrepreneurial orientation and organizational performance have an inverted U-shaped in Vietnam. Another finding revealed no significant relationship between these two constructs in developing countries such as Malaysia (Nasip et al., 2017). Compared to the developed countries experiencing superior wealth, the relationship between these two properties is positively related (Rauch et al., 2009). In a nutshell, businesses in developed countries focus on fostering firm growth whereas the profit gained from the business is used to support the lives of entrepreneurs in developing countries (Eijdenberg, 2016).

Our literature search found that organizational performance is impacted by the establishment of firms. For example, Su et al. (2011) found the relationship between the new firms and organizational performance is inverse U-shaped whereas a positive relationship is found for the established firms. New firms have disadvantages of business networks, inconsistencies of material supplies and less capability to crack the monopolized market by the established firms (Acosta et al., 2018). However, persistent entrepreneurs strive with high-risk propensity and always engage in opportunity discovery will ornamental their new ventures (Helm et al., 2010). The new firms may enjoy superior performance in the industry by introducing new products before the rivals do (Yang and Meyer, 2019).

Scholars also found the differences in results between entrepreneurial orientation and organizational performance when doing the analyses based on firm size and industry. For example, Kuckertz et al. (2020) suggest that smaller firms are more struggling and keep aggressively securing business opportunities. Apart from this, due to the flattening of organizational structure; the entrepreneurial characteristics are easily transferred to the subordinate. It has also been discovered that entrepreneurial orientation has more impact on organizational performance for firms that operate in dynamic and technological rapid changes (Rauch et al., 2009; Tajeddini and Mueller, 2019). Firms operating in such an environment normally operate under stress which leads them continuously in predicting the changes in the taste of the customer and responding fast to the information acquired (Wang et al., 2020). Based on the aforementioned above, these context-specific factors have led to inconclusive results on the relationship between entrepreneurial orientation and organizational performance.

The conception of a firm's innovation management and business environment has also been framed in affecting the direct relationship of entrepreneurial orientation on organizational performance. Building on our exploration of the literature review in the previous sections, we examine here the empirical works that intend to understand the phenomenon; there is no single ideal step in achieving superior organizational performance. Hence, the introduction of the innovation management and business environment are due to the dynamism of the venturing of the firms. The dynamism so called the fit of action of innovation activities in responding to the competitors' movement in enhancing their products or services (Rambe and Khaola, 2023). Meanwhile, the business environment requires entrepreneurs to act to the changes in the business landscape and determine the best strategies to cope with (McAdam et al., 2019).

We contribute to the existing literature on entrepreneurial orientation-based research in two substantial ways. First, we discussed in detail why there are incongruent results related to entrepreneurial orientation and organizational relationships. Secondly, we propose to add two moderators namely innovation management and business environment to the framework to understand how beneficial entrepreneurial orientation will be for organizational performance. While some debates on the nature of the relationship between entrepreneurial orientation and organizational performance are stalemate, we are in the position to enlarge the view of this relationship into other aspects that have never been done with the potential to enhance the theory and its applications. The two theories integrated namely RBV and contingency theory will broaden the view of the entrepreneurial process especially when confronted with the resources and impacted by the uncertainty of the business environment.

5. Conclusion

In this paper, we set out to address the debate in entrepreneurial orientation-based research on the inconsistency of the relationship between entrepreneurial orientation and organizational performance. We discussed the probability of why the entrepreneurial orientation-organizational performance relationship is

not consistent. We have found among the factors are varieties of dimensions in measuring entrepreneurial orientation and organizational performance. Apart from that, contextual influences such as the level of achievement of the countries, family-based entrepreneurial orientation, new venture creation, industry differences as well as the size of the business are the factors that contribute to the contradictions. In the process of reviewing the previous works, we noted the inclusion of innovation management and business environment variables as important factors to be included in entrepreneurial orientation-based research. Thus, adding both variables into a single will provide a unified model and serve better, especially to the firms in achieving optimal performance.

Acknowledgments: We would extend our gratitude to Universiti Teknologi MARA's Research Management Centre (RMC) for funding this topic under Graduate Initiative Grant (GIP) No. 600-RMC/GIP 5/3 (005/2021).

References

Abdul Kohar, U. H. (2013). The factors that influence the sustainability of Malaysian Bumiputera (indigenous) new technology-based small firms. PhD Dissertation, RMIT University.

Abu-Rumman, A., Al Shraah, A., Al-Madi, F. & Alfalah, T. (2021). Entrepreneurial networks, entrepreneurial orientation, and performance of small and medium enterprises: Are dynamic capabilities the missing link? *Journal of Innovation and Entrepreneurship*, 10, 1–16.

Acosta, A. S., Angel, H. C. & Jesus, C. A. (2018). Effect of market orientation, network capability and entrepreneurial orientation on international performance of small and medium enterprises (SMEs). *International Business Review*, 27, 1128–40.

Adams, R., Bessant, J. & Phelps, R. (2006). Innovation management measurement: A review. *International Journal of Management Reviews,* 8(1), 21-47.

Aliyu, M. S., Rogo, H. B. & Mahmood, R. (2015) Knowledge management, entrepreneurial orientation and firm performance. The role of organizational culture. *Asian Social Science*, 11(23), 140-152.

Aloulou, W. & Fayolle, A. (2005). A conceptual approach of entrepreneurial orientation within small business context. *Journal of Enterprising Culture*, 13(01), 21-45.

Alvarez-Torres, F. J., Lopez-Torres, G. C. & Schiuma, G. (2019). Linking entrepreneurial orientation to SMEs' performance: Implications for entrepreneurship universities. *Management Decision*, 57(12), 3364-3386.

Anderson, B. S., Kreiser, P. M., Kuratko, D. F., Hornsby, J. S. & Yoshihiro, E. (2015). Reconceptualizing entrepreneurial orientation. *Strategic Management Journal*, 36(10), 1579-1596.

Anthony, R. N. (1988). The Management Control Function. Boston: Harvard University Press.

Arbaugh, J. B., Cox, I. W. & Camp, S. M. (2002). Is entrepreneurial orientation a global construct? A multi-country study of entrepreneurial orientation, growth strategy and performance. *The Journal of Business Inquiry*, 8(1), 12-25.

Arokodare, M. A. & Falana, B. R. (2021). Strategic agility and the global pandemic: The agile organizational structure, a theoretical view. *Information Management and Business Review,* 13(1), 16-27.

Asad, M., Chethiyar, S. D. & Ali, A. (2020). Total quality management, entrepreneurial orientation, and market orientation: Moderating effect of environment on performance of SMEs. *Paradigms*, 14(1), 102–108.

Anderson, B. S. & Eshima, Y. (2013). The influence of firm age and intangible resources on the relationship between entrepreneurial orientation and firm growth among Japanese SMEs. *Journal of Business Venturing,* 28(3), 413–429.

Andrade-Valbuena, N. A., Merigo-Lindahl, J. M. & Olavarrieta, S. (2019). Bibliometric analysis of entrepreneurial orientation. *World Journal of Entrepreneurship, Management and Sustainable Development,* 15(1), 45-69.

Awang, A., Yusof, A. A., Mohamed Kassim, K., Ismail, M., Sheik Zain, R. & Madar, A. R. S. (2009). Entrepreneurial orientation and performance relations of Malaysian Bumiputera SMEs: The impact of some perceived environmental factors. *International Journal of Business and Management*, 4(9), 84–96.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.

Bessant, John. & Tidd, Joe. (2007). Innovation and entrepreneurship. West Sussex: John Wiley & Sons.

Calantone, R. J., Schnidt, J. B. & Benedetto, A. D. (1997). New product activities and performance: The moderating role of environmental hostility. *Journal of Product Innovation Management*, 14(3), 179-189.

Chong, V. K. & Chong, K. M. (1997). Strategic choices, environmental uncertainty and SBU performance: A note on the intervening role of management accounting systems. *Accounting and Business Research*, 27, 268-276.

Covin, J. G. & Wales, W. J. (2018). Crafting high-impact entrepreneurial orientation research: Some suggested guidelines. *Entrepreneurship Theory and Practice*, 36(4), 677-702.

Covin. & Lumpkin. (2011). Entrepreneurial orientation theory and research: Reflections on a needed construct. *Entrepreneurship theory and practice*, 35(5), 855-872.

Covin, J. G. & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75-87.

Covin, J. G., Slevin, D. P. & Heely, M. (1999). Pioneers or followers: Competitive tactics, environment and firm growth. *Journal of Business Venturing,* 15(2), 175-210.

Eijdenberg, E. L. (2016). Does one size fit all? A look at entrepreneurial motivation and entrepreneurial orientation in the informal economy of Tanzania. *International Journal of Entrepreneurial Behavior & Research,* 22(6), 1–31.

Eisenhardt, K. M. & Sull, D. N. (2001). Strategy as simple rules. *Harvard Business Review*, 79(1), 106-116.

Fadda, N. (2018). The effects of entrepreneurial orientation dimensions on performance in the tourism sector. *New England Journal of Entrepreneurship*, 21(1), 22-44.

Fontana, A. & Musa, S. (2017). The impact of entrepreneurial leadership on innovation management and its measurement validation. *International Journal of Innovation Science,* 9(1), 2-19.

Fox, J. (2005). Organizational entrepreneurship and the organizational performance linkage in university extension. Research Report, The Ohio State University.

Gaya, H. J., Struwig, M. & Smith, E. E. (2013). Creating a sustainable competitive advantage at a high-performing firm in Kenya. *African Journal of Business Management,* 7(21), 2049-2058.

George, B. A. & Marino, L. (2011). The epistemology of entrepreneurial orientation: Conceptual formation, modeling, and operationalization. *Entrepreneurship Theory and Practice*, 35(5), 989-1024.

Gupta, V. & Gupta, A. (2015). The concept of entrepreneurial orientation. *Foundations and Trends in Entrepreneurship*, 11(2), 55-137.

Gupta, V. K. & Batra, S. (2016). Entrepreneurial orientation and firm performance in Indian SMEs: Universal and contingency perspectives. *International Small Business Journal*, 34(5), 660-682.

Haider, S. H., Asad, M., Fatima, M. & Abidin, R. Z. (2017). Microfinance and performance of micro and small enterprises: Does training have an impact. *Journal of Entrepreneurship and Business Innovation*, 4(1), 1-13.

Hans, B. V. (2018). Business 0environment-Conceptual and policies. *International Educational Scientific Research Journal*, 4(3), 67-74.

Hansen, M. T. & Birkinshaw, J. (2007). The innovation value chain. *Harvard Business Review*, 85(6), 121.

Helfat, C. E. & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, 24 (10), 997-1010.

Hernandez-Linares, R., Kellermanns, F. W., Lopez-Fernandez, M. C. & Sarka, S. (2019). The effect of socioemotional wealth on the relationship between entrepreneurial orientation and family business performance. *Business Research Quarterly*, 23(3), 174-192.

Helm, R., Mauroner, O. & Dowling, M. (2010). Innovation as the mediator between entrepreneurial orientation and spin-off venture performance. *International Journal of Entrepreneurship and Small Business*, 11(4), 472–491.

Hitt, M., Irland, R. & Hoskisson, R. (2003). Strategic Management: Competitiveness and Globalization, 5th Edition, South-Western, Cincinnati: Ohio.

Kach, A. P. (2013). The impact of environmental hostility on firm performance: A strategic orientation of manufacturing industries perspective. Doctoral Dissertation, New Mexico State University.

Karyotakis, K. M. & Moustakis, V. S. (2016). Organizational factors, organizational culture, job satisfaction and entrepreneurial orientation in public administration. *The European Journal of Applied Economics*, 13(1), 47-59.

Katsikeas, C. S., Leonidou, C. N. & Zeriti, A. (2016). Eco-friendly product development strategy: Antecedents, outcomes, and contingent effects. *Journal of the Academy of Marketing Science*, 44, 660–684.

Keranan, J. & Jalkala, A. (2013). Towards a framework of customer value assessment in B2B markets: An exploratory study. *Industrial Marketing Management*, 42(8), 1307-1317.

Kollmann, T., Christofor, J. & Kuckertz, A. (2007). Explaining individual entrepreneurial orientation: conceptualization of a cross-cultural research framework. *International Journal of Entrepreneurship and Small Business,* 4(3), 325–340.

Kovacs, D., Zulauf, K., Urkmez, T., Brockhaus, D. & Wagner, R. (2016). Linking entrepreneurial orientation to firm performance in a post-socialist market context: The moderating role of environment and age. *Management Dynamics in the Knowledge Economy,* 4(4), 571–589.

Kuckertz, A., Brandle, L., Gaudig, A., Hinderer, S., Reyes, C. A. M., Prochotta, A. & Berger, E. S. (2020). Startups in times of crisis- A rapid response to the COVID-19 pandemic. *Journal of Business Venturing Insights*, 13, e00169.

Kusumawardhani, A. (2013). The role of entrepreneurial orientation on firm performance: A study of Indonesian SMEs in the furniture industry in Central Java. PhD Thesis, University of Wollongong.

Laskovaia, A., Mariono, L. D., Shirokova, G. & Wales, W. (2019). Expect the unexpected: Examining the shaping role of entrepreneurial orientation on causal and effectual decision-making logic during economic crisis. *Entrepreneurship & Regional Development,* 31, 456-475.

Laudano, M. C., Marzi, G. & Caputo, A. (2018). A decade of the International Journal of Entrepreneurship and Small Business: A bibliometric analysis. *International Journal of Entrepreneurship and Small Business*, 33(2), 289-314.

Lawrence, P. R. & Lorsch, J. W. (1967). Organization and environment. Harvard Business School: Boston.

Lee, R., Lee, J. H. & Garrett, T. C. (2019). Synergy effects of innovation on firm performance. *Journal of Business Research,* 99, 507-515.

Lomberg, C., Urbig, D., Stoecmann, C. & Dickson, P. H. (2017). Entrepreneurial orientation: The dimensions' shared effects in explaining firm performance. *Entrepreneurship: Theory & Practice,* 41(6), 973-998.

Lumpkin, C., Claudia, C. & Schneider, D. R. (2009). Understanding and measuring autonomy: An entrepreneurial orientation perspective. *Entrepreneurship: Theory and Practice,* 33(1), 47-69.

Martens, C. D. P., Lacerda, F. M., Belfort, A. C. & Freitas, H. M. R. (2016). Research on entrepreneurial orientation: Current status and future agenda. *International Journal of Entrepreneurial Behavior & Research*, 22(4), 556-583.

Mason, R. B. (2007). The external environment's effect on management and strategy: A complexity theory approach. *Management Decision*, 45(1), 10-28.

McAdam, R., Miller, K. & McSorley, S. (2019). Towards a contingency theory perspective of quality management in enabling strategic alignment. *International Journal of Production Economics*, 207, 195-209.

McClelland, D. C. (1987). Characteristics of successful entrepreneurs. *The Journal of Creative Behavior*, 21(3), 219-233.

Miller. (2011). Miller (1983) Revisited: A reflection on EO research and some suggestions for the future. *Entrepreneurship Theory and Practice,* 35(5), 873-894.

Miller, D. & Friesen, P. (1984). Organizations: A quantum view. Englewood Cliffs, New Jersey: Prentice Hall.

Milovanovic, B. M. (2022). Exploring direct and non-linear effects of entrepreneurial orientation and its dimensions on firm performance in a small, open, transitional economy. *Strategic Management*, 27, 26-38.

Molly, J., Chadwick, C., Ployhart, R. & Golden, S. (2011). Making intangibles "tangible:" A multidisciplinary critique and validation framework. *Journal of Management*, 37, 1496-1518.

Naldi, L., Nordqvist, M., Sjoberg, K. & Wiklund, J. (2007). Entrepreneurial orientation, risk-taking and performance in family firms. *Family Business Review*, 20(1), 33-48.

Naman, J. L. & Slevin, D. P. (1993) Entrepreneurship and the concept of fit: A model and empirical tests. *Strategic Management Journal*, 14, 137-153.

Nasip, S., Fabeil, N. F., Bincha, M. R., Hui, J. N. L. & Sondoh, S. (2017). The influence of entrepreneurial orientation and social capital on the business performance among women entrepreneurs along west Coast Sabah, Malaysia. Proceedings of International Conference on Economics 2017 (ICE2017), Kota Kinabalu, Sabah, Malaysia.

Ngah, R., Salleh, Z. & Zainal Abidin, Z. (2018). Exploring business performance in micro-enterprises through entrepreneurial orientation. *Management & Accounting Review,* 17(2), 93-106.

O'Cass, A. & Weerawardena, J. (2009). Examining the role of international entrepreneurship, innovation and international market performance in SME internationalization. *European Journal of Marketing*, 43 (11/12) 1325-1348.

Onwe, C. C., Ogbo, A. & Aweh, A. B. (2020). Entrepreneurial orientation and small firm performance: The moderating role of environmental hostility. *Entrepreneurial Business and Economics Review*, 8(4), 67-84.

Penrose, E. (1959). The theory of the growth of the firm. Oxford: Basil Blackwell.

Prescott, J. F. (1986). Environments as moderators of the relationship between strategy and performance. *Academy of Management Journal*, 29(2), 329-346.

Priem, R. L. & Butler, J. E. (2001). Is the resource-based "view" a useful perspective for strategic management research? *Academy of Management Review,* 26, 22-40.

Putnins, T. J. & Sauka, A. (2020). Why does entrepreneurial orientation affect company performance? *Strategic Entrepreneurship Journal,* 14(4), 711-735.

Rachmawati, E. & Suroso, A. (2022). Direct and indirect effect of entrepreneurial orientation, family involvement and gender on family business performance. Journal of Family Business Management, 12(2), 214-236.

Rambe, R. & Khaola, P. (2023). Enhancing competitiveness through technology transfer and product quality: The mediation and moderation effects of location and assets value. Journal of Innovation and Entrepreneurship, 12(19), 1-23.

Rauch, A., Wiklund, J., Lumpkin, G. T. & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761-787.

Renko, M., Carsrud, A. & Brannback, M. (2009). The effect of market orientation, entrepreneurial orientation, and technological capability on innovativeness: a study of young biotechnology ventures in the United States and Scandinavia. *Journal of Small Business Management,* 47, 331–369.

Robinson, K. C. & McDougall, P. P. (2001). Entry barriers and new venture performance: a comparison of universal and contingency approaches. *Strategic Management Journal*, 22, 659–685.

Runyan, R., Huddleston, P. & Swinney, J. (2006). Entrepreneurial orientation and social capital as small firm strategies: A study of gender differences from a Resource-Based View, *Entrepreneurship Management*, 2, 455-477.

Sajjad, A., Ibrahim, Y., Shamsuddin, J. & Sharif, S. (2023). Impact of entrepreneurial orientation on SME performance: The moderating role of environmental turbulence. *Prabandhan Journal of Management*, 16(5), 18-36.

Sanzo, M. J., Alvarez, L. I., Rey, M. & Garcia, N. (2012). Perceptions of top management commitment to innovation and R&D-marketing relationship effectiveness: Do they affect CSR? *Annals Public and Cooperative Economics,* 83, 383–405.

Schepers, J., Voordeckers, W., Steijvers, T. & Laveren, E. (2014). The entrepreneurial orientation-performance relationship in private family firms: The moderating role of socioemotional wealth. *Small Business Economics*, 43, 39–55.

Scott (2003). Diversity of budgetary control practices: contingent and neo-institutional approaches. *Finance Control Strategy*, 13(3), 115-53.

Sirmon, D. G., Hitt, M. A. & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review,* 32, 273-292.

Soares, M. D. C. & Perin, M. G. (2020). Entrepreneurial orientation and firm performance: An updated meta-analysis. *RAUSP Management Journal*, 55(2), 143-159.

Stenholm, P., Pukkinen, T. & Heinonen, J. (2015). Firm growth in family business- The role of entrepreneurial orientation and the entrepreneurial activity, *Journal of Small Business Management,* 54(2), 697-713.

Su, Z., Xie, E. & Li, Y. (2011). Entrepreneurial orientation and firm performance in new ventures and established firms. *Journal of Small Business Management*, 49, 558-577.

Sumer, K., Turkey, I. & Bayraktar, C. A. (2012). Business strategies and gaps in Porter's typology: a literature review. *Journal of Management Research*, 4(3), 100-119.

Tajeddini, K. & Mueller, S. (2018). Moderating effect of environmental dynamism on the relationship between a firm's entrepreneurial orientation and financial performance, *Entrepreneurship Research Journal*, 9(4), 1-13.

Tsai, K. & Yang, S. (2012). The contingent value of firm innovativeness for business performance under environmental turbulence. *International Entrepreneurship and Management Journal,* 10(2), 343-366.

Uddin, R., Bose, T. K. & Yousuf, S. (2014). Entrepreneurial orientation (EO) and performance of business in Khulna City, Bangladesh. *Journal of Small Business & Entrepreneurship*, 27(4), 343-352.

Wales, W. J., Patel, P. C., Parida, V. & Kreiser, P. M. (2013). Nonlinear effects of entrepreneurial orientation on small firm performance: The moderating role of resource orchestration capabilities. *Strategic Management Journal,* 7, 93-121.

Wang, M. C., Chen, P. C. & Fang, S. C. (2020). How environmental turbulence influences firms' entrepreneurial orientation: the moderating role of network relationships and organizational inertia. *Journal of Business & Industrial Marketing,* 36(1), 48-59.

Wernerfelf, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.

Wiklund, J. & Shepherd, D. (2005). Entrepreneurial orientation and small business performance: A configurational approach. *Journal of Business Venturing*, 20(1), 71-91.

Wiklund, J. (1998). Small firm growth and performance: Entrepreneurship and beyond. Doctoral Thesis. Jonkoping International Business School, Sweden.

Wu, J. (2011). Asymmetric roles of business ties and political ties in product innovation. *Journal of Business Research*, 64(11), 1151-1156.

Yang, C. C. (2012). Assessing the moderating effect of innovation capability on the relationship between logistics service capability and firm performance for ocean freight forwarders. *International Journal of Logistics Research and Applications*, 82, 226-237.

Yang, W. & Meyer, K. E. (2019). Alliance proactiveness and firm performance in an emerging economy. *Industrial Marketing Management,* 82,226–237.

Zahra, S. A. & Garvis, D. (2000). International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility. *Journal of Business Venturing,* 15(1), 469-492.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Older, the Wiser? Investigating the Effect of CEO Age on the Bank Performance in Malaysia

Mei-Shan Chua*[1], Siti Nurhidayah Roslen[2] & Pang Mary[3]
[1,2]Department of Economics and Financial Studies, Faculty of Business and Management, Universiti Teknologi Mara (Puncak Alam Campus), Malaysia
[3]School of Accounting and Finance, Nilai University, 71800 Nilai, Negeri Sembilan, Malaysia
*meishan@uitm.edu.my

Abstract: This paper aims to investigate the impact of CEO age on commercial bank performance in Malaysia. Our sample data consists of 84 observations from commercial banks in Malaysia from 2016 to 2021. Using the Quantile Regression Method, we find that the CEO's Age positively influences the commercial bank's performance. This finding indicates the wisdom of the CEO in making decisions when they are getting older, positively affecting the commercial bank's performance. The result is consistent with the resource-based view; the CEO is the invaluable human capital providing experience in managing the bank's performance. Our findings guide practitioners in hiring a qualified CEO.

Keywords: *CEO Age, CEO education, Commercial Bank performance, Malaysia, Quantile regression*.

1. Introduction

Hiring the wrong Chief Executive Officer (CEO) affects not just the financial performance but the entire business (Anania, 2020). In other words, a qualified CEO is crucial for the firm's survival because it affects the team culture and productivity of the firm. The literature shows the investigation of CEO effectiveness is centred around non-financial firms. Financial firms were typically filtered out of the analysis due to different reporting requirements than non-financial firms. This causes difficulties in drawing inferences regarding the impact of CEO fixed effects (i.e., CEO effectiveness) on the banking industry. Therefore, this study aims to investigate the effectiveness of the CEO (proxied by CEO experience measured by CEO age) on commercial bank performance in Malaysia. Research examining CEO age and bank performance relationships in Malaysia is necessary. The Development of Financial Institutions Act 2002 (Act 618) states that financial institutions should be managed by a "fit and proper" CEO in terms of educational qualifications and experience to strengthen the bank's performance. However, the Act did not specify the types of educational qualifications and experience that a CEO should possess. The mandatory retirement age for workers in Malaysia is 60; however, a recent news report says that commercial bank staff are eligible to retire after 61 (Parkaran, 2023).

The news indirectly implies the worthiness of the older worker, implying that the more senior worker has value in contributing their expertise and experience to the workplace. The ambiguity of the Act and the decision to lengthen the commercial bank staff motivate us to investigate further the influence of CEO age on commercial bank performance in Malaysia. The CEO's age might contribute to two different effects on the commercial bank's performance. First, it is argued that older CEOs could significantly improve their performance if they use the experience gained through their accumulated experience and knowledge as they age to manage the firm operations (Cline & Yore, 2016; Peni, 2014; Shan et al., 2019). Second, older CEOs might harm the bank's performance if they turn out to be conservative and risk-averse when dealing with the complexity of the commercial bank environment (Belenzon et al., 2019; Bertrand & Schoar, 2003; Serfling, 2014) as prior studies focused on examining observable factors, such as bank-specifics, macroeconomic factors, and corporate governance. As determinants of commercial bank performance (Khanifah et al., 2020; Nainggolan et al., 2022; San & Heng, 2013; Sufian et al., 2016). It is difficult for us to quantify the direct impact of unobservable factors such as managerial fixed effects (i.e., CEO age) on the commercial bank's performance.

Recently, Gupta & Mahakud (2020) and Pham (2023) have emphasized the importance of CEO characteristics as determinants of commercial bank performance in India and Vietnam, respectively. This empirical evidence convinces us that an investigation on the CEO age in explaining commercial bank performance in Malaysia would produce meaningful findings for the literature. The novel contribution of our study is to highlight the effect of CEO age at different quantiles of the conditional distribution (outside the mean of the data) of commercial bank performance in Malaysia. The use of QRM made the estimators more robust in providing

comprehensive inferences about the relationship between CEO age and commercial bank performance. Unlike previous studies such as Khanifah et al. (2020), Nainggolan et al. (2022), San & Heng (2013) and Sufian et al. (2016), which observed Malaysian banking performance based on bank-specific, macroeconomic and corporate governance factors, we are the first to examine the impact of the managerial fixed effect on commercial bank performance in Malaysia, at least to the best our knowledge. The inclusion of CEO age added an empirical contribution to the positive impact of the older CEO that is supported by the resource dependency theory. Furthermore, this research is more likely to assist the policymaker in designing a proper and suitable policy for hiring older workers. As Malaysia is experiencing a greater percentage of an ageing population in the future (Bernama, 2022), we showed the worthiness of hiring older workers at the workplace, which signifies that an ageing population is not a bad indicator of commercial bank performance, and hence promotes economic growth.

2. Literature Review

According to resource dependency theory, the firm's internal environment, such as its resources and capabilities, is invaluable capital for achieving the firm's objectives (Pfeffer & Salancik, 1978). In other words, the CEO is a strategic resource for the firm to gain a competitive advantage. The CEO's Age is the length of time since the CEO was born. The Age represents the top management's accumulated experience, knowledge, and quality (Cline & Yore, 2016; Peni, 2014; Shan et al., 2019). Taylor (1978) posits that older managers have a better capacity to process information into good decisions than younger managers. More senior managers are argued to have a competitive edge compared to younger managers due to their greater work experience and concentration on the firm's long-term goals (Peni, 2014). Other arguments suggest that younger CEOs are conservative in adopting riskier investment policies because they will be punished more severely for poor performance (Serfling, 2014). D'Ewart (2015) empirically showed that older CEOs aged between 50 to 60 made significant contributions to the firms' abnormal returns. Similarly, Serfling (2014) exhibited that older CEOs positively influence risk-adjusted returns and reduce the volatility of stock returns compared to younger CEOs.

Li et al. (2020), who conducted a study based on China firms, discovered that CEO age positively correlates with the firm's growth and CSR activities. Pham (2023) relates the CEO's Age with their working time, in which longer working time helps the older CEO establish a reliable and efficient working group that leads to better performance. The Upper Echelons Theory, on the other hand, suggests that the firm's performance is a reflection of its top executives (Hambrick & Mason, 1984). The theory posits that older executives have conservative behaviour due to a lower ability to integrate information, psychological commitment to the status quo, and risk aversion towards financial and career insecurity. Bertrand & Schoar (2003) infer that older CEOs merely focus on projects that produce earlier results and are risk averse, negatively impacting the firm's performance. In other words, younger CEOs are more aggressive and tend to take more significant risks to signal superior ability (Serfling, 2014). According to Cline and Yore (2016), the CEO's quantitative competence, multitasking skills, and risk perception decline as he or she matures, destroying the firm's worth. By using closely held firms in three Western countries, Belenzon et al. (2019) found that the firms managed by older CEOs were associated with lower investment, lower sales growth, and lower profitability.

Similarly, Han (2023) reported that young companies with young CEOs experience higher increases in assets and sales, spend more on capital expenditure, and engage in more R&D activities than similar companies with older CEOs. Setiawan & Gestanti (2022) and Shan et al. (2019) showed that CEO age has a negative impact on the firm's financial policy. Based on theories and past empirical findings, CEO age can be viewed from two perspectives. It seems that having older CEOs could bring pros and cons to the company, depending on how we perceive the older CEOs' value. Suppose the older CEOs used their accumulated working experience to help achieve firms' goals. In that case, the firms' performance is expected to be superior to those led by the younger CEOs. However, the older CEOs may not act in the firms' interest due to their risk-averse behaviour toward making riskier decisions. Although the fear of taking risky activities may conquer older CEOs, we believe that their working experience may surpass their fear, which helps make accurate decisions and improves the firm performance. Hence, we hypothesized that:
H1: The older CEO positively impacts the bank's performance in Malaysia.

3. Methodology

Sample: The study aims to investigate the relationship between CEO age and banks' performance for all commercial banks in Malaysia from 2016 to 2021. We obtained all the financial data from Thomson Reuters and manually collected the CEO characteristics data from the bank's annual financial statements. To mitigate the potential estimation bias, we construct a balanced panel by ensuring the data for all banks are available for consecutive years. Any missing data were supplemented using the available data from the financial statements and the banks' websites. After removing the banks without the data, we obtained 14 commercial banks that yielded 84 observations.

Estimation Model: The research model is built from relevant theories and empirical studies of Gupta & Mahakud, (2020), Liu & Jiang (2020), Nguyen et al. (2018) and Pham (2023):

$$\text{Bankperf} = \beta_1 \text{CEO Age} + \beta_2 \text{ CEO Education} + \beta_3 \text{Bank Size} + \beta_4 \text{ Bank Age} + \beta_5 \text{Bank Capital} + \beta_5 \text{Deposit Growth} + \lambda.\text{year} + \varepsilon \quad \text{(Equation 1)}$$

Where,
Bankperf = Proxy by Return on assets measured by the percentage of net profit divided by total assets (main results) and Return on Equity measured by the percentage of net profit divided by total equity (robustness results)
CEO Age = Natural log of CEO Age-adjusted by year
CEO Education = A dummy variable of 1 for CEO with financial Education and 0 otherwise
Bank Size = Natural log of total assets
Bank Age = The Age of the bank since establishment adjusted by year
Bank Capital = A ratio of total equity divided by total assets
Deposit Growth = percentage of growth in deposits

In our study, Bank Performance (bankperf) is the dependent variable and the CEO's age is the independent variable. Following the previous studies, we included a set of control variables such as CEO education, bank size, bank age, bank capital and deposit growth.

Estimation Method: We first employed the Ordinary Least Square (OLS) method to run the analysis to estimate equation 1. However, OLS can only capture the average conditional effects of all the explanatory variables. In other words, this technique cannot capture all the information between CEO age and commercial bank performance. As the CEO characteristics are heterogeneous, we used the Quantile Regression method (QRM) to estimate the CEO's Age's impact at different quantiles of the conditional distribution of the banks' performance. The QRM is also argued to be more robust in the presence of outliers. Hence, using QRM can provide a more comprehensive estimation of the relationship between the CEO's Age and the banks' performance.

4. Results and Discussion

Table 1 summarises the features of the descriptive statistics of all variables for the entire samples used in our study. The data show that the average CEO age is 3.9785 (I.e., 53.44 years), which indicates that the commercial banks in Malaysia are managed by CEOs aged 53 years old, which is still within the mandatory retirement age of the bank staff in Malaysia.

Table 1: Descriptive Statistics

	Mean	SD	Q25	Q50	Q75	Skewness	Kurtosis
Return on Assets	0.0099	0.0057	0.0077	0.0099	0.0117	-1.5328	13.5628
Return on Equity	0.0905	0.0509	0.0745	0.0997	0.1170	-0.0026	19.9976
CEO Age	3.9785	0.1213	3.9120	3.9512	4.0163	1.6484	6.1364
CEO Education	0.7142	0.4544	0.0000	1.0000	1.0000	-0.9486	1.9000
Bank Size	17.9721	1.8741	16.0585	18.3551	19.3381	-0.5608	1.9827
Bank Age	3.5873	0.4288	3.2189	3.5694	3.9512	0.2431	2.1227
Bank Capital	0.1200	0.0465	0.0945	0.1036	0.1241	2.0483	6.7719
Deposit Growth	0.2091	0.0717	-0.0025	0.0390	0.0675	-0.1587	4.2647

Table 2 shows the correlation result between the independent variables. Based on the correlation results, we suggest the absence of multicollinearity issues because the coefficients of the variables were less than 0.8 (Shrestha, 2020).

Table 2: Correlation between the Variables

	CEO Age	CEO Education	Bank Size	Bank Age	Bank Capital	Deposit Growth
CEO Age	1					
CEO Education	0.0589	1				
Bank Size	0.2139	0.1696	1			
Bank Age	0.1414	0.073	0.7905*	1		
Bank Capital	-0.0807	-0.2642*	-0.6684*	-0.3843*	1	
Deposit Growth	-0.0417	0.0925	0.1135	0.0972	-0.1859	1

Table 3 reports the regression results for the CEO age and commercial bank performance based on the OLS and QRM estimations. Based on the OLS result (main result), CEO age has a positive and significant relationship with commercial bank performance. The coefficient of 0.0135 indicated that by increasing CEO age by 1, the banks' profitability improved by 1.014%[1]. At the same time, the QRM results (main result) show similar signs of the impact of CEO age on commercial bank performance. The CEO age has a greater impact when the bank valuation is at the 25th percentile, meanwhile a smaller impact when the bank valuation is at the 75th percentile. Taken together, it seems that older CEOs tend to have a better ability to manage commercial banks in Malaysia than younger CEOs. This could be because the more senior CEO has more experience and knowledge in dealing with the banking industry's complex environment, resulting in better informed strategic decisions and, hence, improved commercial bank performance. Another reason could be that the older CEO has the skill of maintaining social relationships with his/her working team, which is likely to motivate.

Ensure the engagement and commitment of the team members in working towards the bank's goal. Our results are supported by the resource dependency theory, which suggests the CEO is an important human capital that brings tacit knowledge to the banks' strategic action; and, therefore, the performance. The findings are consistent with previous studies such as D'Ewart (2015), Li et al. (2020) and Pham (2023). However, our results are not in line with Bertrand & Schoar (2003), Cline & Yore (2016) and Setiawan & Gestanti (2022), that exhibit the inhibitory deficit behaviour of the older CEO, which destroys the firms' value. The robustness results report similar findings. Since our findings are consistent with our prediction, we accepted H1. Regarding the control variables, the educated CEO has better knowledge of managing

[1] In order to calculate the value of profitability, we compute the exponential of the coefficient of log CEO age in excel [exp(0.0135)] and we obtained a value of 1.104, in which indicates an increase of 1 of the CEO age, the firm performance improved by 1.014%.

commercial banks in Malaysia (main and robustness results). The older bank has more significant implications for the bank's performance. On average, the larger bank did not seem to contribute to strengthening the bank's performance. The banks with greater amounts of capital result in lower performance. Our study finds an insignificant relationship between deposit growth and commercial bank performance.

Table 3: Regression Results for the Relationship Between CEO Age and Banks' Performance

	Return on Assets (Main Results)				Return on Equity (Robustness results)			
	OLS	**QRM**			**OLS**	**QRM**		
		25%	**50%**	**75%**		**25%**	**50%**	**75%**
CEO Age	0.0135[a] (2.83)	0.0108a (4.44)	0.0088[a] (3.88)	0.0093[a] (5.27)	0.0937[b] (2.28)	0.0798[a] (2.76)	0.0818[b] (2.00)	0.0758[a] (3.02)
CEO Education	0.0016 (1.24)	0.0014 (1.60)	0.0022[a] (3.57)	0.0024[a] (4.13)	0.0064 (0.59)	0.0132 (1.62)	0.0159 (1.42)	0.0141[b] (2.53)
Bank Size	-0.0027[a] (-4.27)	-0.0007 (-1.74)	-0.0011[a] (-3.62)	-0.0018[a] (-6.62)	-0.0173[a] (-3.13)	-0.0055 (-1.29)	-0.0074 (-1.32)	-0.0178[a] (-6.28)
Bank Age	0.0079[a] (3.54)	0.0029 (1.83)	0.0042 (3.64)	0.0038[a] (5.63)	0.0602[a] (3.12)	0.0272 (1.65)	0.0267 (1.33)	0.0336[a] (4.22)
Bank Capital	-0.0300 (-1.73)	-0.0209 (-1.55)	-0.0134 (-1.64)	0.0261[a] (3.99)	-0.5386[a] (-3.61)	-0.5237[a] (-5.32)	-0.0467[a] (-3.08)	-0.6699[a] (-7.97)
Deposit Growth	0.0033 (0.41)	-0.0010 (-0.17)	0.0017 (0.42)	0.0061 (1.65)	-0.0504 (-0.73)	-0.0152 (-0.44)	-0.0405 (-0.56)	-0.0279 (-0.82)
R^2	0.3395				0.3845			
Pseudo R^2		0.2941	0.2388	0.2999		0.4144	0.3306	0.3492

Notes: OLS is the Ordinary Least Square. QRM is the Quantile Regression Method. [A] & [b] denote the significance level of 1% and 5%, respectively.

5. Conclusion

The study of CEO age and commercial bank performance in Malaysia from 2016 to 2021 suggests that older CEOs have more wisdom, which strengthens commercial bank performance in Malaysia. The results were supported by the resource dependency theory on the value of the CEO as the human capital in bringing strategic resources to the banks. Our results suggest that the CEO fixed effect (i.e., CEO age) should be included when investigating the commercial bank performance. The results are robust across different estimation methods and dependent variables. The significance of our study is that we showed the importance of unobservable factor(s), such as CEO age, as the determinant of commercial bank performance in Malaysia. Overlooking the unobservable factors might lead future studies to miss essential variables to explain commercial bank performance.

Acknowledgement: We would like to express our sincere gratitude to the Faculty of Business and Management, Universiti Teknologi Mara for the research grant funding. This research was supported by the Faculty of Business and Management, Universiti Teknologi Mara (Grant No: 600-TNCPI 5/3/DDF (FPP) (005/2021)).

References

Anania, R. (n.d.). The cost of hiring the wrong executive. [Post]Linkedin. Retrieved June 28, 2023, from https://www.linkedin.com/pulse/cost-hiring-wrong-executive-ralph-anania

Belenzon, S., Shamshur, A. & Zarutskie, R. (2019). CEO's Age and the performance of closely held firms. *Strategic Management Journal*, 40(6), 917–944. https://doi.org/10.1002/smj.3003

Bernama. (2022). Life expectancy in Malaysia rises by 12 years, ageing population by 2030. New Straits Times. https://www.nst.com.my/news/nation/2022/07/812583/life-expectancy-malaysia-rises-12-years-ageing-population-2030

Bertrand, M. & Schoar, A. (2003). Managing with Style: The Effect of Managers on Firm Policies. *The Quarterly Journal of Economics*, 118(4), 1169–1208. https://doi.org/10.1162/003355303322552775

Cline, B. N. & Yore, A. S. (2016). Silverback CEOs: Age, experience, and firm value. *Journal of Empirical Finance*, 35, 169–188. https://doi.org/10.1016/j.jempfin.2015.11.002

D'Ewart, B. H. (2015). The Effect of CEO Gender, Age, and Salary on Firm Value. CMC Senior Theses. Paper 1059. http://scholarship.claremont.edu/cmc_theses/1059

Gupta, N. & Mahakud, J. (2020). CEO characteristics and bank performance: evidence from India. *Managerial Auditing Journal*, 35(8), 1057–1093. https://doi.org/10.1108/MAJ-03-2019-2224

Hambrick, D. C. & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review*, 9(2), 193–206. https://doi.org/10.2307/258434

Han, S. X. (2023). Are young CEOs a better match for young firms? Evidence from Age, firm performance and CEO compensation. International Journal of Managerial Finance, ahead-of-p(ahead-of-print). https://doi.org/10.1108/IJMF-12-2021-0607/FULL/XML

Khanifah, K., Hardiningsih, P., Darmaryantiko, A., Iryantik, I. & Udin, U. (2020). The effect of corporate governance disclosure on banking performance: Empirical evidence from Iran, Saudi Arabia and Malaysia. *Journal of Asian Finance, Economics and Business*, 7(3), 41–51. https://doi.org/10.13106/jafeb.2020.vol7.no3.41

Li, H., Hang, Y., Shah, S. G. M., Akram, A. & Ozturk, I. (2020). Demonstrating the Impact of Cognitive CEO on Firms' Performance and CSR Activity. *Frontiers in Psychology*, 11(February), 1–8. https://doi.org/10.3389/fpsyg.2020.00278

Liu, C. & Jiang, H. (2020). Impact of CEO characteristics on firm performance: evidence from China listed firms. *Applied Economics Letters*, 27(14), 1–5. https://doi.org/10.1080/13504851.2019.1607965

Nainggolan, Y. A., Prahmila, D. I. & Syaputri, A. R. (2022). Do board characteristics affect bank risk-taking and performance? Evidence from Indonesian and Malaysian Islamic banks. Journal of Management and Governance, 1–31. https://doi.org/10.1007/S10997-022-09625-W/TABLES/9

Nguyen, P., Rahman, N. & Zhao, R. (2018). CEO Characteristics and Firm Valuation: A Quantile Regression Analysis. *Journal of Management & Governance*, 22(1), 133–151. https://doi.org/10.1007/s10997-017-9383-7

Parkaran, K. (2023, May 14). The retirement age of bank staff has risen to 61. Free Malaysia Today (FMT). https://www.freemalaysiatoday.com/category/nation/2023/05/14/retirement-age-of-bank-staff-raised-to-61/

Peni, E. (2014). CEO and Chairperson Characteristics and Firm Performance. *Journal of Management and Governance*, 18(1), 185–205. https://doi.org/10.1007/s10997-012-9224-7

Pfeffer, J. & Salancik, G. R. (1978). The External Control of Organizations: A Resource Dependence Perspective. In Harper and Row. https://doi.org/10.2307/2231527

Pham, N. H. (2023). CEO characteristics and bank performance: Case of Vietnamese commercial banks. *Cogent Economics and Finance*, 11(1). https://doi.org/10.1080/23322039.2022.2162687

San, O. T. & Heng, T. B. (2013). Factors affecting the profitability of Malaysian commercial banks. *African Journal of Business Management*, 7(8), 649–660. https://doi.org/10.5897/AJBM11.548

Serfling, M. A. (2014). CEO Age and The Riskiness of Corporate Policies. *Journal of Corporate Finance*, 25, 251–273. https://doi.org/10.1016/j.jcorpfin.2013.12.013

Setiawan, R. & Gestanti, L. (2022). CEO Characteristics, Firm Policy, and Firm Performance. *International Journal of Business and Society*, 23(1), 371–389. https://doi.org/10.33736/ijbs.4620.2022

Shan, C. M., Hisyam, N., Razak, A., Nassir, A. & Yahya, M. H. (2019). Ceo Age and The Dynamic Capital Structure *: Evidence from Malaysia*, 2(2), 13–28.

Shrestha, N. (2020). Detecting Multicollinearity in Regression Analysis. *American Journal of Applied Mathematics and Statistics*, 8(2), 39–42. https://doi.org/10.12691/ajams-8-2-1

Sufian, F., Kamarudin, F. & Nassir, A. MD. (2016). Determinants of efficiency in the Malaysian banking sector: Does bank origins matter? *Intellectual Economics*, 10(1), 38–54. https://doi.org/10.1016/j.intele.2016.04.002

Taylor, R. N. (1978). Age and Experience as Determinants of Managerial Information Processing and Decision Making Performance. *IEEE Engineering Management Review*, 6(4), 60–67.

https://doi.org/10.1109/EMR.1978.4306701.

Challenges of Using Online Distance Learning Platforms in Higher Education: Perception of Business Students

Norashikin Hussein, Syezreen Dalina Rusdi*, Idaya Husna Mohamad, Muhamad Khalil Omar, Ainie Hairianie Aluwi
Faculty of Business and Management, Universiti Teknologi Mara, Puncak Alam, 42300 Malaysia
shikin6320@uitm.edu.my, syezre5475@uitm.edu.my*, idayahusna@uitm.edu.my, khalil.omar@uitm.edu.my, ainie402@uitm.edu.my

Abstract: The year 2020 has changed the world of education intensely with the distinctive rise of online distance learning (ODL), whereby teaching and learning are undertaken remotely and on digital platforms. Driven by both the pandemic and advancements in digital technologies, the new norm of online learning continues to persist post-pandemic. Therefore, this paper explored the extent of ODL challenges faced by semester 5 business students in one of the public universities in Malaysia. Their perception of internal and external challenges namely time management, attitude, self-esteem, internet connection, socioeconomic and non-conducive environment will be examined. By using non-probability sampling, data were gathered from a total of 110 semesters 5 business students from 9 courses in the Faculty of Business and Management. The findings of this study revealed that internal challenges domain (time management, attitude, self-esteem) affect students the most in ODL. Consequently, the result of this study is hoped to help the education community prepare for a hybrid and flexible learning system as recently announced by the Malaysia Ministry of Higher Education (MOHE).

Keywords: *ODL challenges, time management, internet connection, self-esteem, socioeconomic, non-conducive environment.*

1. Introduction and Background

The realm of education has witnessed significant transformations in recent years. Propelled by the 2020 pandemic, with its unprecedented challenges, technological advancements and the changing demands of learners further accelerated the adoption of online learning platforms, showcasing their potential in overcoming geographical barriers and ensuring continuity in education. In response to the evolving educational landscape, Malaysia's Ministry of Higher Education (MOHE) recently made a groundbreaking announcement to introduce a hybrid and flexible learning system in universities. Online learning within the context of hybrid learning is referred to as teaching and learning in an environment that uses the Internet and other technological devices and tools for synchronous and asynchronous instructional delivery and management of academic programs (Usher & Barak, 2020; Huang, 2019). The hybrid and flexible learning system acknowledges the importance of fostering an engaging and interactive learning environment. By incorporating face-to-face interactions and immersive experiences, it aims to enhance student engagement, collaboration, and critical thinking skills.

This approach recognizes the unique value of in-person interactions, allowing students to benefit from direct interactions with peers, instructors, and resources, while still capitalizing on the convenience and accessibility offered by online platforms. The adoption of online classroom games or gamification in the context of hybrid and flexible learning can enhance the quality of education and promote active student participation in a hybrid learning environment (Essa, 2023). This approach not only aligns with the changing expectations of students but also addresses the challenges associated with traditional online instruction, such as low student engagement and high attrition rates (Cheung & Ng, 2021). While the introduction of the hybrid and flexible learning system presents tremendous opportunities, it also brings forth a range of challenges that must be addressed. Because online learning challenges vary in terms of type and extent specifically in the context of Malaysian education, this has elevated a concern on ODL possible challenges and how students are adapting to this new mode of learning. Thus, this study attempts to investigate the perception of business

students on internal ODL challenges namely time management, attitude, and self-esteem as well as external ODL challenges that include internet connection, socioeconomic and non-conducive environment.

2. Literature Review

Evidence from COVID-19 has uncovered numerous ODL challenges which highlighted insufficiencies and inequities in the education systems especially in higher learning institutions ranging from access to the broadband and computers needed for online education, the supportive environments needed to focus on learning, up to the misalignment between resources and needs (Schleicher, 2020). Likewise, Karunadasa, Liyanahetti, and Fernando (2021) pointed out that some of the obstacles faced by undergraduates in using the e-learning platform during the pandemic include poor infrastructure, poor access to internet facilities and social and income gaps. Students also highlighted that response time, lack of practice and motivation towards the use of technology in education, lack of face-to-face interaction and absence of socialization were among the challenges of online learning (Adnan & Anwar, 2020; Alea, Fabrea, Roldan, & Farooqi, 2020). A study revealed that the high cost of the Internet was a major challenge and many of the learners found the affordability of the Internet as a major concern (Musingafi, Mapuranga, Chiwanza & Zebron, 2015). Students with connectivity issues, such as having subscribed to lower speed and limited internet plans at home, or staying in locations that have a weaker internet connection, may be denied access and mainly left out of this digital transition (Yates, Starkey, Egerton, & Flueggen, 2021).

Similarly, Amorighoye (2020) notes that the inequalities in access to the internet and use of new media technologies differ along the lines of sociodemographic and socioeconomic backgrounds of students which are correlated with various indicators such as gender, age, level of education, geographic location and income level. In Nigeria, the majority of the population with internet access is from richer socioeconomic and urban households who can afford private school education, thereby giving their children a learning advantage over their public school counterparts (Obiakor & Adeniran, 2020). Children coming from disadvantaged or poorer socioeconomic backgrounds tend to have limited access to internet connectivity, computers, mobile phones, functional ICT skills and active parental support due to monetary issues (Adnan & Anwar, 2020). Henaku (2020) stated that the lack of physical space conducive to studying especially in a home-learning environment has also become another challenge along with internet and socioeconomic factors. He explained that the home was not conducive to online learning due to numerous forms of disruption for instance having to participate in household chores and taking care of younger siblings (Henaku, 2020). Moreover, Ismail, Bakar & Wafa (2020) also mentioned that some students who are living in flat housing areas found that their housing area can be a bit noisy and cause a disturbance in their concentration.

Apart from facing external challenges in ODL, students in higher learning institutions need to deal with challenges from within. According to Amida, Algarni and Stupnisky (2020), time management abilities are more crucial in ODL than in traditional formal structure which requires self-control to commit satisfactory time to course work Time management is the technique through which people manage and monitor their schedules and responsibilities. Effective time management techniques have been proven to help students cope with anxiety and stress (Akintayo, Adetunji, Ayantunji, & Olaniyan, 2020). Students who utilize time management techniques will have better control of their ODL (Khairuddin, Arif, & Khairuddin, 2020). Another important element in the internal factor domain is the attitude of the students. Zaidi, Osmanaj, Ali, & Zaidi (2021) demonstrate that the connection between self-efficacy, individual creativity, and attitudes toward have a major impact on ODL preparedness and adoption. On another note, Blanco, et al. (2020) cited that the role of self-esteem in learning online has a big impact on a student's academic performance. With the sudden changes in ways of learning from physical classes to online distance learning, multiple students are still at a loss (Blanco, et al., 2020). Ghani et al. (2020) as 70% of the students agree that having low self-esteem during online distance learning is one of the challenges. Thus, having low self-esteem hurts academic achievement (Reddy, 2020).

3. Research Methodology

This study investigated students' online learning experience in higher education within the context of the pandemic. Specifically, it explored the challenges of online distance learning among Malaysian Business

Students using two independent variables domain: Internal Challenges; Time management, Attitude and Self Esteem and External Challenges; Socio-economic, Non-Conducive Environment and Internet Connection. The researcher administered an online survey with the use of Google Forms to distribute a total of 130 questionnaires. Through stratified sampling technique, the researcher has identified the target population of Business Students in semester 5 who have used at least one of the online learning platforms such as Google Classroom, Zoom, Google Meet, Webex, Telegram, WhatsApp and other applications proposed by the university. The respondents were drawn from a list given by the student's academic division. After removing the incomplete responses, 110 responses were judged valid for data analysis. The administered questionnaire consists of two main sections namely Section A which comprises questions focusing on the demographic profiles of participants and Section B which includes questions related to measuring the determinants of students' perception of online distance learning. To meet the study objective, measurement items were adapted from a variety of sources. The items for Internet cost, Socioeconomic and non-conducive environment were adapted from LIlonga, Ashipala, & Tomas (2020), Villanueva & Núñez (2020) and Sundarasen, et al., (2020), whereas the items for Time management, Low self-esteem and Attitude were adapted from (Rafique, Mahmood, Warraich, & Rehman, 2021; Baticulon, et al, 2021). All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4. Results and Discussion

This section presents sets of results relating to demographic profiles and the level of student perception of ODL challenges. They are discussed thoroughly to further comprehend the purpose of the study. Table 1 provides demographic information on the respondents involved. The demographic profiles of the respondents show that 75.50% of the respondents were females and 24.5% were males. The majority of them were between the ages of 23 and 24 (63.60%), followed by those below the age of 23 with 26.4 % and the remaining 2.7% of the respondents in the sample were between the ages of 18 and 20. The study involved respondents from 9 different programs in the Faculty of Business Management which include BBA Office Systems Management (15.5%), BBA Entrepreneurship (13.7%), BBA Customer Service Management (7.2%), BBA Health Administration (5.5%), BBA Event Management (6.4%), BBA Marketing (3.6%), BBA Insurance (8.1%), BBA Finance (7.3%), BBA Human Resource Management (32.7%).

Table 1: Demographic Profiles of Respondents

Profiles	Description	Percentage (%)
Gender	Male	75.5
	Female	24.5
Age	18-20	10.0
	21-22	26.4
	23-24	63.6
Course	BBA Office Systems Management	15.5
	BBA Entrepreneurship	13.7
	BBA Customer Service Management	7.2
	BBA Health Administration	5.5
	BBA Event Management	6.4
	BBA Marketing	3.6
	BBA Insurance	8.1
	BBA Finance	7.3
	BBA Human Resource Management	32.7

Descriptive Statistics: Student's Perception on External and Internal ODL Challenges. Table 2 and Table 3 depict the mean scores and SD for the extent of challenges that students experienced during online learning. Under the category of external challenge, findings in Table 2 reveal that the highest mean score was linked to a non-conducive environment. 68.8% (μ = 3.93, SD = 1.029) of the students perceived that having to concentrate in a home-learning environment posed the greatest challenge in online learning as they were asked to help their parents with housework at the same time. This is particularly true as Suryaman (2020) pointed out that the home environment is not conducive due to limited learning space and having to perform responsibilities at home for instance taking care of younger siblings as well as helping out with household

chores. Other factors deemed to be challenging are the cost of the internet and expensive digital devices with mean values of 3.82 and 3.75 respectively. This result is somehow the same as a study done by Villanueva and Núñez (2020) that students find it costly to access the devices and Internet connection needed for online learning. Correspondingly, Barrot et al. (2021) stated that COVID-19 aggravated the financial difficulties experienced by some students as a result of their parents' unemployment. This financial impact consequently affects their online learning experience due to the lack of funding for their online classes and the high cost of Internet data as well as ICT devices such as laptops, tablets and smartphones.

Table 2: Level of Perception on External Challenges

External challenges	Percentage of Agreement (%)	Mean (μ)	Standard Deviation (SD)
Internet			
I have a problem accessing the internet at home.	30.9	3.02	1.173
I live in poor internet connection areas.	29.1	2.83	1.233
The internet service is costly.	66.4	3.82	1.060
I have to buy extra data to complete my assignment	40.9	3.02	1.471
I have difficulty being involved in Online Distance Learning (ODL) classes due to poor internet connection	49.0	2.53	1.094
Socioeconomic			
I have limited gadgets or devices that can be used for Online Distance Learning (ODL)	25.5	2.43	1.310
Online learning materials such as devices (e.g., laptops and smartphones) are more expensive compared to books	62.7	3.75	1.272
I do not get enough support from my family to go through the Online Distance Learning (ODL)	24.6	2.35	1.310
The main source of our family income is affected by the pandemic therefore I need to work for extra income.	21.8	2.45	1.286
Despite my family being on a tight budget, we had no choice but to subscribe to an internet service provider	35.5	2.78	1.222
Non-Conducive Environment			
I found it hard to study or concentrate during Online Distance Learning (ODL) class because of the need to do house chores on time.	68.8	3.93	1.029
I think the Online Distance Learning (ODL) mode is quite difficult because most of my family members are not aware of the online lecture method.	51.9	3.42	1.316
I do not have a conducive home for studying because of limited space.	50.0	3.25	1.405
I do not have a conducive home for studying because of the noisy background.	56.4	3.45	1.192

Table 3 below illustrates that students were experiencing greater challenges in personal issues like feeling unmotivated, having trouble managing time and being unable to comprehend the lesson taught during ODL. This is based on the results displayed in Table 3 as the mean value for most of the items from internal challenges are high. The current study reveals that students perceived the need to cope with ODL as demotivating and a tough experience. With the highest mean of 4.06**,** 71.7 % of the students agreed that they "feel demotivated in adapting to ODL mode". Consistent with the findings of Ismail et al. (2020), it is found that difficulty adjusting learning styles was among the barriers to online learning. Similarly, Henaku (2020) findings have complemented current results that motivation is a key factor in determining a student's

attitude and behavior toward adapting to any learning environment. Furthermore, students who are motivated to study do better academically than those who lack the motivation to learn.

The findings also illustrate that the next highest mean with the value of 3.85 is one of the items in the time management variable in which 67% of the respondents agreed on the statement "I am poor at managing time between ODL class and doing leisure activities at home." This is consistent with Amida, Algarni, and Stupnisky (2020) that students who utilized time management techniques will have better control of their ODL). Similarly, Mila Sari and Megayanti (2021) agreed that one of the challenges students face during the ODL process is centering on inefficiencies in their time management resulting in difficulties to catch up with ODL classes. In the self-esteem category, students' perception of their inability to comprehend lessons taught during ODL is considered high with a mean score of 3.85. When asked if the subject taught is hard to understand due to ODL mode, 63.6% of respondents agreed. Supported by Ghani et al. (2020) and Dhawan (2020), students were struggling to understand the learning content while trying to survive the conditions at home due to being inadequately prepared to balance their work, family, and social lives with their study life in online learning.

Table 3: Level of Perception on Internal Challenges

Internal challenges	Percentage of Agreement (%)	Mean (μ)	Standard Deviation (SD)
Time management			
I am poor at managing time between Online Distance Learning (ODL) classes and doing leisure activities at home.	67.0	3.85	1.077
I do not carry out my study plan during Online Distance Learning (ODL) mode.	56.6	3.59	1.069
I did not read the learning materials in advance before the Online Distance Learning (ODL) class.	50.9	3.53	1.115
I do not set aside time to study the Online Distance Learning (ODL) courses that I have taken this semester.	51.8	3.55	1.055
I do not prioritize my work first before doing other things that are not related to my Online Distance Learning (ODL) class.	48.1	3.31	1.147
Attitude			
I am easily distracted by other online activities such as surfing social media, online texting, and video gaming when Online Distance Learning (ODL) classes occur.	70.9	3.98	1.023
I tend to procrastinate on tasks given during Online Distance Learning (ODL) classes.	63.6	3.81	1.054
I feel demotivated in adapting to Online Distance Learning (ODL) mode.	71.7	4.06	0.998
I tend to have less interest and less effectiveness towards my Online Distance Learning (ODL) study due to being at home	68.2	3.95	1.070
I am getting better at adapting to the Online Distance Learning (ODL) process.	14.5	2.47	1.047
Low Self-Esteem			
It is hard to understand the subjects that have been taught due to Online Distance Learning (ODL) mode.	63.6	3.85	1.094
Online Distance Learning (ODL) class is not helping me with my academics.	42.7	3.44	1.138
Due to low self-esteem, it is harder for me to discuss and ask questions during Online Distance Learning (ODL) sessions.	54.5	3.65	1.169

Online Distance Learning (ODL) mode developed anxiety in me due to low self-esteem	53.6	3.61	1.235
The given materials are harder to comprehend during Online Distance Learning (ODL) class	60.0	3.72	1.110

Findings in Table 4 indicate that the level of ODL challenges experienced among Business students is high for all internal factors (time management, attitude and self-esteem) with the highest mean value of 3.65 for both attitude and self-esteem. As for external factors, the non-conducive environment and the internet posed a moderate challenge with a mean score of 3.25 while the least challenging factor was the socioeconomic background of the student (μ = 2.75, SD = 1.276).

Table 4: Level of Perceived Challenges Toward ODL

Variables	Mean	Std. Deviation
Internet	3.168	1.237
Socioeconomic	2.752	1.276
Non-conducive Environment	3.257	1.281
Time Management	3.566	1.093
Attitude	3.654	1.038
Low Self-esteem	3.654	1.149

As referred to in Table 5, the outcomes of the comparison between the overall average of challenges originating externally and those stemming internally indicate that students' predominant perception of challenges in Open and Distance Learning (ODL) leans towards internal factors. The variance in the mean values is evident, with internal challenges (mean difference of 3.625) surpassing the mean of external challenges (3.059). This highlights the prevalent agreement among students that internal challenges have a more substantial impact on them during ODL. This discrepancy underscores the prevailing belief that internal challenges, encompassing time management, attitude, and self-esteem, have a more pronounced effect on students during ODL, as opposed to the external challenges of internet accessibility, socioeconomic factors, and non-conducive environment. As the proportion of challenges increases, so does the perceived negative impact on students' experience with ODL**.**

Table 5: Overall Mean for External and Internal Challenges of ODL

Item	Mean
The overall mean of external challenges	3.059
The overall mean of internal challenges	3.625

5. Conclusion

In this context of an advanced communication and information technology environment, the pursuit of establishing massive open online courses (MOOCs) and e-learning platforms becomes a policy initiative. Similarly, by comprehending e-learning standards, challenges and the dynamics of digital education, universities and educational institutions can better prepare for the future of education in a digitalized world. In conclusion, the implementation of hybrid and flexible learning in Malaysian universities by the Ministry of Higher Education holds substantial implications for the country's education future. This forward-thinking approach recognizes the changing nature of learning and the necessity to adjust to diverse student needs and technological progress. The policy not only enhances education accessibility but also emphasizes personalized learning and the integration of technology into teaching methods. While these implications offer notable advantages, careful monitoring is essential to ensure the efficacy and quality of flexible learning. As Malaysia pioneers a more adaptable and comprehensive education system, collaboration among stakeholders, continuous educator development, and investment in digital infrastructure will play a pivotal role in maximizing the positive effects of this policy shift. Thus, learning from students' experiences during the period of COVID will help us shape future hybrid delivery so that improvements can be put forward to embrace the inevitable online tertiary education in the forthcoming.

Acknowledgement: This research is funded by Universiti Teknologi Mara, Kampus Puncak Alam, file no. 600-TNCPI 5/3/DDF (FPP) (012/2021).

References

Adnan, M. & Anwar, K. (2020). Online Learning amid the COVID-19 Pandemic: Students' Perspectives. *Online Submission,* 2(1), 45-51.

Akintayo, D. I., Adetunji, S. O., Ayantunji, I. O. & Olaniyan, T. S. (2020). Time Management and Business Performances in the Banking Industry in Nigeria. Journal of Human Resources Management and Labor Studies, 1-11.

Alea, L. A., Fabrea, M. F., Roldan, R. D. A. & Farooqi, A. Z. (2020). Teachers' COVID-19 awareness, distance learning education experiences and perceptions towards institutional readiness and challenges. *International Journal of Learning, Teaching and Educational Research,* 19(6), 127- 144.

Amida, A., Algarni, S. & Stupnisky, R. (2020). Testing the relationships of motivation, time management and career aspirations on graduate students' academic success. Journal of Applied Research in Higher Education, 1-18.

Amorighoye, T. A. (2020) Coronavirus has exposed the education divide in Nigeria. The World Economic Forum COVID Action Platform. https://www.weforum.org/agenda/2020/06/education-nigeria-covid19-digital-divide/. (accessed on November 17, 2022)

Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., Tiu, C. J. S., Clarion, C. A., & Reyes, J. C. B. (2021). Barriers to Online Learning in the Time of COVID-19: A National Survey of Medical Students in the Philippines. *Medical Science Educator,* 31, 615–626

Blanco, Q. A., Carlota, M. L., Nasibog, A. J., Rodriguez, B. C., Saldaña, X. R., Vasquez, E. C. & Gagani, F. S. (2020). Probing the Relationship between Students' Self-Confidence and Self-Efficacy while Engaging in Online Learning amidst COVID-19. Journal La Edusci, 1 - 10.

Barrot, J. S., Llenares, II. & Del Rosario L. S. (2021) Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Educ Inf Technol (Dordr),* 26(6), 7321-7338. doi: 10.1007/s10639-021-10589-x.

Cheung, S. Y. & Ng, K. Y. (2021). Application of the Educational Game to Enhance Student Learning. Front. Educ. 6, 31 March 2021 Sec. Digital Learning Innovations https://doi.org/10. 3389/f educ. 2021. 623793

Essa, E. K. (2023). The effectiveness of hybrid learning in enhancing academic mindfulness and deeper learning of university students. *International Journal of Research in Education and Science (IJRE S)*, 9(1), 188-202. https://doi.org/ 10.46328/ijres. 3081

Ghani, A. H., Almelhem, M., Basmaih, G., Alhumud, A., Alotaibi, R., Wali, A. & AbdulGhani, H. M. (2020). Does self-esteem lead to high achievement of the science college's students? A study from the six health science colleges. Saudi Journal of Biological Sciences, 1 - 7.

Henaku, E. A. (2020). COVID-19: Online learning experience of college students: the case of Ghana. *International Journal of Multidisciplinary Sciences and Advanced Technology,* 1(2), 54- 62.

Huang Q. (2019). Comparing teacher's roles of F2F learning and online learning in a blended English course. *Computer Assisted Language Learning,* 32(3), 190–209.

Ismail, N. S., Bakar, N. M. & Wafa, S. W. (2020). Online Learning Challenges During Pandemic COVID-19 in Malaysian Higher Learning Institutions. Universal Journal of Education Research, 1 - 9.

Karunadasa, K. L. E., Liyanahetti, D. D. & Fernando, G. D. T. D. K. (2021). Using eLearn Facilities in Education During A pandemic –Reflections of undergraduates. *VISTAS Journal of Humanities and Social Sciences*, 14(2), 141–165.

Khairuddin, Z., Arif, N. N. & Khairuddin, Z. (2020). Students' Readiness on Online Distance Learning (ODL). *Universal Journal of Educational Research*, 7141-7150.

Iilonga, A., Ashipala, O. D. & Tomas, N. (2020). Challenges Experienced by Students Studying through Open and Distance Learning at a Higher Education Institution in Namibia: Implications for Strategic Planning. *International Journal of Higher Education*, 9(4), 116-127.

Lim, B. (2022). Coronavirus disruptions to the private higher education sector in Malaysia In J. S. McKeown, K. Bista. & R. Y. Chan (Eds.), Global higher education during COVID-19: Policy, society, and technology (pp. 92-103). STAR Scholars. https://starscholars.org/product/global-education/

Mila Sari, I. & Megayanti, T. (2021). Time Management During Covid-19 Pandemic: The Effect of Students' Time Management on Learning Outcomes in Basic Building Construction Course at State Vocational High School 5 Bandung, West Java, Indonesia. Advances in Social Science, Education and Humanities Research, 36-39.

Schleicher, A. (2020). The Impact of Covid-19 on Education - Insights from Education at A Glance 2020. www.oecd.org/ education/education-at-a-glance-19991487.htm. (accessed on November 1, 2022)

Suryaman, M., Cahyono, Y., Muliansyah, D., Bustani, O., Suryani, P., Fahlevi, M. & Munthe, A. P. (2020). COVID-19 Pandemic and Home Online Learning System: Does it affect the quality of pharmacy school learning? *Systematic Reviews in Pharmacy,* 11, 524–530.

Musingafi, M., Mapuranga, B., Chiwanza, K. & Zebron, S. (2015). Challenges for open and distance learning (ODL) students: Experiences from students of the Zimbabwe Open University. *Journal of Education and Practice,* 6(18), 59–66.

Obiakor, T. & Adeniran, A. (2020). COVID-19: Risk-control measures threaten to deepen Nigeria's education crisis. Centre for the Study of Economies of Africa (CSEA) http://cseaafrica.org/covid-19-risk-control-measures-threatens-to-deepen-nigerias-education-crisis

Rafique, M. G., Mahmood, K., Warraich, F. N. & Rehman, S. (2021). Readiness for Online Learning during COVID-19 pandemic: A survey of Pakistani LIS students. Journal of Academic Librarianship, 47(3), 102346

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L. & Koole, M. (2020). Online University Teaching during and after the Covid-19 Crisis: Refocusing Teacher Presence and Learning Activity. *Postdigit Sci. Educ.* 2, 923–945. doi:10.1007/s42438-020-00155-y

Reddy, M. K. (2020). Social Anxiety among Introverts and Extroverts across genders among Undergraduate students during the pandemic COVID-19 in Bangalore. *Psychological and Education*, 1 - 8.

Sundarasen, D. S., Chinna, K., Kamaludin, K., Nurunnabi, N., Baloch, G., Khoshaim, B. H., Hossain, A. S. & Sukayt, A. (2020). Psychological Impact of COVID-19 and Lockdown among University Students in Malaysia: Implications and Policy Recommendations. *International Journal of Environmental Research and Public Health*, 17(17), 6206.

Usher, M. & Barak, M. (2020). Team diversity as a predictor of innovation in team projects of face-to-face and online learners. *Computers & Education*, 144, 103702. doi: 10.1016/j.compedu.2019.103702.

Villanueva, C. and Núñez, J. (2021). A Study on the Impact of Socioeconomic Status on Emergency Electronic Learning During the Coronavirus Lockdown. *FDLA Journal*, 6(6).

Yates, A., Starkey, L., Egerton, B. & Flueggen, F. (2021). High school students' experience of online learning during Covid-19: *the influence of technology and pedagogy, Technology, Pedagogy and Education,* 3(1), 59-73.

Zaidi, S. F., Osmanaj, V., Ali, O. & Zaidi, S. (2021). Adoption of mobile technology for mobile learning by university students during COVID-19. *International Journal of Information and Learning Technology*, 1-15.

The Roles of Emotional Intelligence in Developing Optimism among Public University Students in Perak, Malaysia

Nur Athirah Sumardi*, Narehan Hassan, Mazuin Mat Halif & Natasha Dzulkalnine
Faculty of Business and Management, Universiti Teknologi Mara Selangor Branch, Puncak Alam Campus, Selangor, Malaysia
*athirahsumardi@uitm.edu.my, drnarehan@uitm.edu.my, mazui208@uitm.edu.my, natashad@uitm.edu.my

Abstract: When Covid-19 hit the globe, Malaysia was specifically affected by the implementation of MCO which restricted its citizens from having their normal daily activities. Malaysian students are especially distressed by the implementation of online learning, whereby they need to cope with the burden of learning without having physical consultation with their lecturers while indulging the 'nuisance' of the home environment. This cross-sectional study was conducted to examine the relationship and impact of emotional intelligence which comprised self-awareness, self-management, social awareness, and relationship management components toward optimism among public university students in Perak, Malaysia. Convenience sampling was applied as the sampling technique in selecting the required sample size of 441 respondents. A set of questionnaires comprised of three sections was used as the instrument and was virtually distributed to the respondents via Google form through their acquaintances. Descriptive analysis findings have demonstrated male students have greater levels of emotional intelligence and optimism as compared to female students. Meanwhile, results from correlation analysis projected each component of emotional intelligence has a large relationship with optimism except for social awareness with a medium relationship. Subsequently, the multiple regression analysis revealed that self-awareness was the strongest predictor of the dependent variable. This study has achieved all research objectives and the hypotheses were supported by the findings. Therefore, a few recommendations for educational institutions as well as future researchers were suggested accordingly.

Keywords: *Emotional Intelligence, Self-Awareness, Self-Management, Social Awareness, Relationship Management, Optimism.*

1. Introduction and Background

In November 2019, Wuhan, China was struck with the first case of COVID-19 which has put the globe on a hot seat as the fear of being in a similar situation starts to linger in everyone's mind. The nobility of the front liners in curbing the situation has put them in the spotlight, yet the citizens feel uncomfortable with unusual norms that they need to engage in, especially on the social distancing part. Nevertheless, as the spread of the pandemic can no longer be controlled by the authorities, making Malaysian government implemented a strict and stern action of Movement Control Order (MCO). This action has disabled everyone including most industries except for the essential sector in Malaysia from normally functioning as usual. This has especially impacted the educational institutions in Malaysia as the students were obligated to stay at home and face-to-face learning was suspended by the institutions (Kamaludin & Sundarasen, 2023). Stuck in the bubble of the comfort zone with physical learning, these students were having problems adjusting themselves to learning via online platforms. The abrupt change in learning modes has affected the efficiency and effectiveness of the learning process.

Forcing the situations to cause deterioration in students' academic performance, facing learning loss and the worst part of this is the declined psychological health among the students (Eberle & Hobrecht, 2021; El-Sakran et al., 2022). The complex interaction between mental, social, emotional, and spiritual dimensions of health makes up psychological health which sums up how an individual thinks, relates, feels, and exists in his or her daily life (Donatelle, 2017). During COVID-19, university students were left struck with the inability to

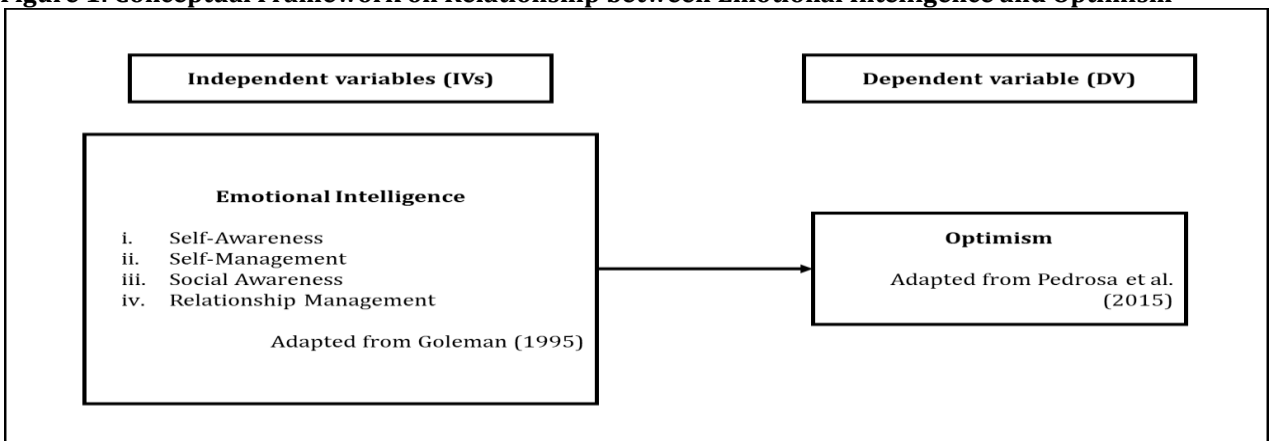
cope and juggle between household responsibilities and their online learning activities, emphasizing how this may act as one of the contributing factors to the prevalence of moderate to severe depression, stress and anxiety among students in Shah Alam, Malaysia with 53.9%, 44.6% and 66.2% respectively (Wong et al., 2023). It was reported by Bahar Moni et al. (2021) that, the general Malaysian population possessed a higher psychological distress level, notably among those who were financially impacted by the pandemic. In contrast, as cited by Che Rahimi et al. (2021), it was previously reported in 13 systematic review articles that Malaysian students were also reported to have a 56% prevalence rate of psychological distress.

Almost doubled the prevalence of the general population with 29%. Additionally, 59.29%, 65%, and 67.21% of private university students have been reported to be having symptoms of stress, depression, and anxiety during the Malaysia lockdown period, MCO (Faez et al., 2020). Therefore, it is crucial to identify how these students feel about learning virtually and whether their ability to be consistently positive about everything can make up for the distress caused by the pandemic. Traditionally, optimism can be defined as the general expectation that an individual will experience and obtain good outcomes in the future (Scheier & Carver, 1985). Students who can be optimistic about the situation can cope with the difficulties that they face during online learning. This was supported by Zhihao and Mustapha (2021), who asserted that students with good optimism may always believe and expect good outcomes from the learning process and can greatly adapt and positively explain any negative consequences that occur. A study by Gómez Molinero et al. (2018), found that optimism is a protective factor that enhances students' resilience level in reducing the psychological distress caused by their life transformation. Apart from optimism, emotional intelligence may also come into the picture as one of the aids that may help university students to be resilient in coping with the hassle of online learning.

Stress and anxiety caused by virtual learning are commonly linked to students' emotions as these will occur when they have lost their interest in the learning activities that they used to enjoy doing. According to Hamdzah et al. (2016), emotional intelligence is one of the major contributing factors to perseverance in life as well as professional and personal success. Emotional intelligence can be referred to as an individual's mental ability to understand, perceive, and assess own and others' emotions which will enable the individual to manage, regulate, and apply those emotions (Mayer et al., 2016). In parallel to Goleman (1998), emotional intelligence can be defined as an array of non-cognitive capabilities, competencies, and skills that may influence the individual's ability to successfully cope with the demands and pressures from the environment. There are five main components of emotional intelligence, formulated by Daniel Goleman which was later reduced to four components self-awareness, self-management, social awareness, and relationship management (Goleman, 1998). This emotional intelligence was found to positively influence the mental health adjustment of students in their education which will be beneficial for their career development in the future (Mohamed et al., 2022). This was further supported by Tang and He (2023), who have found that students' learning motivation can be positively predicted by their emotional intelligence.

Despite many studies conducted examining the effects of emotional intelligence and optimism on students' learning, limited research is found in identifying the relationship between emotional intelligence and optimism especially among adolescents (Tejada-Gallardo et al., 2022). It was further revealed that adolescents' lives, optimism and friendship quality can be predicted by their emotional intelligence, reflecting the moderate positive relationship between emotional intelligence and optimism (Wang et al., 2022). Interchangeably, previous studies have suggested a reverse finding where optimistic students were also the ones with high self-esteem and emotional intelligence (Checa-Domene et al., 2022). Hence, three objectives were formulated for this research which were (1) To compare the level of emotional intelligence and optimism among public university students based on their gender; (2) To examine the relationship between emotional intelligence and optimism among public university students in Perak, Malaysia; and (3) To identify the strongest predictor among emotional intelligence components towards university students' optimism. Overall, this article was structured into five main headings as follows: (i) Introduction and Background; (ii) Methodology; (iii) Results; (iv) Discussion; and (v) Conclusion and Recommendations.

Figure 1: Conceptual Framework on Relationship between Emotional Intelligence and Optimism



By the literature review, seven research hypotheses have been articulated to achieve this study's objectives:
H_1: Male students have higher emotional intelligence levels as compared to female students.
H_2: Male students are highly optimistic as compared to female students.
H_3: Emotional intelligence is significantly related to optimism among public university students in Perak.
H_{3a}: Self-awareness is significantly related to optimism among public university students in Perak.
H_{3b}: Self-management is significantly related to optimism among public university students in Perak.
H_{3c}: Social awareness is significantly related to optimism among public university students in Perak.
H_{3d}: Relationship management is significantly related to optimism among public university students in Perak.

2. Methodology

This study has adopted the cross-sectional research design as it would enable the measurement of the relationship between respective variables in a defined population (Wang & Cheng, 2020). This was in line with the main objectives of this study which aimed to examine the relationships between each component of emotional intelligence (self-awareness, self-management, social awareness and relationship management) towards optimism among public university students in Perak, Malaysia. Moreover, the researchers have applied the convenience sampling technique to get the minimum required sample size of 384 students. Nonetheless, the study managed to get a good response rate whereby the data collection passed the minimum number and courageously achieved 441 samples from the university students. In brief, the samples of this study can be considered sufficiently good, reflecting the fulfillment of the criteria for requiring 50 to 100 samples to enable the study's advancement to a simple regression analysis (Hair et al., 2018).

Even though convenience sampling is a non-probability technique whereby it was commonly known for being lack of subjectivity, it did serve the researchers with less cost, greater speed and simpler than any other sampling technique (Stratton, 2021). This technique was especially helpful because this study was conducted during MCO which restricted the movement of the researchers to physically collect the data from the respondents. Besides, this study has used a set of questionnaires as the data collection instrument which comprised three sections, Section A: Demographic details, Section B: Emotional Intelligence and Section C: Optimism. This questionnaire was adapted from the Optimism Scale questionnaire (Coelho et al., 2018; Pedrosa et al., 2015) as well as the Emotional Intelligence Questionnaire (Mustafa et al., 2020). By using SPSS version 28.0, the reliability of this questionnaire was confirmed as the researchers had conducted a pilot study with the findings of every variable to have Cronbach's Alpha value of 0.7 and above.

3. Results

Descriptive Analysis of Emotional Intelligence and Optimism: This study aimed to compare the level of emotional intelligence and optimism among public university students in Perak, Malaysia based on their genders which can be attained through a descriptive analysis. All items for emotional intelligence variable from each component of self-awareness, self-management, social awareness and relationship management were computed and transformed into mean scores. These scores were then interpreted by using Best's Principle by Thaoprom (2004), into three categories low, moderate and high emotional intelligence. The same steps were conducted for the dependent variable whereby the mean scores were standardized into three categories weak, moderate and strong optimism. Low emotional intelligence and weak optimism were represented by the mean scores of 1.00 to 2.00, while moderate emotional intelligence and optimism were represented by the scores of 2.01 to 3.01. Lastly, the categories of high emotional intelligence and strong optimism were represented by scores of 3.02 to 4.00. Results from the analysis have presented a higher percentage of male students with high emotional intelligence as compared to female students (85.5%:75.7%), as referred to in Table 1. Concurrently, the same trend can be seen for the optimism variable as in Table 2 whereby it has shown that there was a small percentage of female students with weak optimism and a slightly lower percentage of strong optimism in comparison to male students (74.7%:85.5%). Hence, it can be concluded that male students have better levels of emotional intelligence and optimism as compared to female students, subsequently presuming the achievement of the first research objective and hypotheses H_1 and H_2 were supported.

Table 1: Comparisons on Level of Emotional Intelligence between Genders (n=441)

Gender(s)	Low (Mean score 1 – 2.00)*	Moderate (Mean score 2.01 – 3.01)*	High (Mean score 3.02 – 4)*
Male (n=145)	0 (0%)	21 (14.5%)	124 (85.5%)
Female (n=296)	0 (0%)	72 (24.3%)	224 (75.7%)

*Interpreted by using Best's Principle by Thaoprom (2004)

Table 2: Comparisons on Level of Optimism between Genders (n=441)

District(s)	Weak (Mean score 1– 2.00)*	Moderate (Mean score 2.01 – 3.01)*	Strong (Mean score 3.02 – 4)*
Male (n=145)	0 (0%)	21 (14.5%)	124 (85.5%)
Female (n=296)	7 (2.4%)	68 (23%)	221 (74.7%)

*Interpreted by using Best's Principle by Thaoprom (2004)

Correlational Analysis of Emotional Intelligence and Optimism: In determining the relationship between the independent and dependent variables of the study, a correlational analysis was conducted and tabulated in Table 3. The results were interpreted by using guidelines of strength and direction of coefficient values (r) by Cohen (Cohen, 1988). The findings have indicated three components of emotional intelligence encompassed self-awareness, self-management and relationship management to be positively, strongly related to optimism ($r=.641$, $p<.01$; $r=.595$, $p<.01$; $r=.594$, $p<.01$ respectively), leaving out social awareness as the only component with a moderate relationship with optimism ($r=.483$, $p<.01$). Additionally, the finding has shown that the overall emotional intelligence was positively, strongly associated with optimism ($r=.675$, $p<.01$). Thus, it can be concluded that the hypothesis of H_3, H_{3a}, H_{3b}, H_{3c} and H_{3d} were supported by the findings, consequently marking the achievement of the second research objective.

Table 3: Correlations between Emotional Intelligence and Optimism

Variables		Optimism
Self-Awareness	Correlation coefficient	.641**
	Sig. (2-tailed)	<.001

Self-Management	Correlation coefficient	.595**
	Sig. (2-tailed)	<.001
Social Awareness	Correlation coefficient	.483**
	Sig. (2-tailed)	<.001
Relationship Management	Correlation coefficient	.594**
	Sig. (2-tailed)	<.001
Emotional Intelligence	Correlation coefficient	.675**
	Sig. (2-tailed)	<.001

Multiple Regression Analysis of Emotional Intelligence and Optimism: Furthermore, in identifying the strongest predictor of optimism among the components of emotional intelligence, a multiple regression analysis was conducted in which the results were tabulated in Table 4. Based on the findings, the study identified to have no collinearity problem as the values of variance inflation factors (VIF) were smaller than 10 and the values of tolerance were smaller than one. With an R^2 value of .483 and a significant F value of <.001, the analysis has indicated all components of emotional intelligence (self-awareness, self-management, social awareness, and relationship management) explained 48.3% of the variance (R^2) of optimism. Over and above, the analysis showed that the self-awareness component was the strongest predictor of optimism (β=.375, p<.05), followed by self-management and relationship management (β=.204, p<.05; β=.194, p<.05 respectively). Other than that, social awareness was the only component that was found to have no significant prediction over-optimism of public university students (β=.014, p>.05). Henceforth, this study has achieved its third research objective.

Table 4: Multiple Regression Analysis on Emotional Intelligence and Optimism

Independent variables	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
				Tolerance	VIF
Self-Awareness	.375*	7.622	<.001	.491	2.036
Self-Management	.204*	3.737	<.001	.400	2.500
Social Awareness	.014	.281	.779	.509	1.964
Relationship Management	.194*	3.509	<.001	.389	2.574
R^2 value	.483				
F	101.727				
Sig. F Value	<.001				

4. Discussion

Level of Emotional Intelligence and Optimism: This study's findings were supported by previous studies in which various researchers have found that male students have higher emotional intelligence as compared to female students. This was defended by Ali et al. (2021); Newman and Smith (2014), where they have found that female students have lower emotional intelligence levels, in comparison to their male counterparts. Also, male students were highlighted to have better scores in overall emotional intelligence, motivating oneself and managing emotional components as compared to female students (Tripathi, 2016). Nonetheless, this finding may not restrictively cramp the idea that male students are better or superior to females as numerous previous studies have also found the contradicting results of female students have better emotional intelligence as compared to males (Fida et al., 2018; Kant, 2019; Patel, 2017). Some research may also discover that there were no differences between genders' emotional intelligence (Yang et al., 2021). Furthermore, the finding has also indicated that male students are more optimistic than female students and this has been highlighted by some studies which have found that women have less optimism than men, specifically related to the context of economics and finance (Bjuggren & Elert, 2019; Dawson, 2017; Jacobsen et al., 2014). In detail, according to Dawson (2023), men are more willing to take risks than women which has explained the parallel gender differences in being optimistic. This was similarly emphasized by the findings

from Usán et al. (2022), optimism was found to be statistically significantly higher in males, rather than females.

The Relationship between Emotional Intelligence and Optimism: Similar findings from previous studies have shown a significant positive relationship between emotional intelligence and optimism and a negative association with pessimism (Aghazade et al., 2021; Kumcagiz et al., 2011; Molero et al., 2022). The relationship between these two variables has been under the spotlight due to the results' consistencies in implying how an individual being emotionally intelligent can influence him or her to be optimistic about every detail in life. According to Tejada-Gallardo et al. (2022), general emotional intelligence and emotional regulation may positively predict an individual's optimism and happiness. Additionally, Checa-Domene et al. (2022) stated that students with optimism have higher emotional intelligence and self-esteem levels. This has confirmed how optimism and emotional intelligence variables may commonly come together as a positive association which relatively supported this study's findings.

Strongest Predictor of Optimism: Undeniably, every study on emotional intelligence has found a positive relationship and influence on an individual's optimism. Even so, most of the studies used other theories to elaborate on the impact of the independent variables on optimism, rather than Goleman's. As for this study, it was found that self-awareness had become the strongest predictor of optimism, leaving behind the other three components. Self-awareness can be defined as the ability to understand and read own emotions while recognizing their impacts on others (Goleman et al., 2002). Simply, it is the understanding of what we feel and why the feelings are such way. About optimism, having a basic understanding of own feelings would enable the individual to translate the negatively pre-assumed feelings into something positive. The greater the awareness, the easier it would be for the individual to react to situations that revolve around him and others. As cited by McShane and Von Glinow (2021), individuals with better awareness can adapt their emotional responses to certain circumstances in which they will consciously use the awareness to engage in the situation appropriately.

5. Conclusion and Recommendations

In a nutshell, male students have a higher percentage of high emotional intelligence and strong optimism in comparison to female students. The results have also indicated positive relationships between each component of emotional intelligence and optimism, marking self-awareness, self-management and relationship management components with strong relationships as well as social awareness with moderate relationships. In addition, all components of emotional intelligence have explained almost 50% of optimism in which self-awareness was discovered to have the strongest predicting value of the dependent variable, followed by self-management and relationship management, leaving out social awareness as the sole component which was not significantly predicting the variable. All these findings were in check with previous studies whereby most of them found the association and impact of emotional intelligence towards optimism among students (Checa-Domene et al., 2022; Kumcagiz et al., 2011; Molero et al., 2022). Therefore, it is recommended for tertiary educational institutions to include the significance of optimism.

Emotional intelligence in the syllabus especially for compulsory university courses which are required to be taken by the students. Though it is arguable whether emotional intelligence can be taught and intervened to be improved (Geßler et al., 2021), it is worth every attempt to conduct every possible intervention to ensure the students can effectively improve their levels of optimism and emotional intelligence, subsequently to reduce the impact of the new norms of online learning. Current studies have found that emotional intelligence is indeed can be learned and improved, especially within the environment of business (Gilar-Corbi et al., 2019; Jenaabadi, 2014). Consensually, Serrat (2017) agreed that emotional intelligence can be learned and developed over time as emotional intelligence is shown to increase with age. Other than that, it is suggested that future researchers widen their study with other independent variables that may closely work with optimism such as social support and self-esteem. The researchers may also widen their population and samples to other Malaysian states, including Sabah and Sarawak to have better generalizability of results.

References

Aghazade, S., Moheb, N. & Dolati, A. (2021). Investigating the Relationship between Optimism and Emotional Intelligence with Academic Self-Efficacy in Orumia High School Students. *Turkish Journal of Computer and Mathematics Education (TURCOMAT),* 12(13), 7775–77485-77775–77485.

Ali, A., Saleem, N. & Rahman, N. (2021). Emotional Intelligence of University Students: Gender Based Comparison. *Bulletin of Education and Research,* 43(1), 255-265.

Bahar Moni, A. S., Abdullah, S., Bin Abdullah, M. F. I. L., Kabir, M. S., Alif, S. M., Sultana, F., Salehin, M., Islam, S. M. S., Cross, W. & Rahman, M. A. (2021). Psychological distress, fear and coping among Malaysians during the COVID-19 pandemic. *PloS one,* 16(9), e0257304. https://doi.org/https://doi.org/10.1371/journal.pone.0257304

Bjuggren, C. M. & Elert, N. (2019). Gender differences in optimism. *Applied Economics,* 51(47), 5160-5173.

Che Rahimi, A., Bakar, R. S. & Mohd Yasin, M. A. (2021, Nov 10). Psychological Well-Being of Malaysian University Students during COVID-19 Pandemic: Do Religiosity and Religious Coping Matter? *Healthcare (Basel)*, 9(11). https://doi.org/10.3390/healthcare9111535

Checa-Domene, L., Luque de la Rosa, A., Gavín-Chocano, Ó. & Torrado, J. J. (2022). Students at Risk: Self-Esteem, Optimism and Emotional Intelligence in Post-Pandemic Times? *International Journal of Environmental Research and Public Health*, 19(19), 12499.

Coelho, G. L. H., Vilar, R., Hanel, P. H. P., Monteiro, R. P., Ribeiro, M. G. C. & Gouveia, V. V. (2018). Optimism scale: Evidence of psychometric validity in two countries and correlations with personality. *Personality and Individual Differences*, 134, 245-251. https://doi.org/https://doi.org/10.1016/j.paid.2018.06.030

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd Ed.). Lawrence Earlbaum

Dawson, C. (2017). The upside of pessimism − Biased beliefs and the paradox of the contented female worker. *Journal of Economic Behavior & Organization*, 135, 215-228. https://doi.org/https://doi.org/10.1016/j.jebo.2017.02.004

Dawson, C. (2023). Gender differences in optimism, loss aversion, and attitudes towards risk. *British Journal of Psychology*, n/a(n/a). https://doi.org/https://doi.org/10.1111/bjop.12668

Donatelle, R. (2017). Access to Health (15th ed.). Pearson Education.

Eberle, J. & Hobrecht, J. (2021). The lonely struggle with autonomy: A case study of first-year university students' experiences during emergency online teaching. *Computers in Human Behavior*, 121, 106804.

El-Sakran, A., Salman, R. & Alzaatreh, A. (2022). Impacts of emergency remote teaching on college students amid COVID-19 in the UAE. *International journal of environmental research and public health*, 19(5), 2979.

Faez, M., Hadi, J., Abdalqader, M., Assem, H., Ads, H. O. & Ghazi, H. F. (2020). Impact of lockdown due to COVID-19 on mental health among students in a private university at Selangor. *European Journal of Molecular and Clinical Medicine*, 508-517.

Fida, A., Ghaffar, A., Zaman, A. & Satti, A. N. (2018). Gender comparison of emotional intelligence of university students. *Journal of Education and Educational Development,* 5(1), 172-188.

Geßler, S., Nezlek, J. B. & Schütz, A. (2021, 2021/07/04). Training emotional intelligence: Does training in basic emotional abilities help people to improve higher emotional abilities? *The Journal of Positive Psychology,* 16(4), 455-464. https://doi.org/10.1080/17439760.2020.1738537

Gilar-Corbi, R., Pozo-Rico, T., Sánchez, B. & Castejón, J. L. (2019). Can emotional intelligence be improved? A randomized experimental study of a business-oriented EI training program for senior managers. PloS one, 14(10), e0224254. https://doi.org/10.1371/journal.pone.0224254

Goleman, D. (1998). Working with emotional intelligence. Bantam Books.

Goleman, D., Boyatzis, R. & McKee, A. (2002). Primal Leadership: Realizing the Importance of Emotional Intelligence. Harvard Business School Press.

Gómez Molinero, R., Zayas García, A., Ruiz González, P. & Guil, R. (2018). Optimism and resilience among university students.

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2018). Multivariate Data Analysis (8th ed.). Cengage Learning.

Hamdzah, N. L. A., Hassan, S. N. S. & Hassan, R. (2016). Examining the level of emotional intelligence among semester one students in Universiti Teknologi Mara Pahang. *Journal of Human Capital Development (JHCD),* 9(1), 33-46.

Jacobsen, B., Lee, J. B., Marquering, W. & Zhang, C. Y. (2014). Gender differences in optimism and asset allocation. *Journal of Economic Behavior & Organization,* 107, 630-651.

Jenaabadi, H. (2014, 2014/02/21/). The Effect of Training Skills of Optimism on Fostering Emotional Intelligence of Males in Education & Improvement Center in Zahedan. Procedia - *Social and Behavioral Sciences*, 114, 191-196. https://doi.org/https://doi.org/10.1016/j.sbspro.2013.12.683

Kamaludin, K. & Sundarasen, S. (2023). COVID-19 and online distance learning in Malaysia: A blessing or a curse? *Frontiers in Education*, 8, 1062219.

Kant, R. (2019). Emotional intelligence: A study on university students. *Journal of Education and Learning (EduLearn)*, 13(4), 441-446.

Kumcagiz, H., Celik, S. B., Yilmaz, M. & Eren, Z. (2011). The effects of emotional intelligence on optimism of university students. *Procedia-Social and Behavioral Sciences*, 30, 973-977.

Mayer, J. D., Caruso, D. R. & Salovey, P. (2016). The ability model of emotional intelligence: *Principles and updates. Emotion review*, 8(4), 290-300.

McShane, S. L. & Von Glinow, M. A. Y. (2021). Organizational Behavior. McGraw-Hill Education. https://books.google.com.my/books?id=B6lCzQEACAAJ

Mohamed, N. F., Govindasamy, P., Rahmatullah, B. & Purnama, S. (2022). Emotional Intelligence Online Learning and its Impact on University Students' Mental Health: A Quasi-Experimental Investigation. *Pertanika Journal of Social Sciences & Humanities,* 30(2). https://doi.org/https://doi.org/10.47836/pjssh.30.2.13

Molero, D., Gavín-Chocano, Ó., Vargas-Cuevas, E. & García-Martínez, I. (2022). Relationship between Emotional Intelligence and Optimism According to Gender and Social Context (Urban vs. Rural). *Social Sciences*, 11(7), 268.

Mustafa, M. Z. B., Nordin, M. B., Razzaq, A. R. B. A. & bin Ibrahim, B. (2020). Vocational College Teachers in Malaysia: Emotional Intelligence. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(9), 5099-5106.

Newman, M., & Smith, K. H. (2014). Emotional intelligence and emotional labor: A comparison study using the emotional capital report (ECR). *Education and Society,* 32(1), 41-62.

Patel, S. K. (2017). Emotional intelligence of college-level students about their gender. *The International Journal of Indian Psychology*, 4(2), 2349-3429.

Pedrosa, I., Celis-Atenas, K., Suárez-Álvarez, J., García-Cueto, E. & Muñiz, J. (2015). Cuestionario para la evaluación del optimismo: Fiabilidad y evidencias de validez. *Terapia psicológica*, 33(2), 127-138.

Scheier, M. F. & Carver, C. S. (1985). Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health psychology*, 4(3), 219.

Serrat, O. (2017). Understanding and Developing Emotional Intelligence. In Knowledge Solutions: Tools, Methods, and Approaches to Drive Organizational Performance (pp. 329-339). Springer Singapore. https://doi.org/10.1007/978-981-10-0983-9_37

Stratton, S. J. (2021, Aug). Population Research: Convenience Sampling Strategies. *Prehosp Disaster Med*, 36(4), 373-374. https://doi.org/10.1017/s1049023x21000649

Tang, Y. & He, W. (2023). Relationship between emotional intelligence and learning motivation among college students during the COVID-19 pandemic: A serial mediation model. *Front Psychol,* 14, 1109569. https://doi.org/10.3389/fpsyg.2023.1109569

Tejada-Gallardo, C., Blasco-Belled, A., Torrelles-Nadal, C. & Alsinet, C. (2022). How does emotional intelligence predict happiness, optimism, and pessimism in adolescence? Investigating the relationship from the bifactor model. *Current Psychology*, 41(8), 5470-5480.

Thaoprom, P. (2004). Relationship Between Quality of Work Life and Job Performance for Police Office-Crime Prevention and Suppression Division: Case Study Thonglor Metropolitan Mahidol University].

Tripathi, M. (2016). Emotional Intelligence and Gender Differences. *Journal Global Values,* 7(2), 1-5.

Usán, P., Salavera, C., & Quílez-Robres, A. (2022). Self-Efficacy, Optimism, and Academic Performance as Psychoeducational Variables: Mediation Approach in Students. *Children (Basel),* 9(3). https://doi.org/10.3390/children9030420

Wang, X. & Cheng, Z. (2020). Cross-sectional studies: *strengths, weaknesses, and recommendations. CHEST,* 158(1), S65-S71. https://doi.org/doi: https://doi.org/10.1016/j.chest.2020.03.012

Wang, X., Lu, X., Hu, T., Xue, S., Xu, W. & Tang, W. (2022). Optimism and friendship quality as mediators between trait emotional intelligence and life satisfaction in Chinese adolescents: A two-wave longitudinal study. Current Psychology. https://doi.org/10.1007/s12144-022-03931-0

Wong, S. S., Wong, C. C., Ng, K. W., Bostanudin, M. F. & Tan, S. F. (2023). Depression, anxiety, and stress among university students in Selangor, Malaysia during COVID-19 pandemics and their associated factors. *PloS one,* 18(1), e0280680. https://doi.org/https://doi.org/10.1371/journal.pone.0280680

Yang, R., Díaz, V. G. & Hsu, C. H. (2021). Use of emotional intelligence to promote innovation among employees in the work environment through qualitative and quantitative analysis. Aggression and Violent Behavior, 101589.

Zhihao, D. & Mustapha, S. M. (2021). The Relationship between Online Teacher-Student Interaction and Online Academic Performance: The Mediating Effect of Academic Optimism. *International Journal of Infrastructure Research and Management,* 9(2), 1-10.

Household Sustainable Consumption Intention

Roslilee Ab. Halim* & Soo-Cheng Chuah
Faculty of Business and Management, University Teknologi MARA (UiTM), Puncak Alam Campus, Selangor, Malaysia
*roslilee@uitm.edu.my, chuahsc@uitm.edu.my

Abstract: Household consumption could hurt the environment. What we collectively choose and consume on a day-to-day basis determines what's left for future generations. As household consumption is one of the largest activities in an economy, sustainable consumption is an important key to achieving sustainability goals. Improvement in the role of individual citizens in society, concerning sustainability is vital for a better future in all aspects of the environment, society and economy. The purpose of this article is to examine how education, sustainable awareness and attitude, as well as social influence impact the intention to consume sustainably among households. The method used is quantitative where cross-sectional data was collected through an online self-administered questionnaire in which a convenience sampling method was applied to 151 respondents. The data was analyzed using partial least square structural equation modeling (PLS-SEM) by utilizing SmartPLS3 software. The findings suggest that social influence and sustainable awareness and attitude had a significant influence on the intention toward sustainable consumption among households. Education however was found to be insignificant and not sufficient as the predictor in this study. Implications for policymakers and the directions of future research are proposed.

Keywords: *Household, Sustainable Consumption, Intention, Sustainable Attitude, Awareness, Education.*

1. Introduction and Background

Household consumption of goods and services is routine as it is necessary to meet our everyday needs and wants. It plays an even bigger role as one of the biggest elements that keep the economy running. However, what we choose and how we make decisions on what to consume daily may negatively affect the environment in many ways. It could emanate from household waste generation, food choices, clothing choices, transportation choices, and energy and water consumption. As such, sustainability consumption is becoming one of the major keys to achieving sustainability goals. If the issues are not managed properly today, it may lead to more serious consequences in the future. The data on the amount of solid domestic waste in Malaysia as released by SWCorp, still indicate an increasing trend from 36, 843 tons in the year 2018 to 39, and 936 tons in 2022 (NST, 2022). Thus, there is a need for change in the way we think, choose and consume. To achieve sustainability goals, everybody in society must consume sustainably and be responsible for the consumption choices they make.

The term sustainable consumption started from Kongress Oslo in 1994 (Shao, Taisch & Ortega-Mier, 2017) and the idea continued to be strongly upheld by the United Nations as they defined sustainable consumption as "the use of services and related products that respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials, as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations (United Nation, 2023). Therefore, the term 'sustainable consumption' could be simplified and understood as any household behaviors and actions that fulfill the needs of the current generation without jeopardizing the needs of future generations or the environment. Sustainability consumption is not only limited to the behavior of purchasing environmentally-friendly products (Fedrigo & Hontelez, 2010) but it has wider issues including lifestyle changes in society (Biswas & Roy, 2005), minimizing waste generation, enhancing resource efficiency and encouraging the use of renewable sources (Wang, Liu & Qi, 2014). In Malaysia, the concept of sustainable consumption among households was first promoted in the year 2003 through the Malaysia Consumer Master Plan 2003-2013 (Zen et al., 2020).

It was then strengthened through The National Sustainability Consumption and Production Blueprint 2016-2030 (EPU, 2016). A vast number of studies on sustainability consumption are rooted in Western countries which may mislead our policymakers to assume that our society is having the same behaviors. Even though

studies on sustainability consumption in Malaysia are growing, they cover various aspects from green product purchase behaviour to the role of the government. While some of the research on determinants yields mixed findings. Therefore, this paper adds to the literature by using current data to explore the determinants of sustainability consumption among households. As the role of individual citizens in society concerning sustainability is vital to be improved for future generations it is thus important to identify the factors. The findings could assist policymakers in planning programs to help households make better-informed choices and consume more sustainably. This paper examines the variables of education, sustainable awareness and attitude as well as social influence in investigating their effect on household sustainable consumption intention.

2. Literature Review

Underpinning Theory: According to the theory of reasoned action (Fishbein and Ajzen, 1975), an individual's intention to engage in a particular behavior is formed by their attitude towards the behavior and the subjective norm (their beliefs about what they should do and how important other people's opinions are to them), and this intention then tends to perform the behavior. Social psychologists believe that the key to understanding a person's behavior is their attitude (Kumar et al., 2023). However, it is a difficult effort to understand the relationship between attitude and behavior. Extensive literature has indicated that researchers assume attitude is the primary factor affecting behavior. Attitude is useful to understand and predict consumer behavior toward a particular product or service (Fishbein and Ajzen, 1975). However, the literature reported mixed results on attitude–behavior relationships. Consumer behavior is defined as "the process and activities that people engage in when searching for, selecting, purchasing, using, evaluating and disposing of products and services, to satisfy their needs and desires (Belch & Belch, 1993, p. 115)". Attitude is defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor and disfavor (Eagly & Chaiken, 1993, p. 1)". Education is important to underline the value of environmental awareness which can encourage sustainable behavior (Hanifah et al., 2016; Hanifah et al., 2017). Education is crucial in promoting moral competencies to solve issues relating to society and the environment (Valor et al., 2020).

Education and Sustainable Consumption: Implementation of strategies to achieve sustainable consumption must include education. According to Zenelaj (2013), education is the first step to building an understanding of sustainability, as learning enhances the transition toward the goal (Wals & Kieft, 2010). Through education, society receives adequate information and knowledge to develop a sense of responsibility. Knowledge of sustainability helps society to understand the impact of their actions on the environment, whether positively or negatively (Zenelaj, 2013). This will then facilitate an evaluation of lifestyle choices that would enable households to consume more sustainably. Gombert-Courvoisier et al. (2014) stressed the importance of having Higher Education for Sustainable Consumption (HESC) to create awareness of how consumption impacts the environment and society and to promote a sense of individual and collective responsibility. Through HESC students will be trained to have the capability to propose and implement solutions to ecological problems associated with the changing modes of consumption. Zenelaj (2013) suggested educating & instilling a sense of responsibility toward sustainable consumption as early as childhood.

She believed school levels are the best initial place to introduce good theoretical knowledge before moving up to higher education levels such as university education. She also suggested including practical training in the education of sustainable consumption and not simply teaching theoretical and conceptual knowledge. Merely understanding the concept will not help to change the habit or the way we consume unless they are applied in everyday life. Research by Geng, Liu and Zhu (2017) on the role of sustainable consumption understanding revealed that understanding is necessary to motivate sustainable consumption behaviors. They found that Chinese adolescents can understand the sustainable consumption concept through education and this influences the purchase of sustainable products. Chekima et al. (2016) however, found environmental knowledge to be insignificant to sustainable consumption in Malaysia. The result contradicted Ahamad and Ariffin (2018) who stated that knowledge is significantly related to sustainability consumption. Thus, the following hypothesis is proposed:

H1: Education is positively related to sustainable consumption intention.

Sustainable Awareness and Attitude and Sustainable Consumption: Attitudes are considered one of the most fundamental drivers of human behavior since they determine which stimuli a person approaches or avoids (Sweldens et al., 2014) and to build a certain attitude, one needs to be mindful or aware. Hutton and Baumeister (1992) state that self-awareness appears to make the person aware of his or her attitude. According to Geng, Liu and Zhu (2017), environmental awareness and attitude can lead to environmental treatment and disposal of products, however, understanding the sustainability concept is necessary. Wamsler and Brink (2018) identified a linkage between mindfulness and sustainability where they found that being aware or mindful motivates the adaptation actions (attitude and practice) towards sustainability and supports pro-environmental behavior. Bernal, Edgar and Burnes (2018) suggested that organizations wishing to excel in sustainability, need to be conscious of their values and be self-critical enough to see where it is necessary to make a change that leads to building real values of commitment to society and environment. This is also supported by Daniel, Gentina and Kaur (2023) who found that awareness supports a sustainability attitude in which mindfulness positively affects green purchase intentions and is significantly mediated by self-ethical identity. The results are similar in Malaysian society where Ahamad and Ariffin (2018), Al Mamun et al. (2018), Mohamad Azizan and Mohd Suki (2014) also found a significant relationship between attitude and sustainable consumption. Thus, this study proposes the following hypothesis:
H2: Sustainable awareness and attitude are positively related to sustainable consumption intention**.**

Social Influence and Sustainable Consumption: Social influence on sustainable consumption is another important aspect studied by researchers. A person or a group's opinion is believed to influence another's opinions, attitudes, emotions, or behavior (Goldsmith, 2015). Using a large sample of more than 3,000 households to investigate the role of peer pressure in determining sustainable consumption, Lazaric et al. (2020) found sustainable behavior from peers complements changing environmental values and stimulates pro-environmental behavior. They further stressed that the ability to learn in small networks is crucial to promote sustainable consumption behavior, especially in building trust and exchange of ideas and practices. Salazar et al. (2013) studied the social influence from peer groups (colleagues, family and friends) to see how it influences the decision to choose environmentally friendly products and the findings confirmed the positive effects of peer or social influence. They also tested different types of social influence ('herd behavior' vs. 'social learning') and they found clear evidence for 'herd behavior' and the data indirectly supports the presence of 'social learning' effects. The result is somehow contradicted by Rian et al. (2021) who found in Malaysia, sustainable consumption is not directly affected by social value. Thus, the following hypothesis is posited:
H3: Social influence is positively related to sustainable consumption intention.

3. Research Methodology

This is a cross-sectional study conducted through an online self-administered questionnaire with a convenience sampling method. The questionnaire comprises 18 items that consist of two parts: (1) demographic characteristics of households, and (2) factors influencing sustainable consumption intention. All measurement items were measured using a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. A total sample of 151 complete questionnaires was collected in Klang Valley, Selangor areas. This sample size exceeds the minimum sample size required of 119 as calculated using the GPower software with an effect size of 0.15 and power analysis of 0.95. An analysis of the demographic characteristics of the respondents is shown in Table 1 below. A majority of the respondents are between the ages of 21 to 23 years old (52.98%) while 77.48% of the respondents hold an undergraduate degree (diploma or bachelor's degree) as their highest academic qualification.

Table 1: Demographic Characteristics

VARIABLE	FREQUENCY	PERCENT (%)
Gender		
Male	73	48.34
Female	78	52.66

Age		
18 – 20 years old	24	15.89
21 – 23 years old	80	52.98
24 – 26 years old	26	17.22
27 – 30 years old	21	13.91
Ethnic		
Malay	111	73.51
Chinese	24	15.89
Indian	16	10.6
Academic qualification		
SPM or below	30	19.87
Diploma	54	35.76
Bachelor Degree	63	41.72
Postgraduate	3	2.65
Occupation		
Executive	24	15.89
Non-executive	32	21.19
Unemployed	13	8.61
Students	82	52.32

Partial least square structural equation modeling (PLS-SEM) was used to analyze the data by using SmartPLS3 software (Ringle et al. 2022). PLS-SEM is a two-step process analysis that includes a measurement model and a structural model. The measurement model comprises convergent and discriminant validity, while the structural model is a path analysis. The normality test was tested using the WebPower statistical power analysis online tool. The Mardia's multivariate skewness and kurtosis results showed that the data are multivariate non-normal since the p-values are less than 0.05.

4. Results

This section presents the results of the data analysis using the measurement model and structural model.

Measurement Model: The convergent validity and discriminant validity were assessed by the measurement model. The results of convergent validity including item loadings, composite reliability (CR) and average variance extracted (AVE) of the variables are shown in Table 2. The values of factor loadings greater than 0.5, CR more than 0.7 and AVE exceeds 0.5 fulfill the requirements as suggested by Hair et al. (2017).

Table 2: Descriptive Statistics

Variable	Item	Loadings	CR	AVE
Education	ED1	0.852	0.874	0.699
	ED2	0.859		
	ED3	0.796		
Sustainable awareness and attitude	SA1	0.764	0.804	0.577
	SA3	0.747		
	SA4	0.768		
Social Influence	SI1	0.799	0.829	0.621
	SI2	0.895		

	SI3	0.651		
Sustainable consumption behaviors	PSC1	0.731	0.886	0.527
	PSC2	0.801		
	PSC3	0.702		
	PSC4	0.726		
	PSC5	0.670		
	PSC6	0.659		
	PSC7	0.778		

The discriminant validity was evaluated using the heterotrait-monotrait ratio (HTMT) as recommended by Henseler et al. (2015). The results of the HTMT ratio values in Table 3 showed that all variables were less than 0.85 indicating discriminant validity is confirmed (Kline, 2011).

Table 3: HTMT Ratio

	ED	PSC	SA	SI
ED				
PSC	0.445			
SA	0.778	0.534		
SI	0.606	0.565	0.786	

Structural Model: After assessing the validity and reliability under the measurement model, the hypotheses testing on the variables of the model were tested using the bootstrapping procedure of 5000 re-samples (Hair et al., 2017) to produce the results of the path of coefficients that includes beta coefficients, t-value, p-values and confidence intervals. The results of the path coefficients for all hypotheses of this study are presented in Table 4.

Table 4: Hypothesis Testing

Hypotheses Relationship	Std beta	Std error	t value	p-value	BCI LL	BCI UL	f^2
H1: ED -> PSC	0.156	0.096	1.623	0.053	-0.007	0.319	0.022
H2: SA -> PSC	0.164	0.097	1.688	0.046	0.010	0.331	0.021
H3: SI -> PSC	0.315	0.09	3.501	0.000	0.126	0.432	0.089

(*p<0.05; **p<0.01).

As shown in Table 4, sustainable awareness and attitude (β=0.164,p<0.05) and social influence (β=0.315,p<0.01) had a positive significant effect on sustainable consumption indicating H2 and H3 were supported. The f^2 values of 0.021 and 0.089 indicated a small effect of sustainable awareness and attitude and social influence on sustainable consumption. While education (β=0.156,p>0.05) did not have a significant effect on sustainable consumption. The R^2 value of 0.284 indicated that 28.4% of the variation in sustainable consumption was explained by education, sustainable awareness attitude and social influence. The predictive relevance was tested using the PLS Predict procedure as recommended by Shmueli et al. (2019) and the results are shown in Table 5. The difference of the roost mean squared error (RMSE) values for endogenous variables between PLS-SEM and naïve LM were negative indicating the model has high predictive power.

Table 5: PLS Predict Assessment

	PLS-SEM		LM	PLS-SEM-LM
	Q^2 predict	RMSE	RMSE	RMSE
PSC2	0.16	0.943	0.964	-0.021
PSC3	0.049	0.971	0.985	-0.014

PSC7	0.245	0.868	0.882	-0.014
PSC1	0.164	0.822	0.836	-0.014
PSC4	0.036	0.994	1.028	-0.034
PSC5	0.012	0.948	0.966	-0.018
PSC6	0.077	1.005	1.058	-0.053

5. Discussion and Conclusion

Sustainability is an important worldwide agenda initiated by the United Nations to ensure better well-being of future generations in the aspects of environment, society and economy. How we collectively and massively consume today determines what is left for the future. Thus, the agenda of sustainability consumption is vital. This study analyses the intention of households towards sustainable consumption where three influencing variables were examined; education, sustainable awareness and attitude, and social influence. The result of this study provides useful information to policymakers and future research. The findings of this study suggested that social influence and sustainable attitude and awareness had a significant impact on the household's intention to consume sustainably. Both H2 and H3 were supported. This is in line with the findings from previous literature (Lazaric et al., 2020; Salazar et al., 2013; Daniel, Gentina & Kaur, 2023; Wamsler & Brink 2018; Bernal, Edgar & Burnes, 2018). Education however was found to be insignificant and not sufficient as a predictor in this study. The result contradicts most literature in predicting the behavior towards sustainable consumption. However, it is similar to Jaishwal and Singh (2018) and Chekima et al. (2016) who also found that environmental knowledge was insignificantly related to sustainability.

Consumption with a focus on the attitude towards purchase intention of green products behavior. The News Straits Times (2019) reported that the gap between knowledge and environmental issues among Malaysians still exists. Haron, Paim and Yahaya (2005) found a low level of environmental knowledge among households in Selangor which reflected their lower level of environmental education. Although there have been efforts and programs made by the government to educate our society, the emphasis on environmental and sustainability education might still be insufficient. More information dissemination and programs to impart knowledge are needed. Aminrad et al. (2012) proposed that the government should invest more in sustainability education. The integration of the subject matter in Malaysia's education system must start as early as possible, not only formally but also informally. The emphasis on practical activities alongside the theory must be taken into consideration to improve the attitude and awareness of sustainability consumption. Aminrad et al. (2013) stressed that practical programs where students implement and learn the theory simultaneously are more beneficial and an effective strategy rather than integrating it into formal syllabus in education systems.

As a social influence, sustainable awareness and attitude were significantly associated with consuming sustainably, the use of social media platforms as a tool should be optimized by the authority to tap the current generation who are mostly social media literate. More programs and policies that focus on promoting environmental awareness which highlights the advantages of sustainable consumption should be carried out. Collaboration programs with more hands-on activities are also recommended especially with pro-environment implementers and NGOs. These programs are expected to improve sustainability literacy and attitudes among households in Malaysia. Nevertheless, the variables studied were found to have low explanatory power to overall sustainable consumption intention, which suggests further research where more variables should be examined such as environmental concern and sensitivity (Jaiswal & Singh, 2018; Prastiwi & Rabia, 2019) and neighborhood and cultural values (Moroke et al., 2019; Chekima et al., 2016). In addition, a bigger sample size with more diverse household respondents is also recommended for future research to achieve a more detailed study.

References

Haron, S., Paim, L. & Yahaya, N. (2005). Towards Sustainable Consumption: An Examination of Environmental Knowledge among Malaysians. *International Journal of Consumer Studies,* 29(5), 426-436.

Ahamad, N. R. & Ariffin, M. (2018). Assessment of Knowledge, Attitude and Practice towards Sustainable Consumption among University Students in Selangor, Malaysia. *Sustainable Production and Consumption,* 16, 88-98.

Al Mamun, A., Mohamad, M. R., Yaacob, M. R. & Mohiuddin, M. (2018). Intention and behavior towards green consumption among low-income households. *Journal of Environmental Management,* 227, 73-86.

Aminrad, Z., Sayed Zakariya, S. Z., Hadi, A. S. & Sakari, M. (2012). Environmental Education in Malaysia Progresses and Challenges Ahead (Review). *Life Science Journal*, 9(2), 1149-1154.

Aminrad, Z., Sayed Zakariya, S. Z., Hadi, A. S. & Sakari, M. (2013). Relationship between Awareness, Knowledge and Attitudes towards Environmental Education Among Secondary School Students in Malaysia. *World Applied Sciences Journal*, 22(9), 1326-1333.

Belch, G. E. & Belch, M. E. (1993). Introduction to Advertising and Promotion: An Integrated Marketing Communications Perspective, 2nd ed., Richard D. Irwin, Homewood, Boston.

Bernal, E., Edgar, D. & Burnes, B. (2018). Building Sustainability on Deep Values through Mindfulness Nurturing. *Ecological Economics*, 146, 645-657.

Biswas, A. & Roy, M. (2005). Green Products: An Exploratory Study on the Consumer Behavior in Emerging Economies of the East. *Journal of Cleaner Production,* 87, 463-468.

Chekima, B., Chekima, S., Syed Khalid Wafa, S. A. W., Oswald @ Aisat Igau. & Sondoh Jr., S. L. (2016). Sustainable Consumption: The Effects of Knowledge, Cultural Values, Environmental Advertising, and Demographics. *International Journal of Sustainable Development & World Ecology,* 23(2), 210-220.

Daniel, C., Gentina, E. & Kaur, T. (2023). Mindfulness and Green Purchase Intention: A Mediated Moderation Model Uncovering the Role of Ethical Self-Identity. Ecological Economics, 209.

Eagly, A. H. & Chaiken, S. (1993). The Psychology of Attitudes. Harcourt Brace, San Diego, CA.

Economic Planning Unit. (2016). The National SCP Blueprint 2016-2030. The Pathways for Sustainable Consumption and Production (SCP) in Malaysia. Retrieved from chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.oneplanetnetwork.org/sites/default/files/malaysia_the_national_scp_blueprint_2016_-_2030.pdf

Fedrigo, D. & Hontelez, J. (2010). Sustainable Consumption and Production: An Agenda Beyond Sustainable Consumer Procurement. *Journal of Industrial Ecology*, 14(1), 10-12.

Fishbein, M. & Ajzen, I. (1975). Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research, Addison-Wesley.

Rian, F. W., Gusman, N. & Fatimah, M. (2021). Determinants for Sustainable Green Product Consumption: A Glimpse from Peninsular Malaysia. AIP Conference Proceedings.

Geng, D., Liu, J. & Zhu, Q. (2017). Motivating Sustainable Consumption Among Chinese Adolescents: An Empirical Examination. *Journal of Cleaner Production,* 141, 315-322.

Goldsmith, E. B. (2015). Introduction to Social Influence: Why It Matters. Social Influence and Sustainable Consumption, 3–22.

Gombert-Courvoisier, S., Sennes, V., Ricard, M. & Ribeyre, F. (2014). Higher Education for Sustainable Consumption: Case Report on the Human Ecology Master's Course (University of Bordeaux, France). *Journal of Cleaner Production,* 62, 82-88.

Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2017) A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). 2nd Edition, Sage Publications Inc., Thousand Oaks, CA.

Hanifah, M., Mohmadisa, H., Nasir, N., Yazid, S. & Siti Mariam S. H. (2017). Sustainable consumption practices of students through the practice-oriented approach of education for sustainable development. *International Journal of Academic Research in Business and Social Sciences,* 7(6), 703-720. 10.6007/IJARBSS/v7-i6/3031

Hanifah, M., Yazid, S., Mohmadisa, H. & Nasir, N. (2016). Model development on awareness of education for sustainable school development in Malaysia. *International Journal of Geography*, 48(1), 39–48

Henseler, J., Ringle, C. M. & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling. *Journal of the Academy Marketing Science,* 43, 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hutton, D. G. & Baumeister, R. F. (1992). Self-Awareness and Attitude Change: Seeing Oneself on the Central Route to Persuasion. *Personality and Social Psychology Bulletin*, 18(1), 68–75.

Jaiswal, D. & Singh, B. (2018). Toward Sustainable Consumption: Investigating the Determinants Of Green Buying Behavior Of Indian Consumers. *Business Strategy & Development,* 1(1), 64-73. https://doi.org/10.1002/bsd2.12

Kline, R. B. (2011). Principles and Practice of Structural Equation Modeling. Guilford Press, New York.

Kumar, R., Kaushal, S. K. & Kumar, K. (2023). Does source credibility matter in promoting sustainable consumption? Developing an integrated model. *Social Responsibility Journal,* 19(7), 1320-1347. https://doi.org/10.1108/SRJ-07-2021-0257

Lazaric, N., Le Guel, F., Belin, J., Oltra, V., Lavaud, S. & Douai, A. (2020). Determinants of Sustainable Consumption in France: The Importance of Social Influence and Environmental Values. *Journal of Evolutionary Economics*, 30, 1337–1366.

Mohamad Azizan, S. A. & Mohd Suki, N. (2014). The Potential for Greener Consumption: Some Insights from Malaysia. *Mediterranean Journal of Social Sciences,* 5 (16), 11-17.

Moroke, T., Schoeman, C. & Schoeman, I. (2019). Developing a Neighborhood Sustainability Assessment Model: An Approach to Sustainable Urban Development. *Sustainable Cities and Society*, 48, 1-20, https://doi.org/10.1016/j.scs.2019.101433.

New Straits Times. (2022). Can Malaysia Achieve a 40 percent Recycling Rate by 2025? Retrieved from https://www.nst.com.my/news/nation/2022/03/778625/can-malaysia-achieve-40-cent-recycling-rate-2025

News Straits Times. (2019). Making Sustainable Consumption Work. Retrieved from https://www.nst.com.my/opinion/columnists/2019/02/461780/making-sustainable-consumption-work

Prastiwi, S. K. & Rabia, R. (2019). The Determinant of Sustainable Consumption Behavior of Moslem Woman in Sukoharjo. Sustinere. *Journal of Environment and Sustainability,* 3(1), 24–38. https://doi.org/10.22515/sustinere.jes.v3i1.65

Ringle, Christian M., Wende, Sven. & Becker, Jan-Michael. (2022). SmartPLS 4. Oststeinbek: SmartPLS. Retrieved from https://www.smartpls.com

Salazar, H. A., Oerlemans, L. & Van Stroe-Biezen, S. (2013). Social Influence on Sustainable Consumption: Evidence from a Behavioral Experiment. *International Journal of Consumer Studies*, 37, 172-180.

Shao, J., Taisch, M. & Ortega-Mier, M. (2017). Influencing Factors to Facilitate Sustainable Consumption: From the Experts' Viewpoints. *Journal of Cleaner Production*, 142(1), 203-216.

Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S. & Ringle, C. M. (2019). Predictive Model Assessment in PLS-SEM: Guidelines for Using PLSpredict. *European Journal of Marketing,* 53(11), 2322-2347. https://doi.org/10.1108/EJM-02-2019-0189

Sweldens, S., Corneille, O. & Yzerbyt, V. (2014). The Role of Awareness in Attitude Formation Through Evaluative Conditioning. *Personality and Social Psychology Review*, 18(2), 187-209.

United Nation. (2023). https://www.unep.org/

Valor, C., Antonetti, P. & Merino, A. (2020). The relationship between moral competencies and sustainable consumption among higher education students. Journal of Cleaner Production, 119161. doi:10.1016/j.jclepro.2019.119161

Wals, A. E. J. & Kieft, G. (2010). Education for Sustainable Development. SIDA Review, 13.

Wamsler, C. & Brink, E. (2018). Mindsets for Sustainability: Exploring the Link Between Mindfulness and Sustainable Climate Adaptation. *Ecological Economics,* 151, 55-61.

Wang, P., Liu, Q. & Qi, Y. (2014). Factor Influencing Sustainable Consumption Behaviors: A Survey of the Rural Residents in China. *Journal of Cleaner Production,* 63, 152-165.

Zen, I. S., Ebrahimi, M., Titisari, P. W. & Hendrayani, Y. (2020). Framing the Household Sustainable Consumption and Lifestyle in Malaysia: The Policy Implications. *International Journal of Psychosocial Rehabilitation*, 24(03), 840-854.

Zenelaj, E. (2013). Education for Sustainable Development. *European Journal of Sustainable Development,* 2(4), 227-232.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Towards Quality Education: Physical Notes VS Digital Notes in Health Expectancy, Eco-Friendly Environment and Notes Accessibility Conditions

Natasha Dzulkalnine[1*], Mohamed Nor Azhari Azman[2], Nur Athirah Sumardi[3] & Nur Qudus[4]
[1,3]Faculty of Business and Management, UiTM Puncak Alam, 42300, Puncak Alam, Selangor, Malaysia
[2]Faculty of Vocational, Universiti Pendidikan Sultan Idris (UPSI), Tanjung Malim, Perak, Malaysia
[4]Department of Civil Engineering, Faculty of Engineering, Universitas Negeri Semarang, Kampus Sekaran Gunungpati, Semarang, 50229, Indonesia, Indonesia
*natashad@uitm.edu.my, mnazhari@ftv.upsi.edu.my, athirahsumardi@uitm.edu.my, nurqudus@mail.unnes.ac.id

Abstract: Due to the pandemic of COVID-19, students have started using digital technology in learning and note-taking. However, for early adopters, this method might be challenging. Thus, this study objectively examines the preferences of students' physical or digital note-taking styles. Convenience sampling among 125 students in Universiti Teknologi MARA (UiTM) Selangor branch, Puncak Alam Campus has been used as part of the methodology. Three main variables are selected in assessing the student's preferences for notes based on the previous study which are Health Expectancy, Eco-Friendly Environment, and Notes Accessibility Conditions. The analysis done is descriptive statistics and correlation analysis using SPSS and SMARTPLS 4. The findings show that the students still prefer physical notes over digital notes. The percentage of preferences is almost the same, and it is expected that in the future the percentage of digital notes taking will shift from physical notes to digital notes. Notes accessibility condition is a significant variable while the other variables are not significant towards student's preferences for notes. The students are still in the transition process from the era before the pandemic and the post-pandemic era. Thus, it is recommended that the learning style and note-taking style might adopt the combination of physical and digital notes.

Keywords: *Digital notes, physical notes, student's preferences, health expectancy, eco-friendly environment, notes accessibility condition.*

1. Introduction and Background

In this era of technology, nowadays students have the option of choosing between the physical method or the digital method. The physical method is using the traditional way which is using handwriting. Students need to use paper to jot down their notes while for digital notes students just need a tablet to do all of the notes in their study. Students can choose any method that is suitable for them and easy for them to note-taking. The usage of technological devices is expanding, and traditional handwriting is becoming less common. Many professionals use computers in their daily jobs, and electronic devices are used as learning tools for academic reasons throughout the entire educational cycle (to study, to complete assignments, to take classroom notes and to search for information)(Aragón-Mendizábal et al., 2016). Due to the COVID-19 pandemic, many changes have occurred. All activities must stop due to the Movement Control Order (MCO) implemented by the government to reduce the spread of the virus. The MCO has restricted all movement activities, including travel, business, industry, government, and even educational institutions.

During this order, physical lectures have turned into online platforms such as Google Meet, Webex, and others. Most students depend fully on digital devices such as laptops, computers, and smartphones. This has led to a new norm. Students started to use tablets to take notes on their online lectures. This new norm has facilitated their online learning. During this period, students can only access their reading material online. Students cannot print their reading material because most bookshops are closed due to MCO. Therefore, there is an increase in the use of tablets among students during this period. Due to the event, UiTM gave the lecturers orders to conduct lectures online. UiTM has prepared online platforms such as UFUTURE for lecturers and students for their online classes. Students can choose their note-taking method based on their comfort and preferences. It also can depend on the subject and topic that you learn for your study. For digital notes, it is easier for them to attach the media. Some study does not need any media as their references, so it is also one of the factors why students choose physical notes compared to digital notes. There are pros and cons to the method that students will choose for their note-taking.

They need to consider many aspects before choosing their preferred method because this can influence their revision style and preparation for exams. Students need to choose their note-taking method wisely to ease their study journey. Nowadays, we have many approaches to help students study. Students need to write notes for their lesson to revise what they are studying. In addition, note-taking is important to help students prepare for their exams. For student note taking, it depends on their creativity in how to make their notes effective for themselves. Before the era of technology, all of us were using traditional ways of writing notes which used physical notes such as printing notes and jotting down on paper but now we already live in the era of high-tech technology, which allows us to feel easier with the help of technology such as electronic devices. Students have various options to write their notes. Students can choose whatever method they want based on their comfort. Furthermore, there are some pros and cons for every method they use for note taking either using physical notes or digital notes. Some of the students would prefer physical notes compared to digital notes because they said that using this method, is faster in note-taking while some of the students do not agree with the statement. They choose to use digital notes in note-taking because it is so much easier. After all, electronic devices have apps that they can use for their study, so it is easy for them to refer to them.

Based on a study in 2011 of University of Michigan students, 53% of the respondents stated that their laptops helped them in their studies, with 25% strongly agreeing that. The students believe that" laptops help them a lot in note-taking". This shows they chose digital electronics in their study because Digital note-taking has everything in one app, so it will save time for the student to look into it. Moreover, digital notes are more convenient because it is easy for students to carry the load and save their effort to carry the notes. For example, in comparison to three different notebooks and a bag full of pencils, highlighters and sticky notes, it is more convenient to carry only one laptop, phone, or tablet. Having only a tablet can save students time to print out the notes and save their expenses on note printing. Based on the study from dental education programs in the United States, Puerto Rico, and Canada, the surveys stated that all of their learning education is based on their e-textbooks which are already included in their study fees, so with the digital notes, they can have full access to it. Lastly, the research conducted is to ensure the opinion of the student which method they prefer either digital notes or physical notes that have more durability to preserve the notes for a long time and which method can have a positive impact on their health. Three variables are selected in this study which are Health Expectancy, Eco-friendly Environment and Notes Accessibility Condition.

2. Literature Review

Preference for Digital Notes or Physical Notes: Learning in the 21st century is omnipresent with computers and technology and is gaining momentum in the lives of the young and becoming a part of education at schools. Students use technology daily and this has an impact on their education. The technology used effectively in the classroom enables students to be innovative while developing new skills and provides students with futuristic information (Himmelsbach, 2022). Digital note-taking is a combination of techniques that allow you to take and store your notes electronically. This approach to education was further intensified when the Covid-19 pandemic hit. In 2020, universities shut down, forcing educators to rely on the Internet and electronic devices to facilitate classes. As more universities acclimate to this setup, it seems that many have also realized its benefits with research suggesting that online learning promises increased information retention and that it could be here to stay (Darkwa & Antwi, 2021).

Meanwhile, the number of technologies used for educational purposes has been increasing in addition to the level of comfort both instructors and students have with using such technologies (Khan, 2009). Course materials are an integral part of the learning experience for students. As such it is important for educators to be aware of the types of materials that will be most helpful for students' success in their courses because it has been shown that different technologies used in teaching environments directly influence student performance (Diaz & Cartnal, 1999). This is partly due to the differences in learning styles and personal characteristics of the students themselves. Previous research has shown that students' decisions to use different types of technologies vary greatly based on their individual preferences (Grasha & Yangarber-Hicks, 2010). This in turn influences a student's preferences for using digital notes or physical notes. It is possible for a student who has a preference toward what they choose. Also, Sun & Li (2019) in their study has mentioned that students with preferences in digital note-taking strived in their academics more than students with traditional note-taking.

Physical Notes VS Digital Notes and Health Expectancy: Suri et al. (2020) have included twenty-two studies that met the inclusion criteria were included in the study. A study conducted in Japan comprised 1,159 participants ranging in age from 7 to 27. Carrying a backpack creates additional strain on internal tissues and probably causes significant spinal stresses due to the added weight and changes in spinal position. The results included information about trunk kinematics, spine posture, and trunk muscle activity during upright standing, walking, and stair climbing and descending, as well as information about the effects of backpack weight and position. Carrying heavy backpacks is a major contributor to the rising prevalence of back pain in children and young adults. Future solutions and increased safety measures for students could, however, assist in reducing this issue. Unsurprisingly, given that the preferred manner of carrying a bag is a backpack-style bag with carriage on the back and two straps over the shoulders, the Dublin study found that 65% of discomfort was recorded in the shoulders. The backache was reportedly 30% uncomfortable. Spinal tension and potential pain and discomfort are some of the initial impacts. Yet, tissue damage is not often accompanied by conscious discomfort, so it may go undetected. Long-term postural alignment imbalances they may acquire could have an impact on the neurological system's health. Communication between the brain and the body is significantly impacted when the position of the spine is uneven (Priyanka Kumbhare, 2018). Another issue related to health matters is reading an electronic book before bed reduced the generation of melatonin, a key sleep hormone, according to a new Harvard University study. As a result, it took people far longer to fall asleep, they had less deep sleep, and they woke up feeling more tired (Bushak, 2015).
H1: Health expectancy influences the student's preferences for digital notes vs physical notes**.**

Physical Notes VS Digital Notes and Eco-Friendly Environment: Cohen (2018) has mentioned that there are 4 undeniable benefits of going paperless in school or education centers. The first one is reducing waste and creating a sustainable future, then saving time for teachers and administration, and at the same time it will reduce the cost, last but not least it can bring the classroom into the digital age. This proves that besides being eco-environment friendly, paperless notes can move the students also educators into the digital era. Oladeji (2023) has mentioned in the article that technology in education can reduce the cost of learning. Although embarking on digitalization and technology is costly at the beginning, however, it saves for overall usage. By adopting technology, the cost of printing on paper, buying nooks, and commuting to class can be reduced. Thus, at the same time can lead to the eco-environment friendly. Recycling is said to be the most efficient way to protect the ecology of our planet. We can decrease the amount of waste materials generated and protect future natural resources by simply reusing the items rather than throwing them away. In this approach, landfill trash will be decreased to save water and air from pollution. In addition to producing economic benefits, recycling solid waste has sufficient advantages for the environment and health (Lamma, 2021). The use of digital notes can help reduce the usage of paper and conserve the environment through the reduction of waste material.
H2: Eco-environment friendly influences the student's preferences for digital notes vs physical notes.

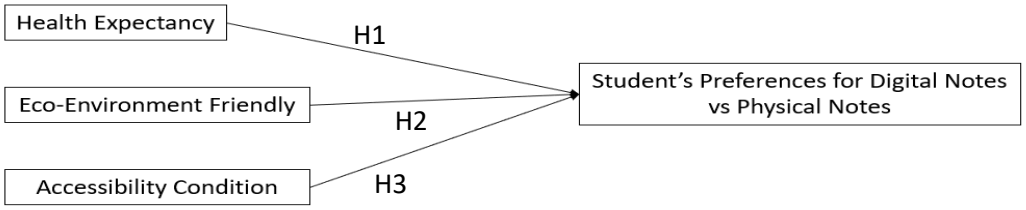
Physical Notes VS Digital and Notes Accessibility Condition: Tablets and iPads have been overestimated as 'revolutionary' devices that hold great potential for transforming learning (Goodwin, 2012). One of the chief benefits of these mobile devices is that they enable learning anywhere and anytime. This allows a shift away from the traditional model where the classroom is the central place of learning driven by the teacher and limited to instruction within the school day. In deploying mobile devices, the teacher is no longer at the center of the learning process and the instructional time can surpass the school day. As digital environments increasingly affect higher education, we should consider the evolving interplay between note-taking, information management, and lifelong learning. The first decades of the digital age have introduced society to a variety of paradigm shifts including how we view the concepts of information storage and retrieval. Educators may need to rethink what it means to take notes and how those notes carry forward into future careers (Stacy & Cain, 2015). In a paper-based society, it was challenging, but not impossible, for students to carry all their notes with them.

In addition, this made it potentially more challenging to sort through notes to review a particular concept. Now, not only can learning materials be stored on a phone or tablet, but students can find a phrase or concept in seconds. Cognitive and conceptual links can be made within and across courses. Organize and search for important information to manage to sort all of those loose pages into the right places Eventually, it will settle

the problems that end up with hundreds of pages at the end of the semester, which makes it almost impossible to review them when preparing for the finals. The only chance was to use and desperately try to keep track of your organization's system. Recently organize the notes and use digital bookmarks to quickly jump to the relevant pages. The best thing is that the Good Notes application can even search for our digital notes, so we can look up information in a second, by typing in keywords (Stacy & Cain, 2015).
H3: Accessibility conditions influence the student's preferences for digital notes vs physical notes.

Conceptual Framework: Figure 1 shows the theoretical framework for the study. There are three (3) independent variables which are health expectancy, eco-environment friendly, and accessibility condition whereas the dependent variable is students' preferences for digital notes vs physical notes.

Figure 1: Research Framework



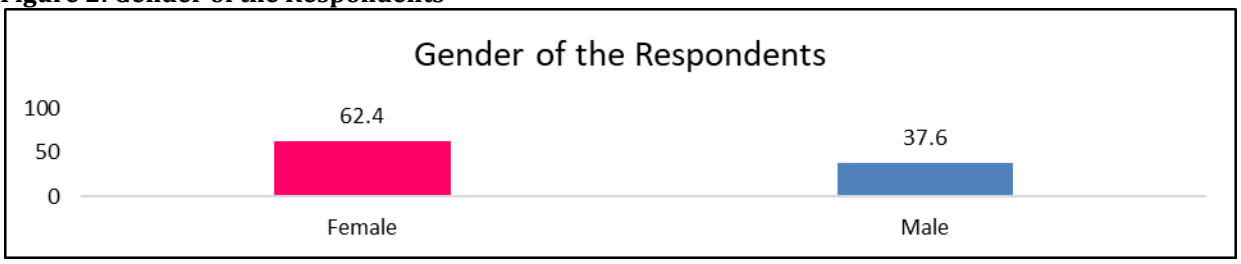
These three variables (Health Expectancy, Eco-friendly environment, and Notes Accessibility Condition) are tested for the student's preferences for digital notes or physical notes. The next section will explain the methodology used to achieve the objectives of the study.

3. Research Methodology

The methodology used in this study is a quantitative research method using a survey questionnaire. The questionnaire is distributed among the students objectively to know the preferences of note-taking either hand note-taking or digital note-taking. The quantitative research approach is utilized to collect information in a quantified manner. It is also suitable for the objective of the research which is to identify how many students preferred traditional note-taking and how many students preferred digital note-taking. The instruments in the questionnaire are based on previous literature reviews, and adopted in the questionnaire design. The analysis used in this study is descriptive, regression, and correlation through PLS-SEM to prove each of the hypotheses stated.

Sample and Procedure: The study investigated the association among three variables which are health expectancy, eco-environment friendly, and accessibility conditions towards students' preferences for digital notes vs physical notes through correlation research design. A survey questionnaire was developed with measurement scales to test the research model. An online survey was distributed through Google Forms and it took about three weeks to complete the data collection, using convenience sampling. The participants were able to answer the survey through their smart devices anytime and anywhere within the time frame stipulated. A total of 125 completed questionnaires were gathered and usable for further analysis. The demographic section covered the gender of the respondent and the semester taken by the respondents. The finding shows that out of 125 respondents, 62.4% were female, and 37.6% were male. Most respondents (56.0%) come from Semester 5, followed by Semester 3 and Semester 4 with 12.8% each. The lowest participation in this survey came from Semester 1 with 7.2%. Figure 2 shows the distribution of the respondents.

Figure 2: Gender of the Respondents



Questionnaire Items: The survey questionnaire consists of 30 questions, which have five (5) parts utilized to achieve the research objectives. These parts are divided by following the type of questions. Looking at the Google form, Part A is the 'Demographic information' question part and Part B contains the 'Preference among students to use digital notes or physical notes' part. Meanwhile, Part C is 'Digital notes and physical notes do affect students' health' and Part D is 'Digital notes positively impact the eco-environment question part. The last part is Part E. This part contains the 'Factors why students decided to use digital notes in lectures' question part. For the measures in the Statistical Package for Social Sciences (SPSS), since Part A only has gender and semester selection questions, it is a nominal question. Furthermore, seven (7) over nine (9) questions in Part B is the nominal type of measure as all those questions are 'multiple answers' kind of questions. In addition, the ordinal type of measure starts from question 8, Part B until the end of Part E. This is because all questions are Likert-type questions. This type of question consists of five (5) types of scales which are 1- Strongly Disagree 2- Disagree 3-Neutral 4- Agree and 5- Strongly Agree. All questions in all parts are basically related to students' lives about their preferences for taking notes inside or outside the lectures.

4. Results

Preferences on Types of Notes: The finding has shown that the majority (60%) of the respondents still prefer physical notes rather than digital notes (40%) in Figure 3. The reason behind this selection is that by handwriting, the students can memorize better than digital notes. Besides that, the students mentioned that by handwriting, it was faster to note down as compared with digital notes. Ito et al. (2020) anticipated that since typed letters are frequently difficult to read and do not have a consistent shape, handwriting would aid with memorization. The findings showed that handwritten characters have a higher likelihood of being remembered than fonts. Particularly, it is easier to remember handwritten characters that are familiar to you. However, in terms of convenience, students are more preferred digital notes because it's easier and more readable than physical notes (Figure 4). Meanwhile, the students also mentioned that taking digital notes, is faster (54.4%) than physical notes (45.6%) because by using smart devices e.g. Smart phone and tablet, it is easier and faster to note down (Figure 5). Studies have indicated that students who take notes on laptops in class do lower academically than students who take notes by hand on conceptual exam problems(Mueller & Oppenheimer, 2014). The findings also show that students frequently copy the lecture verbatim even if they can type more on computers. As opposed to taking notes on paper, this deprives them of the chance to analyze and comprehend material in a way that allows them to reframe it in their own terms.

Figure 3: Preferences on Types of Notes

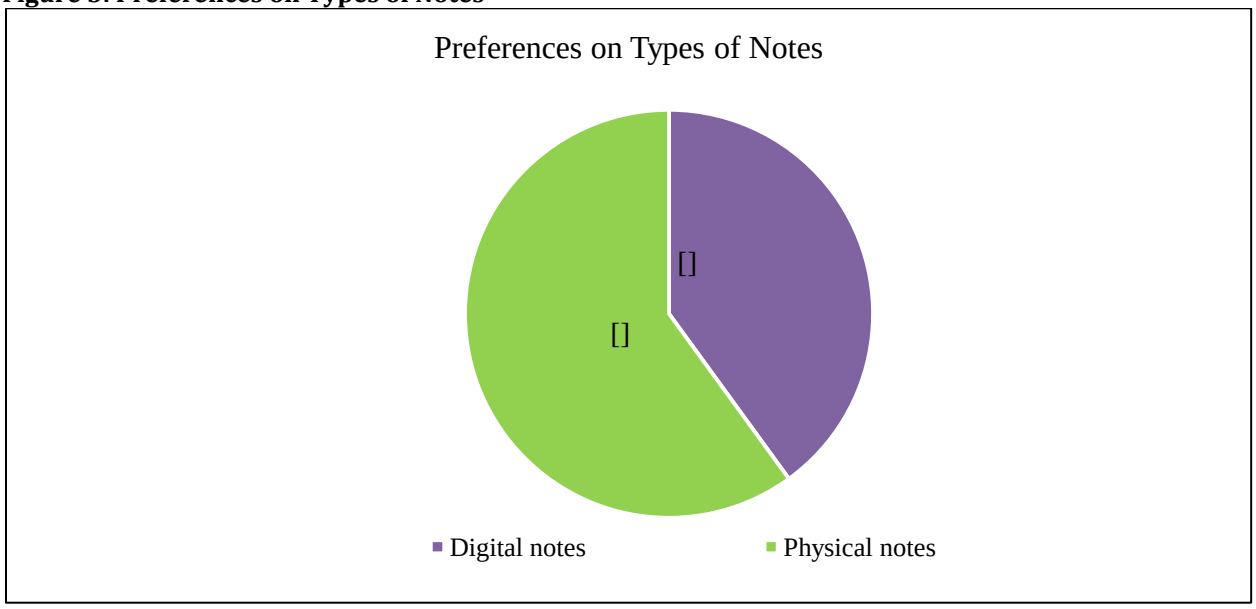


Figure 4: Types of Notes for Convenient

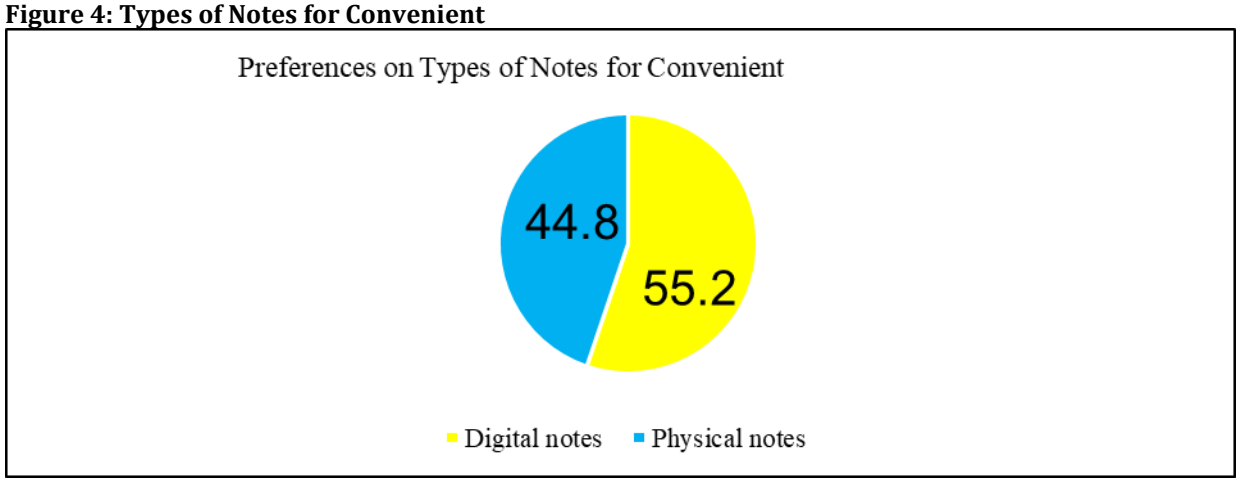
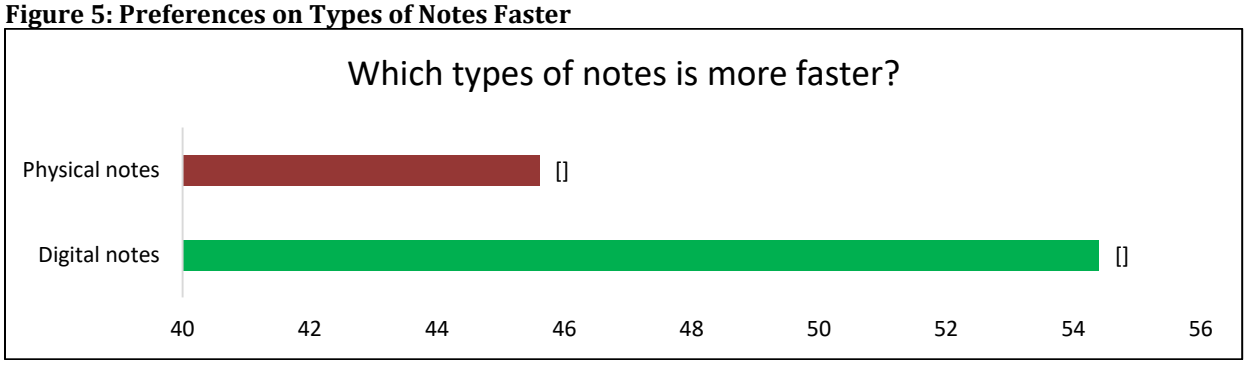


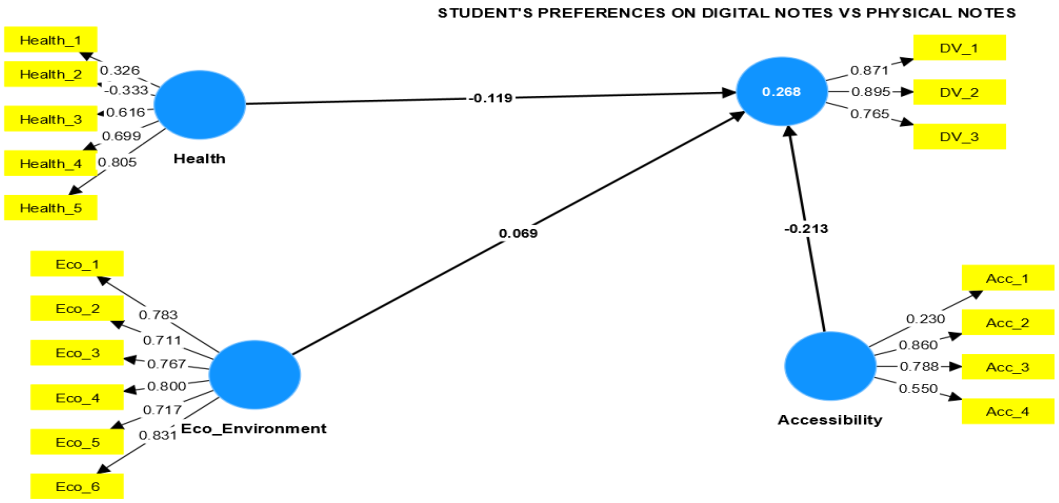
Figure 5: Preferences on Types of Notes Faster



Measurement Model: Figure 6 shows the original model of the model which comprises three independent variables of Health Expectancy, Eco-Environment Friendly and Accessibility Conditions towards students' preferences for Digital notes vs physical notes. The independent variable of Health Expectancy consists of five (5) questions, Eco-Environment Friendly has six (6) questions and Accessibility Condition has four (4) questions. From the figure, the R^2 of the model is 0.268 indicating that 26.8% of the independent variables

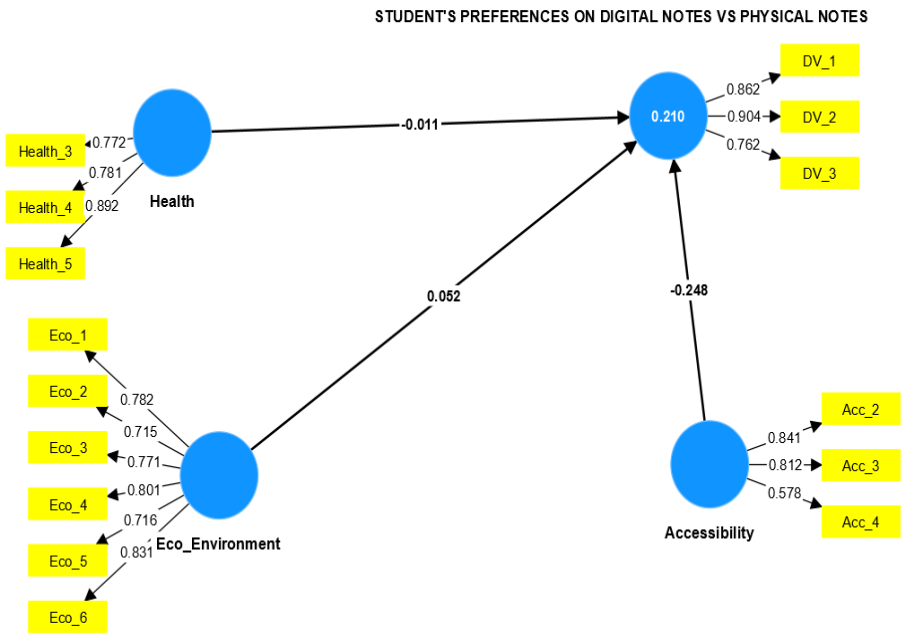
(Health Expectancy, Eco-Environment Friendly and Accessibility Condition) are explained to the dependent variable (student's preferences for digital notes vs physical notes), while other variables remain constant.

Figure 6: Original Model Smart PLS



The updated model was then produced due to some variables having low loadings. Overall, three items are deleted because the loadings are less than 0.50 which are Health_1, Health_2 and Acc_1. The R^2 value is then revised and results 0.210 indicating that 21% of the independent variables variables (Health Expectancy, Eco-Environment Friendly and Accessibility Condition) explained the dependent variables (student's preferences for digital notes vs physical notes), while other variables remain constant. The revised value is shown in Figure 7.

Figure 7: Updated Model- deleted low loadings less than 0.50 (Health_1, Health_2 &Acc_1)



Structural Equation Modelling (SEM) analysis with SMARTPLS 4 was utilized to estimate the model in two stages which are measurement and structural model for measurement quality and model fit. Measurement quality was judged by examining the Average Variance Extracted (AVE), Composite Reliability (CR) and loadings. Good measurement quality is exhibited when loadings ≥ 0.7, AVE ≥ 0.5 and CR ≥ 0.7 (Ramayah,

Cheah, Chuah, Ting, Memon, 2018). As shown in Table 1, the result shows that all loadings were more than 0.7 (except one item = Acc_3), AVE more than 0.5, and CR more than 0.7. Therefore, the convergent validity and the reliability of the measurement items were acceptable.

Table 1: The results of Construct Validity and Reliability

Construct (s)	Item (s)	Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)
Health Expectancy	Health_3	0.772	0.801	0.668
	Health_4	0.781		
	Health_5	0.892		
Eco-Environment Friendly	Eco_1	0.782	0.88	0.594
	Eco_2	0.715		
	Eco_3	0.771		
	Eco_4	0.801		
	Eco_5	0.716		
	Eco_6	0.831		
Accessibility Condition	Acc_1	0.841	0.712	0.567
	Acc_2	0.812		
	Acc_3	0.578		

In measuring the discriminant validity, it is suggested to adopt the Heterotrait-Monotrait (HTMT) ratio (Henseler et al., 2015). Table 2 displays the result of discriminant validity using Heterotrait-Monotrait (HTMT) ratio. The result indicated that all the ratios were lower than 0.90; thus, the measures used in this study are discriminant.

Table 2: The Result of Discriminant Validity Using the Heterotrait-Monotrait (Htmt) Ratio

No.	Construct (s)	1	2	3	4
1	Accessibility Condition				
2	Eco Environment Friendly	0.744			
3	Health Expectancy	0.702	0.465		
4	Student's Preference for Digital Notes vs Physical Notes	0.527	0.188	0.29	

Structural Model: 21% of the variation in Health Expectancy, Eco-Environment Friendly, and Accessibility Conditions explained in the student's preferences for digital notes vs physical notes, while other variables remain constant. Based on the p-value, 0.000 is less than 0.05 significant value, indicating that the overall model is valid.

Table 3: The Result of R^2, T-Value, and P-Value

R^2	Standard Deviation (STDEV)	T-Statistics	P-Values
0.21	0.061	3.467	0.000

Overall, based on the result (Table 4), only one variable, the Accessibility Condition is significant with p-value (0.000) less than a significant value of 0.05 towards students' preferences for digital notes vs physical notes. Meanwhile, the other two variables (Health Expectancy and Eco-Environment Friendly) are not significant due to the p-values more than 0.05 (0.400 and 0.193). Thus, H3 is supported.

Table 4: The Result of Hypothesis Testing

Hypothesis	Path	Lower Limit	Upper Limit	Std. Deviation	T-Values	P-Values
H1	HE → SP	-0.075	0.072	0.044	0.254	0.400
H2	EF → SP	0.004	0.219	0.060	0.869	0.193
H3	AC → SP	-0.335	-0.178	0.050	4.960	0.000

Note: Health Expectancy (HE), Eco-Environment Friendly (EF), Accessibility Condition (AC), Students' Preferences (SP).

The findings are also supported by correlation analysis as in Table 5. Only variable accessibility is significant as compared to the other two factors with significant values less than 0.05. According to Hair (1998), a value less than 0.30 can be considered a negligible correlation. The findings show that health expectancy and eco-friendliness have negligible correlation towards students' preferences for digital notes while for the variable accessibility; there is a negative low correlation towards the students' preferences for digital notes.

Table 5: Correlations Analysis

Correlations

		Health Expectancy	Ecofriendly Environment	Notes Accessibility Condition	Preferences Notes
Health Expectancy	Pearson Correlation	1	.486**	.586**	-.128
	Sig. (2-tailed)		.000	.000	.154
	N	125	125	125	125
Ecofriendly Environment	Pearson Correlation	.486**	1	.625**	-.128
	Sig. (2-tailed)	.000		.000	.154
	N	125	125	125	125
Notes Accessibility Condition	Pearson Correlation	.586**	.625**	1	-.310**
	Sig. (2-tailed)	.000	.000		.000
	N	125	125	125	125
Preferences Notes	Pearson Correlation	-.128	-.128	-.310**	1
	Sig. (2-tailed)	.154	.154	.000	
	N	125	125	125	125

**. Correlation is significant at the 0.01 level (2-tailed).

Discussion: This section focuses on the study's primary findings and discusses the research objectives. Three variables have been used to measure the students' preferences towards digital notes which are Health Expectancy (HE), Eco-friendly Environment (EF), Notes Accessibility Condition (AC), and Students' Preferences (SP). Based on the results, only one variable is significant which is the Accessibility Condition, while the other two variable is insignificant for Health Expectancy (HE) and Eco-Environment Friendly (EF). It is supported by correlation analysis that only the accessibility variable is significant with a negative low correlation to students' preferences towards digital notes. This result shows that by using digital notes, it is easier to access the notes without referring to the hard copy. This statement is supported by Sun & Li (2019) the students benefitted from digital note-taking and could improve their score in the academic. Moving towards a digital era for almost all industries in Malaysia, the education sector shall also consider the adoption of technology in the classroom for example note-taking. These three variables are not only the variables that should be looked at. Other variables related to the social, environmental and other factors should be considered to be added for future research. Overall, in terms of the adoption of technology, the students are still not prepared to go fully digital notes. To get students prepared for digital notes, clear instructions, and a manual shall be prepared for the students to get a clearer picture.

5. Managerial Implications and Recommendations

The implication of the results, the limitation, and directions for future research is discussed in this section. This paper offered a framework for evaluating the factors influencing the student's preferences for digital notes vs physical notes. Three variables are expected to influence the student's preferences which are health

expectancy, eco-environment friendly and accessibility conditions. However, the findings show that only one variable is associated with the student's preferences which are the accessibility condition. Haleem et al. (2022) agree that physical and social constraints allow students to collaborate from anywhere and at any time. The other two variables which are health expectancy and eco-friendly environment are expected to shift to the positive side of digital notes in the future. In terms of societal impacts, this study is expected to benefit the students, educators (lecturer and teacher), and the education system (Ministry of Education and Ministry of Higher Institution). This study has a broad knowledge of the health impact and quality of education impact. A combination of technology and traditional note-taking methods can be adopted in the first phase of note-taking after the pandemic situation to maximize the impact on the students, also to educators. It can be said that this study has long-term impacts since technology is widely used and going further.

The adoption of technology in education has been widely used around the world, especially after the COVID-19 embarkment. In tandem with the wave of technology, some of the parties such as students and educators are still struggling to get used to the current technology adoption. The process is believed to shift positively towards digital adoption in education. The use of digital notes is proven can reduce the use of paper, thus increasing the awareness of eco-environment friendly. Northeast Recycling Council (NERC) (2011) has discussed this issue into four (4) main measurements which are paper measurements, financial measurements, other measurements, and environmental measurements. Paper measurement is incorporated into decreasing paper purchasing, increasing paper recycling, reducing waste generation and increasing recycled content paper purchasing., Another factor is financial measurements consisting of reduced paper purchasing costs, and reduced toner and ink cartridge costs. Reduced printing costs, reduced disposal costs, and led to total annual savings. Another measurement also included reducing the storage needs and reduced copy and printer wear and repairs. Besides that, there is also environmental measurement which includes saving more energy through digital adoption, reducing greenhouse gas emissions, saving gallons of water, and saving landfill space.

Conclusion: In conclusion, this study has identified the accessibility condition that influences the student's preferences for digital notes vs physical notes. Surprisingly, the other two factors health expectancy and eco-environment do not support influencing the student's preferences. The study's findings have several implications for students and educators and point the way for future research. These results support the recommendation of using a combination of physical and digital notes. This method will slowly shift into fully digital utilization in the future. Supporting one of the goals in the Sustainable Development Goal (SDG), in Goal 4, Quality Education, it is hoped that digitalization can help students, also educators in achieving quality education over time.

References

Aragón-Mendizábal, E., Delgado-Casas, C., Navarro-Guzmánm, J. I., Menacho-Jiménez, I. & Romero-Oliva, M. F. (2016). A comparative study of handwriting and computer typing in note-taking by university students. *Media Education Research Journal*, 24(48), 101–110. https://doi.org/10.3916/C48-2016-10

Bushak, L. (2015, January). E-Books Are Damaging Your Health: Why We Should All Start Reading Paper Books Again. Medical Daily. https://www.medicaldaily.com/e-books-are-damaging-your-health-why-we-should-all-start-reading-paper-books-again-317212

Cohen, B. (2018). The 4 Benefits for Schools Going From Paper To Digital. SkoolBag. https://www.skoolbag.com.au/blog/benefits-of-going-paperless-in-schools/

Darkwa, B. F. & Antwi, S. (2021). From Classroom to Online: Comparing the Effectiveness and Student Academic Performance of Classroom Learning and Online Learning. *OALib*, 08(07), 1–22. https://doi.org/10.4236/oalib.1107597

Diaz, D. P. & Cartnal, R. B. (1999). Students' Learning Styles in Two Classes: Online Distance Learning and Equivalent On-Campus. *College Teaching*, 47(4), 130–135. https://www.jstor.org/stable/27558962

Goodwin, A. L. (2012). Teaching as a profession: Are we there yet? In J. Elliott (Ed.), the Routledge International Handbook of Teacher and School Development, 44–56. Taylor & Francis.

Grasha, A. F. & Yangarber-Hicks, N. (2010). Integrating Teaching Styles and Learning Styles with Instructional Technology. *College Teaching*, 48(1), 2–10. https://doi.org/https://doi.org/10.1080/87567550009596080

Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). Multivariate data analysis (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Haleem, A., Javaid, M., Qadri, M. A. & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3(February), 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Henseler, J., Ringle, C. M. & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Himmelsbach, V. (2022). How Education Technology In The Classroom Can Impact Student Learning. Top Hat. https://tophat.com/blog/how-does-technology-impact-student-learning/

Ito, R., Hamano, K., Nonaka, K., Sugano, I., Nakamura, S., Kake, A. & Ishimaru, K. (2020). Comparison of the Remembering Ability by the Difference Between Handwriting and Typeface. In Constantine Stephanidis & M. Antona (Eds.), *International Conference on Human-Computer Interaction*, 1224, 526–534). Springer, Cham. https://doi.org/https://doi.org/10.1007/978-3-030-50726-8_69

Khan, U. (2009). Facebook students underachieve in exams. The Telegraph. https://www.telegraph.co.uk/education/educationnews/5145243/Facebook-students-underachieve-in-exams.html

Lamma, O. A. (2021). The impact of recycling on the environment. *International Journal of Applied Research*, 7(11), 297–302. https://doi.org/10.1016/0361-3658 (85)90009-8

Mueller, P. A. & Oppenheimer, D. M. (2014). The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking. *Psychological Science*, 25(6), 1159–1168. https://doi.org/10.1177/0956797614524581

Northeast Recycling Council (NERC). (2011). Paper Use Reduction in Schools (Issue September, pp. 1–5). Northeast Recycling Council (NERC). https://nerc.org/documents/schools/PaperUseReductionInSchools.pdf

Oladeji, K. (2023). How Technology Can Improve Education. Technology. https://studentmajor.com/how-technology-can-improve-education/

Priyanka Kumbhare. (2018). Effect of Heavy School Bags on Spine. Practo. https://www.practo.com/healthfeed/effect-of-heavy-school-bags-on-spine-34011/post

Ramayah T., Cheah, J., Chuah, F., Ting, H. & Memon, M. A. (2018). Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0 (Second). Pearson Malaysia Sdn Bhd.

Stacy, E. M. & Cain, J. (2015). Note-taking and handouts in the digital age. *American Journal of Pharmaceutical Education*, 79(7). https://doi.org/10.5688/ajpe797107

Sun, D. & Li, Y. (2019). Effectiveness of Digital Note-Taking on Students' Performance in Declarative, Procedural and Conditional Knowledge Learning. *International Journal of Emerging Technologies in Learning*, 14(18), 108–119. https://doi.org/10.3991/ijet.v14i18.10825

Suri, C., Shojaei, I. & Bazrgari, B. (2020). Effects of School Backpacks on Spine Biomechanics During Daily Activities: A Narrative Review of Literature. *The Journal of the Human Factors and Ergonomics Society*, 62(6), 909–918. https://doi.org/https://doi.org/10.1177/0018720819858792

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Does Competition Matter in The Malaysian Banking System?

Nur Afizah Muhamad Arifin*, Roslina Mohamad Shafi & Imani Mokhtar
Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
*fizaarifin@salam.uitm.edu.my

Abstract: The transition from financial repression to financial liberalization, which led to cross-border capital flows and the expansion of the financial sector, has had a significant impact on the global financial market. Competition could pass through or interact with the impact of financial liberalization on financial stability. A liberalized banking sector prompted commercial banks to intensify risk-taking activities, which ultimately could affect financial stability. This paper examines the effect of financial liberalization on financial stability and the roles of competition as the interacting variable using a panel data analysis based on a sample of 43 banks in Malaysia. Results from the Malaysian banking sector indicate that increased competition will affect the stability of the financial system. Lastly, competition needs to be set at the best possible level so that financial stability can be well preserved.

Keywords: *Competition, Financial Liberalization, Financial Stability.*

1. Introduction and Background

The switch from financial repression to financial liberalization, which prompted a rise in international capital flows and the growth of the financial industry, has had a profound effect on the world financial system. Financial repression aims to maintain the stability of the financial system by regulating the banking industry, managing interest rates, and providing lending subsidies to specific sectors. Contrary to financial repression, financial liberalization aims to make financial institutions more effective by improving the efficiency of resource transfers from the form of savings into investments. The process of escaping financial repression is linked to financial liberalization. Therefore, the financial system's stability would be impacted by the deregulation or financial reform of the domestic financial market, which signifies the transition from financial repression to financial liberalization. The theory of financial liberalization is based on the pioneering work of McKinnon and Shaw (1973), who claimed that financial repression hindered economic progress in developing nations and suggested the implementation of financial liberalization policies to encourage savings, investment, and growth. According to Mckinnon and Shaw (1973), financial liberalization can increase growth rates by raising interest rates to competitive market equilibrium while resources are dispersed effectively. The financial industry has become more liberalized as a result of the deregulation of interest rates, the removal of capital flow restrictions, and the reduction of impediments to competition among financial institutions (Allegret, Courbis, & Dulbecco, 2003). Therefore, more competition will result from financial liberalization. Competitiveness fragility and competitiveness stability are two concepts that link the two factors of competition and financial stability.

According to Keeley's (1990) competition fragility hypothesis, the pressure of a competitive environment encourages banks to take on more excessive risk. Banking institutions frequently take on more risk by funding riskier projects in exchange for a higher return. As a result, as the bank's risk rises, the firm's value, or charter value, decreases. The system will consequently become more fragile (Beck, 2008). The claim that more competition encourages stability is a refutation of the claim that less competition results in more stable financial systems. Boyd and De Nicolo (2005) claim that a more concentrated market and less competition in the lending market result in higher borrowing costs for clients of the prevailing bank. The bank will have a higher credit risk as a result of the higher interest rate. To compete in the banking industry, the bank will therefore take on an excessive amount of risk. According to Cubillas and González (2014), the empirical evidence on how financial liberalization affects financial stability is still not conclusive. Berger et al. (2009) discovered an empirical association between how financial stability is affected by financial liberalization, even though many studies claimed that financial liberalization can have a detrimental impact on stability as the competition among banks increases. Both the Competition Stability View (Boyd and De Nicolo, 2005) and the Competition Fragility View (Marcus, 1984; Keeley, 1990) concur with this point of view. Financial stability may be impacted by the level of competition, which in turn may be impacted by the degree of competition

(Boyd and De Nicolo, 2005; Ghosh, 2016; Soedarmono, Machrouch, and Tarazi, 2013; Fu, Lin, and Molyneux, 2014). Due to this, it is imperative to consider at what level competition has an impact on financial stability.

As a result, the research question in this study was unified to examine the moderating role of competition in the relationship between financial liberalization and financial stability and to measure the degree (marginal effect) of competition that will affect financial stability. The arguments on the relationship between bank competition and stability are not conclusive, possibly on the different observation periods and regions considered in the study. The Impact of bank competition on the banking system is still complicated. Consequently, it has grabbed the attention of the researcher to explore further the risk and performance of the banking sector in countries with a dual banking system. Synthesizing the above issues at hand, this study aims to evaluate the degree of competition in the Malaysian dual banking system, in particular, to address the question of whether commercial banks can cope with the competition, especially when financial liberalization is introduced in the market. The remainder of the paper is divided into the following sections: the second discusses the literature review; the third thoroughly explains the data and methodology, along with the suggested model; and the fourth discusses the conclusions and analysis. The study's implications are covered in the fifth and final section.

2. Literature Review

The financial and banking sectors have seen significant changes, such as financial liberalization, which have impacted bank operations and bank stability. As a result, financial stability has been questioned numerous times, and one crucial factor that must be examined is bank stability. Financial stability is described as a bank's capacity to allocate resources efficiently to control financial risk (Diaconu & Oanea, 2015; Nosheen & Rashid, 2020). In both developed and developing countries, financial liberalization regimes have altered competitive circumstances in the banking sector. Competition is a key avenue via which financial liberalization influences financial stability, according to theoretical banking research (Lee & Hsieh, 2014; Abderzag & Hasnaoui, 2015). There are many opponents and proponents arguments in bank competition. Competition reallocates income from failing financial institutions to successfully run banks, according to Stiroh and Strahan's 2003 analysis. Some studies further corroborate this claim by demonstrating that competition improves effectiveness (Jayaratne and Strahan, 1998; Koetter et al., 2012). Across various income groups in emerging nations, Mirzaei and Moore (2014) looked into the factors that affect competition. The research shows that concentrated banking hinders competitiveness in developing nations. On the other hand, the study finds that competition is beneficial for the economy in less developed nations.

Financial independence and inter-industry competition, however, are extremely important for advanced banking systems (Mirzaei and Moore, 2014). It demonstrates that the banking system is dynamic, irrespective of how well a nation's economies are doing. According to De Guevara and Maudos' (2007) analysis of the dynamics of banking market power between 1986 and 2002, size, efficiency, and specialization play a key role in determining banking competition. Mohammed et al. (2016) studied the dual banking system in Malaysia and learned that structural changes have modified the market structure of the banking industry. The banking system in Malaysia operates under a monopolistic competition structure. In addition, concentration was higher during the merger period, and structural changes had made the domestic banks dominant in the market. Another study on the dual banking system is conducted by Faizulayev et al., (2021) which focuses on nine Islamic countries. According to the findings, capital adequacy does not account for the degree of banking competition in the countries under investigation. The conclusions of Molyneux and Wilson (2004) and Rakshit and Bardhan (2019) are in contrast with this finding. It's interesting to note that Faizulayev et al. (2021) also included corruption as a variable and found that while corruption hurts Islamic banking, it does not affect competition in the conventional banking sector. Islamic banks do better than regular banks in terms of competitiveness with dummy variables. On the other hand, a study for developing markets reveals another important point.

A study of banks in Bangladesh uncovered a nonlinear competition, a bell-shaped relationship between competition and stability. Efficiency and larger bank size do contribute to stability, yet the impact is moderate because of the presence of competition (Dutta & Saha, 2021). Competition only contributes to stability at a lower level. The European market is in contrast, where there is no U-shaped relationship between

competition and bank risk-taking (López-Penabad et al., 2021). A recent study by Yuan et al. (2022) shows that the US banking system has a U-shaped relationship between bank competition and stability, with an inflection point. The authors argue that it is normal to have excessive competition in the US banking system. In addition, bank competition mainly affects its stability through franchise value, borrowing cost and operating behavior. Financial liberalization, which is caused by an increase in bank competition, may have an impact on financial stability, according to theoretical studies on competition fragility and stability (Berger et al., 2009). The competitive fragility theory states that banks with lower charter values experience more fierce competition as a result of financial reform. However, according to the competition stability approach, increased bank rivalry acts as a mechanism through which liberalization contributes to greater financial stability.

3. Research Methodology

This study adopts secondary data in a quantitative approach to analyzing the financial stability in Malaysia. The secondary data is collected from the Bankscope database of Bureau van Dijk and FitchConnect. This study uses annual data from year 2012 to 2021. The sampling criterion for this study is to include all Commercial banks in Malaysia, from 2012 to 2021.

Variables: The dependent variable of this study was financial stability measured using insolvency risk and was calculated using the volatility of returns. The Z-score is a measure of insolvency risk (Hannan and Hanweck, 1988). The Z-score is the most commonly used proxy for financial stability measurement, as evidenced in the literature (Beck, Demirgüç-Kunt, Levine, 2007; Cihák and Hesse, 2010; Demirgüç-Kunt, Detragiache, and Laeven and Levine, 2009). While the interaction variable is quantified using the Herfindahl Hirschman Index (HHI). HHI was developed to determine the degree of competition in banks (Ager and Spargoli, 2012). This will result in increased market concentration. The HHI index quantifies banking concentration. The higher the HHI index value, the more concentrated the market, and thus the less competitive it is. The independent variable is a proxy for financial liberalization quantified using the financial freedom index. Meanwhile, several control variables that could influence financial stability are liquidity and asset quality. A systemic crisis in the banking industry could arise from a lack of liquidity in one bank; hence liquidity is also one of the signs. Since loans and financing to consumers generate revenue for the bank, a bank's asset quality is influenced by the quality of those products. As a result, the control variables in this study were chosen to be asset quality and liquidity. Additionally, the research took bank types into effect. The definitions and measurements of each variable used in this study are shown in Table 1.

Table 1: Summary of the Variable Definitions and Source of the Data

Variable	Measurement
Financial Stability (FS)	Insolvency risk (Zscore)
Financial Liberalization(FL)	Index of financial liberalization (FLIB)
Competition (C)	Herfindal Hirschman index (HHI)
Bank specific (BS)	Asset quality (ASQUAL= Impaired loans / Gross loans) and liquidity (LRATIO = Loan/ Total Deposit and Borrowing)
Types of banks (Type)	Dummy variable where 1 is Islamic banks and 0 is conventional banks

Model Specifications: Based on the explanation above, the estimation models of this study are as follows:

Model 1:
$$FS_{it} = \alpha + \beta_1 FL_{it} + \beta_2 C_{it} + \beta_3 BASQUAL_{it} + \beta_4 LRATIO_{it} + \beta_5 TYPE_{it} + e_{it} \quad (1)$$

Model 2:
$$FS_{it} = \alpha + \beta_1 FL_{it} + \beta_2 C_{it} + \beta_3 FL * C_{it} + \beta_4 BASQUAL_{it} + \beta_5 LRATIO_{it} + \beta_6 TYPE_{it} + e_{it} \quad (2)$$

The baseline model (Model 1) examined the direct impact of financial stability while the interaction model (Model 2) explored the interaction effect of financial liberalization and competition on financial stability after controlling bank-specific characteristics. The panel data regression method was used to examine these models. One benefit of panel data is that it gives control over unobserved time-invariant heterogeneity, increasing the degree of freedom and enhancing the effectiveness of the estimators (Baltagi, 2008). The marginal effect analysis was included in the analysis to look at what level of competition can affect financial stability.

4. Results and Discussion

Table 2 illustrates the empirical outcomes of the study where Model 1 examined the direct relationship while Model 2 explored the interaction effect of financial liberalization and competition on financial stability based on the random effects model with cluster standard error.

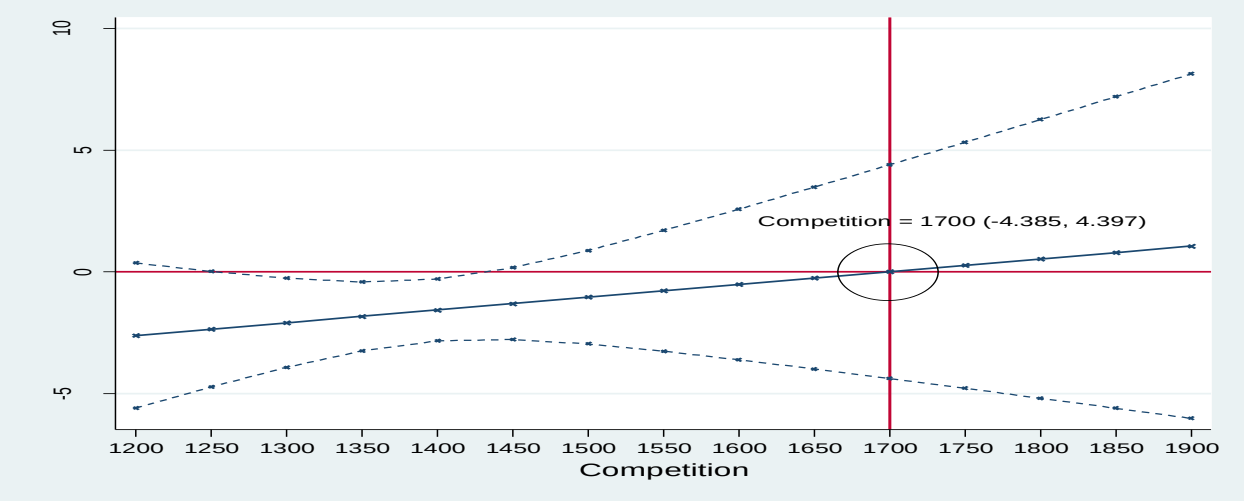
Table 2: Random Effects Model with Cluster Standard Error

	(1) Basic	(2) Interaction
Financial Liberalization	-1.618**	-8.92
	(.666)	(9.855)
Competition	-.031*	-.422
	(.016)	(.518)
Liquidity	-.028	-.018
	(.146)	(.152)
Asset Quality	-.163***	-.16***
	(.043)	(.044)
Type	27.51**	28.589**
	(11.918)	(11.407)
Financial Liberalization*Competition		.005
		(.007)
Constant	208.501***	751.334
	(48.608)	(721.188)
Observations	233	233
Wald chi2	21.73***	29.07***
R-squared Within	0.1395	0.1438
R-squared Between	0.0945	0.0922
R-squared Overall	0.1353	0.1343

Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The estimation results of Model 1 showed that all of the variables have a significant impact on financial stability except for liquidity. As for financial liberalization, the result is negatively significant and this is in line with the empirical works done by Daniel and Jones (2007) and Ghosh (2016). This suggests that Bank regulation is required to avoid the adverse effect of financial stability. While the effect of competition on financial stability is negatively significant. This means that if the market is entirely consolidated or less competitive, the level of financial stability is higher. As a result, banks are better off in more consolidated markets. Meaning when the market is less competitive (highly concentrated) it is more stable. Therefore, the competition fragility view is supported. As for the control variables, only asset quality is negatively significant. Asset quality measured by impaired loan. Therefore, the higher the ratio i.e. impaired loan is less stable. Hence, a key method through which banks can boost their stability is by improving asset quality. Banks may increase their monitoring efforts in particular, which will boost the return on their loan portfolio (Allen et al., 2011; Wagner, 2010). Lastly based on the type of banks, Islamic banks play a significant role in the financial stability in Malaysia. The result for model 2 when it is interacted by competition only asset quality and type of banks have a significant effect. When the competition interacts with financial liberalization the relationship is not significant, therefore we extend the analysis to marginal effect to look at the level that competition affects financial stability.

Figure 1: Marginal Effect of Competition Level



Based on the Figure 1 marginal effect graph, it can be shown that the beta coefficient is positive when competition is at 1700 and the marginal impact on the link between financial liberalization and financial stability is positive. It means that the marginal impact of financial liberalization and financial stability is favorable when the market is fully concentrated. This suggests that financial stability is stronger when the market is concentrated. The marginal effect is less and the association has a negative beta coefficient when competition is at 1450, though. To protect financial stability, the government must step in when the market is less concentrated or when competition is greater. Financial liberalization and financial stability are inversely correlated for banks, which can be explained by the presence of competition in the market. This is because when there is competition, banks must lower their interest rates to remain competitive, which leads to an imbalance between their assets and liabilities. Additionally, it is apparent that operating expenses have increased, which lowers return. It is therefore possible to conclude that the effect of competition will produce a negative link between financial liberalization and financial stability at the level of the HHI index 1450 and below.

5. Conclusion and Discussion

According to Crockett's (1997) financial stability theory, economic events and competition have a compounding effect on the instability of financial institutions, which is their root cause. Financial stability is impacted by the market structure, which the HHI index measures, which influences behavior. As a result, this study examined the financial liberalization event and how it may interact with competition, which has an impact on financial stability. The financial liberalization theory, the competition fragility and stability viewpoint, and other approaches have been employed in previous research in developed economies, which have surroundings and characteristics that are more varied than those of developing nations. With regard to financial stability for a developing nation like Malaysia, this study has improved understanding of the applicability of these ideas. When compared to model 1 and model 2, the empirical results on the interaction between financial liberalization and financial stability for banks show distinct results. In contrast, the association between financial liberalization and financial stability is negligible when competition acts as a mediator. The marginal effect analysis was therefore included in this analysis. As a result, it may be able to capture the marginal impact of how competition affects financial liberalization and stability. The outcome suggests that financial stability is stronger when the market is concentrated with less government intervention through financial liberalization.

Conclusion: The result shows that the knowledge of competitive issues is crucial so that policymakers may formulate new policies for the banking industry that suit the current market structure. This state serves as a signal to policymakers and bank executives to continuously check the services offered for the market to portray a good market signal to clients, ensuring their banks' survival in an increasingly competitive market. Increased competition is detrimental because it increases the likelihood that banks may collapse. This is

because banks will take on riskier activities and be more inclined to deal with clients who may be insolvent and at risk of default, endangering the stability of the bank. As a result, equal policies for increasing stability should be developed for both types of banking systems to guarantee financial stability when there is a competitive element. The type of bank also plays a significant role in this dual banking system in Malaysia. Therefore, it is crucial to set the level of competition at the highest feasible level to protect the financial stability of Sharia-compliant Islamic banks. Hence, the summarization of the paper is: (1) For financial stability and economic growth, further liberalization is crucial (2) The level of competition needs to be monitored by the central bank so that financial stability can be safeguarded.

References

Abderzag, F. & Hasnaoui, B. (2015). The impact of financial liberalization on the stability of the financial system in emerging markets. *Mediterranean Journal of Social Sciences*, 6(6), 22-29.

Ager, P. and Spargoli, F. (2012). Financial liberalization and Bank Failures: The United States free banking experience. Working papers 0050, European Historical Economics Society (EHES).

Allegret, J. P., Courbis B. & Dulbecco, P. H. (2003). Financial Liberalization and Stability of the Financial System in Emerging Markets: the Institutional Dimension of Financial Crises. *Review of International and Political Economy*, 10(1), 73-92.

Allen, F., Carletti, E. & Marquez, R. (2011). Credit market competition and capital regulation. *Review of Financial Studies,* 24(4), 983-1018.

Baltagi, B. H. (2008). Econometric analysis of panel data. John Wiley & Sons, Inc. New York.

Beck, T. (2008). Bank Competition and Financial Stability: Friends or Foes? The World Bank Policy and Research Working Paper 5981

Beck, T., Demirguc-Kunt. & Levine, Ross. (2006). Bank concentration, competition and crises: First results. *Journal of Banking and Finance,* 20, 1581-1603

Berger, A. N., Klapper, L. F. & Turk-Ariss, R. (2009). Banking structures and financial stability. *Journal of Financial Services Research,* 35, 99–118.

Boyd, J. H. & De Nicolo, G. (2005). The theory of bank risk-taking and competition revisited. *Journal of Finance*, 60(3), 1329–1343.

Cihak, M. & Hesse, H. (2010). Islamic banks and financial stability: an empirical analysis. *Journal of Financial Services Res,* 38, 95–113.

Crockett, A. (1997). The theory and practice of financial stability. Essay in international finance No.203, April 1997.

Cubillas, E. and Gonzales, F. (2014). Financial liberalization and bank risk-taking: International Evidence. *Journal of Financial Stability*, 11(2014) 32-48.

Daniel, C. B. and Jones, B. J. (2007). Financial liberalization and banking crises in emerging economies. *Journal of International Economics,* 72(1), 202-221.

De Guevara, F. J. and Maudos, J. (2007). The cost of market power in banking: social welfare loss vs. inefficiency cost. MPRA Paper 15253, University Library of Munich, Germany.

Demirgüc¸ -Kunt, A., Detragiache, E. & Tressel, T. (2008). Banking on the principles: Compliance with Basel Core Principles and Bank Soundness. *Journal of Financial Intermediation,* 17, 511–542.

Diaconu, R. & Oanea, D. (2015). Determinants of banks' stability. Evidence from Creditcoop*, Procedia Economics and Finance*, 32, 488-495.

Dutta, K. D. & Saha, M. (2020). Nexus of governance, macroprudential policy and financial risk: cross-country evidence. Econ Change Restruct. https ://doi.org/10.1007/s10644-020-09301-9.

Faizulayev, A., Wada, I., Kyzdarbekova, A. S. & Parmankulova, I. (2021). What drives the banking competition in Islamic finance-oriented countries? Islamic vs. conventional banks. *Journal of Islamic Accounting and Business Research,* 12(4), 457-472.

Fu, X. M., Lin, Y. R. & Molyneux, P. (2014). Bank competition and financial stability in the Asia Pacific. *Journal Bank Finance,* 38, 64–77.

Ghosh, A. (2016). How does banking sector globalization affect banking crises? *Journal of financial stability,* 25, 70-82.

Hannan, H. T. and Hanweck, A. G. (1988). Bank insolvency risk and the market for large certificates of deposit. *Journal of Money, Credit and Banking,* 20(2).

Jayaratne J. & Strahan, P. E. (1998). Entry restrictions, industry evolution, and dynamic efficiency: evidence from commercial banking. *Journal Law Econ*, 41(1), 239–274.

Keeley, M. C. (1990). Deposit insurance, risk, and market power in banking. *Am. Econ. Rev.* 80, 1183–1200.

Koetter M., Kolari, J. W. & Spierdijk, L. (2012). Enjoying the quiet life under deregulation? Evidence from adjusted Lerner indices for US banks. *Rev. Econ. Stat,* 94(2), 462–480.

Laeven, L. & Levine, R. (2009). Bank Governance, regulation and risk-taking. *Journal of Financial Economics,* 93(2), 259-275.

Lee, C. and Hsieh, M. (2014). Bank reforms, foreign ownership and financial stability. *Journal of International Money and Finance,* 40, 204 – 224.

Lopez, J. A., Rose, A. K. & Spiegel, M. M. (2020). Why have negative nominal interest rates had such a small effect on bank performance? Cross-country evidence. *Eur. Econ. Rev.* 124, 103402 https://doi.org/10.1016/j.euroecorev.2020.103402.

Marcus, A. J. (1984). Deregulation and Bank Financial Policy. *Journal of Banking and Finance,* 8(1884) 557-565.

McKinnon, R. I. (1973). Money and Capital in Economic Development, (Washington: The Brookings Institution).

Mirzaei, A. & Moore, T. (2014). What are the driving forces of bank competition across different income groups of countries? *Journal of International Financial Markets, Institutions and Money, Elsevier*, 32(C), 38-71.

Mohammed, N., Ismail, A. G. & Muhammad, J. (2016). Concentration and competition in the dual banking industry: a structural approach. *Malaysian Journal of Economics,* 50(2), 49-70.

Molyneux, P. Wilson**,** J. (2004). Dynamics of Growth and Profitability in Banking. *Journal of Money Credit and Banking,* 36(3), 1069-109.

Nosheen, R. A. (2020). Financial soundness of single versus dual banking system: explaining the role of Islamic banks. *Port Econ J* (2020). https://doi.org/10.1007/s10258-019-00171-2.

Rakshit, B. & Bardhan, S. (2019). Does bank competition promote economic growth? Empirical evidence from selected South Asian Countries. South Asian Journal of Business Studies, 8(2), 201-223.

Shaw, E. (1973). Financial Deepening in Economic Development. (New York: Oxford University Press).

Soedarmono, W., Machrouch, F. & Tarazi, A. (2013). Bank competition, crisis and risk-taking: Evidence from emerging markets in Asia. *Journal of international financial markets, institutions and money,* 23, 196 – 221.

Stiroh, K. & Strahan, E. P. (2003). Competitive Dynamics of Deregulation: Evidence from U.S. Banking. *Journal of Money, Credit and Banking*, 35(5), 801028.

Wagner, W. (2010). Loan market competition and bank risk-taking. Journal of Financial Services Research 37(1), 71-81.

Yuan, T. T., Gu, Xion., Yuan, Min., Lu, Jun. & Ni, Bai Ping. (2022). Research on the impact of bank competition on stability–empirical evidence from 4631 banks in the US. https://doi.org/10.1016/j.heliyon.2022.e09273

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Technology Entrepreneurship Intention among Higher Education Institutions Students: A Literature Review

Lina Nadia Abd Rahim*, Nur Atiqah Zakiyyah Ramlee, Ehsan Fansuree Mohd Surin & Hardy Loh Rahim
Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
*linanadia@uitm.edu.my, nurat3842@uitm.edu.my, efansuree@uitm.edu.my, hardy@uitm.edu.my

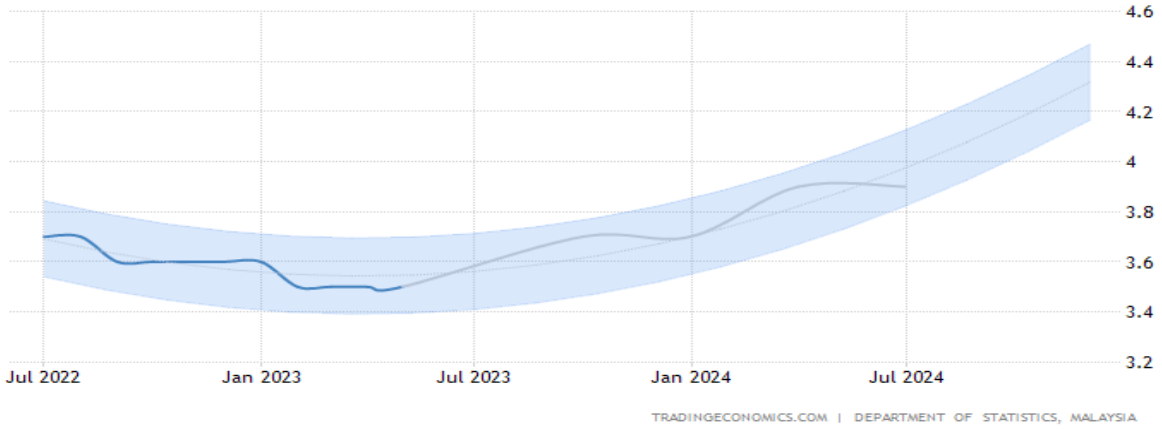
Abstract: Technology entrepreneurship is a new breed of entrepreneurship in a technology context, where it merges technology prowess and entrepreneurial skills. Technology plays a critical role in Industry Revolution 4.0; hence undoubtedly technology entrepreneurship is crucial in business settings as well as for economic developments. The intention to become technopreneurs among students from higher education institutions has become more and more prominent since it can be seen as a valuable way to contribute to the labor market to solve unemployment issues. However, despite data showing that the unemployment rate in Malaysia post-COVID is at a worrying state, studies on technology entrepreneurship intention are still lacking, with few areas being under-researched. This paper attempts to provide a review of existing academic literature on technology entrepreneurship intention among university students, revealing the current state and future direction of technology entrepreneurship intention research. Using a systematic literature review (SLR) method, the research papers were analyzed between the years 2017 and 2023 (7 years) to see the trend in the current years. The result shows that previous studies do not cover the subject comprehensively. Subjective norms were the least studied factor, despite their importance in shaping an individual's behavior and intention. It was also found that none of the papers studied the role of government support and social media towards technology entrepreneurship intention. The identification of these under-researched areas will provide future directions for researchers to empirically study the factors. This paper may also provide future directions for the government in ensuring that more graduates have the intention to pursue technology entrepreneurship which will in turn contribute to the country's economic growth.

Keywords: *Technology entrepreneurship, technology entrepreneurship intention, technopreneurship intention and higher education institutions students.*

1. Introduction

The issue of unemployment is one of the complex issues in developing countries (Saraih et al., 2018). According to a report by the UN's International Labor Organization (ILO), global unemployment is projected to reach 208 million people in 2023, with an unemployment rate of 5.8% (Ventura, 2023). Meanwhile, the Department of Statistics Malaysia (2020) has reported in the middle of the COVID-19 pandemic's severe effects, the unemployment rate increased by 46.10% from the previous year, while the employment rate faced a 0.40% decline. As shown in Figure 1, a forecast made by Trading Economics shows that Malaysia is expected to face an increase in the number of unemployed in the year 2024.

Figure 1: Malaysia Unemployment Rate



Source: Trading Economics.

It is also important to note that unemployment does not only occur among those with lower education levels but is also prevalent among those with higher education levels (Refer to Table 1). This is indicated by the challenges encountered by graduates from higher education institutions in seeking jobs either in the public or private sectors as a result of the volatile economic environment (Deuchar & Dyson, 2020).

Table 1: Education and Gender Profile of Malaysia's Labour Force 2019

Highest education attained		Share of labour force	Labour force participation rate	Unemployment rate
Total	*Overall*	*100%*	*68.7%*	*3.3%*
	No formal education	2.9%	60.2%	2.7%
	Primary	11.9%	70.8%	1.7%
	Secondary	55.6%	68.1%	3.3%
	Tertiary	29.6%	70.0%	3.9%
Male	*Overall*	*100%*	*80.8%*	*3.2%*
	No formal education	2.9%	78.5%	2.9%
	Primary	13.1%	88.7%	1.9%
	Secondary	59.3%	81.8%	3.3%
	Tertiary	24.8%	75.4%	3.5%
Female	*Overall*	*100%*	*55.6%*	*3.4%*
	No formal education	3.0%	44.7%	2.4%
	Primary	10.0%	50.0%	1.4%
	Secondary	49.7%	51.9%	3.2%
	Tertiary	37.2%	65.1%	4.3%

Source: Lee (2020); Department of Statistics (2020).

As shown in Table 1, the overall unemployment rate of Malaysians in the year 2019 was 3.3%. The problem that can be seen is the high number of unemployment among those in the tertiary education group, which is at 3.9%. In this competitive higher education arena, higher educational institutions produce thousands of graduates each year, but not all of them secure appropriate job opportunities. The high level of unemployment among graduates from higher education institutions is associated with the fact that most college graduates prefer to be job seekers rather than job creators (Bod'a & Považanová, 2021; Chakraborty et al., 2021). This simply indicates the graduates' lack of entrepreneurial intention. Failure to enforce appropriate solutions to this problem implies that many college graduates will remain job seekers and will experience long periods of waiting to be recruited, therefore increasing the unemployment rate (Hartono, 2021). According to Shamsudin et al. (2017), one of the most important economic development techniques to foster a nation's economic growth and ensure its competitiveness in the face of escalating globalization trends is entrepreneurship.

Technology, like entrepreneurship, has given this life a new dimension. Technology has made life simultaneously easier and more efficient. With technology, humans can achieve so much and get things done in a very short period. On top of that, technology has played a vital role in businesses as the world is turning into the Industry Revolution 4.0. Technology entrepreneurship involves identifying, developing, and commercializing innovative technological solutions to address market needs or opportunities. Technology entrepreneurship has garnered significant attention on innovation, industry transformation, and social revolution as it is a catalyst for industry revolution that would reshape the global economy post-pandemic. Hoque, Awang & Siddiqui (2017) mentioned in their study that in the age of technological globalization, technology entrepreneurship becomes prominent to make society better as a whole and to have economies that are capable of progressing globally. A technology startup is considered a source of employment since it typically develops new products and services that lead to new demand and highly skilled labor that necessitates the creation of new jobs.

Harrison et al. (2014) studied the effects of innovation on the employment growth of four European countries (France, Germany, the United Kingdom, and Spain), and the results showed that product innovation is positively associated with the employment growth of all sampled countries. This shows that the creation of new products and services developed by technology-based companies can be a key reason to generate effective demand and increasing employment. This is further supported by a number of studies that have shown the positive effect of technology startups on employment growth and performance (Pyka, 2017; Choi et al., 2020). Thus, it is essential to understand the existence of technopreneurs, technology entrepreneurship, and entrepreneurial intentions, particularly among higher education institution students. Technology entrepreneurship intention refers to the willingness and desire of individuals, in this case, higher education institution students, to engage in technology entrepreneurship. It reflects their aspiration to become technology entrepreneurs and pursue entrepreneurial endeavors in the technology sector. The concept of entrepreneurial intention was explained in the theory of planned behavior by Azjen (1991), in which three determinants influence one's intention to do something, namely attitudes, subjective norms, and perceived behavioral control. Generally speaking, entrepreneurial intentions are influenced by internal, external, and contextual factors (Asma, Rosdi, Amri, Adnan, and Samsudin, 2018).

Mohd and Shamsudin (2017) stated that the technology entrepreneurship intention is a personality trait in which individuals embraces their way of thinking by highlighting the possibility of generating new value and advancing their careers. Hence, having the intention to be entrepreneurs may encourage the students (who later become future graduates) to embrace the values needed for their career prospects. Intention is a key factor in pursuing a career as a technopreneur. However, research on entrepreneurial intention toward technology entrepreneurship is still insufficient due to a vast number of entrepreneurial intention studies focusing on traditional entrepreneurship. Consequently, there is a scarcity of research on technology entrepreneurship as a career option among university students, and clarification of factors towards entrepreneurial intention is also lacking (Belmonte and Lira, 2023). A limited number of studies on technology entrepreneurship intention have been conducted; particularly in the context of students from higher education institutions (Refer to Table 2). However, previous studies do not cover the subject comprehensively, leaving a few important variables behind. Therefore, the following objectives were established for this study: i) to identify, evaluate, and interpret current research by previous authors on factors influencing technology entrepreneurship intention among students from higher education institutions; ii) to identify under-researched factors towards technology entrepreneurship intention as a recommendation for future study.

2. Literature Review

Technology is an application of scientific knowledge that has transformed the world today. It has not only made life easier, but it has also expedited it. With technology, work can be completed in a matter of minutes. Entrepreneurship, like technology, has added another dimension to human life. It is impossible to dismiss the fact that most, if not all, forms of employment today stem from some form of entrepreneurship. Both technology and entrepreneurship are the products of the human intellect, and when merged, they form a compound that could be used to benefit society in a great way. Technology entrepreneurship is a new breed of entrepreneurship in a technology context. It is the result of merging technology prowess and entrepreneurial skills. This term has been used by many scholars since 1983 when it was first introduced. Technology entrepreneurship is the practice of recognizing and capitalizing on human resources and business opportunities in the field of technology (Dorf and Byers, 2011).

According to Yordanova (2021), technology entrepreneurship is the establishment of a new firm offering products or services that rely heavily on the application of scientific or technological expertise. Ferreira et al. (2016) stated that technology entrepreneurship is a combination of entrepreneurship and technology-based innovation. This is similar to the definition provided by Beckman, Eisenhardt, Kotha, Meyer and Rajagopalan (2012), where it is defined as a type of entrepreneurship that aims to exploit opportunities related to advances in science and engineering. Technology entrepreneurship is an instrument that facilitates prosperity in individuals, businesses, states, and nations. In the business world, the advent of technology entrepreneurship is regarded as an economic development engine. This is because technological innovation

often enhances the quality of life and allows greater convenience, while also opening up new possibilities for businesses.

Hence, fostering technology entrepreneurship is vital since technology development may promote wealth generation and economic progress (Yordanova, 2021). Entrepreneurial intention is the first and most important phase in the entrepreneurial process (Molino et al., 2018). Without it, no further entrepreneurial actions can be taken. As a result, scholars have paid close attention to entrepreneurial intention to better understand how entrepreneurship emerges and why people become involved in venture creation (Alammari et al., 2019; Saiqal et al., 2019). Intention has been referred to as a state of mind in a way that directs one's attention towards a certain purpose to attain a specified goal (Bird, 1988). It has recently become one of the most popular theoretical frameworks for understanding the influencing factors of entrepreneurial behavior (Liñán and Fayolle, 2015). Mohd and Shamsudin (2017) have defined technology entrepreneurship intention as a psychological feature in which people adopt a way of thinking that emphasizes chances to generate new value and promote their profession, particularly among Malaysian graduates. The concept of intent appears to be fundamentally basic to human decision-making (Al-Jubari et al., 2018; Krueger, 2009). As a result, entrepreneurship is an intentional activity and planned behavior (Al-Jubari et al., 2018; Bird and Jelinek 1988). As such, the study of technology entrepreneurship intention serves an important purpose beyond satisfying intellectual curiosity. A high rate of unemployment among graduates has become one of the main issues in Malaysia (Bahrim et al., 2019).

Instead of waiting to be recruited, graduates are encouraged to create employment by becoming either technopreneurs or entrepreneurs. Technology entrepreneurship is regarded as a way to combat the global prevalence of graduate unemployment (Boldureanu et al., 2020), ensuring that they become technopreneurs. This is mainly due to the ability of technology entrepreneurship intention to develop a state of mind that drives and steers individual behaviors toward the development of innovative technology-based business concepts. Higher education institutions play a crucial role in shaping students' attitudes, skills, and intentions toward technology entrepreneurship. Thus, higher learning institutions and Small and Medium Enterprise (SME) corporations in Malaysia have taken dynamic approaches to encourage students to get involved in technology entrepreneurship or entrepreneurship through different classes, workshops, seminars, and activities. For example, Universiti Teknologi MARA (UiTM) has been offering a Technology Entrepreneurship course to inculcate entrepreneurial skills among Science and Technology cluster students and promote the development of technology-based ventures among students and graduates (Universiti Teknologi MARA, 2023). Through classes and seminars, it is hoped that students will learn and develop the technopreneurial mindset, which helps to identify and exploit technology entrepreneurship-related opportunities. Several researches have been conducted by different authors to understand factors contributing to technology entrepreneurship intention among university or higher education institution graduates.

Hoque, Awang and Siddiqui (2017) determined that technopreneurial self-efficacy (TSE) and technopreneurial learning had positive effects on technopreneurial intention among students who enrolled in business courses in Malaysian universities. This is supported by other studies by Nurhayati et al., (2019), Machmud et al., (2020) and Wardani et al., (2020) that also reported a positive relationship between technopreneurial learning and technopreneurial intention. On the other hand, a study by Utami (2018) indicated that environmental factor has a significant effect on technopreneurial intention, while academic climate has a significant effect on attitude and self-efficacy, hence creating a positive environment and academic climate is important to support technopreneurial intention among undergraduate students. Similarly, in another study by Boller (2018), it was found that technopreneur-related activities significantly affect technopreneurial intention and suggested that educators and policymakers incorporate more technopreneurial-related activities in their fields to develop intention. Other studies have focused on individual factors such as computer self-efficacy, Internet self-efficacy, individual entrepreneurial orientation, technopreneurial self-efficacy, risk-taking propensity, motivation, and others. For example, Koe et al., (2018) found in their study that computer self-efficacy and Internet self-efficacy positively influence technopreneurial intention among university students. Salhieh and A-Abdallat (2022) also found in their study that technopreneur self-efficacy had a positive and significant impact on technopreneurial intentions, suggesting that those who express an interest in launching a new technology-based venture have a strong belief in their abilities to perform the technological and entrepreneurial tasks required, are confident in their

ability to obtain the academic technical skills, and have an inner drive to seek what is technologically novel and unique.

3. Methodology

This section aims to describe the scope of the review and the selection of papers. This study uses a systematic literature review (SLR) method, which is a method used to identify, evaluate, and interpret all research available on a specific research question, topic area, or phenomenon of interest. The paper selection process is divided into three major stages, which are as follows: *Phase I*: Determine the database and keywords to be searched. For this study, the authors used the Google Scholar database to search related studies that had already been published by using the keywords 'technology entrepreneurship intention' or 'technopreneurship intention'. The papers selected are indexed in Scopus, WOS, ERA or MyCite. The scope of fields selected is 'Article Title', 'Abstract', and 'Keywords'. *Phase II*: Paper identification. For this SLR method, we focused on one type of document; an article, that was published in a variety of journals, including journals in the field of entrepreneurship. There were no restrictions put on the journal category when selecting papers. However, this study employs a specific timeline to present a review of current academic literature published between 2017 and 2023. Following the screening process, a total of 17 research papers were chosen for the study. These 17 papers are papers that studied technology entrepreneurship intention specifically among higher education institution students. Papers that studied technology entrepreneurship intention among other groups such as high school students or companies were disregarded. *Phase III*: Analyse and group the variables. The variables in the chosen studies are divided into the following factors: technopreneurial education, individual factors, external factors, and subjective norms.

4. Results and Discussion

The selected research paper has been analyzed by grouping the factors into four (4) factors, which are technopreneurs' education, individual factors, external factors, and subjective norms. Table 2 shows research papers on factors that influence technology entrepreneurship intention that had been published by different authors between 2017 and 2023.

Table 2: Factors that Influence Technology Entrepreneurship

Author/Year	Factors	Variables	Country
(Hoque, Awang, and Siddiqui, 2017)	Technopreneurial education Individual factor	Technopreneurial learning Technopreneurial self-efficacy	Malaysia
(Utami, 2018)	External factor Individual factor Individual factor	Environmental Factor Self-efficacy Attitude	Indonesia
(Koe et al., 2018)	Individual factor Individual factor Individual factor	Computer self-efficacy Internet self-efficacy Individual entrepreneurial orientation	Malaysia
(Boller, 2018)	Individual factor External factor Individual factor Subjective norms	Risk-taking propensity Technopreneurial-related activities Technopreneurial self-efficacy Emotional family support	Philippines
(Nurhayati & Machmud, 2019)	Technopreneurial education	Technopreneurial learning	Indonesia
(Yordanova, Filipe and Coelho, 2020)	Technopreneurial education Technopreneurial education Technopreneurial education	Entrepreneurship Education University support University research excellence	Bulgaria
(Machmud, et al.,	Technopreneurial education	Technopreneurial learning	Indonesia

2020)	Individual factor	ICT self-efficacy	
(Fathonah, Machmud, and Suwatno , 2020)	Individual factor Individual factor	Student motivation ICT self-efficacy	Indonesia
Wardani, Machmud, and Suwatno (2020)	Technopreneurial education	Technopreneurial learning	Indonesia
Koe (2021)	Individual factor Individual factor Individual factor	Computer capability Internet ability Individual Entrepreneurial Orientation	Malaysia
(Salhieh and Al-Abdallat, 2022)	Individual factor Individual factor Individual factor	Innate innovativeness Technopreneurial self-efficacy Academic self-efficacy	Jordan
(Belmonte et al, 2022)	Individual factor Technopreneurial education	ICT Self Efficacy Technopreneurial learning	Jordan
(Soomro and Shah, 2021)	Technopreneurial education Individual factor Individual factor	Technopreneurial-related activities Technopreneurial self-efficacy Technopreneurial motivation	Pakistan
(Belmonte, Prince and Castro, 2022)	Individual factor Individual factor Individual factor Individual factor Individual factor	Computer capability Internet ability Individual entrepreneurial orientation Entrepreneurial experience Access to Capital	Philippines
(Koe, Nordin and Marmaya, 2022)	Individual factor Individual factor	Computer self-efficacy Internet self-efficacy	Indonesia
(Alamsyahrir & Ie) (2022)	Individual factor Technopreneurial education Subjective norms	Self-efficacy Entrepreneurship education Relation support	Indonesia
(Koe, Abdul Rahim & Mahphoth, 2023)	Individual factor Individual factor External factor Individual factor	Computer self-efficacy Internet self-efficacy Contextual element Individual entrepreneurial orientation	Malaysia

Based on the table, there are 25 variables altogether studied by the authors, which include: 1) technopreneurial learning, 2) technopreneurial self-efficacy, 3) self-efficacy, 4) internet self-efficacy, 5) computer self-efficacy, 6) academic self-efficacy, 7) environmental factor, 8) attitude, 9) individual entrepreneurial orientation, 10) risk taking propensity, 11) technopreneurial related activities, 12) emotional family support, 13) university support, 14) university research excellence, 15) student motivation, 16) innate innovativeness, 17) technopreneurial motivation, 18) computer capability, 19) internet ability, 20) entrepreneurial experience, 21) access to capital, 22) entrepreneurship education, 23) relation support, 24) contextual element, and 25) technopreneurial related activities. We have grouped these 25 variables into four factors, which are technopreneurs' education, individual factors, external factors, and subjective norms. Out of 25 variables, 5 of them are classified under the technopreneurial education factor, which includes technopreneurial learning, entrepreneurship education, university support, university research excellence, and technopreneurial-related activities. Another 15 variables are grouped under individual factors, which include technopreneurial self-efficacy, self-efficacy, internet self-efficacy, computer self-efficacy, academic self-efficacy, attitude, and individual entrepreneurial orientation, risk-taking propensity, student motivation, innate innovativeness, technopreneurial motivation, computer capability, internet ability, entrepreneurial experience, and access to capital.

Finally, the remaining 5 variables are classified under external factors (environmental factors, technopreneurs-related activities, contextual elements) and subjective norms (emotional support, relation support). It is found that most of the studies have focused on exploring how individual factors can influence the formation of technology entrepreneurship intention (with a total of 15 variables). This is followed by technopreneurial education with a total of five variables and environmental factors with three variables. The least studied factor goes to subjective norms with only two variables. Firstly, we can say that there is a lack of studies conducted that relate technology entrepreneurship intention with subjective norms, although subjective norms play a crucial role in shaping one's attitude and behavior. According to Wahyuni et al. (2019), in subjective norms, the support from people around us (family, relatives, close friends) and seeing successful people are very influential in shaping students' entrepreneurship intention. Exposure to successful tech entrepreneurs can inspire and educate students about the possibilities and challenges of starting technology-based ventures.

A supportive ecosystem that encourages innovation, collaboration, and risk-taking can positively influence students' intentions to pursue technology entrepreneurship. Therefore, more studies are needed to understand the influence of subjective norms on technology entrepreneurship intention. Secondly, it is found that government support has not been mentioned in these studies as one of the variables. It is known that to venture into a technological firm, a high amount of capital and proper research and development (R&D) are required. This could be a barrier for graduates to pursue their innovative ideas to create technology-based ventures, knowing that it does not come without high risks. According to Chaudhuri, Agrawal, Chatterjee and Hussain (2022), government support to increase R&D activities is seen as a key for a company to stimulate innovation. Hence, this is where government assistance plays a vital role in ensuring that future graduates have the interest and intention to pursue their technological products or project ideas, hence reducing the unemployment rate of the country. Government assistance may come in the form of financial, training, mentoring programs and more.

Thirdly, it is also found that social media's influence on technology entrepreneurship intention has not been studied in the above studies. In this technological era, social media is widely used especially among the young generation; hence it can easily influence students in making life decisions. Social media use can be defined as the ability to use social media to explore and discover new ideas (idea discovery) and implement those ideas (idea exploitation) (Zhang and Zhu, 2021). According to a study by Ahmed, Rahim, Alabdullah and Thottoli (2019), the findings of the study indicated that entrepreneurial intention was significantly influenced by social media. This is supported by another study by Abdelfattah, Al Halbusi and Al-Brwani (2022) which confirmed that social media use has a significant impact on entrepreneurial intention. Although these studies focused on the influence of social media on entrepreneurship intention in general, the role of social media in influencing technology entrepreneurship intention should not be disregarded. Perhaps relevant authorities and appointed leaders could use social media platforms to disseminate information and engage in interactive communication especially with university students to promote technology entrepreneurship events.

Implication of Study: Minimal studies have been carried out on factors influencing entrepreneurship intention, especially in the context of technology entrepreneurship. This paper provides a review of existing academic literature on technology entrepreneurship intention among university students and analyses the factors that are mostly studied and understudied. It has been identified that social norms are the least studied factor based on the chosen studies. This paper introduced government assistance and social media as possible variables to be studied by future researchers. Previous researchers have studied these two variables regarding traditional entrepreneurship intention, but there are currently no studies on their influence on technology entrepreneurship intention per se. Hence, the identification of these under-researched areas will provide future directions for researchers to have a clear understanding of the concept. This paper may also provide future directions for the government in ensuring that more graduates have the intention to pursue technology entrepreneurship which will in turn contribute to the country's economic growth.

5. Conclusion

This paper is a literature review-based paper that aims to provide a review of existing academic literature on technology entrepreneurship intention among university students. From the chosen studies, we have

grouped the variables into four factors, namely, technopreneurial education, individual factors, external factors, and subjective norms. The analysis has resulted in a few findings. First, it was found that most of the studies focused on individual factors, followed by technopreneurial education and external factors. Subjective norms were the least studied factor, despite their importance in shaping an individual's behavior and intention. Second, it was found that government support has not been mentioned in these studies among the variables, although the importance of government support or assistance in encouraging innovation had been established by other researchers. Third, it was found that social media's influence on technology entrepreneurship intention has not been studied as well. Previous studies have indicated that entrepreneurial intention was significantly influenced by social media; however, there is a lack of research on how this applies to the technology entrepreneurship context. Thus, future research should empirically test the identified factors. This paper provides a classification of factors contributing to technology entrepreneurship intention, allowing researchers and practitioners to gain an understanding of the concept. We are in a position to bridge the gap between previous and future studies by identifying under-researched areas as mentioned above. This paper may also benefit the government to foresee future graduates in terms of career choice in ensuring the growth of new technology-based ventures to help the country's economic growth.

References

Abdelfattah, F., Al Halbusi, H. & Al-Brwani, R. M. (2022). Influence of self-perceived creativity and social media use in predicting E-entrepreneurial intention. *International Journal of Innovation Studies*, 6(3), 119-127.

Ahmed, E. R., Rahim, N. F. A., Alabdullah, T. T. Y. & Thottoli, M. M. (2019). An examination of social media role in entrepreneurial intention among accounting students: a SEM study. *Journal of Modern Accounting and Auditing*, 15(12), 577-589.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.

Alamsyahrir, D. & Ie, M. (2022). Technopreneurial intention: Peran self-efficacy, entrepreneurship education, dan relation support. *Journal Manajemen Maranatha*, 21(2), 135-144.

Al-Jubari, I., Hassan, A. & Liñán, F. (2019). Entrepreneurial intention among University students in Malaysia: integrating self-determination theory and the theory of planned behavior. *International entrepreneurship and management journal*, 15, 1323-1342.

Alammari, K., Newbery, R., Haddoud, M. Y. & Beaumont, E. (2019). Post-materialistic values and entrepreneurial intention – the case of Saudi Arabia. *Journal of Small Business and Enterprise Development,* 26(1), 158–179.

Aviles Belmonte, Z. J., Cruz, C. S. C., De Castro, P. A. P., Estoesta, L. A., Mitra, E. J. A. & Lira, P. E. V. R. (2022). Factors Influencing Technopreneurial Intention among Undergraduate Engineering Students in the Philippines. *Journal of Engineering Education Transformations*, 36(1).

Bahrim, T. A. I. T. K., Azahari, H. I. H., Zulkarnal, N. A. A., Sallehhudin, N. A. & Yusop, R. M. (2019). High rate of unemployment among graduates in Malaysia. *E-Journal of Media and Society (e-JOMS)*, 2(2), 69-83.

Beckman, C. M., Eisenhardt, K., Kotha, S., Meyer, A. & Rajagopalan, N. (2012). Technology Entrepreneurship. *Strategic Entrepreneurship Journal,* 6(2), 89–93.

Belmonte, Z. & Lira, P. (2023). Factors influencing engineering students for choosing techno-entrepreneurship as a career: An implication for better learning. International Journal of Evaluation and Research in Education (IJERE), 268-273.

Bird, B. & Jelinek, M. (1988). The operation of entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 13(2), 21-30.

Bod'a, M. & Považanová, M. (2021). Output-unemployment asymmetry in Okun coefficients for OECD countries. *Economic Analysis and Policy*, 69, 307-323.

Boldureanu, G., Ionescu, A. M., Bercu, A. M., Bedrule-Grigoruţă, M. V. & Boldureanu, D. (2020). Entrepreneurship Education through Successful Entrepreneurial *Models in Higher Education Institutions. Sustainability,* 12(3), 1267.

Boller, R. M. P. (2018, November). A Study on the Factors that Drive Technopreneurial Intention among the Youth of Paranaque City. In The 6th National Business and Management Conference, 2345, 292.

Byers, T. H. (2011). Technology ventures from idea to enterprise.

Chakraborty, T., Chakraborty, A. K., Biswas, M., Banerjee, S. & Bhattacharya, S. (2021). Unemployment Rate Forecasting: A Hybrid Approach. *Computational Economics*, 57(1), 183–201.

Chaudhuri, S., Agrawal, A. K., Chatterjee, S. & Hussain, Z. (2022). Examining the role of gender on family business entrepreneurial intention: influence of government support and technology usage. Journal of Family Business Management.

Choi, D. S., Sung, C. S. & Park, J. Y. (2020). How Does Technology Startups Increase Innovative Performance? The Study of Technology Startups on Innovation Focusing on Employment Change in Korea. *Sustainability*, 12(2), 551.

Clark, E. (2023). New Zealand is officially in a recession. These charts show how Australia compares, ABC News. Available at: https://www.abc.net.au/news/2023-06-16/nz-enters-a-recession-as-economy-shrinks-again/102477992 (Accessed: 12 July 2023).

Department of Statistics Malaysia. Monthly: Unemployment rate. Department of Statistics Malaysia. https://open.dosm.gov.my/data-catalogue/dosm-public-economy_labour-principalstats-monthly_5

Deuchar, A. & Dyson, J. (2020). Between unemployment and enterprise in neoliberal India: Educated youth creating work in the private education sector. *Transactions of the Institute of British Geographers,* 45(4), 706–718.

Fathonah, W. N., Machmud, A. & Suwatno, S. (2020). Pengaruh ICT Self Efficacy terhadap Technopreneurship Intention dimediasi Motivasi Siswa. *SOCIA: Jurnal Ilmu-Ilmu Sosial*, *17*(1), 71-80.

Ferreira, J. J. M., Ferreira, F. A. F., Fernandes, C. I. M. A. S., Jalali, M. S., Raposo, M. L. & Marques, C. S. (2016). What Do We [Not] Know About Technology Entrepreneurship Research? *International Entrepreneurship and Management Journal,* 12(3), 713–733.

Harrison, R., Jaumandreu, J., Mairesse, J. & Peters, B. (2014). Does innovation stimulate employment? A firm-level analysis using comparable micro-data from four European countries. *International Journal of Industrial Organization*, 35, 29-43.

Hartono. (2021). Changing University Students' Mindset: From Job Seekers to Job Creators. *Technium Soc. Sci. J.*, 18, 433.

Hoque, A. S. M. M., Awang, Z. & Siddiqui, B. A. (2017). Technopreneurial intention among university students of business courses in Malaysia: A structural equation modeling. *International Journal of Entrepreneurship and Small & Medium Enterprise (IJESME)*, 4(7), 1-16.

Koe, W. L., Alias, N. E., Ismail, S. & Mahphoth, M. H. (2018). A suggested model for studying technopreneurial intention in Malaysia. KnE Social Sciences, 788-796.

Koe, W. L., Mahphoth, M. H., Alias, N. E., Krishnan, R. & Arham, A. F. (2021). Factors influencing intention towards technopreneurship among university students. *Journal of Educational and Social Research*, 11(1), 162-169.

Koe, W. L., Rahim, M. R. A. & Mahphoth, M. H. (2023). Determinants of Technopreneurial Intention among University Students: Individual Entrepreneurial Orientation (IEO) as Mediator.

Lee, H. (2020). Unemployment among Malaysia's Youth: Structural Trends and Current Challenges. Singapore: ISEAS.

Liñán, F. & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research agenda. *International Entrepreneurship and Management Journal*, 11(4), 907-933.

Malaysia Unemployment Rate. Malaysia Unemployment Rate - June 2023 Data - 1998-2022 Historical - July Forecast. (n.d.). https://tradingeconomics.com/malaysia/unemployment-rate

Molino, M., Dolce, V., Cortese, C. G. & Ghislieri, C. (2018). Personality and social support as determinants of entrepreneurial intention. Gender differences in Italy. *PloS One,* 13(6), Article e0199924.

Nurhayati, D. & Machmud, A. (2019). The influence of technopreneurial learning on technopreneurship intention students. Proceeding ISETH (International Summit on Science, Technology, and Humanity), 390-400.

Pyka, A. (2017). Dedicated innovation systems to support the transformation towards sustainability: Creating income opportunities and employment in the knowledge-based digital bioeconomy. *Journal of Open Innovation: Technology, Market, and Complexity*, 3(4), 27.

Rosdi, S. A. M., Adnan, A. A. Z. & Samsudin, N. (2018). Intention towards Business Start-Up among Orang Asli in Peninsular Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 8(5), 945-961.

Saiqal, N. Y. Al, Ryan, J. C. & Parcero, O. J. (2019). Entrepreneurial intention and UAE youth: Unique influencers of entrepreneurial intentions in an emerging country context. *Journal of East-West Business,* 25(2), 144–165.

Salhieh, S. E. M. & Al-Abdallat, Y. (2022). Technopreneurial intentions: the effect of innate innovativeness and academic self-efficacy. *Sustainability*, 14(1), 238.

Saraih, U., Zin Aris, A. Z., Abdul Mutalib, S., Tunku Ahmad, T. S., Abdullah, S. & Harith Amlus, M. (2018). The Influence of Self-Efficacy on Entrepreneurial Intention among Engineering Students. *MATEC Web of Conferences*, 150, 05051.

Shamsudin, S. F. F. B., Mamun, A. A., Nawi, N. B. C., Nasir, N. A. B. M. & Zakaria, M. N. B. (2017). Factors affecting entrepreneurial intention among Malaysian university students. *The Journal of Developing Areas*, 51(4), 423-431.

Soomro, B. A. & Shah, N. (2021). Technopreneurship intention among nonbusiness students: A quantitative assessment. *World Journal of Entrepreneurship, Management and Sustainable Development*, 17(3), 502-514.

Universiti Teknologi MARA. (2023). ENT600- Technology Entrepreneurship. Retrieved from Aims UiTM: https://aims.uitm.edu.my/index.cfm/page/module/moduleId/152789

Utami, H. N. (2019, August). Affecting Factors of Technopreneurial Intention toward Younger Generation. In Annual International Conference of Business and Public Administration (AICoBPA 2018) (pp. 268-271). Atlantis Press.

Ventura, L. (2023, January 31). Global Finance. Retrieved from Unemployment Rates around the World 2023: https://www.gfmag.com/global-data/economic-data/worlds-unemployment-rates.

Wahyuni, N., Darmawan, K. & Adityasih, B. (2019). The Role of Entrepreneurship Education and Subjective Norms on the Intention of Entrepreneurship. 10.2991/teams-19.2019.55.

Wardani, I. A. & Machmud, A. (2020). Studi tentang pengaruh techopreneurial learning terhadap technopreneurship intention siswa SMKN se-kota Palembang. *Edunomic Jurnal Pendidikan Ekonomi,* 8(2), 96-106.

Yordanova, D., Filipe, J. A. & Pacheco Coelho, M. (2020). Technopreneurial intentions among Bulgarian STEM students: The role of the university. *Sustainability*, 12(16), 6455.

Yordanova, D. (2021). Nascent Technology Entrepreneurship among Bulgarian STEM Students. *Administrative Sciences*, 11(4), 121.

Zhang, F. & Zhu, L. (2021). Promoting business model innovation through social media strategic capability: A moderated mediation model. *European Management Journal*, 40(1), 56-66

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Financial Risk and International Inbound Tourism: A Malaysian Illustration

Siti Nurhidayah Mohd Roslen*, Chua Mei Shan, Azlul Kalilah Zaghlol & Rafiatul Adlin Hj Mohd Ruslan
Department of Economics and Financial Studies, Faculty of Business and Management
Universiti Teknologi Mara (Puncak Alam Campus), Malaysia
*sitihidayah@uitm.edu.my

Abstract: The impact of financial risk on inbound tourism is explored in this study by examining the effect of shocks in foreign debt level and debt service stability on the tourist arrival rate in Malaysia, based on the Theory of Planned Behavior (TPB). Quarterly data from 2010 to 2020 were obtained from multiple sources, which include the Malaysia Tourism corporate website, the official portal of the Ministry of Economy Malaysia, the Department of Statistics Malaysia, and the Federal Reserve (FRED) Economic statistical website. A VAR model was estimated, together with the Granger causality test, to identify the relationship between financial risk, control variables, and the tourist arrival rate in Malaysia. We specifically consider the effects of financial risk on estimated impulse responses and variance decompositions for the studied variables. Empirical results indicate that there is a unidirectional causality running from foreign debt level stability, debt service stability, and industrial production to tourist arrivals. In addition, there is also bidirectional causality from the effective exchange rate to tourist arrivals and from tourist arrivals to the effective exchange rate. This study is the first of its kind to explore the effect of financial risks in the context of foreign debt levels and debt service stability in Malaysia. The study emphasizes the importance of monitoring the country's debt financing threshold to maintain financial stability, which if violated would be detrimental to tourism.

Keywords: *Foreign debt, financial risk, tourist arrivals, VAR Model, Malaysia.*

1. Introduction and Background

In the tourism industry, the word "risk" frequently conjures up images of unforeseen hazards and potential disruptions to travel plans. Delving deeper into this risk concept will reveal the necessary elements that can be focused on in improving the state of the tourism industry, especially during post-crisis or pandemic periods. Risk plays an important role in shaping the travel landscape, guiding tourists' travel decision-making, and driving innovation in tourism. This research aims to shed light on the significance of financial risk in tourism by demonstrating how a thorough understanding relationship between foreign debt level and debt service contributes to the tourism sector's growth and resilience. The tourism literature has firmly established that the tourism sector is one of the main sources of economic growth for a number of countries Antonakakis et al., (2015). However, tourism's influence on economic growth recedes during crises and booms (Portella-Carbó et al., 2023). This evidence highlighted the importance of economic and financial environment stability for the tourism industry in driving economic growth. Research on scientific methodologies and informative time series models for forecasting international visitor arrivals is still lacking (Makoni et al., 2023). The world today is facing a rise in global debt with a record of $303 trillion in 2021 as compared to $226 trillion in year 2020 (International Monetary Fund, 2021).

These sobering statistics underlined the critical need for managing public debt to avoid severe consequences if the debt level is above the threshold for public debt. External indebtedness may increase the future sovereign default likelihood if it is not managed properly, especially during a crisis period. Against this backdrop, it is increasingly important to respond to the challenges associated with financial risk levels about foreign debt stability. Studies on the relationship between risks and tourism have been widely researched in the past about various events such as geopolitical issues (Lee & Choi, 2023; Zhang et al. 2022; Saint et al., 2020), economic downturns (Portella-Carbó et al., 2023; Hateftabar & Chapuis, 2020), and pandemic (Yang et al., 2020; Esquivias et al., 2021). Despite the vast literature on tourist arrivals studies in response to various types of risks, empirical results documenting the sensitivity of tourist arrivals rate to the visited country's foreign debt stability are rather scarce. To address this gap, this study proposes that tourist arrivals respond differently to foreign debt level (FDS) and foreign debt service (DSS) stability, and conducts impulse response and variance decomposition analyses using data from inbound foreign tourists in Malaysia. The findings

indicate that tourist arrivals are sensitive to FDS and DSS, with negative responses to FDS and positive responses to the DDS variable.

The unique thing about this study is that it uses impulse response and variance decomposition analyses to look at the effects of foreign debt level and debt service stability on international inbound tourist arrivals in Malaysia. This is done to prove that financial risks hurt international inbound tourist arrivals by controlling for major macroeconomic variables. Findings obtained in this study are expected to enlighten future researchers on the significant impact of external debt on the tourism industry, which may further justify to what extent the positive role of foreign debt increases on economic growth can no longer be used as an excuse for the government to borrow more money. In other words, additional debt can have a stimulatory effect on economic growth, but this effect may diminish (Lau et al., 2022) as the debt-to-growth ratios approach the debt threshold. Moreover, as Malaysia is trying to further strengthen the Malaysian Ringgit by diversifying its tourism sectors, the findings of this study would have a bearing on the broadening of policy in the context of uncertainty and tourism. The rest of the paper is designed as follows. Section 2 covers the review of past literature on financial risks and tourism. Section 3 delves into data sources and methodology, followed by the discussion of findings in Section 4. Section 5 covers the research implications recommendations, and conclusion.

2. Literature Review

Risk in Tourism: Risk perception is a concept with many different parts and areas of study. Factors affecting the risk perception of tourists range from various attributes including micro and macro determinants. These attributes may encompass negative incidents as perceived by tourists, which include equipment, financial, physical, psychological, satisfaction, social, and time risks (Roehl & Fesenmaier, 1992). The fundamental idea behind the link between risk perception and tourism decisions can be explained by the Theory of Planned Behavior (TPB) as introduced by Ajzen (1985). The TPB theory has been applied to a wide range of disciplines, contexts, and countries, including tourism and hospitality. For example, the TPB has been applied to predicting health-related behaviors (Godin & Kok, 1996)), getting better understanding on the attitudes of marketing (Alavion et al., 2017; Ferdous, 2010), disaster management (Daellenbach et al., 2018)), understanding consumer behavior in Asian region (Jain et al., 2017; Ho et al., 2015; Chien et al., 2012), and new tourist behaviors in different tourism context (Sann et al., 2023; Bui, 2022). Consequently, the TPB seems to be an appropriate framework in the current research scope. According to TPB, tourists' decisions to engage in tourism activities can be predicted by their intention to engage in such behavior. Guided by this theory, Quintal et al. (2010) and Björk and Kauppinen-Räisänen (2013) have been looking at multiple dimensions of travel risks about tourists' risk perceptions, which comprise functional, physical, financial, social, and psychological risks. All these factors are expected to give tourists some ideas about the risk conditions of the destination country, which may influence their willingness and motivation to travel. In the current study, tourists' perceptions of risk and uncertainty were tested using the response of the number of tourist arrivals in Malaysia towards the changes in Malaysia's foreign debt stability and debt service stability.

Financial Risk: Financial risk refers to the potential net financial loss of a purchase, including the possibility that a product or service might need to be repaired, replaced, or the price refunded (Laroche et al., 2004). In the context of tourism, financial risks can be defined as the potential net financial loss of a purchase, such as the fear of losing money if a vacation is left unused or if a travel agency goes bankrupt while travelers are enjoying their purchased holiday (Björk & Kauppinen-Räisänen, 2013). Past research has shown that the financial environment of a country may have a dampening effect on the performance of the tourism industry (Irani et al., 2021), especially during periods of inflation and debt crises (Khalid et al., 2020).

While debt financing may sound like an ideal solution for promoting sustainable financial growth for a country (Xu et al., 2020) and, to some extent, reducing market risk (Hang et al., 2020), there are still pros and cons associated with it. Debt financing could simplify a country's finances and help it get out of outstanding debt faster, but the upfront costs may be steep. Gradual borrowings over time may in the end accumulate a large sum of debt to be paid, which will need refinancing at much higher interest rates in the wake of post-crisis or pandemic inflation. As the debt burdens get heavier, interest costs will be greater, which will then affect tourism expenditures. Excessive government debt can result in economic instability and uncertainties.

Lower consumer confidence may result from this, which may influence people's willingness to spend money on non-essentials like travel. As individuals are worried about their financial well-being, they might reduce their spending on traveling, leading to a decline in tourism expenditure. A study conducted by Campos-Soria (2015) has shown that tourists tended to cut back on tourism expenditures during the debt crisis in 2009 by having fewer holidays, reducing the duration of stay, opting for cheaper means of transport and accommodation, and traveling to destinations closer to home.

These facts illustrate the extent to which the final tourism product needs to fall within the scope of the customer's willingness to pay (Seshadri et al., 2023). Tourist prices are closely related to the amount of tax levied on tourism activities. Countries with high debt may use the tourism market as one of the sources of tax revenue to support government spending and borrowing (Thompson, 2017) since this approach can extract significantly more revenue to increase domestic welfare (Gooroochurn & Sinclair, 2005). However, tax increases are negatively perceived by tourists, as stated in Adedoyin et al. (2023) and Durbarry (2008), who found a negative relationship between tourism tax increases and inbound travel rates. Tourists are unwilling to pay an additional amount of tax unless there is an additional value they will receive in return (Cetin et al., 2017). This could explain why Thailand at one time imposed a tourism tax cut policy to alleviate its tourism industry and economy during the 2011 flood incidents (Ponjan & Thirawat, 2016). Based on all this past literature, it can be said that too much debt may lead to higher financial risks not only for the visited country but also for tourists as a whole. Following this, we hypothesized that a higher dependency on debt would lead to a lower number of inbound tourist arrivals.

3. Research Methodology

Choice of Variables and Dataset: Tourist arrivals are denoted by the TA variable. The unit of measurement is the number of tourists. The quarterly observations from January 2010 to December 2020 are considered in this study. The data source for TA is the Malaysia Tourism corporate site. We also consider two variables measuring the components of debt risk as presented by the International Country Risk Guide (ICRG). According to ICRG methodology, the objective of financial risk rating measures the country's ability to pay its financial obligations. Since this study focuses on the impact of foreign debt level and services stability, two subcomponents in the financial risk rating measures are used which are (i) FDA: foreign debt as a percentage of GDP, and (ii) DSS: foreign debt service as a percentage of export in goods and services. The quarterly data from January 2010 to December 2020 for foreign debt, GDP, and exports of goods and services were obtained from the official portal of the Ministry of Economy Malaysia.

Control Variables: The selection of control variables used in this study is based on the study on inbound tourism conducted by Ghosh (2022). Control variables used in this study include EX, IP and EM variables. EX is the real effective exchange rate for Malaysia, retrieved from Federal Reserve (FRED) Economic data. According to FRED, real effective exchange rates are computed as weighted averages of bilateral exchanger rates adjusted by relative consumer prices. IP measures the economic growth proxied by industrial production, collected from the official portal of the Ministry of Economy Malaysia. According to the Department of Statistics Malaysia (2023)[2], The Industrial Production Index measures the rate of changes in the production of industrial commodities for various industries of the economy within a specified time period. A high index indicates higher economic growth. The EM variable denotes the ratio of exports to imports for Malaysia, gathered from the official portal of the Ministry of Economy Malaysia as an indicator of trade openness. A higher ratio indicates a more open economy, while a lower ratio indicates a more closed economy.

Econometric Specification: The study looks at how the financials (foreign debt stability and debt service stability variables) affect tourism in Malaysia, using effective exchange rate, industrial production, and trade openness as control variables. The general functional form in investigating the impact of financial risk on tourism is expressed in equation 1. $TA_t = f\ (FDS_t, DSS_t, EX_t, IP_t, EM_t, \epsilon_{it}) \cdots$ (1)

[2] http://www.dosm.gov.my/uploads/release-content/file_20230712115301.pdf

Here TA denotes the tourist arrivals, FDS is the foreign debt stability, DSS is the debt service stability, EX is the effective exchange rate, IP is the industry production index, EM is the ratio of exports to imports, and ϵ is the usual error term. A rise in the financial risk is likely to hurt the tourism sector, as will a rise in the country's uncertainty. An increase in financial risk, coupled with a rise in the exchange rate will imply a slowdown in the tourism business due to the increase in the cost of buying the destination country's currencies. However, a rise in industrial production will help tourism because it will lead to the growth of businesses that support the tourism sector. Growing business activities such as imports and exports will also result in trade expansion that will positively affect the tourism sector.

Unit Root Testing: Before the use of any time series method, it is important to identify whether the series used is stationary or not. Using time series data that are not stationary in the analysis will result in spurious regression, which means that the generated model will not be able to describe the data accurately at different time points (Granger & Newbold (1974). To examine the stationarity of the series, this study used the augmented Dickey-Fuller unit root test (ADF test) (Dickey & Fuller, 1979) and the Phillips-Perron unit root test (PP).

Estimating VAR Model: Suppose that there exists some relationship between Y_t and X_t, then a bivariate model can be set up as equation 2:

$Y_{1,t} = a_1 + b_{11,1}Y_{1,t-1} + b_{12}Y_{2,t-1} + u_{1,t}$

$Y_{2,t} = a_2 + b_{21,1}Y_{1,t-1} + b_{22}Y_{2,t-1} + u_{2,t}$ (2)

In the above equation, $u_{1,t}$ and $u_{2,t} \sim$ IID $(0, \sigma^2)$, $Cov(u_{1,t}, u_{2,t}) = 0$. Transforming equation 2 into the matrix form will result in the following matrix representation:

$$\begin{bmatrix} Y_{1,t} \\ Y_{2,t} \end{bmatrix} = \begin{bmatrix} a_1 \\ a_2 \end{bmatrix} + \begin{bmatrix} b_{11,1} & b_{12,1} \\ b_{21,1} & b_{22,1} \end{bmatrix} \begin{bmatrix} Y_{1,t-1} \\ Y_{2,t-1} \end{bmatrix} + \begin{bmatrix} u_{1,t} \\ u_{2,t} \end{bmatrix} \quad (3)$$

Where, $Y_{1,t}$ and $Y_{2,t}$ are stationary at level variable, $u_{1,t}$ and $u_{2,t}$ are white noise disturbances, and a_1, a_2, $b_{11,1}$, $b_{12,1}$, $b_{21,1}$, $b_{22,1}$, are the coefficients in matrix (3) estimated by ordinary least squares method.

Suppose that $\mathbf{Y}_t = \begin{bmatrix} Y_{1,t} \\ Y_{2,t} \end{bmatrix}$, $\mathbf{a} = \begin{bmatrix} a_1 \\ a_2 \end{bmatrix}$, $\mathbf{b} = \begin{bmatrix} b_{11,1} & b_{12,1} \\ b_{21,1} & b_{22,1} \end{bmatrix}$, $\mathbf{u}_t = \begin{bmatrix} u_{1,t} \\ u_{2,t} \end{bmatrix}$

Then we can come to an equation 4 as follows:

$\mathbf{Y_t = a + b\,Y_{t-1} + u_t}$

Therefore, the VAR model containing N variables as well as k lags is:

$\mathbf{Y_t = a + b_1\,Y_{t-1} + b_2\,Y_{t-1} + \ldots + b_N\,Y_{t-k} + u_t}$, $\mathbf{u_t} \sim$ IID $\mathbf{(0, \Omega)}$ (4)

In equation (4), $\mathbf{Y}_t = (Y_{1,t}, Y_{2,t}, \ldots Y_{N,t})'$

$\mathbf{a} = (a_1, a_2, \ldots a_N)'$

downright bj $= \begin{bmatrix} b_{11,j} & b_{12,j} & \ldots & b_{1N,j} \\ b_{21,j} & b_{22,j} & \ldots & b_{2N,j} \\ \vdots & \vdots & \ddots & \vdots \\ b_{N1,j} & b_{N1,j} & \ldots & b_{NN,j} \end{bmatrix}$, j = 1,2, . . .k

$\mathbf{u}_t = (u_{1,t}, u_{2,t}, \ldots u_{N,t})'$,

$\mathbf{Y}_t$ is the column vector of Nx1 ranks of the time series, u is the coefficient column vector of Nx1 ranks, $a_1, a_2, \ldots a_k$ is the NxN degree parameter matrix, $\mathbf{u}_t \sim$ IID $\mathbf{(0, \Omega)}$ is a column vector of Nx1 ranks of random errors, every factor being not autocorrelated. However, the corresponding random errors may be auto-correlated in different equations. On the right of each equation of the VAR model, there are lags of endogenous variables that are not correlated with $\mathbf{u}_t$. Therefore, consistent estimates for parameters with the OLS method for each equation can be obtained.

Granger Causality: The Granger causality test is based on the idea that the cause occurs before the effect, hence if Y_2 is the cause of another event Y_1, then Y_2 should proceed Y_1 (Granger, 1969). More specifically, a variable Y_2 is said to 'Granger-cause' a variable Y_1 if past and present values of Y_2 contain information that helps predict the future value of Y_1 better than using the information contained in the past and present values of Y_1 alone. A Generalization in a multivariate context can be obtained by considering a mx1 vector $y_t = (y'_{1t}, y'_{2t})'$, where y_{1t} and y_{2t} are m_1x1 and m_2x1, ($m_1 + m_2 = m$) variables. Partition the system of equations into two sub-systems:

$$\mathbf{Y}1 = \mathbf{G}1\mathbf{A}11 + \mathbf{G}2\mathbf{A}12 + \mathbf{U}1,$$
$$\mathbf{Y}2 = \mathbf{G}1\mathbf{A}21 + \mathbf{G}2\mathbf{A}22 + \mathbf{U}2 \quad (5)$$

Where $\mathbf{Y}_1$ and $\mathbf{Y}_2$ are T x m1 and T x m2 matrices of observations $Y_{1,t}$ and $Y_{2,t}$, respectively. $\mathbf{G}_1$ and $\mathbf{G}_2$ are the T x pm_1 and T x pm_2 matrices of observations on the k lagged values of $Y_{1,t-k}$, and $Y_{2,t-k}$, for t= 1,2,… T, and k= 1,2, … k, respectively. The process $Y_{2,t}$ does not Granger-cause $Y_{1,t}$ if the m_1m_2p restrictions $\mathbf{A}_{12} = \mathbf{0}$ hold. The null hypothesis of the Granger causality test is Y_2 does not Granger-cause Y_1, while the alternative hypothesis for this test is Y_2 Granger-cause Y_1. A p-value lower than 0.05 will indicate a rejection of the null hypothesis at a 5% significance level.

4. Results and Discussion

In this section, we discuss the empirical results. Firstly, we proceed with the descriptive statistics for the variables used in this study.

Descriptive Statistics: Figure 1 displays the number of tourist arrivals to Malaysia from the year 2010 until the year 2020. We can learn from Figure 1 that the number of tourists coming to Malaysia has been steadily increasing and decreased from approximately around 24 million to 27 million between the years 2010 to the year 2019 before it experienced a sudden drop of more than 80% from 26.1 million tourists as a result of Covid-19 pandemic.

Figure 1: Number of Tourist Arrivals to Malaysia[3]

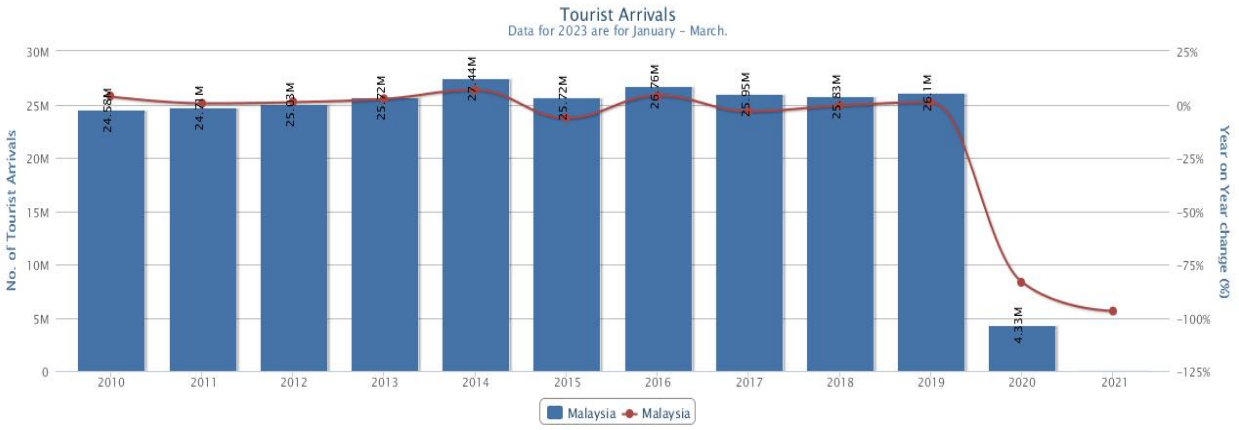


Table 1 reports the descriptive statistics for variables used in this study. Statistics show that between 2010 and 2020, an average of 4.53 million foreign tourists will visit Malaysia per quarter. The number of tourists could be as low as 1.03 million or as high as 6.08 million. Also, during the same time period, the percentage of foreign debt to GDP (FDS) was 58.51%, with a standard deviation of 6.59%. Malaysia has an average foreign debt service number of 16.45% in terms of foreign debt service (FDS). The ICRG guide says that the average FDS ratio in Table 1 is a high-risk component, while the DSS ratio is in the range of very low risk.

Table 1: Descriptive Statistics

VARIABLES	MEAN	MINIMUM	MAXIMUM	STD.DEV	SKEWNESS	KURTOSIS
TA[b]	4,535,494	1,037,285	6,085,523	1,376,730	-.88	2.69
FDS[c]	58.51	47.16	74.81	6.59	0.57	2.71
DSS[d]	16.45	9.56	30.83	4.92	0.83	3.32
EX[e]	108.57	98.36	119.56	7.18	0.14	1.36

[3] Source: Tourism Malaysia with the cooperation of Immigration Department

IP[f]	2.82	-17.26	6.41	3.74	-3.94	22.04
EM[g]	15.35	5.06	30.87	5.18	0.99	4.19

Notes: TA, FDS, DSS, EX, IP, and EM variables in this table represents the tourist arrivals data, foreign debt service, debt service stability, effective exchange rate, industrial production, and trade openness, respectively.
TA is the number of tourist arrivals per quarter.
FDS denotes the ratio of foreign debt as a percent of GDP. The unit is in percent.
DSS denotes the ratio of foreign debt service as a percentage of exports in goods and services. The unit is in percent.
EX represents the effective exchange rate index. The unit is index 2020=100.
IP is the industrial production per quarter. The unit is in percent.
EM denotes the ratio of exports to imports per quarter. The unit is in percent.

Correlation Matrix: The results of the correlation matrix in Table 2 show that tourism is negatively correlated with FDS, DDS, and EM. However, the correlation between tourism and industrial production and the effective exchange rate is 0.22 and 0.23, respectively. As no substantial inference can be made based on the results of the correlation matrix, the subsequent section of this paper presents the econometric model and the analysis thereof.

Table 2: Correlation Matrix

VARIABLES	TA	FDS	DSS	EX	IP	EM
TA	1.00					
FDS	-0.28*	1.00				
DSS	-0.38**	0.63***	1.00			
EX	0.23	-0.04	0.24	1.00		
IP	0.22	0.10	0.02	-0.01	1.00	
EM	-0.22	-0.37**	-0.37**	-0.15	-0.28**	1.00

Notes: TA, FDS, DSS, EX, IP, and EM variables in this table represent the log tourist arrivals data, foreign debt service, debt service stability, effective exchange rate, industrial production, and trade openness, respectively.
***, **, and * indicate the results are significant at 1%, 5%, and 10% level, respectively.

Unit Root Tests: Before testing the relationship between financial risks and tourist arrivals to Malaysia, this study applies the augmented Dickey-Fuller (ADF) and the Phillips-Perron (PP) unit root tests to determine the stationarity of variables. Table 3 illustrates the results of these tests that consistently record that all series are integrated of *I* (1). As the variables are integrated into *I* (1), the subsequent analyses are conducted using the first differences for all series.

Table 3: ADF and PP Unit Root Test Results

Variables at level	ADF test statistic	Results	PP test statistic	Results
TA	-2.291	Non-stationary	-2.307	Non-stationary
	(0.1748)		(0.1696)	
FDS	-2.686	Non-stationary	-2.649	Non-Stationary
	(0.0764)		(0.0833)	
DDS	-3.506	Stationary	-3.469	Stationary
	(0.0078)		(0.0088)	
EX	-1.138	Non-stationary	-1.127	Non-stationary
	(-1.138)		(0.7042)	
IP	-5.976	Stationary	-5.981	Stationary
	(0.0000)		(0.0000)	
EM	-3.377	Stationary	-3.202	Stationary
	(0.0118)		(0.0199)	
Variables in the first differenced form	**ADF test statistic**	**Results**	**PP test statistic**	**Results**

dTA	-5.093 (0.0000)	Stationary	-5.102 (0.0000)	Stationary
dFDS	-6.880 (0.0000)	Stationary	-7.120 (0.0000)	Stationary
dDDS	-8.717 (0.0000)	Stationary	-10.469 (0.0000)	Stationary
dEX	-6.004 (0.0000)	Stationary	-6.007 (0.0000)	Stationary
dIP	-13.639 (0.0000)	Stationary	-13.522 (0.0000)	Stationary
dEM	-7.268 (0.0000)	Stationary	-8.502 (0.0000)	Stationary

Notes: dTA, dFDS, dDDS, dEX, dIP and dEM are the first differenced variables of log TA, log FDS, log DDS, log EX, log IP, and log EM. Values in parentheses show the p-value for each t-value obtained in ADF and PP unit root tests.

Optimal Lag and Vector Autoregression (VAR) Model: Table 4 presents the results for optimal lag selection. We run the VAR Model to select the optimum lag order. Based on the Akaike Information Criterion (AIC), the optimal lag suggested is 2. After determining the optimal lag, we explore the relationship between the lagged variables for studied independent and dependent variables. Table 5 presents the parameters obtained from the VAR model between TA, FDS, DSS, EX, IP and EM variables. The results in the Model 1 column show that there is a significant relationship between the current value TA with TA (-1), TA (-2), FDS (-2), EX (-2) and IP (-1). This shows that the current values of tourist arrivals can be partly explained by the values of tourist arrivals in the past, the stability of foreign debt, the effective exchange rate, and the level of industrial production. Findings obtained remain robust when the DSS variable is added to the model. The modulus of each eigenvalue for Model 1 and Model 2 are both less than 1, which indicates that the estimates satisfy the eigenvalue stability condition. The stability of the estimated VAR models is shown in Figure 2-1 and Figure 2-2 which visually indicates that the eigenvalues of Model 1 and Model 2 are well inside the unit circle. Given these results, it will allow us to analyze the impulse response and variance decomposition for estimating tourist arrivals to Malaysia.

Table 4: Optimal lag selection (TA, FDS, DDS, EX, IP, EM)

Lag	LR	FPE	AIC	HQ	SC
0	NA	7.3e-10	-4.01164	-3.91978*	-3.74228*
1	84.76	5.2e-10*	-4.38694	-3.74393	-2.50144
2	77.453*	5.5e-10	-4.54732*	-3.35316	-1.04567

Note: * Optimal lag.

Table 5: VAR Model Estimation Results for Estimating Tourist Arrivals in Malaysia

Variables	Model 1	Model 2
TA(-1)	-.4532907*** (0.009)	-.3874001** (0.019)
TA(-2)	-.5548198*** (0.007)	-.5440328*** (0.004)
FDS(-1)	-.4991266 (0.372)	-1.022108* (0.064)
FDS(-2)	-2.367858*** (0.000)	-2.478976*** (0.000)
DSS(-1)		.3180835** (0.038)
DSS(-2)		-.0489271 (0.760)
EX(-1)	1.979415 (0.373)	3.109267 (0.132)

EX(-2)	5.143282***	3.892883**
	(0.004)	(0.024)
IP(-1)	.1112216**	.1133053***
	(0.013)	(0.008)
IP(-2)	.054943	.0684681*
	(0.155)	(0.056)
EM(-1)	-.1279267	-.0577761
	(0.327)	(0.637)
EM(-2)	.1550033	.1313558
	(0.195)	(0.280)
Constant	.0571719	.0548409*
	(0.112)	(0.094)
R-square	0.4221	0.5218
LM test	23.0006	35.7397
	(0.57753)	(0.48087)

Notes: Lagged 1 and Lagged 2 variables were indicated with (-1) and (-2), respectively. ***, **, and * indicate that the finding of the VAR model is significant at 1%, 5%, and 10% level, respectively. The P-value for the Lagrange-multiplier (LM) test above 0.05 indicates failure to reject the null hypothesis of no autocorrelation at the observed lag order.

Figure 2: VAR Stability Conditions

Figure 2-1: VAR Stability Conditions for Model 1

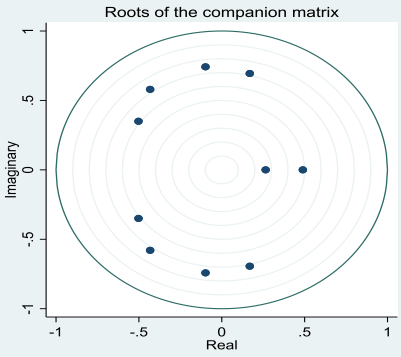
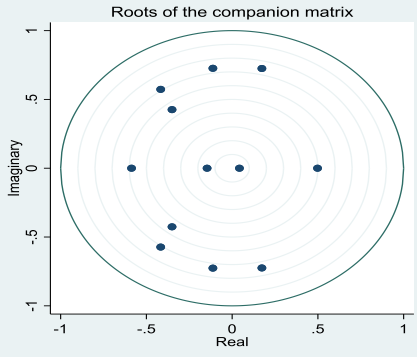


Figure 2-2: VAR Stability Conditions for Model 2



Granger Causality Test: The causality analysis of the relationship between TA, FDS, DSS, EX, IP and EM based on the VAR Model is reported in Table 6. The direction of causality will provide further information for policymakers about the nature of interconnectedness between variables in the Malaysian tourism context. Understanding the causality direction will allow us to understand what should be focused on in shifting or reforming the existing policy structures. Based on the p-value of the test statistics, we can say that there is unidirectional Granger causality from FDS to TA, DSS to TA, and IP to TA. Moreover, we also found a bidirectional Granger causality from EX to TA, and from TA to EX. Such finding adds further evidence to the significance of financial risk factors in the tourism demand model in the context of Malaysia, besides tourist price (Kusni et al., 2013), tourist income (Tan & Soon, 2023), human and technological factors (Nilashi et al., 2019). In addition, the bidirectional causality observed for EX and TA variables contradicts the findings obtained by Tang (2013) who shows a unidirectional relationship running from exchange rate to tourism receipts in Malaysia. The difference in results could be justified by the difference in data coverage used in a prior study.

Tang (2013) used an annual sample of tourist arrivals from the year 1974 to the year 2009, while this study used quarterly data covering the years 2010 to 2020. The bidirectional causal impact between tourist arrivals and exchange rate can be seen in the findings of Odhiambo (2011) and Sharif & Afshan (2016) tourist arrivals estimation in Tanzania and France, respectively. This evidence suggests that appreciation and depreciation in

the visited country's currencies value will have effects on future tourist arrivals rate, and tourist arrivals rate will also determine the future value of the visited country's currencies value. The observed relationships between foreign debt level, foreign debt service, and tourist arrivals in this study could be further elaborated using the Theory of Planned Behavior (TPB). In this context, individuals' positive or negative reactions toward the economic conditions of a country are shaped by their beliefs about how the economic instability is going to affect their tourism decisions. If the tourists believe that a high level of foreign debt indicates economic instability and increases the risk of a financial crisis, they might be more reluctant to visit the country due to their concerns over travel costs, access to services, and overall experience during the visit.

Table 6: Direction of Causality based on Short-Run (Wald Test Statistics)

	Dependent Variables					
	dTA_t	**$dFDS_t$**	**$dDSS_t$**	**dEX_t**	**dIP_t**	**dEM_t**
Independent Variable						
$\sum dTA_{t-2}$	NA	2.3835 (0.3040)	4.6807* (0.0960)	8.8701** (0.0120)	3.1958 (0.2020)	14.26*** (0.0010)
$\sum dFDS_{t-2}$	18.42*** (0.0000)	NA	12.822*** (0.0020)	0.16444 (0.9210)	1.3452 (0.5100)	10.153*** (0.0060)
$\sum dDSS_{t-2}$	7.0848** (0.0290)	0.51359 (0.7740)	NA	4.3952 (0.1110)	0.11127 (0.9460)	5.1877* (0.0750)
$\sum dEX_{t-2}$	7.5202** (0.0230)	4.2302 (0.1210)	3.3124 (0.1910)	NA	0.20205 (0.9040)	3.2665 (0.1950)
$\sum dIP_{t-2}$	7.1624** (0.0280)	0.146 (0.9300)	1.6731 (0.4330)	7.744** (0.0210)	NA	3.1252 (0.2100)
$\sum dEM_{t-2}$	1.4652 (0.4810)	0.96238 (0.6180)	1.8921 (0.3880)	0.55777 (0.7570)	4.8918* (0.0870)	NA

Notes: dTA, dFDS, dDDS, dEX, dIP and dEM are the first differenced variables of log TA, log FDS, log DDS, log EX, log IP, and log EM. The optimal lag is determined by the AIC criterion which justifies the "t-2" indicator in the table. Values in parentheses show the p-value obtained in the Granger Causality test.

Impulse Response and Variance Decomposition Analyses: After establishing the unidirectional causality relation from FDS and DSS to TA, we use the structural VAR impulse response function to demonstrate how tourism in Malaysia reacts to shock in financial risk measures. Figure 3-1 and Figure 3-2 report the VAR impulse response function results of the responses of TA to a shock in FDS and DSS, respectively. The impulse response findings reveal that in the initial stages, a one standard deviation shock on foreign debt stability hurts the tourist arrivals rate. We can see that after two periods (two quarters), the tourist arrivals rate decreases by -1.5%. After that, the tourist arrivals rate adjusted upward and downward by ±0.5%, before it moved back to the initial values after 10 periods. The results obtained for DSS (Figure 3-2); The tourist arrivals rate increases by 2.5% in the first period when there is a 1% standard deviation shock in DSS. Subsequently, starting from the second period, the response of TA to a shock in DSS fluctuates.

Before it becomes consistently stable after the first 10 periods are reached. Figure 4-1 and Figure 4-2 also report through the variance decomposition method that the response of TA to a shock in FDS and DSS becomes stable in the long run. We can see that the changes in TA can be explained by FDS by up to 13% (Figure 4-1), and by DSS by up to 11% (Figure 4-2)[4]. These findings suggest that Malaysian tourism is also affected by the tourism risk perception on the financial risk level of the destination country. Malaysia has been using cultural shows as a site to display creative cultural production and ethnic diversity to tourists (Sarkissian, 1998). According to Cui (2016), the dominant factor influencing tourism risk perception towards destinations that use cultural tourism activities to attract tourists is the financial risk. This is aligned with the Travel Risks Framework as suggested by Quintal et al. (2010) and Björk and Kauppinen-Räisänen (2013) which include financial risk, functional, physical, social and psychological risks.

[4] The exact figures of changes in TA in response to changes in FDS and DSS were obtained from Variance Decomposition table generated in Stata.

Figure 2: Impulse Response of the Tourist Arrivals

Figure 3-1: Impulse Response of TA to FDS

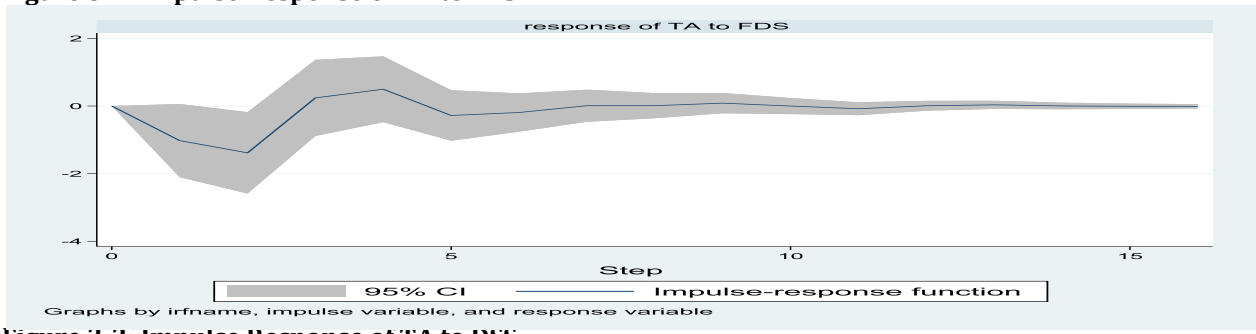


Figure 3-2: Impulse Response of TA to DSS

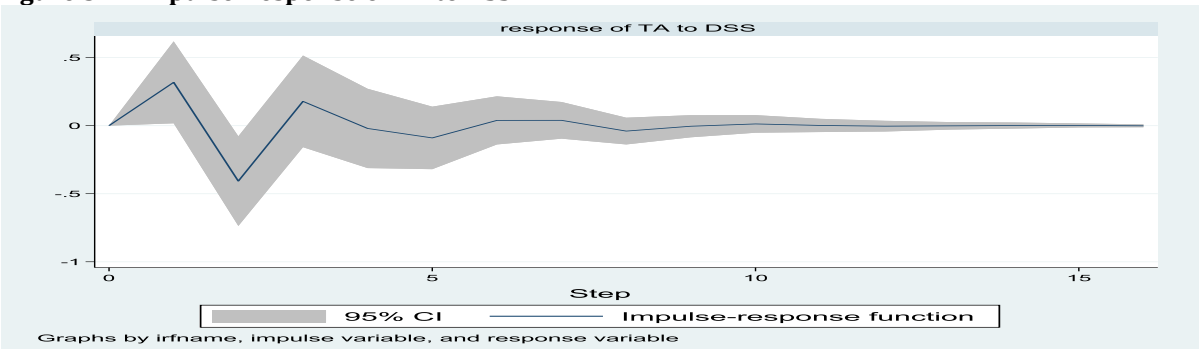


Figure 4: Variance Decomposition of the Tourist Arrivals

Figure 4-1: Variance Decomposition of TA due to FDS

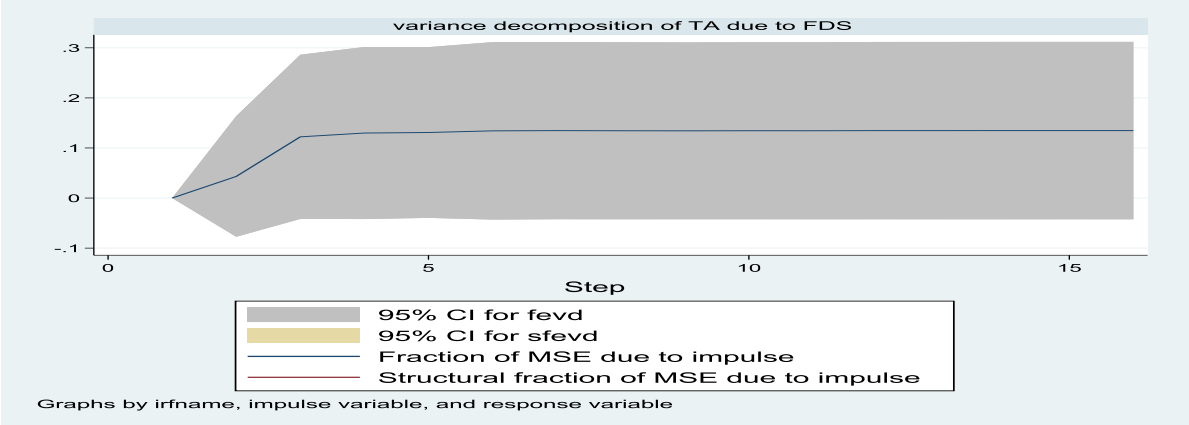
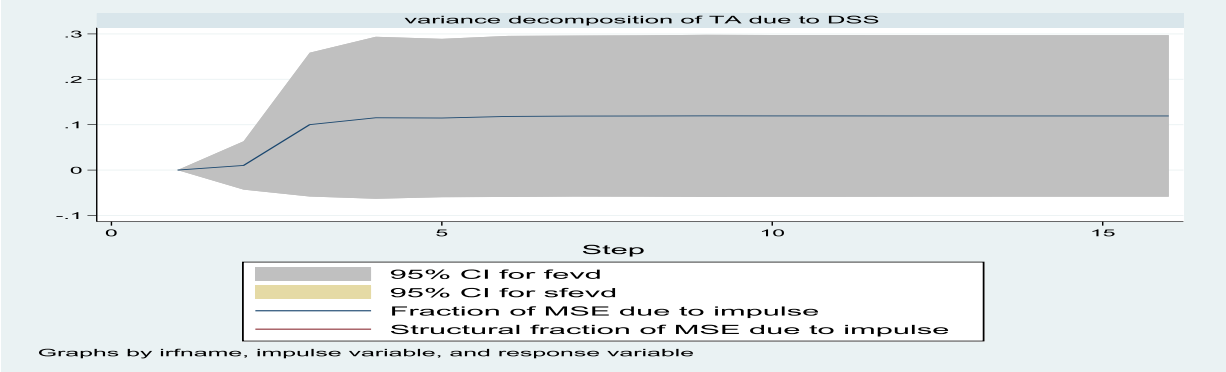


Figure 4-2: Variance Decomposition of TA due to DSS



5. Research Findings Implications and Recommendations

As society and the economy grow, people's standards of living rise, increasing leisure time. This makes the tourism industry grow quickly. With increasing people's travel time and greater tourism space, two aspects have gained greater importance, which include travel safety and travel risk. Tourists' perception of the travel risk will determine their travel behavior, which will influence their decisions on travel motivation, travel destination, and mode of travel. In driving Malaysia's economic growth and development, policymakers should pay greater attention to promoting inbound tourism. With a better understanding of the impact of financial risk on tourist arrivals, one can identify how such risk can affect the expectations of tourists before, during, or even after the tourism consumption process.

This study found that the stability of Malaysia's foreign debt and its ability to pay its debts do affect the number of tourists who visit. This shows that visitors are worried about financial risks when making travel decisions. Higher financial risk has hurt the number of tourists coming to a country for at least the first five quarters after a financial risk shock. These results can help us understand how important it is to include financial risk factors in the timing of risk prevention and strategies for tourists. They can also help Malaysia figure out which resources to use to build up the tourism industry during times when financial risk is high.

The limitation of this study lies in the limited variables used to measure the financial risk level of the visited country. Thus, the results of this study are only based on a small part of the vast literature on risk in tourism. In a future study, it might be a good idea to include relevant and appropriate measures of financial risk along with more recent data to see if the results of the study change based on the financial risk context. Future studies can also look at how well the proposed framework works to explain the different types of financial risk measures that can be used to predict the number of tourists who will visit in the future.

Conclusion: This study empirically investigated the effects of foreign debt stability and debt service stability, the effective exchange rate, industrial production level, and trade openness on tourism in Malaysia using quarterly data sets from January 2010 to December 2020. The analysis begins with the application of ADF and PP unit root tests, followed by the establishment of VAR models to determine the impact of past variable values on another variable. The Granger causality analysis confirms the findings in VAR based on a unidirectional causality running from foreign debt stability, debt service stability, and industrial production to tourist arrivals. In addition, there is also a bidirectional causality from the effective exchange rate to tourist arrivals and from tourist arrivals to the effective exchange rate.

Acknowledgment: We would like to express our sincere gratitude to the Faculty of Business and Management, Universiti Teknologi Mara for the research grant funding. This research was supported by the Faculty of Business and Management, Universiti Teknologi Mara. Grant Number: 600-TNCPI 5/3/DDF (FPP) (011/2022).

References

Adedoyin, F. F., Seetaram, N., Disegna, M. & Filis, G. (2023). The effect of tourism taxation on international arrivals to a small tourism-dependent economy. *Journal of Travel Research*, 62(1), 135-153.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control: From cognition to behavior* (pp. 11-39). Berlin, Heidelberg: Springer Berlin Heidelberg.

Alavion, S. J., Allahyari, M. S., Al-Rimawi, A. S. & Surujlal, J. (2017). Adoption of agricultural E-marketing: Application of the theory of planned behavior. *Journal of international food & agribusiness marketing*, 29(1), 1-15.

Antonakakis, N., Dragouni, M. & Filis, G. (2015). Tourism and growth: The times they are a-changing. *Annals of Tourism Research*, 50, 165-169.

Björk, P. & Kauppinen-Räisänen, H. (2013). Destination countries' risk image as perceived by Finnish travelers. *Matkailututkimus*, 9(1), 21-38.

Bui, B. T. T. (2022). An evaluation of the new tourist behavior model based on the extended theory of planned behavior. *Journal of Tourism, Heritage & Services Marketing (JTHSM)*, 8(2), 48-57.

Campos-Soria, J. A., Inchausti-Sintes, F. & Eugenio-Martin, J. L. (2015). Understanding tourists' economizing strategies during the global economic crisis. *Tourism Management*, 48, 164-173.

Cetin, G., Alrawadieh, Z., Dincer, M. Z., Istanbullu Dincer, F. & Ioannides, D. (2017). Willingness to pay for tourist tax in destinations: Empirical evidence from Istanbul. *Economies*, 5(2), 21.

Chien, G. C., Yen, I. Y. & Hoang, P. Q. (2012). Combination of the theory of planned behavior and motivation: An exploratory study of potential beach-based resorts in Vietnam. *Asia Pacific Journal of Tourism Research*, 17(5), 489-508.

Cui, F., Liu, Y., Chang, Y., Duan, J. & Li, J. (2016). An overview of tourism risk perception. *Natural Hazards*, 82, 643-658.

Daellenbach, K., Parkinson, J. & Krisjanous, J. (2018). Just how prepared are you? An application of marketing segmentation and theory of planned behavior for disaster preparation. *Journal of nonprofit & public sector marketing*, 30(4), 413-443.

Dickey, D. A. & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74(366a), 427-431.

Durbarry, R. (2008). Tourism taxes: Implications for tourism demand in the UK. *Review of Development Economics*, 12(1), 21-36.

Esquivias, M. A., Sugiharti, L., Rohmawati, H. & Sethi, N. (2021). Impacts and implications of a pandemic on tourism demand in Indonesia. *Economics & Sociology*, 14(4), 133-150.

Ferdous, A. S. (2010). Applying the theory of planned behavior to explain marketing managers' perspectives on sustainable marketing. *Journal of International Consumer Marketing*, 22(4), 313-325.

Ghosh, S. (2022). Geopolitical risk, economic growth, economic uncertainty and international inbound tourism: An Indian illustration. *Review of Economics and Political Science*, 7(1), 2-21.

Godin, G. & Kok, G. (1996). The theory of planned behavior: a review of its applications to health-related behaviors. *American journal of health promotion*, 11(2), 87-98.

Gooroochurn, N. & Sinclair, M. T. (2005). Economics of tourism taxation: Evidence from Mauritius. *Annals of Tourism Research*, 32(2), 478-498.

Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. Econometrica: Journal of the Econometric Society, 424-438.

Granger, C. W. & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics*, 2(2), 111-120.

Hang, T. T. B., Nhung, D. T. H., Huy, D. T. N., Hung, N. M. & Pham, M. D. (2020). Where Beta is going–case of Viet Nam hotels, airlines 0and tourism company groups after the low inflation period. *Entrepreneurship and Sustainability Issues*, 7(3), 2282.

Hateftabar, F. & Chapuis, J. M. (2020). How resident's perception of economic crisis influences their perception of tourism. *Journal of Hospitality and Tourism Management*, 43, 157-168.

Ho, S. S., Liao, Y. & Rosenthal, S. (2015). Applying the theory of planned behavior and media dependency theory: Predictors of public pro-environmental behavioral intentions in Singapore. *Environmental Communication*, 9(1), 77-99.

International Monetary Fund. (2021, Dec 15). Global Debt Reaches a Record $226 Trillion. *IMF Blog.* https://www.imf.org/en/Blogs/Articles/2021/12/15/blog-global-debt-reaches-a-record-226-trillion

Irani, F., Katircioglu, S. & Gokmenoglu, K. K. (2021). Effects of business and finance conditions on tourism firms' financial performances: evidence from major tourist destinations. *Sage Open*, 11(3), 21582440211040120.

Jain, S., Khan, M. N. & Mishra, S. (2017). Understanding consumer behavior regarding luxury fashion goods in India based on the theory of planned behavior. *Journal of Asia Business Studies*, 11(1), 4-21.

Khalid, U., Okafor, L. E. & Shafiullah, M. (2020). The effects of economic and financial crises on international tourist flows: A cross-country analysis. *Journal of Travel Research*, 59(2), 315-334.

Kusni, A., Kadir, N. & Nayan, S. (2013). International tourism demand in Malaysia by tourists from OECD countries: A panel data econometric analysis. *Procedia Economics and Finance*, 7, 28-34.

Laroche, M., McDougall, G. H., Bergeron, J. & Yang, Z. (2004). Exploring how intangibility affects perceived risk. *Journal of Service Research*, 6(4), 373-389.

Lau, E., de Alba, J. M. & Liew, K. H. (2022). Debt and economic growth in Asian developing countries. *Economic Analysis and Policy*, 76, 599-612.

Lee, K. J. & Choi, S. Y. (2023). A comparative wavelet analysis of the differential sensitivities of leisure and business travel to geopolitical risks and economic policy uncertainty: A study of inbound travel to South Korea. *Journal of Hospitality and Tourism Management*, 55, 202-208.

Makoni, T., Mazuruse, G. & Nyagadza, B. (2023). International tourist arrivals modeling and forecasting: A case of Zimbabwe. *Sustainable Technology and Entrepreneurship*, 2(1), 100027.

Nilashi, M., Samad, S., Manaf, A. A., Ahmadi, H., Rashid, T. A., Munshi, A. & Ahmed, O. H. (2019). Factors influencing medical tourism adoption in Malaysia: A DEMATEL-Fuzzy TOPSIS approach. *Computers & Industrial Engineering*, 137, 106005.

Odhiambo, N. M. (2011). Tourism development and economic growth in Tanzania: Empirical evidence from the ARDL-bounds testing approach. *Economic Computation and Economic Cybernetics Studies and Research*, 45(3), 71-83.

Ponjan, P. & Thirawat, N. (2016). Impacts of Thailand's tourism tax cut: A CGE analysis. *Annals of Tourism Research*, 61, 45-62.

Portella-Carbó, F., Pérez-Montiel, J. & Ozcelebi, O. (2023). Tourism-led economic growth across the business cycle: Evidence from Europe (1995–2021). *Economic Analysis and Policy*, 78, 1241-1253.

Quintal, V. A., Lee, J. A. & Soutar, G. N. (2010). Risk, uncertainty and the theory of planned behavior: a tourism example. *Tourism Management,* 31(6), 797-805. doi: 10.1016/j.tourman.2009.08.006

Roehl, W. S. & Fesenmaier, D. R. (1992). Risk perceptions and pleasure travel: An exploratory analysis. *Journal of Travel Research*, 30(4), 17-26.

Saint Akadiri, S., Eluwole, K. K., Akadiri, A. C. & Avci, T. (2020). Does causality between geopolitical risk, tourism and economic growth matter? Evidence from Turkey. *Journal of Hospitality and Tourism Management*, 43, 273-277.

Sann, R., Jansom, S. & Muennaburan, T. (2023). An extension of the theory of planned behavior in Thailand cycling tourism: The mediating role of the attractiveness of sustainable alternatives. Leisure Studies, 1-15.

Sarkissian, M. (1998). Tradition, tourism, and the cultural show: Malaysia's diversity on display. *Journal of Musicological Research*, 17(2), 87-112.

Seshadri, U., Kumar, P., Vij, A. & Ndlovu, T. (2023). Marketing strategies for the tourism industry in the United Arab Emirates after the COVID-19 era. *Worldwide Hospitality and Tourism Themes*, 15(2), 169-177.

Sharif, A. & Afshan, S. (2016). Tourism development and real effective exchange rate revisited by wavelet-based analysis: Evidence from France. *Journal of Finance and Economics Research*, 1(2), 101-118.

Tan, C. Y. & Soon, S. V. (2023). Tourism demand for Malaysia: Further evidence from panel approaches. Asia Pacific Management Review.

Tang, C. F. (2013). Temporal Granger causality and the dynamics relationship between real tourism receipts, real income and real exchange rates in Malaysia. *International Journal of Tourism Research*, 15(3), 272-284.

Thompson, H. (2017). Tourism and income in Greece: A market solution to the debt crisis. *Athens Journal of Tourism*, 4, 97-110.

Xu, X. L., Sun, C., Li, Y. & Zhou, N. (2020). The effects of environmental management and debt financing on sustainable financial growth in the tourism industry. *SAGE Open*, 10(3), 2158244020948530.

Yang, Y., Zhang, H. & Chen, X. (2020). Coronavirus pandemic and tourism: Dynamic stochastic general equilibrium modeling of infectious disease outbreak. *Annals of tourism research*, 83, 102913.

Zhang, H., Jiang, Z., Gao, W. & Yang, C. (2022). Time-varying impact of economic policy uncertainty and geopolitical risk on tourist arrivals: Evidence from a developing country. *Tourism Management Perspectives*, 41, 100928.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Does Financial Development and Corruption reduce the level of Income Inequality? Evidence from Malaysia

Norhasimah Shaharuddin[1*], Mohd Hafiz Abd. Wahab[2], Nik Rozila Nik Masdek[3], Norzitah Abdul Karim[4], Bushra Mohd Zaki[5] & Salwaty Jamaludin[6]
[1,3,4,5&6] Faculty of Business Management, UiTM Puncak Alam, Malaysia
[2]Academy of Contemporary Islamic Studies (ACIS), UiTM Shah Alam, Malaysia
*shimasaha@uitm.edu.my, hafiz313@uitm.edu.my, nik_rozila@uitm.edu.my, norzitah@uitm.edu.my, bushra@uitm.edu.my, salwatyjamaludin@uitm.edu.my

Abstract: Income inequality is an enduring issue and an important one to address, especially in the new era of digital transformation, as it is a crucial element in promoting persistent income inequality. The theory is that while financial development promotes economic growth, the mixed explanations of previous studies show that this does not always help low-income people in emerging economies. Moreover, the effects of globalization may reinforce motives and increase opportunities for international corrupt practices. It is, therefore, crucial to explore how corruption can be motivated by ineffective rules governing cross-border crimes and how technology can open up new avenues for corrupt behavior, for example by making it easier to find victims, accomplices and money. Profound socio-economic changes can also provide incentives and opportunities for corruption. This study examines how corruption and financial development affect the wealth gap in a developing country like Malaysia over the period 1995 to 2021. The empirical results show that financial development has a positive impact on income inequality. Moreover, the result also shows that corruption control is an insignificant determinant of per capita income in Malaysia. Even though the growth of the financial sector has led to a variety of outcomes, it has only helped to reduce income inequality. Income inequality is negatively and significantly affected by the interaction between financial development and anti-corruption. It is therefore important to promote financial development, prevent corruption and increase government transparency as these factors can promote sustainable economic development and resilience.

Keywords: *Financial development, Corruption, Income Inequality, Malaysia.*

1. Introduction and Background

Malaysia's economy has recently made great strides in reducing poverty, but income distribution has yet to stabilize. Malaysia has always been concerned with issues of income inequality. First, there is the problem of ethnic inequality, which existed long before Malaysia became independent. Secondly, after the violent ethnic riots in May 1969, economic policies were changed to focus on growth and a more equal distribution of wealth among ethnic groups, especially the Malays. Economic inequality in Malaysia peaked in 1976 before declining until 1990. According to Shari (2000) and Law & Tan (2009), the general development policy of the New Economic Policy (NEP) influenced the economy from 1971 to 1990. The general development policy implemented under the New Economic Policy (NEP) 1971-1990 had a major impact on reducing income inequality in Malaysia. However, since 1990, a trend of increasing income inequality has been observed.

Shari (2000) stated that the reversal of government policies towards liberalization, deregulation and privatization since the late 1980s has contributed to this trend of increasing inequality. Ragayah et al. (2000) also examined the hypothesis that rising income inequality in the 1990s was the result of the shift in industrialization from labor-intensive to capital- and technology-intensive. During the period 1991-2000, the economy was driven by the National Development Policy (NDP), which aimed to maximize economic growth through policies that allowed the free play of market mechanisms and the active participation of the private sector (Economic Planning Unit). The main objective of the NDP was to sustain economic progress to achieve the status of a fully developed nation by 2020, as envisaged in the Vision 2020 long-term plan. These policy reforms were accompanied by the role of the private sector in the market to improve investment efficiency and productivity. It is argued that the imbalance in income inequality was caused by wage rates.

The wages of skilled workers are rising much faster than those of unskilled workers. Based on the new economic and political study, the theme for Budget 2023 is “Membangun Malaysia Madani” (Developing a

Civil Malaysia). Recently, the term "Malaysia Madani" has been declared the concept of the nation and the vision of the unity government to promote progress towards the heights of civilization. The country's course has gone off track in the past in the implementation of many projects and efforts are being made to correct this. This slogan is also the government's response to problems such as pervasive corruption, government censorship, financial mismanagement and social division. These problems are deeply rooted in Malaysian society and need to be addressed as soon as possible to stop the weeds of economic, political and social stagnation from spreading. More than 60% of the 156 investigations launched by the Malaysian Anti-Corruption Commission's (MACC) Special Operations Branch (BOK) into public interest cases between 2020 and 8 June this year involved politicians. The objective of this study is to empirically examine the relationship between financial development and corruption on income inequality in Malaysia using the OLS approach with robust clusters and the interaction term.

In addition, this paper tests two hypotheses from the literature on financial inequality and the relationship between corruption and income inequality. Law and Tan's (2009) hypothesis on widening inequality in finance state that financial development benefits the rich and well-connected; while the hypothesis on reducing inequality states that the poor gain more access to the financial sector as it grows. We have also introduced interaction variables in this analysis, namely financial development and corruption controls, to more comprehensively examine the consequences of the availability of corruption controls in a country. By combining the ideas of rapid expansion of financial development and corruption control, this paper also tests the “too much finance” hypothesis, which focuses on a non-linear relationship, as the latter is necessary but not sufficient to reduce inequality. Previous literature has also shown that financial development is important for income distribution and poverty reduction (Claessens and Perotti, 2007; Demirguc-Kunt and Livine, 2009). Based on this evidence, we assume that financial development not only benefits people who are already rich but also facilitates additional access benefits. These facilitators enable investors to take advantage of new investment opportunities arising from improved access to financial services and new communication technologies.

At the same time, the control of corrupt institutions and transparency are crucial for an equitable distribution of income in the country. Therefore, it is important to further analyze the relationship between financial development and income inequality in the different dimensions of emerging economies. Studies on the relationship between financial development and income inequality should be continued with respect to a country, as economic differences indirectly lead to a phase difference in financial development and economic prosperity. Therefore, it is important to focus on the high technology era and improve government measures to control the corrupt economy to re-evaluate the relationship between financial development and income inequality and ensure the well-being of society. The study of the relationship between financial development and income inequality has been the subject of extensive theoretical and empirical research, as understanding the relationship between income inequalities is a concern in every society. Developments in globalization can increase the motivation for transnational corrupt schemes and multiply the opportunities. It is important to explore how the lack of effective controls on transnational crimes can foster corruption and how technology provides new opportunities for corrupt practices, for example, by allowing easier access to money, accomplices and victims. Profound socio-economic developments can also provide incentives and opportunities for corruption.

2. Literature Review

According to Levine (2005), financial development refers to improvements in the nature, number and effectiveness of financial intermediaries. As a result, low-productivity firms can obtain external finance to enter the market (Rajan and Zingales 2003a; von Ehrlich and Seidel 2015). This is because greater financial depth helps to lower agency costs. One of the economists, Simon Kuznets, noted that the degree of economic inequality is mainly a product of different levels of development. Traditionally, the relationship between development and income inequality was first analyzed by Kuznets, who found that high development spending increases income inequality in the short run, but in the long run, development spending reduces income inequality (Kuznets, 1955). Kuznets claims that the distribution of wealth in underdeveloped countries is comparatively equitable. As a country’s economy develops, more capital is accumulated, increasing the wealth and income of owners and leading to inequality. Eventually, more developed countries

return to lower levels of inequality through various potential redistributive mechanisms, including social programs. The relationship between financial development and income inequality has been widely researched since the important contributions of Banerjee and Newman (1993), Galor and Zeira (1993) and Greenwood and Jovanovic (1990), with contradictory results.

One group of studies shows that the relationship between financial development and income inequality is not linear, supporting Greenwood and Jovanovic's (1990) suggestion that there is a hump-shaped or inverted U-shaped relationship between the two variables. According to this, income inequality initially increases with the development of the financial sector, but later decreases as more people gain access to this sector. Numerous theories on financial sector development and inequality have been put forward in this field, some of which were partly inspired by the studies described above. According to Shahbaz et al. (2017) and Ridzuan (2021), "the inequality widening hypothesis, the inequality narrowing hypothesis, and the inverted U-shape of inequality hypothesis" are the three most frequently cited theories on financial development and income inequality. In a related study, Kim and Lin (2011) pointed out that the benefits of financial development for income distribution only materialize once a country has reached a certain level of financial development. Below this crucial level, financial development harms the poor and worsens income inequality. This assumption is also contradicted by Tan and Law (2012), who examine the non-linear relationship between financial development and income inequality and speak of a U-shape rather than an inverted U-shape. This theory states that financial development up to a certain point benefits both the wealthy and the poor, but from that point on, any further growth would have a negative impact on the distribution of money.

If the threshold is exceeded, this shows the ineffectiveness of financial markets in reducing economic inequality. In addition, many scholars have recently become interested in studying the relationship between perceptions of corruption and financial markets and their impact on the financial system. Understanding how corruption affects financial markets is crucial, especially for developing countries. Corruption is defined differently by different people. The shortest definition of corruption is the abuse of public authority for personal gain (Park and Khanoi, 2017). According to another definition, corruption is the dishonest or illegal behavior of public authorities (Shumetie and Watabaji, 2019). The World Bank describes corruption as" "the use of public power for private interests" (World Bank, 2000). The impact of corruption is also reflected in the recent push by international policymakers and the international community for political and economic reforms, particularly in the financial sector, to address persistently low growth and high inequality in developing countries. The Corruption Perceptions Index 2022 (CPI) shows that most countries have failed in the fight against corruption. The Corruption Perceptions Index CPI ranks 180 countries and territories around the world on the perceived level of corruption in the public sector on a scale of 0 to 100, where 0 means that countries are very corrupt, while 100 means that there is no corruption activity in the countries at all.

Currently, Malaysia ranks in the middle with a score of 61, according to Transparency International. According to a study by Carolyn and Mduduzi (2022), financial development reduces inequality between developing and least developed countries but has no statistically significant impact on advanced countries. Meanwhile, emerging countries have much higher corruption rates compared to established countries Mirzayev (2023).

3. Research Methodology

This study focuses on time series data from 1995-2021, with most data coming from the World Bank. For the level of corruption, this study uses a proxy from the International Country Risk Guide (ICRG) corruption control variable, and for robustness, the William's Transparency Index (Index) is used as a measure of corruption control, while the macro data is from the World Bank database (World Bank). To measure financial development, this study used a proxy already used in the studies by Rousseau & Watchel (2011) and King & Livine (1993), where credit to the private sector was used as a proxy for financial development. Credit to the private sector is private credit that symbolizes the level of financial intermediaries and is the best measure of financial development (Hafer, 2016). This study also uses variables based on the study of Rousseau & Watchel (2011) and King & Livine (1993), i.e. variables such as inflation, trade openness and unemployment. All variables were transformed into natural logarithms, except for the corruption control

variable (ICRG). To test the relationship between financial development and corruption control on income inequality, the following log-linear equation specification is used:

$$lnGini_t = \alpha_0 + \beta_1 lfd_t + \beta_2 icrg_t + \beta_3 lninf_t + \beta_4 unem_t + \beta_5 lop_t + \varepsilon_t$$

This study also includes an interaction variable *(lfd*icrg)* to account for the impact of financial development and anti-corruption on income inequality. The interaction term between the variables means that the complementary role of anti-corruption in the relationship between financial development and inequality is captured based on this model:

$$lnGini_t = \alpha_0 + \beta_1 lfd_t + \beta_2 icrg_t + \beta_3 lfd * icrg_t + \beta_4 linf_t + \beta_5 lninf_t + \beta_6 lop_t + \varepsilon_t$$

To include the interaction term between variables, this study uses the Demean method introduced by Balli and Sorensen (2012), which takes the mean of X and then the minus value for each observation. This method is more reliable for interaction terms as it can reduce the collinearity problem between variables. The model implies the interaction term based on the Demean method as follows:

$$lnGini_t = \alpha_0 + \beta_1 lfd_t + \beta_2 icrg_t + \beta_3(lfd - \overline{lfd})(icrg - \overline{icrg}) + \beta_4 linf_t + \beta_5 unem_t + \beta_6 lop_t + \varepsilon_t$$

This study also uses the non-linear relationship. The literature states that the use of a linear methodological framework is not able to capture the exact form of the relationship under study. According to the theory of Kuznets (1955), income inequality in a growing economy may initially increase due to structural change and then decrease over time to a certain threshold.

The inverted U hypothesis finds application in understanding the relationship between economic freedom and income inequality. Due to market allocation, which favors high-income groups in the early stages of economic independence, income inequality may increase; however, as incomes rise and overall living standards increase, income inequality may decrease. In addition, the economies in the sample under study operate with different economic institutions and policies, are at different stages of development and consequently have different patterns of income inequality. According to this concept, the upper part of the income inequality is initially assumed to benefit from the growth process, but after reaching a certain growth point, these benefits may also reach the lower part of the same distribution (Bennett and Vedder, 2013). Hopkins and Blythe (2012) have found evidence of a non-linear effect of regulatory freedom on inequality. The non-linear equation is as follows:

$$lnGini_t = \alpha_0 + \beta_1 lfd_t + \beta_2 lfd2_t + \beta_3 icrg_t + \beta_4(lfd - \overline{lfd})(icrg - \overline{icrg}) + \beta_5 linf_t + \beta_6 unem_t + \beta_7 lop_t + \varepsilon_t$$

The relationship between financial development and income inequality is analyzed in this study in a two-stage procedure based on a nonlinear model without interaction variable and a nonlinear model with interaction variable based on estimation using OLS with robust clusters to overcome heteroskedasticity and autocorrelation problems.

4. Results

This section provides some descriptive statistics and an overview of the correlation of income inequality in Malaysia over the period 1995 to 2021. In addition to the descriptive analysis, a correlation matrix, a summary of the model regression and a robust test describing the relationship between financial development, corruption and income inequality in Malaysia are identified. Indices based on Gini and corruption control are calculated and used to explain the changes in income inequality in the country.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
lgini	27	3.7672	0.10306	3.6331	4.0963
lfd	27	4.7906	0.11527	4.5706	5.0427
lfd^2	27	3.3323	2.88325	-3.3501	7.0366
lfdicrg	27	1.2915	1.55731	-2.6638	2.3672
Icrg	27	4.9633	0.26636	4.3000	5.3200
Unem	27	3.3072	0.41998	2.4000	4.5400
Inf	27	2.3064	1.41780	-1.1387	5.4407
lop	27	5.1151	0.20513	4.7607	5.3955

Note: dependent variable lgini (Gini index) independent variable: lfd (financial development), lfd^2(quadratic term of financial development), lfdicrg (interaction term between financial development and corruption), icrg(control of corruption indexes), unem (unemployment rate), Inf (inflation rate by consumer index), lop(open trade indicator).

Table 1 shows the descriptive analysis in this study. From the table, it can be seen that the variable trade openness (lop) has the highest mean value of 5.1151 and the standard deviation for lop is 0.20513 which is less than the mean value indicating that trade openness did not fluctuate during the study period. The interaction variable between financial development and corruption control (lfdicrg) has a lowest mean of 1.2915 and a highest of 2.3672, indicating that the average number of years is 27.

In addition, the interaction variable (lfdicrg) has the highest standard deviation value, indicating that the data is scattered and dispersed. This indicates that the scale of the data fluctuated throughout the study period. Most variables have a maximum value of more than 2, indicating that the distribution of the data is too strong. As far as corruption control (icrg) is concerned, it shows that the mean value is 4.9633 while the maximum and minimum values are 5.3200 and 4.3000 respectively. This shows that the average of corruption control influences for the period under consideration.

Table 2: Correlation Matrix

Variables	LGINI	LFD	LFD^2	LFDICRG	ICRG	UNEM	INF	lop
lgini	1							
lfd	0.311	1						
lfd^2	-0.122	0.029	1					
lfdicrg	0.135	0.093	0.761	1				
icrg	0.239	0.343	0.816	-0.149	1			
unem	0.260	-0.171	-0.04	-0.019	-0.171	1		
inf	-0.487	-0.032	0.334	0.324	0.189	-0.465	1	
lop	-0.274	0.038	0.438	0.348	0.226	-0.251	0.090	1

Table 2 shows that all independent variables (lfd, lfdicrg, icrg, unem, inf and lop) have a positive and negative correlation with the dependent variable (lgini) and with each other. The correlation between the variable financial development (lfd) and corruption control (icrg) as well as the correlation between inflation (inf) and income inequality (lgini) (where the p-value was significant, i.e. at 10%), all variables have a significant correlation with each other at a 1% significance level.

Table 3: Summary of Regression Model without Interaction

Variable	Coefficient	Std. Error	t-Statistic	Probability
lfd	-.174800	.12580	1.55	0.137
lfd^2	.005857	.00705	0.83	0.416
icrg	.143905*	.00529	2.11	0.073
Unem	.02540	.04852	0.52	0.606
Inf	-.03121**	.01520	-2.05	0.053
lop	-.09234	.10695	-0.86	0.389
Constant	2.7088***	.82469	3.28	0.004

R-Squared		0.427
F-statistic	1.83	0.151
Diagnostic test		
Skewness & kurtosis Test	37.642***	0.000
Normality (Jarqua-Bera)	14.5628***	0.0006

Note: (*) significant at the significance level of 10%, (**) at significance level of 5%, (***) at significance level of 1%. * is the probability value of MacKinnon's (1996) P one endpoint value.

Table 4: Summary of Regression Model with Interaction Variable

Variable	Coefficient	Std. Error	t-Statistic	Probability
lfd	-.059307	.151574	0.94	0.378
lfd^2	.022396**	.009057	2.47	0.048
lfdicrg	-.02843**	.011814	2.41	0.047
icrg	.14700	.08066	1.82	0.111
Unem	.05948*	.02961	2.01	0.085
Inf	-.03093**	.01357	-2.28	0.057
lop	-.12951	.10700	-1.21	0.265
Constant	2.8980***	.67523	4.29	0.004
R-Squared				0.8331
F-statistic			8.42**	0.0095
Diagnostic test				
Skewness & Kurtosis Test			2.6789	1.000
Normality (Jarqua-Bera)			14.5628***	0.0006

Note: (*) significant at the significance level of 10%, (**) at significance level of 5%, (***) at significance level of 1%. * is the probability value of MacKinnon (1996) P one endpoint value.

Table 3 and Table 4 show the regression results for the model without an interaction term and the model with an interaction term. Both models include a quadratic variable estimated based on a non-linear model. As mentioned earlier, the model without an interaction term shows that the two coefficients for financial development lfd and lfd2 have a non-linear relationship with income inequality, as the results show that both variables have a negative sign. This is consistent with previous studies that showed an inverted U-shape, confirming the validity of the financial Kuznets hypothesis. Previous studies by Ridzuan et al. (2021, 2019) and Law and Tan (2009) also support the improvement of income distribution through deepening financial development.

The coefficient icrg is significant at the 10% level, but the positive sign suggests that controlling corruption in the region has not been an effective means of providing credit to the private sector. According to Adam and Klobodu (2016), there is a negative relationship between corruption levels and per capita income, which is consistent with efficiency-reducing views.

Thus, if there is a positive relationship between the level of corruption and per capita income, which illustrates the case of the efficiency-enhancing view, it has a negative impact on inequality as financial development increases and becomes larger. Furthermore, a positive corruption coefficient indicates that the higher the level of corruption, the higher the per capita income; there is a negative relationship between the level of corruption and income, which is consistent with the efficiency-reducing view (Hasaballa, 2017). For the control variables, the result shows that only inflation is significant and has a negative sign. Consequently, the inflation rate and per capita income are expected to be negatively correlated. Positive correlations between the inflation rate and economic growth are the exception. The fact cited by Andres and Hernando (1997) that inflation reduces investment and efficiency is only one of several reasonable explanations for this fact.

The results from Table 4 show the interaction term. The variable of financial development captured by both lfd and lfd2 has an inverted U-shape, confirming the existence of the financial Kuznets hypothesis. The improvement in income distribution by deepening financial development is also confirmed by an earlier study by Law and Tan (2009). It provides a test for the hypothesis of increasing inequality and the hypothesis

of reducing inequality through financial development. If lfd is positive and significant, financial development will increase income inequality. However, if lfd is negative and significant, then financial development will reduce income dispersion. This study is consistent with the hypothesis that inequality is increasing as evidenced by lfd2 which has a positive sign and is significant at the 95% level. As evidence, Malaysia is positioning itself as an international provider and centre for Islamic fund and wealth management to strengthen its current position as a global hub for Islamic finance (Securities Commission Malaysia, 2017). The control variable in Table 4 shows that unemployment and inflation are significant but have different signs.

The negative sign and significance of the coefficient for the interaction term in Table 4 therefore indicate that income inequality in the region has decreased as a result of Malaysia's financial development and anti-corruption initiatives. The negative coefficient of the interaction term indicates that financial development combined with effective anti-corruption initiatives reduces income inequality. This is consistent with the research findings of Rajan and Ramcharan (2011) and Law, Tan and Azman-Saini (2014), which highlight the importance of institutional quality in determining the impact of financial development on income distribution. Moreover, these findings suggest that in the presence of a strong institutional framework, financial development contributes to a reduction in income inequality in the long run.

Table 5: Robustness Test

Variable	Coefficient	VIF
Lfd	.14249	3.40
Lfdicrg	-.02843	1.62
Icrg	.14700	3.40
unem	.05948	1.90
Inf	-.03093	2.29
Lop	-.12951	1.90

The constant-centered variance inflation factor (VIF) for the model regression was used to test for multicollinearity, as shown in Table 5 below. If the value of the VIF is greater than or equal to 10, the model is considered multicollinear. From the table above, none of the variables has a mean VIF value greater than 10, which means that the model is not highly multicollinear.

5. Managerial Implications and Recommendations

It is possible to restructure the financial system, which would lead to faster economic development and a reduction in the wealth gap. The expansion and success of the national economy depend on the development of the financial sector. While this is currently happening, fighting corruption is crucial to increase the likelihood that financial sector reform will promote financial development, which in turn will improve economic growth and reduce the income gap between rich and poor. The government may be able to develop a successful anti-corruption policy if it identifies the factors that influence financial institutions' attitudes towards corruption. For all these reasons, empirical studies have been conducted since the 2000s to examine the origins, consequences and economic impact of corruption in the public sector. It is therefore crucial to examine the impact of the mediating factor of corruption perception on financial development, despite the extensive research on the relationship between corruption and development.

Conclusion: The objective of this study was to examine the relationship between financial development and income inequality in Malaysia during the period 1995-2021. The study contributes to the literature by applying the Demean method for interaction terms to control for multicollinearity. It also examines the moderating role of corruption control on the relationship between financial development and income inequality. The empirical results show that the relationship between financial development and income inequality is consistent with the Kuznets hypothesis supported by Ridzuan, et. al (2021), which has an inverted U-shape. This implies that financial institution deepening and transparency are critical to the distribution of income inequality in Malaysia. Accordingly, as an emerging economy, Malaysia is encouraged to promote policies to improve institutional development to support both economic growth and equity in income distribution and ensure sustainable development. This empirical result is also consistent with that of

Chisadza and Mduduzi (2022) for emerging economies: Financial depth and accessibility of both financial institutions and financial markets reduce income inequality, but financial market efficiency has the opposite effect on inequality. Financial deepening, accompanied by more accessible financial systems, creates an inclusive financial sector in emerging markets that can reduce income inequality. However, emerging economies are growing fast, which means that a high level of financial development, while not hindering capital accumulation, can lead to a loss of efficiency in capital allocation.

The problem of corruption has its origins in the policies that have been implemented since the establishment of Malaysia. The World Bank's Corruption Indicator and Transparency International's Corruption Perceptions Index (CPI) are used to determine the extent of corruption in Malaysia.

Although corruption remains pervasive in Malaysia, efforts have been made to put in place institutional structures, legal protections and policies to prevent it. By examining the impact of corruption and financial development on inequality, this study contributes significantly to a better understanding of the relationship between financial development and income inequality in Malaysia. The second way this study contributes to the literature is by showing how corruption affects financial development in Malaysia. Thus, this study could support efforts to combat corruption in Malaysia. The need to study the role and importance of financial development in Malaysia stems from the prevalence and influence of the problem of "too much finance". Indeed, corruption has been declared as one of the most important issues in Malaysia and is used by Malaysians in various fields, especially in the age of technology. Therefore, corruption indirectly affects certain areas of development such as the economy, employment, education, politics, tourism and media, etc.

Acknowledgment: The authors extend their appreciation to the Faculty of Business and Management, Universiti Teknologi MARA (UiTM). This research draws from the Research Focus Group Visibility Grant awarded by the Faculty of Business and Management, UiTM, Puncak Alam (600-TNCPI 5/3/DDF (FPP) (009/2022).

References

Adam, S. & Klobodu, E. K. M. (2016). Financial development, control of corruption and income inequality. International Review of Applied Economics. DOI: 10.1080/02692171.2016.1208740

Andres, J. & Hernando, I. (1997) Does inflation harm economic growth? evidence for the OECD, NBER

Balli, H. O., Sorensen, B. E. (2012). Interaction effect on econometric. Journal of Econometric, Empir Econ, Springer. doi:10.1007/s00181-012-0604-2.

Banerjee, A. & Newman, A. (1993). Occupational choice and the process of development. *Journal of Political Economy,* 101(2), 274-98.

Bennett, D. L. & Vedder, R. K. (2013). A Dynamic Analysis of Economic Freedom and Income Inequality in the 50 U.S. States: Empirical Evidence of a Parabolic Relationship, *The Journal of Regional Analysis and Policy,* 43, 42-55.

Carolyn, C. & Mduduzi, B. (2022). Financial development and income inequality: evidence from advanced, emerging and developing economies. Pretoria, South Africa: Department of Economics, University of Pretoria. https://www.up.ac.za/media/shared/61/WP/wp_2022_21.zp218953.pdf.

Chisadza, C. B. & Mduduzi. (2022). Financial development and income inequality: evidence from advanced, emerging and developing economies. Pretoria, South Africa: Department of Economics, University of Pretoria. https://www.up.ac.za/media/shared/61/WP/wp_2022_21.zp218953.pdf.

Claessens, S. & Perotti, E. (2007). Finance and inequality: Channels and evidence. *J. Comp. Econ.* 35(4), 748–773.

Demirguc-Kunt, A. & Levine, R. (2009). Finance and Inequality: Theory and Evidence. *Annual Review Finance and Economic,* 1, 287-318.

Galor, O. & Zeira, J. (1993). Income distribution and macroeconomics. *Review of Economic Studies,* 60(1), 35-52.

Galor, O. & J. Ziera. (1993). Income distribution and macroeconomics. Reviews of economics studies 60:35-52.

Greenwood, J. & Jovanovic, B. (1990). Financial development, growth, and the distribution of income. *Journal of Political Economy,* 98(5), 1076-107.

Hafer, R. W. (2016). Cross-country evidence on the link between IQ and financial development. *Intelligence*, 55, 7–13.

Hasaballa, H. (2017). Studying the effect of corruption on income per capita level in an IV estimation in developing countries. *European Journal of Sustainable Development*, 6(1), 57-70.

Hopkins, J. & Blyth, M. (2012). What can Okun Teach Polanyi? Efficiency, Regulation and Equality in the OECD, *Review of International Political Economy*, 19, 1- 33.

Kim, D. H. & Lin, H. (2011). Nonlinearity in the Financial Development-Income Inequality Nexus. *Journal of Comparative Economics,* 39(3), 310–325. doi:10.1016/j.jce.2011.07.002.

King, R. G. & Livine, R. (1993). Finance and Growth: Schumpeter might be right. *Quarterly journal of economics*, 108, 717-737.

Kuznets, S. (1955). Economic Growth and Income Inequality, *The American Economic Review,* 45, 1-28.

Law, S. H., Tan, H. B. & Azman-Saini, W. N. W. (2014). Financial development and income inequality at different levels of institutional quality. *Emerging Markets Finance and Trade*, 50(1), 21-33. doi:10.2753/REE1540-496X5001S102.

Law, S. H. & Tan, H. B. (2009). The role of financial development on income inequality in Malaysia. *Journal of Economic Development,* 34, 134-168.

Levine, R. (2005). Finance and Growth: Theory and Evidence. *Handbook of Economic Growth,* 1, 865–934.

Mirzayev, E. (2023). https://www.investopedia.com/articles/investing/012215/how-corruption-affects-emerging-economies.asp

Nexus between Financial Development and Income Inequality Before Pandemic Covid-19: Does Financial Kuznets Curve Exist in Malaysia, Indonesia, Thailand and the Philippines? *International Journal of Energy Economics and Policy,* 11(2), 267-671.

Park, B. & Khanoi, O. (2017). How does the globalization of firms affect corruption in developing economies? *Journal of Korea Trade*, 21(3), 256-270. https://doi.org/10.1108/JKT-02-2017-0022

Ragayah, M. Z., Ismail, R. & Shari, I. (2000). The impact of industrialization on income distribution in Malaysia. Paper presented at the 7th convention of the East Asian Economic Association, Singapore 17-18 November.

Rajan, R. G. & Ramcharan, R. (2011). Land and credit: A study of the political economy of banking in the United States in the early 20th century. *Journal of Finance,* 66(6), 1895-1931. doi:10.1111/j.1540-6261.2011.01694.x.

Rajan, Raghuram G. & Luigi Zingales. (2003a). The Great Reversals: The Politics of Financial Development in the Twentieth Century." *Journal of Financial Economics,* 69(1), 5–50. Doi:10.1016/S0304-405X(03)00125-9.

Ridzuan, A. R., Saat, R. M., Subramaniam, G., Amin, S. M. & Borhan, H. (2019). The link between income inequality and financial development: Evidence from Singapore. *International Journal of Business and Society*, 20(2), 627-640.

Ridzuan, A. R., Zakaria S., Fianto, B. A., Yusof, N. Y. M., Sulaiman, N. C., Rianti M. I. M. & Susianti, Lestari, A. (2021).

Rousseau & Wachtel. (2011). What happening to the impact of financial deepening on economic growth? *Economic Inquiry*, 49(1), 276-288.

Shahbaz, M. & Islam, F. 2011. Financial development and income inequality in Pakistan: an application of ARDL approach. MPRA paper no 28222.

Shahbaz, M., Bhattacharya, M. & Mahalik, M. K. (2017). Finance and income inequality in Kazakhstan: Evidence since transition with policy suggestions. *Applied Economics,* 49(52), 5337-5351.

Shumetie, A. & Watabaji, M. D. (2019). Effect of corruption and political instability on enterprises innovativeness in Ethiopia: pooled data based. *Journal of Innovation and Entrepreneurship,* 8(11), https://doi.org/10.1186/s13731-019-0107-x

Tan, H. B. & Law, S. H. (2012). Nonlinear Dynamics of the Finance-inequality Nexus in Developing Countries." *The Journal of Economic Inequality,* 10(4). 551–563.

Williams, A. (2011). Shining a light on the resource curse: An empirical analysis of the relationship between natural resources, transparency, and economic growth. Bachelor Thesis. *World Development,* 39(4), 490-505. doi:10.1016/j.worlddev.2010.08.015.Working Paper. (6062).

World Bank. (2000). Governance and anticorruption (Chapter 6), The Quality of Growth, Published for the World Bank Oxford University Press. http://www.worldbank.org/wbi/quality of growth/complete.pdf, (Erişim Tarihi: 20.09. 2019).

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Revitalising Business Sustainability through Full-Range Leadership Approach: A Supply Chain Management View

Nur Syahirah Naharuddin & Ahmad Rais Mohamad Mokhtar*
Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam, Malaysia
nursyahirahnahar@gmail.com, *ahmadraismm@uitm.edu.my

Abstract: The COVID-19 pandemic had a profound impact on small and medium enterprises (SMEs) worldwide, particularly those in emerging economies, disrupting their operations and affecting their sustainability. However, most SMEs were not able to utilize effective leadership to enhance their resilience and navigate the crisis successfully. This study aims to examine the relevance of the Full-Range Leadership Model in understanding the relationship between leadership styles and business sustainability, in the context of operations and supply chain management. The study used a cross-sectional survey approach with a purposive sampling technique to collect data from 214 SMEs in Malaysia. The findings of this study suggest that transformational and transactional leadership styles are significant and positive factors that contribute to business sustainability. On the other hand, laissez-faire leadership is a significant and negative factor that hinders the development of business sustainability and resilience. Therefore, SMEs should incorporate and leverage different leadership styles to strengthen their resilience in the post-pandemic work economy. This study has important implications for SMEs to improve their sustainability and resilience in the face of future crises. By adopting effective leadership styles, SMEs can improve their resilience, build their capacity to adapt to changes and enhance their long-term sustainability.

Keywords: *Sustainability; Resilience; Leadership; Small-medium enterprise, Supply chain.*

1. Introduction

The COVID-19 pandemic has severely impacted Small and Medium Enterprises (SMEs) worldwide, which are a crucial part of many economies, providing employment opportunities and contributing to economic growth (Amaral & Da Rocha, 2023). However, the pandemic has exposed the vulnerability of SMEs due to their limited financial resources and market power to weather economic shocks (Kniffin et al., 2021). From an operations and supply chain management perspective, the economic slowdown caused by the pandemic has resulted in reduced demand for goods and services, which has hit SMEs particularly hard. Many SMEs have had to close their businesses temporarily or permanently due to cash flow issues resulting from supply chain disruptions and decreased consumer spending. Moreover, remote work has presented several challenges for SME operations, including limited access to technology, reduced productivity, and difficulty in managing teams (Surya et al., 2022). Despite these challenges, SMEs have shown resilience and agility in adapting to the changing business landscape. Many have innovated and pivoted their business models and operations to meet the changing consumer needs, which has presented new growth opportunities. The challenges faced by SMEs during the pandemic underscore the need for policies and measures that support their financial resilience and innovation capacity (Bondeli & Havenvid, 2022).

Furthermore, the success of SMEs in navigating the post-pandemic era is closely tied to effective leadership in the organization, operations management and supply chain management. SMEs need to develop more resilient supply chains and invest in technology and digital infrastructure to improve their operational efficiency and competitiveness (Negri et al., 2021). This requires effective leadership that can guide the organization through the challenges of the pandemic, adapt to new ways of working, and make strategic decisions to ensure the long-term sustainability of the business (Shin & Park, 2021). Furthermore, leaders in SMEs need to be innovative and forward-thinking, identifying opportunities for growth and development amid economic uncertainty to ensure sustainable operations of their businesses (Al-Shaikh & Hanaysha, 2023). They need to foster a culture of adaptability and resilience within the organization, encouraging employees to embrace change and take on new challenges (Lengnick-Hall, Beck, & Lengnick-Hall, 2011). Effective leadership in supply chain management also requires collaboration and communication with suppliers, customers, and other stakeholders to build strong and sustainable partnerships (Mokhtar, Anindita, & Suhaimi, 2023; Lockström et al., 2010).

Effective leadership is critical for SMEs to navigate the challenges of the post-pandemic era (Annarelli & Nonino, 2016). In Malaysia, SMEs are essential to both short and long-term economic and social development. However, recent statistics reveal a concerning trend of high failure rates for SMEs in the country. Approximately 3.5% of SMEs fail after two years, and a staggering 54% close down within four years (Malaysia Department of Statistics, 2023). Many of these SMEs struggle to sustain themselves within the first five years and are at risk of closure. This high failure rate is particularly worrying because their failure can have a detrimental effect on national GDP and employment. It is worth noting that, the COVID-19 pandemic has further exacerbated the challenges faced by SMEs in Malaysia, with negative impacts on their GDP growth and employment. In 2020, Malaysia's SME GDP growth rate was negative, at 7.3%, for the first time in 17 years since 2003 (Malaysia Department of Statistics, 2023). Furthermore, the percentage of SMEs employed in Malaysia declined to 48% in 2020, indicating a worrying trend for SMEs in the country. To address these challenges, SMEs in Malaysia need to focus on improving their operations management, particularly through resilience and competitiveness. This requires concerted efforts to develop more robust business strategies, improve operational efficiency, and leverage new technologies and digital infrastructure. As argued earlier, effective leadership is essential to guide SMEs through the challenges of the post-pandemic era and foster a culture of innovation and adaptability within the organization (Bondeli & Havenvid, 2022).

Moreover, effective leadership is essential to navigate through the challenges of the post-pandemic era and ensure the long-term success of SMEs in Malaysia. Although the topic of leadership has garnered significant attention from researchers and scholars, the current literature primarily examines the link between leadership styles and business sustainability before the pandemic. However, with the unprecedented global crisis brought about by the COVID-19 pandemic, there is a pressing need to re-examine this relationship and assess its relevance in the post-pandemic era (Asriati et al., 2022). Despite this urgency, only a limited number of studies have investigated the impact of leadership on business sustainability in the context of the post-pandemic era. Therefore, there is an opportunity for further research to shed light on the effectiveness of various leadership styles in promoting business sustainability in the post-pandemic world. To address the gap in the existing literature, this study aims: *to explore the effect of different leadership styles on the sustainability of small and medium-sized enterprises (SMEs) in the post-pandemic era.* The paper is organized as follows. Section 2 provides a literature review discussing the role of leadership in fostering sustainable business sustainability resilience. This section also provides theoretical arguments and proposes the associated hypotheses. Employed research methods are presented in Section 3. Findings are illustrated in Section 4 and discussed in Section 5. Section 6 concludes the paper with a discussion of potential opportunities for future research.

2. Literature Review and Hypotheses Development

Business Sustainability and Resilience: Business sustainability and resilience refers to a company's ability to recover from disruptions and maintain its operations and profitability over the long term (Bondeli & Havenvid, 2022). It plays a crucial role in ensuring that businesses can continue to operate while keeping employees satisfied and earning profits. This concept has gained increasing attention in recent years and is becoming a significant consideration for businesses of all sizes. Business sustainability is also critical for a company's success and longevity. It encompasses its ability to anticipate, prepare for, and adapt to changes and challenges in its environment. By doing so, it can quickly recover from disruptions and continue to operate effectively (Beuren, dos Santos, & Theiss, 2022). Moreover, in today's fast-paced and unpredictable business environment, companies face a wide range of threats and challenges. These include natural disasters, cyber-attacks, supply chain disruptions, and economic downturns. Therefore, business sustainability and resilience are essential for companies of all sizes and across all industries. By building sustainability and resilience, businesses can better navigate unforeseen challenges and stay competitive in the long term.

Business sustainability can also improve a company's reputation and attract customers and employees who value a socially responsible and sustainable approach to business (Surya et al., 2022). The benefits of business sustainability are vast and multifaceted. Firstly, it enables companies to effectively manage risks and maintain operations, even in the face of unexpected events, which can help minimize disruptions and preserve the company's reputation (Negri et al., 2021). Secondly, it can provide companies with a competitive

advantage by allowing them to respond quickly to changing market conditions and customer demands. Lastly, a resilient business is better equipped to safeguard its employees, assets, and stakeholders (including supply chain partners), promoting long-term sustainability and success. In today's fast-paced business landscape, business resilience is crucial for companies to thrive, and those who prioritize building and maintaining a resilient business are more likely to achieve success in the long run (Chopra et al., 2021).

Leadership: Full-Range Leadership Model and Its Generalities: Leadership has been a subject of extensive research in recent decades, resulting in several theories that aim to define and explain its antecedents, traits, and outcomes (Waters, 2013; Avolio, Bass, & Jung, 1999). The most prominent leadership approach in recent years is the transformational-transactional leadership theory. This approach has been the focus of research since the early 1980s and is considered to be the most popular leadership approach (Mokhtar et al., 2019a; Day et al., 2014; Northouse, 2010). A total of 294 articles (39% of the total articles) on transformational-transactional leadership or neo-charismatic theory were published in ten top-tier journals between 2000 and 2012 (Dinh et al., 2014). To date, transformational-transactional leadership theory remains the most researched area in leadership and is expected to continue to grow. To create a complete leadership model, it is necessary to merge both transformational and transactional leadership styles because they are interconnected (Mokhtar et al., 2019b; Day & Antonakis, 2012; Bass & Bass, 2008). Additionally, including the laissez-faire leadership style in the full-range leadership model provides a comprehensive and holistic understanding of leadership styles. The model consists of three primary factors: transformational leadership (individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence), transactional leadership (contingent reward and management-by-exception active), and laissez-faire leadership or passive avoidant (laissez-faire and management-by-exception passive (Day & Antonakis, 2012; Avolio et al., 2009).

Transformational Leadership: Transformational leadership, originally proposed by Burns in 1978, has been shown in previous studies to have the ability to positively impact individuals and social systems within an organization. Avolio, Bass & Jung (1999) characterized this leadership style by its strategic vision and effective communication, aimed at transforming employees' motivations and values to improve their performance. Recent research by Odeh et al. (2023) has also shown that transformational leaders are capable of directing the morale and ideals of their employees toward the betterment of the group, rather than their interests. Additionally, studies have demonstrated that transformational leaders utilize innovative ideas to drive their teams towards surpassing expectations, instead of just meeting them. These features of transformational leadership have been found to have the potential to positively impact the sustainability of SMEs (Nor-Aishah, Ahmad, & Thurasamy, 2020). In the past, researchers have evaluated the transformational leadership qualities of managers by measuring the extent to which they have influenced their followers (Northouse, 2010).

The transformational leadership style is known to help managers and staff achieves higher levels of efficiency and effectiveness, which is crucial for achieving organizational goals and long-term success. Transformational leadership has been widely recognized by researchers and scholars as an effective leadership style for improving small business performance (Lee et al., 2023). Extant studies in leadership found that leaders who use a transformational leadership style can motivate their employees, increase customer satisfaction, support innovation, improve marketing strategies, and achieve higher levels of organizational performance and business sustainability (Chen et al., 2021; Roman, 2017). These studies indicate that transformational leadership is a reliable leadership style for SMEs all over the world, as it can help to ensure operational and supply chain stability, and sustainable growth. As a result, it has been suggested that an increase in the number of transformational leaders in an organization may lead to greater business sustainability and resilience. Hence, this study hypothesises that:
Hypothesis 1: *Transformational Leadership style has a positive effect on the SME's business sustainability.*

Transactional Leadership: Transactional leadership is a key aspect of the full-range leadership theory, initially formulated by Burns in 1978 with a focus on political leaders but later expanded by Avolio and Bass in 1991 to include organizational leaders. These leaders motivate employees through a system of rewards and punishments to encourage compliance with established rules and procedures. Rewards such as praise, bonuses, and promotions are used to incentivize desired behaviors, while punishment in the form of

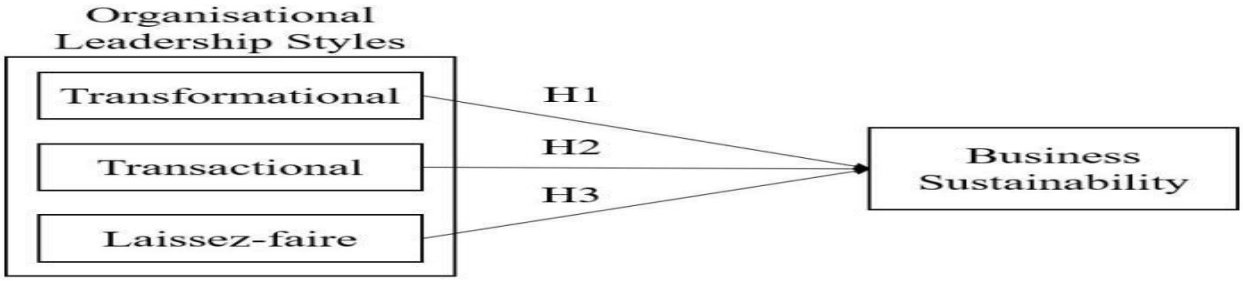
demotions or termination is employed to discipline those who fail to meet expectations (Mokhtar et al., 2019b). Transactional leaders prioritize achieving company goals and maintaining organizational stability, often neglecting long-term vision and employee development. This style is particularly effective in highly structured, bureaucratic organizations where employees are not expected to take initiative (Birasnav, 2014). In contrast to transformational leaders who prioritize group interests and build strong follower relationships based on trust and respect, transactional leaders prioritize both organizational and individual objectives (Lee et al., 2023). While transformational leadership is better suited for uncertain and unpredictable environments, transactional leadership thrives in stable and well-defined task situations.

Both styles contribute to the sustainability and growth of businesses, leading to the recognition of transactional leadership as a valuable addition to the full-range leadership theory. While some studies show a positive impact, others indicate that transactional leadership may not be as effective as transformational leadership, particularly in fostering organizational innovation (Klein, 2023). As such, the effectiveness of transactional leadership in terms of business sustainability remains a topic of ongoing debate among researchers. Transactional leadership is a significant leadership style within the full-range leadership theory. It is particularly effective in stable and well-structured organizational environments, where it prioritizes achieving company goals and maintaining order (Abdelwahed, Soomro, & Shah, 2023). Transactional leadership, when applied appropriately, can be a valuable tool for achieving short-term goals and maintaining stability within organizations, but its limitations must be acknowledged in contexts where employee trust and long-term vision are critical factors. Hence, this study hypothesises that:
Hypothesis 2: *Transactional Leadership style has a positive effect on the SME's business sustainability.*

Laissez-Faire Leadership: Laissez-faire leadership is the third type of leadership according to the full-range leadership theory, characterized by a hands-off approach where leaders provide little guidance or input, allowing team members to make decisions and take action on their own (Judge & Piccolo, 2004). Research has shown that this leadership style can be ineffective and even detrimental to the sustainability of SMEs. Managers who adhere to laissez-faire leadership may neglect decision-making, fail to address organizational problems and delegate power without proper guidance or feedback, leading to a lack of direction and decision-making within the organization (Harms & Credé, 2010). This can negatively impact employee motivation, performance, and well-being, resulting in low morale, high turnover rates, and poor business performance (Odeh et al., 2023). However, in certain situations, laissez-faire leadership may be effective when employees have a clear understanding of their responsibilities and possess excellent analytical skills (Bass, 1998).

Managers must consider the nature of their business, their employees, and the specific circumstances before deciding on the appropriate leadership style. Despite some limited studies suggesting the positive impact of laissez-faire leadership on company success, the majority of research highlights its negative influence on business performance and sustainability (Yammarino et al., 1993). Companies with leaders who adopt a laissez-faire approach risk increased confusion over roles, conflicts, and employee dissatisfaction due to inadequate leadership behaviors. As a result, it is essential for SMEs to carefully assess the implications of adopting a laissez-faire leadership style and consider alternative approaches that foster employee engagement, commitment, and long-term organizational sustainability (Abdelwahed, Soomro, & Shah, 2023). Hence, this study hypothesises that:
Hypothesis 3: *Laissez-faire Leadership style has a positive effect on the SME's business sustainability.* The conceptual framework of this study is depicted in Figure 1.

Figure 1: Conceptual Framework



3. Methodology

The study aims to investigate the relationship between leadership styles and SMEs' business sustainability using a quantitative research method. The data collection was done through an online questionnaire sent to respondents via email. The target respondents were owners and managers of SMEs in Malaysia, as they are key decision-makers and best able to provide relevant information. A pilot test was conducted with 30 respondents to address any limitations of the survey instrument. The questionnaire consisted of three sections, covering demographics, leadership styles, and SMEs' business sustainability. The questionnaire was provided in both English and Malay to accommodate respondents with different language preferences. The researchers employed a purposive sampling method to select respondents from the services and manufacturing sectors in Malaysia. The sample was drawn from a list of SMEs obtained from the Smart Selangor website (https://sme.smartselangor.com.my/). A structured questionnaire was used to collect demographic data, measure transformational, transactional, and laissez-faire leadership styles, and assess SMEs' business sustainability. The Multifactor Leadership Questionnaire (MLQ) was adopted from previous studies to measure leadership styles. The MLQ was used to measure transformational, transactional, and laissez-faire leadership styles, while the measurement of SMEs' business sustainability was adapted from Nor-Aishah et al. (2020). The data was analyzed using SPSS, and multiple regression analysis was employed to test the hypotheses.

4. Results

Demographic Profile: Out of the 214 respondents, 136 (64%) were females, and 78 (36%) were males. The respondents' ages ranged from less than 20 to 45 years. Among the respondents, 89 (41%) were diploma and certificate holders, followed by 86 (40%) secondary school leavers, and the remaining 41 (19%) had no formal qualifications. The majority of respondents (188, 88%) had a work experience of one to five years, and a significant portion (188, 88%) earned less than the RM1,500 minimum wage. In terms of industry, 69.6% (N=149) of the 214 respondents were in the services industry, while 30.4% (N=65) were in the manufacturing industry. Regarding their positions, 70.6% (N=151) of the respondents were business owners, and 29.4% (N=63) were managers, supervisors, or team leaders. 39.3% (N=84) of the respondents had less than 3 years of business tenure, followed by 37.4% (N=80) with 4 to 6 years of tenure, and 15% (N=32) with 7 to 10 years of tenure. Only 5.1% (N=11) had more than 15 years of tenure, and the least, 3.3% (N=7), fell within the range of 11 to 14 years of tenure. The mean business tenure was 1.98 with a standard deviation of 1.0. Moreover, 74.8% (N=160) of the respondents considered their business to be a micro-enterprise with less than five employees. Additionally, 22.4% (N=48) had between 6 and 75 employees, considered as a small enterprise, while 2.8% (N=6) had between 76 and 200 employees, classified as a medium enterprise.

Preliminary Data Analysis: Before conducting the final data analysis, data screening procedures were performed. These procedures included checking for missing data, detecting outliers, testing for normality, and assessing multicollinearity. To handle missing data, mean substitution was utilized to retain as many responses as possible. Outliers were detected through boxplot examination and by comparing the mean value of each item with its 5% trimmed mean (Pallant, 2016). Fortunately, the dataset did not contain extreme outliers, and no responses needed to be removed, transformed, or modified. Additionally, the dataset showed no extreme skewness and kurtosis, with both values falling within the recommended range of −1 to +1 as suggested by Hair et al. (2014). Moreover, the multicollinearity test demonstrated that there was no multicollinearity among the independent variables, as indicated by tolerance values greater than 0.10 and variance inflation factors (VIF) less than 10. Furthermore, the Cronbach Alpha values ranged from 0.7 to 0.9 for all variables, suggesting that the questionnaire instruments used were valid and reliable.

Multiple Regression Analysis: The regression analysis was used to test the relationship between leadership styles and SMEs business sustainability. The R square recorded a value of 0.226, indicating that the independent variables, namely transformational, transactional, and laissez-faire leadership could explain 22.6% of the variation in business sustainability. The results of the multiple regression revealed that two factors had significant positive contributions toward business sustainability, namely transformational leadership (β= 0.162, t= 4.242, p= 0.000) and transactional leadership (β= 0.210, t= -2.465, p= 0.015). As a result, H1 and H2 were supported by this analysis. As hypothesized, laissez-faire leadership has a significant

negative impact on business sustainability (β= -0.205, t=-2.079, p=0.039). Thus, H3 was also supported. The details of the regression analysis are illustrated in Table 1.

Table 1: Regression Analysis

Dependent Variable: Business Sustainability and Resilience				
Independent Variables	**Standardized Coefficient (BETA)**	**t**	**Sig.**	**Hypothesis**
Transformational Leadership	.162	4.242	.000	Accepted
Transactional Leadership	.210	2.465	.015	Accepted
Laissez-faire Leadership	-.205	-2.079	.039	Accepted
F value	20.456			
Sig.	.000[b]			
R square	.226			

Discussion: The results indicate a moderate positive relationship between transformational leadership and business sustainability. This means that higher levels of transformational leadership are associated with higher levels of business sustainability. This finding aligns with previous studies that also found a positive relationship between transformational leadership and business sustainability. For example, Nor-Aishah et al. (2020) found that transformational leadership had a positive effect on the sustainable performance of manufacturing SMEs in Malaysia. Similarly, Nasir, Zakaria, & Zien Yusoff (2022) reported that transformational leadership had a positive impact on the sustainability of SMEs in Pakistan. These studies support the findings of this study and suggest that transformational leadership is an important factor in SMEs' sustainability. The positive effect of transformational leadership on business sustainability can be explained by the fact that transformational leaders inspire and motivate their followers, create a vision, and empower them to achieve that vision. This leads to increased innovation, creativity, and ultimately better organizational performance. Furthermore, transformational leaders focus on the development of their followers, leading to increased job satisfaction and commitment, resulting in better organizational outcomes.

Similarly, the results indicate a moderate positive relationship between transactional leadership and business sustainability. This means that higher levels of transactional leadership are associated with higher levels of business sustainability. This finding is consistent with previous research that discovered a correlation between transactional leadership and business sustainability. For instance, Zhu & Huang (2023) found that transactional leadership had a positive effect on organizational innovation among Chinese firms. Similarly, a recent study by Abdelwahed, Soomro, & Shah (2023) found that transactional leadership had a positive impact on SMEs' performance. These studies support the findings of this paper and imply that transactional leadership is an important factor in SMEs' sustainability. It is worth noting that transactional leadership is important for SMEs' sustainability as it focuses on maintaining stability and continuity in the organization while fulfilling the basic expectations and requirements of employees. This leads to increased trust, commitment, and job satisfaction, resulting in better organizational outcomes. Additionally, transactional leaders provide clear expectations, guidelines, and rewards for meeting goals, ensuring that employees are working towards a common goal and are held accountable for their actions.

This leads to increased motivation and productivity, ultimately contributing to the sustainability of the organization. Lastly, the results indicate a moderate negative relationship between laissez-faire leadership and business sustainability. This means that higher levels of laissez-faire leadership are associated with lower levels of business sustainability. Laissez-faire leaders tend to adopt a hands-off approach to management, delegating decision-making to their subordinates, which can lead to a lack of direction and guidance, resulting in poor performance and lower levels of business sustainability (Kelloway et al., 2012; Harms & Credé, 2010; Judge & Piccolo, 2004). Additionally, their less involvement in day-to-day operations can lead to a lack of oversight and accountability, resulting in poor decision-making, inefficiency, and lower levels of business sustainability. In conclusion, the results of this study suggest that transformational and transactional leadership styles are positively related to business sustainability in SMEs, while laissez-faire leadership has an adverse relationship with business sustainability. Therefore, owners and managers of SMEs in Malaysia should adopt transformational or transactional leadership styles and avoid laissez-faire leadership to improve their business sustainability.

5. Conclusion

In light of the ongoing global pandemic and its profound impact on businesses worldwide, including SMEs in Malaysia, the findings of this study hold even greater significance. The COVID-19 pandemic has disrupted economies, supply chains, and consumer behavior, posing unprecedented challenges for SMEs. In this post-pandemic era, the role of leadership styles in navigating the uncertain and rapidly changing business landscape becomes even more critical. Nevertheless, the pandemic has underscored the importance of effective leadership in guiding organizations through crisis and uncertainty. This study aims to examine the relevance of the Full-Range Leadership Model in understanding the relationship between leadership styles and business sustainability, in the context of the post-pandemic era. Through a quantitative research method, data was collected using a structured questionnaire from SME owners and managers in the services and manufacturing sectors. The findings provide valuable insights into the impact of different leadership styles on the sustainability of SMEs in the region. The findings of this study align with previous research, supporting the notion that leadership styles play a critical role in SME sustainability.

For instance, studies in different countries, including Malaysia and the UK, have shown the positive influence of transformational and transactional leadership on SME sustainability. These consistent findings suggest that effective leadership practices are essential for SMEs worldwide, regardless of the cultural and business context. The implications of this research are significant for SME owners and managers, as well as policymakers and practitioners in the field of entrepreneurship and business management. Understanding the relationship between leadership styles and business sustainability can help SMEs in Selangor and beyond make informed decisions to improve their performance and ensure long-term success. By recognizing the importance of transformational and transactional leadership, SME leaders can actively develop their leadership skills and enhance the engagement and commitment of their employees. Moreover, this study contributes to the existing body of knowledge on leadership and SME sustainability, particularly in the context of developing countries. By conducting a comprehensive analysis and employing rigorous statistical methods, this research provides valuable insights into the specific factors that influence the sustainability of SMEs.

These insights can be used by policymakers to develop targeted interventions and support mechanisms for SMEs in the region. However, this study is not without limitations. The research employed a purposive sampling method, which may limit the generalisability of the findings to the broader population of SMEs in Malaysia. Future research could adopt a more diverse sampling approach to enhance the representativeness of the results. Additionally, this study focused on leadership styles in the services and manufacturing sectors, leaving room for further investigations into other industries. In conclusion, this research sheds light on the crucial role of leadership styles in driving the sustainability of SMEs. By embracing effective leadership practices, SMEs can position themselves for long-term growth and success. Policymakers and practitioners can also use these findings to develop targeted strategies to support and empower SMEs in their pursuit of sustainable business practices. As the SME landscape continues to evolve, understanding the dynamics between leadership and sustainability becomes increasingly vital for the growth and development of these crucial contributors to the economy.

Acknowledgment: This research was supported by the following project: “Modelling Integrated closed-loop supply chains towards Circular Economy: An 0Isomorphism's Perspective”, funded by the Ministry of Higher Education Malaysia under the Fundamental Research Grant Scheme (FRGS) (Grant Reference: FRGS/1/2021/SS01/UITM/02/15).

References

Abdelwahed, N. A. A., Soomro, B. A. & Shah, N. (2023). Predicting Employee Performance through Transactional Leadership and Entrepreneur’s Passion among the Employees of Pakistan. *Asia Pacific Management Review*, 28(1), 60–68.

Al-Shaikh, M. E. & Hanaysha, J. R. (2023). A Conceptual Review on Entrepreneurial Marketing and Business Sustainability in Small and Medium Enterprises. *World Development Sustainability*, 2, 100039.

Amaral, P. C. F. & Da Rocha, A. (2023). Building Resilience during the Covid-19 Pandemic: The Journey of a Small Entrepreneurial Family Firm in Brazil. *Journal of Family Business Management*, 13(1), 210–225.

Annarelli, A. & Nonino, F. (2016). Strategic and Operational Management of Organizational Resilience: Current State of Research and Future Directions. *Omega*, 62, 1–18.

Asriati, N., Syamsuri, S., Thoharudin, M., Wardani, S. F. & Kusuma Putra, A. H. P. (2022). Analysis of Business Behavior and HRM Perspectives on Post-COVID-19 SME Business Sustainability. *Cogent Business & Management*, 9(1), 2115621.

Avolio, B. J., Bass, B. M. & Jung, D. I. (1999). Re-Examining the Components of Transformational and Transactional Leadership Using the Multifactor Leadership. *Journal of Occupational and Organizational Psychology*, 72(4), 441–462.

Avolio, B. J., Reichard, R. J., Hannah, S. T., Walumbwa, F. O. & Chan, A. (2009). A Meta-Analytic Review of Leadership Impact Research: Experimental and Quasi-Experimental Studies. *Leadership Quarterly*, 20(5), 764–784.

Bass, B. M. (1998). Transformational Leadership : Industrial, Military, and Educational Impact. Mahwah, N.J. ; London: Lawrence Erlbaum Associates.

Bass, B. M. & Bass, R. B. (2008). The Bass Handbook of Leadership: Theory, Research & Managerial Applications. New York: Free Press.

Beuren, I. M., dos Santos, V. & Theiss, V. (2022). Organizational Resilience, Job Satisfaction and Business Performance. *International Journal of Productivity and Performance Management*, 71(6), 2262–2279.

Birasnav, M. (2014). Knowledge Management and Organizational Performance in the Service Industry: The Role of Transformational Leadership beyond the Effects of Transactional Leadership. *Journal of Business Research*, 67(8), 1622–1629.

Bondeli, J. V. & Havenvid, M. I. (2022). Bouncing Back in Turbulent Business Environments: Exploring Resilience in Business Networks. *Industrial Marketing Management*, 107, 383–395.

Burns, J. M. (1978). Leadership. New York: Harper & Row.

Chen, L., Jia, F., Li, T. & Zhang, T. (2021). Supply Chain Leadership and Firm Performance: A Meta-Analysis. *International Journal of Production Economics*, 235, 108082.

Chopra, M., Saini, N., Kumar, S., Varma, A., Mangla, S. K. & Lim, W. M. (2021). Past, Present, and Future of Knowledge Management for Business Sustainability. *Journal of Cleaner Production*, 328, 129592.

Day, D. V. & Antonakis, J. (2012). The Nature of Leadership. California: Sage Publications Inc.

Day, D. V., Fleenor, J. W., Atwater, L. E., Sturm, R. E. & McKee, R. A. (2014). Advances in Leader and Leadership Development: A Review of 25 Years of Research and Theory. *Leadership Quarterly*, 25(1), 63–82.

Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C. & Hu, J. (2014). Leadership Theory and Research in the New Millennium: Current Theoretical Trends and Changing Perspectives. *The Leadership Quarterly*, 25(1), 36–62.

Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Los Angeles: Sage Publications Inc.

Harms, P. D. & Credé, M. (2010). Emotional Intelligence and Transformational and Transactional Leadership: A Meta-Analysis. *Journal of Leadership and Organizational Studies*, 17(1), 5–17.

Judge, T. A. & Piccolo, R. F. (2004). Transformational and Transactional Leadership: A Meta-Analytic Test of Their Relative Validity. *Journal of Applied Psychology*, 89(5), 755–768.

Kelloway, E. K., Turner, N., Barling, J. & Loughlin, C. (2012). Transformational Leadership and Employee Psychological Well-Being: The Mediating Role of Employee Trust in Leadership. *Work and Stress*, 26(1), 39–55.

Klein, G. (2023). Transformational and Transactional Leadership, Organizational Support and Environmental Competition Intensity as Antecedents of Intrapreneurial Behaviors. *European Research on Management and Business Economics*, 29(2), 100215.

Kniffin, K. M. et al. (2021). COVID-19 and the Workplace: Implications, Issues, and Insights for Future Research and Action. *American Psychologist*, 76(1), 63–77.

Lee, C. C., Yeh, W. C., Yu, Z. & Lin, X. C. (2023). The Relationships between Leader Emotional Intelligence, Transformational Leadership, and Transactional Leadership and Job Performance: A Mediator Model of Trust. *Heliyon*, 9(8), e18007.

Lengnick-Hall, C. A., Beck, T. E. & Lengnick-Hall, M. L. (2011). Developing a Capacity for Organizational Resilience through Strategic Human Resource Management. *Human Resource Management Review*, 21(3), 243–255.

Lockström, M., Schadel, J., Harrison, N., Moser, R. & Malhotra, M. K. (2010). Antecedents to Supplier Integration in the Automotive Industry: A Multiple-Case Study of Foreign Subsidiaries in China. *Journal of Operations Management*, 28(3), 240–256.

Madi Odeh, R. B. S., Obeidat, B. Y., Jaradat, M. O., Masa'deh, R. & Alshurideh, M. T. (2023). The Transformational Leadership Role in Achieving Organizational Resilience through Adaptive Cultures: The Case of Dubai Service Sector. *International Journal of Productivity and Performance Management*, 72(2), 440–468.

Malaysia Department of Statistics. (2023). Department of Statistics Malaysia Official Portal.

Mokhtar, A. R., Anindita, M. S. & Suhaimi, Z. S. (2023). Leveraging Supply Chain Leadership for Dynamic Capabilities and Organisational Resilience. *Advances in Social Sciences Research Journal*, 10(6.2), 54–66.

Mokhtar, A. R. M., Genovese, A., Brint, A. & Kumar, N. (2019a). Improving Reverse Supply Chain Performance: The Role of Supply Chain Leadership and Governance Mechanisms. *Journal of Cleaner Production*, 216, 42–55.

Mokhtar, A. R. M., Genovese, A., Brint, A. & Kumar, N. (2019b). Supply Chain Leadership: A Systematic Literature Review and a Research Agenda. *International Journal of Production Economics*, 216, 255–273.

Nasir, A., Zakaria, N. & Zien Yusoff, R. (2022). The Influence of Transformational Leadership on Organizational Sustainability in the Context of Industry 4.0: Mediating Role of Innovative Performance. *Cogent Business & Management*, 9(1), 2105575.

Negri, M., Cagno, E., Colicchia, C. & Sarkis, J. (2021). Integrating Sustainability and Resilience in the Supply Chain: A Systematic Literature Review and a Research Agenda. *Business Strategy and the Environment*, 30(7), 2858–2886.

Nor-Aishah, H., Ahmad, N. H. & Thurasamy, R. (2020). Entrepreneurial Leadership and Sustainable Performance of Manufacturing SMEs in Malaysia: The Contingent Role of Entrepreneurial Bricolage. *Sustainability*, 12(8).

Northouse, P. G. (2010). Leadership: Theory and Practice. California: Thousand Oaks.

Pallant, J. (2016). SPSS Survival Manual: A Step-by-Step Guide to Data Analysis Using SPSS. Berkshire: Open University Press.

Roman, A. V. (2017). Institutionalizing Sustainability: A Structural Equation Model of Sustainable Procurement in US Public Agencies. *Journal of Cleaner Production*, 143, 1048–1059.

Shin, N. & Park, S. (2021). Supply Chain Leadership Driven Strategic Resilience Capabilities Management: A Leader-Member Exchange Perspective. *Journal of Business Research*, 122, 1–13.

Surya, B., Hernita, H., Salim, A., Suriani, S., Perwira, I., Yulia, Y., Ruslan, M. & Yunus, K. (2022). Travel-Business Stagnation and SME Business Turbulence in the Tourism Sector in the Era of the COVID-19 Pandemic. *Sustainability*, 14(4).

Waters, R. D. (2013). The Role of Stewardship in Leadership: Applying the Contingency Theory of Leadership to Relationship Cultivation Practices of Public Relations Practitioners. *Journal of Communication Management*, 17(4), 324–340.

Yammarino, F. J., Spangler, W. D., Bass, B. M. & leadership., P. T. B. B. (1985) theory of transformational and transactional. (1993). Transformational Leadership and Performance: A Longitudinal Investigation. *The Leadership Quarterly*, 4(1), 81–102.

Zhu, J. & Huang, F. (2023). Transformational Leadership, Organizational Innovation, and ESG Performance: Evidence from SMEs in China. *Sustainability*, 15(7).

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Factors Influencing Technology Usage among Event Attendees

Nurakmal Ramli*, Azmatun Nadiah Hamdan, Syafiqah Mohd Razani, Ezza Ezzati Ramli, Syahirah Salsagap, Fitri Aimal Nasaruddin, Muhammad Nabil Hazizan
Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
*nurakm2956@uitm.edu.my, ndhhmdn@gmail.com, syafiqah.razani@gmail.com, ezaaramli@gmail.com, syahirahsalsaggap@gmail.com, aimalfitri@gmail.com, nabil42work@gmail.com

Abstract: The digital proliferation and business innovation where ICT plays an important role in enhancing event experiences, has transformed the event industry to fundamentally deal with understanding the attendees' experience at events. The purpose of this study is to examine the factors that contribute to event technology usage among event attendees and how it influences them. A total of 202 sets of data were collected from the event management students in UiTM Puncak Alam through a convenience sampling approach from several online platforms. The results were analyzed using SPSS by conducting reliability analysis, correlation analysis, and regression analysis. The result of this study found that there was a significant relationship between memorable experiences, perceived value, and enjoyment of technology usage. The limitations, recommendations, and implications of the study were suggested for future research.

Keywords: *Memorable Experience, Perceived Value, Enjoyment, Technology Usage, Event Attendees, Event Organization.*

1. Introduction and Background

Technologies in these modern days are the pillar for any support of professional business services where it provides any good information objectives and communication technologies (ICT). Event organizers that operate in the industry are using technologies to help them in event planning and organization (Rogers & Wynn-Moylan, 2022). Technology in event industries is also known for dynamically embracing changes in any situation to meet customer satisfaction and expectations and delivering an outstanding experience (Pine & Gilmore, 1999). The types of technologies that are being along with the modern and upgraded system are online registration and ticketing, event mobile apps, and engagement technology such as polls, apps, and live engagement. To add, other technologies are being created as smartphones are being upgraded every year which also creates a new ecosystem by including Virtual Reality (VR), Augmented Reality (AR), and Artificial Intelligence (AI). Technologies in the event industry context also help organizers enhance users' experiences and keep them up to date by using smart access, payment systems, and any event apps. In addition, crafting memorable experiences relies on various elements including encouraging regular attendee participation.

Offering suitable activities, addressing relevant topics and contemporary focus, and tailoring them to a sizable range of audiences (Ryan, Fenton, Ahmed & Scarf, 2020). Covid-19 has created an impact on the tourism industry where this sector is struggling through the policies of traveling that have been prohibited throughout the world. Recent studies show that the maximum loss in the event industry loss is more than $666 million due to the cancellation of traveling and events. This also causes 85.9 million unemployed because of the usage of technology such as online distance learning, live chat, and webinars (Madray, 2020). Although technologies are the new trend, these technologies also can cause isolated experiences towards the people which reduce the social value of gatherings, one-to-one communication, and human experiences (Rihova, Buhalis, Gouthro & Moital, 2018). The change in the dynamics of the events paired with the developments of technology and the embracement of the same within the industry has highlighted the need for additional research in the area (Bustards, Bolan, Devine & Hutchinson, 2019; Ryan et al., 2020). Therefore, as there is still discussion related to the use of event technology, this study aims to examine the factors that contribute to event technology usage among event attendees and how it influences them.

2. Literature Review

Technology Usage: The objective of utilizing technology is to acquire a better knowledge of people's tendency to adopt and utilize cutting-edge technologies. Over the last decade, mobile commerce, social networking, and smartphone technology have all had an impact on almost every consumer's life. Technology

provides a platform for global audiences to access a variety of activities via the Internet and allows individuals to share experiences via digital platforms, helping businesses attract prospective consumers and create loyalty (Sangkaew, 2020). With new technology, the business events industry's usage of event content via the internet and social media was increasing since smartphone and tablet users could access event information anywhere and whenever they wanted. Events are considered complicated supply chains and having digital capabilities in events provides competitive benefits to the event organizer (Ryan et al., 2020). Through continuous technological developments, the interaction and engagement with the fans, spectators, delegates, or organizers in real-time during the events will be collected as data. This, in turn, can improve the social aspects of events, fine-tune event personalization and thereby create enhanced experiences (Ryan et al., 2020; Madray, 2020).

Memorable Experience: Memorable experiences happen in the event industry which can be defined as something unforgettable and people will remember it back in their head even though days months, and even years have passed especially if it's a huge success (Kruger & Saayman, 2017). Event professionals are investing more in event technology to make their events exciting, convenient for the attendees, and becoming an event that stands out from others (Ryan et al., 2020). There is no doubt that technology usage can significantly affect attendees' experience. Not to mention, an event that is going for the most significant wow factor with mixed reality technologies can often create the most memorable experiences for the people who attend or even participate in the event. Memorable experiences of attendees have a positive influence on event technology usage thus significantly influencing revisit intention (Coudounaris & Sthapit, 2017). The memorable experience that the attendees had while attending any event, would likely make them interested to participate again in the future (Melo et al., 2022). In addition, the use of technologies can help in faster communication and processing, hence increasing the productivity of an event. This too will contribute to having a memorable experience for the attendees. Thus, the following hypothesis is proposed:
H1: There is a relationship between memorable experiences towards technology usage.

Perceived Value: Perceived value refers to the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given (Parasuraman, Zeithaml, & Berry, 1988). Perceived value becomes very important for making sure that consumers will come back and repeat it. Mainly, it reflects the consumer's perspective of the performance, quality, and price of the service. Event technology usage is used to describe all the digital tools and software that have been used in the events industry. Everything from check-in and registration to diagramming, to social media tools, and many more. The use of all these technologies in events provides an advantage in ensuring event organizers deliver quality events. A study by Jeong and Kim (2020) found that event quality acts as an antecedent of perceived value and leads to attendees' satisfaction. It is found that people feel capable of using IoT services competently, and they strongly consider that technology is useful and creating value for them (El-Haddadeh, Weerakkody, Osmani, Thakker & Kapoor, 2019). Effective utilization of event technology can create a perceived value for consumers. Thus, the following hypothesis is proposed:
H2: There is a relationship between perceived value towards technology usage.

Enjoyment: Enjoyment helps in bringing satisfaction when it comes to their wants and needs. The event technology usage may help in terms of convenience. It refers to sensory, functional, social, natural, and cultural stimuli in a service encounter, embedded in a culture of hospitality (Bitner, 1992). From an event management perspective, emotions, and enjoyment typically take a central role play in experiencing events (Jang, Wu & Wen, 2021). It becomes evident that positive feelings such as enjoyment or emotional satisfaction serve as precursors for explaining the intention to engage with digital services (Capasa, Zulauf & Wagner, 2022). Therefore, the use of technology in events is essential. At all stages of the event experience journey, the focus on using technology through integrated information and communication technologies (ICTs) has become the key strategy to enhance satisfaction and sustainable advantages among event and tourism stakeholders (Bustard et al., 2019). The technology could help the event organizer collect enough data regarding their attendees' information. This helps the organizer to understand whom they are approaching and how they are going to conduct an event that will be suitable for the attendees (Ryan et al., 2020). Since, attendees' positive perceptions of enjoyment lead to a high evaluation of attendees' experience (Dong & Siu, 2013); enjoyment is likely to form a favorable attitude. Thus, the following hypothesis is proposed:
H3: There is a relationship between enjoyment towards event technology usage.

3. Research Methodology

This research employed a descriptive survey technique to measure the variables. The population for this study was students from the Event Management Program, UiTM Puncak Alam, and the samples were derived from convenience sampling techniques. The questionnaires were distributed online to the respondents and a total of 202 respondents answered and completed the questionnaires. The instruments were adapted from various sources (Sangkaew, 2020; Sherlock & Connor, 2015). A structured questionnaire was created and a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to measure the respondent perception of the relationship between dimensions of memorable experience, perceived value, and enjoyment towards technology usage. Statistical Package for Social Sciences (Version 22) was used for the data analysis. Multiple regression analysis was employed to examine the hypothesis testing and to indicate the intensity of the relationship among the variables. Furthermore, Pearson's correlation analysis was conducted to understand the nature and strength of connections between memorable experiences, perceived value, enjoyment, and technology usage.

4. Results and Discussion

Profile of Respondents: Table 1 depicts the demographic profile of the respondents who participated in the study. Of the total of 202 respondents, 94 were males (45.5%) and 108 were females (53.4%) who participated in this research. Most of the respondents' ages were between 21-23 years old (49.5%), followed by those aged group of 18-20 years old (31.2%) and 24-26 years old (5%). Regarding their ethnicity, there were 157 students (77.7%) of the respondents identified as Malay, and the remaining were Bumiputera Sabah 31 students (15.3%), and Bumiputera Sarawak 14 students (6.9%). Based on the table below, the frequency of attending events was assessed. The majority of the respondents have attended events 5-10 times (40.65%), followed by those who attended more than 10 times (34.2%) and 1-5 times (25.5%). In this research, the respondents were asked about the types of events that they preferred to attend the most. 150 students selected physical events (74.3%) while 52 students selected virtual events (25.75%).

Table 1: Demographic Information of the Respondents

VARIABLES	FREQUENCY	TAGE
GENDER		
Males	94	46.5
Females	108	53.4
AGE		
18-20	63	31.2
21-23	100	49.5
24-26	39	5
Ethnicity		
Malay	157	77.7
Bumiputera Sabah	31	15.3
Bumiputera Sarawak	14	6.9
How often do you attend an event		
1-5 times	51	25.5
5-10 times	82	40.6
More than 10 times	69	34.2
Total		
Type of event preferred.		
Physical event	150	74.3
Virtual Event	52	25.7

Descriptive Statistics: Results in Table 2 show descriptive statistics for event attendees regarding their satisfaction with technology usage. Technology usage has the highest mean score compared to the other variables, which is 4.4668. Meanwhile, memorable experience and enjoyment have quite similar mean values which are around 4.44. This could imply that the participants had a good experience and enjoyed the activity

the technology provided. The Cronbach's Alpha values of the variables shown in Table 2 fall between the range of 0.869 and 0.872. These results fulfilled the reliability criteria of "good reliability" (Zikmund, Babin, Carr & Griffin, 2013), and can be used for further analysis.

Table 2: Descriptive Statistics and Reliability Analysis

Variables	Mean	Std. Dev.	Cronbach's alpha
Memorable experience	4.4455	0.36653	.872
Perceived experience	4.4590	0.34758	.869
Enjoyment	4.4470	0.37630	.871
Technology Usage	4.4668	0.33806	.870

Pearson Correlation Analysis: Table 3 shows the relationship between three independent variables (memorable experience, perceived value, and enjoyment) with technology usage. The result shows all correlation scores fall between 0.700 to 0.748 which implies a moderate relationship with the dependent variable. Memorable experience had the lowest correlation score of r= .700, with perceived value similar scores r= 0.716 while enjoyment had the highest score of r=0.775. All the variables have a significant and positive relationship with technology usage which implies that as the variable increases in value, the other variable also increases in value.

Table 3: Pearson Correlation Analysis

	Memorable Experience	Perceived Value	Enjoyment	Technology Usage
Memorable Experience	1			
Perceived Value	.748**	1		
Enjoyment	.704**	.668**	1	
Technology Usage	.700**	.716**	.775**	1

Regression Analysis Results: The study used multiple regression analysis to examine the best prediction from the independent variables toward technology usage. The findings show that memorable experience, perceived value, and enjoyment significantly predicted technology usage. Memorable experience scored (β = .151, t = 2.277, $p < 0.05$) indicating that memorable experience had a significant contribution to the prediction of technology usage. Next, perceived value scores (β = .282, t = 4.436, $p < 0.05$), hence implying that perceived value had significant influences on technology usage. The score for enjoyment (β = .480, t = 8.096, $p < .05$) also reflected that it significantly influences the values of technology usage. Overall, the results depict that all the dependent variables significantly contributed to technology usage. As shown in Table 4, the F value was 140.254 and significant ($p<0.05$). The R^2 value = 0 .680 which indicates that 68% of the variations in the technology usage could be explained by the independent variables. Based on the findings, memorable experience, perceived value, and enjoyment can predict more than 68% of technology usage leaving 32% of variables unexplained by the factors of this study. Therefore, it can be concluded that Hypothesis 1, Hypothesis 2, and Hypothesis 3 were supported.

Table 4: Multiple Regression Analysis

Independent variables	Standard Coefficients Beta	t	Sig.
Memorable Experience	0.151	2.277	0.024
Perceived Value	0.282	4.436	0.000
Enjoyment	0.480	8.096	0.000
R^2	0.680		
Adjusted R^2	0.675		
F-value	140.254		
Significance F-value	0.001		

Table 5: Hypotheses Testing Results

Hypotheses		Results
H1	There is a relationship between memorable experiences towards technology usage.	Supported
H2	There is a relationship between perceived value towards technology usage.	Supported
H3	There is a relationship between enjoyment towards technology usage.	Supported

Discussion: The purpose of this study is to examine the factors that influence technology usage. Each of the three constructs of independent variables was analyzed individually, namely memorable experience, perceived value, and enjoyment. The regression analysis implied that memorable experiences had a significant influence on technology usage. This finding is supported by Bustard et al. (2019) who encourage event practitioners to use technology in offering significant and memorable experience-enhancing opportunities. It can be concluded that event attendees are seeking experiences that they can cherish, and the use of technology helps to relish the memory through the innovation and interaction of the technology used at the event. Next, the study shows that perceived value had a significant impact on technology usage in events. This result is similar to other studies by El-Haddadeh et al. (2019) that found the impact of perceived value is influenced by the perceived usefulness of IoT within public services. The enjoyment variable was also found to significantly influence the prediction of technology usage at events. This finding is aligned with the study by Campos, Mendes, Valle, and Scott (2018) which indicates that technology could help in offering enjoyment in socializing, environment, and organizational dynamics. Multiple Linear Regression Analysis was used to explain the answer to each of the research questions to further validate the significant effect of the independent predictors on the dependent variable. The results indicate that 68% of the total variance in technology usage was related to memorable experiences, perceived value, and enjoyment. This means that the independent variables can predict more than 68% of technology usage. Furthermore, the result from regression and correlation analysis established that all three hypotheses are supported.

5. Managerial Implications and Recommendations

The findings of this study provide insights to the event manager in utilizing the event technology in crafting the event experiences for the attendees. This study focuses on the technology usage at events among the students at UiTM Puncak Alam. Thus, future research can be extended to other event attendees including families and workpeople. Besides, the variables were limited only to four predictor factors memorable experiences, perceived value, and enjoyment. The results of the current study indicate that it is worth continuing future research to explore other possible variables that could have an emphasis on technology usage.

Conclusion: The purpose of this study was to examine the factors that influence the usage of technology at events. The findings of the study indicated that memorable experiences, perceived value, and enjoyment have a significantly positive influence on technology usage at events. Based on the result of this study, the event attendees are anticipating event organizers to embed the elements of technology in delivering the event services as it enhances the value of event experiences for event attendees to derive enjoyment from the events. Furthermore, the advancement of technology has created vast opportunities for event organizers to apply technology as part of event planning and organization to achieve competitive advantage and be at the cutting edge of innovation and efficiency. Technology makes an event manager's job easier, allowing them to focus on the most important aspects of the event, such as improving the attendees' experiences at an event.

References

Bitner, M. J. S. (1992). The Impact of Physical Surroundings on Customers and Employees in Journal of Marketing, 56.

Bustard, J. R. T., Bolan, P., Devine, A. & Hutchinson, K. (2019). The emerging smart event experience: an interpretative phenomenological analysis. *Tourism Review*, 74(1), 116-128.

Campos, A. C., Mendes, J., Valle, P. O. D. & Scott, N. (2018). Co-creation of tourist experiences: A literature review. *Current Issues in Tourism*, 21(4), 369-400.

Capasa, L., Zulauf, K. & Wagner, R. (2022). Virtual reality experience of mega sports events: A technology acceptance study. *Journal of Theoretical and Applied Electronic Commerce Research*, 17(2), 686-703.

Coudounaris, D. N. & Sthapit, E. (2017). Antecedents of memorable tourism experience related to behavioral intentions. *Psychology & Marketing*, 34(12), 1084-1093.

Dong, P. & Siu, N. Y. M. (2013). Servicescape elements, customer predispositions, and service experience: The case of theme park visitors. *Tourism management*, 36, 541-551.

El-Haddadeh, R., Weerakkody, V., Osmani, M., Thakker, D. & Kapoor, K. K. (2019). Examining citizens' perceived value of the Internet of Things technologies in facilitating public sector services engagement. *Government Information Quarterly*, 36(2), 310-320.

Jang, W., Wu, L. & Wen, J. (2021). Understanding the effects of different types of meaningful sports consumption on sports consumers' emotions, motivations, and behavioral intentions. *Sport Management Review*, 24(1), 46-68.

Jeong, Y. & Kim, S. (2020). A study of event quality, destination image, perceived value, tourist satisfaction, and destination loyalty among sports tourists. *Asia Pacific Journal of Marketing and Logistics*, 32(4), 940-960.

Kruger, M. & Saayman, M. (2017). An experience-based typology for natural event tourists. *International journal of tourism research*, 19(5), 605-617.

Madray, J. S. (2020). The impact of COVID-19 on the event management industry. *International Journal of Engineering Applied Sciences and Technology*, 5(3), 2455-2143.

Melo, M., Coelho, H., Gonçalves, G., Losada, N., Jorge, F., Teixeira, M. S. & Bessa, M. (2022). Immersive multisensory virtual reality technologies for virtual tourism: A study of the user's sense of presence, satisfaction, emotions, and attitudes. *Multimedia Systems*, 28(3), 1027-1037.

Parasuraman, A. B. L. L., Zeithaml, V. A. & Berry, L. (1988). SERVQUAL: A multiple-item scale for measuring *consumer perceptions of service quality*, 64(1), 12-40.

Pine, B. J. & Gilmore, J. H. (1998). Welcome to the *Experience Economy*, 76(4), 97-105. Cambridge, MA, USA: Harvard Business Review Press.

Rihova, I., Buhalis, D., Gouthro, M. B. & Moital, M. (2018). Customer-to-customer co-creation practices in tourism: Lessons from Customer-Dominant logic. *Tourism Management*, 67, 362-375.

Rogers, T. & Wynn-Moylan, P. (2022). Conferences and conventions: A global industry. Routledge.

Ryan, W. G., Fenton, A., Ahmed, W. & Scarf, P. (2020). Recognizing events 4.0: The digital maturity of events. *International Journal of Event and Festival Management*, 11(1), 47-68.

Sangkaew, P. (2020). An investigation of how the adoption of event mobile applications influences satisfaction and post-event behaviors of business event attendees (Doctoral dissertation, University of Surrey).

Sherlock, J. & Connor, N. O. (2015). Research into the Impact of Technology in the Events Industry. *The International Hospitality and Tourism Student Journal*, 7(1), 88-102.

Zikmund, W. G., Babin, B. J., Carr, J. C. & Griffin, M. (2013). Business research methods. Cengage learning.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

CEO Experience and Commercial Banks' Performance in Malaysia–Evidence from Inside, Outside and Total Working Experience

Mei-Shan Chua*, Siti Nurhidayah Roslen, Nurhuda Nizar & Rafiatul Adlin Mohd Ruslan
Department of Economics and Financial Studies, Faculty of Business and Management, Universiti Teknologi Mara (Puncak Alam Campus), Malaysia
*meishan@uitm.edu.my, sitihidayah@uitm.edu.my, hudanizar@uitm.edu.my

Abstract: This paper examines the CEO experience's impact on commercial bank performance in Malaysia from 2016 to 2021. Using the fixed effect model, we find that more experienced CEOs have more incredible abilities to overcome the complexity of the banking environment, hence, improving commercial banks' performance. Specifically, the CEO, with experience working within and outside the bank (Total Working Experience), strengthens the financial performance of commercial banks. Furthermore, the CEO with working experience outside the banks has more pronounced effects in improving the banks' performance than those with experience within the banks, in which an increase of one unit of working experience enhances the bank's performance by 102% for the former and 100% for the latter. The resource dependency theory supports the findings. Based on the findings, the results suggest the importance of the CEO experience as a determinant of commercial bank performance in Malaysia. This paper provides insight into the policymakers responsible for appointing the CEOs of the banks.

Keywords: *CEO Total Working Experience, CEO Inside Working Experience, CEO Outside Working Experience, Commercial Bank, Malaysia.*

1. Introduction

A qualified CEO is key to the vitality and sustainability of an organization. Recruiting a CEO is a complex process involving the risk of appointing the wrong person or rejecting the right person. In recent years, "Does CEO matter to performance?" has become the center of attention among researchers. Though the empirical findings have proven the importance of having a skilled CEO in overcoming the challenges in a dynamic environment, the implications of an experienced CEO remain scarce from the banking industry's perspective. Therefore, this paper investigates the effect of CEO experience on commercial bank performance in Malaysia.

It is crucial to research the relationships between CEO experience and commercial bank performance in Malaysia. First, according to the Development of Financial Institutions Act of 2002 (Act 618), a CEO of a financial institution must be "fit and proper" in terms of experience and educational background to improve the bank's performance. However, according to our analysis, the Act did not specify the types of experience that a CEO should have. The Act's vagueness has incentivized us to examine further the CEO experience's impact on commercial bank performance in Malaysia. Second, the collectivist culture in Malaysia means that the banks' decision-making process will follow a group of people who work as a team (Chua et al., 2022). It signifies the importance of the top management when deciding the commercial banks' strategic actions. Nevertheless, the CEOs are the key figure who has the power to make final decisions, implying that by separating the CEO from the top management, we could examine the sole impact of an individual CEO's experience on the commercial bank's performance in Malaysia. By doing so, we could quantify the types of working experience needed for a CEO to improve commercial bank performance. Third, the banking industry faces greater challenges after the global pandemic, in which the industry must prepare for the accelerating pace of digital adoption and manage the cyber security risks within the banking environment (Raj, 2022). Amidst the challenges, a skilful leader is vital for the banking industry to remain competitive, suggesting that we must investigate the subject matter.

Using the 15 commercial banks in Malaysia from 2016 to 2021, we found that CEOs with total working experience-working within and outside the bank- tend to improve commercial bank performance in Malaysia. An increase of one year in the CEO's total working experience can increase the commercial banks' return on assets by 101 percent. Separating the CEO's total working experience into working within the banks and outside the banks has proven to us that working experience outside the banks prepared the CEO with a more remarkable ability to conquer the dynamic environment of the banking industry compared to the CEO

possessing only working experience within commercial banks. Our results are supported by resource dependency (Pfeffer & Salancik, 1978), upper echelon theory (Hambrick & Mason, 1984), and stewardship theory (Donaldson & Davis, 1991). Our results are robust with fixed effect estimation corrected with robust standard error estimation due to the heteroskedasticity problem**.** Our paper makes several contributions to the literature. First, most of the past research, including Escriba-Esteve et al. (2009) [Spain] and Peni (2014) [Australia], was done in developed countries.

Moreover, the investigation on the relationship between CEO experience and financial performance in the Malaysian context was focused on non-financial firms (Atayal et al., 2022). Thus, we aim to investigate the role of CEO experience in the Malaysian context and in the banking industry, where the reporting requirement is different from the non-financial firms. This has not been covered much in past literature. Second, unlike Pham (2023), who studied only the CEO working experience within the banking industry, we assess the CEO experience in three dimensions – CEO total working experience, CEO working experience within the banks, and CEO working experience outside the banks, which has broadened our investigation to analyses the working experience. Third, we expect that our study can bring insight to the practitioners on the CEO hiring guidelines. Practically, the CEO shall have experience within the banking industry and outside the industry for strengthening the banking performance."

2. Literature Review

According to resource dependency theory, the CEO is the vital strategic resource for achieving the firm's goals (Pfeffer & Salancik, 1978). Experience refers to the period a CEO works throughout their lifetime in organizations to get working experience. Based on our observation, there are two competing arguments regarding the effects of CEO experience on firms' performance. In our paper, we categorize these arguments into positive and negative facets of the CEO experience.

To start with the positive aspect, researchers who find a positive impact argue that the amount of experience makes the CEOs mature and thoughtful in processing information while making strategic decisions. Hambrick & Mason (1984) asserted that CEOs with greater working experience, especially those with experience working outside the organization, have a wider perspective and more knowledge in dealing with the complexity of business operations. Peni (2014) asserts that executives with longer working years within firms have better firm-specific knowledge and contribute valuable resources. A well-experienced CEO is expected to have more forecasting power in predicting accurate earnings (Jiang et al., 2013). Escribá-Esteve et al. (2009) showed that experience links to the cognitive skills of the CEO, in which they make higher quality decisions, execute complex strategic decisions and bring higher firm value. Supported by the stewardship theory, Gupta & Mahakud (2020) and Pham (2023) found that long-serving CEOs have a greater sense of ownership, which motivates them to align their goals with the banks and foster a good relationship and work effectively with the management team; which, therefore improves performance. Khan et al. (2021) relate the CEO's experience with their ability to handle tactical decisions. Chua et al. (2022) reported that CEOs with experience working inside and outside the firm improved the firm's performance by managing firm debt. Interestingly, Zhong et al. (2023) found that CEOs with experience overcome the probability of corporate fraud. This empirical evidence supports the Upper Echelon Theory (Hambrick & Mason, 1984), which explains that experience represents the manager's skills to manage the firm's strategic actions, improving the firm performance.

On the negative impacts, Chua et al. (2022) opine on the declining ability[5] of more experienced CEOs to perform strategic actions due to the accumulative effects between the experience and the CEO's stage of life. In other words, experience and age are the events that coincide during the working life of the CEO. The older CEO is argued to have a lower tolerance towards risky activities (Cline & Yore, 2016), which translates to lower firm performance. Nguyen et al. (2018) found an inverse relationship between CEO experience and the

[5] According to Inhibitory Deficit Theory (Cline & Yore, 2016), the CEO ability follows descending order when the CEO age. As experience is coinciding with CEO age, we applied the theory to explain the negative implication of CEO experience in making risky strategies.

firms' performance in Australia. This could be due to the higher agency costs (Chua et al., 2022) and operational costs (Erickson et al., 2015) of the firms when they are led by more experienced CEOs. Firms with experienced CEOs are likely to suffer from more severe agency conflict because they have better communication skills and can suppress the pressure from internal monitoring systems. Higher operational costs are also expected from hiring experienced CEOs, as they require higher compensation and rewards, which reduces the firms' performance. Hamori & Koyuncu (2014) found that a CEO with prior experience is less able to promote post-succession firm financial performance. Likewise, Liu & Jiang (2020) inferred a negative relationship between the CEO's working experience within the firm and the firm's market value in China.

In sum, the CEO's experience appears to determine the firm's performance. We also observed that most of the studies focus on non-financial firms, and there are limited studies on the banking industry. Nevertheless, the literature shows an increasing investigation of the financial sector. For example, Gupta & Mahakud (2020) studied the CEO characteristics and bank performance in India, Khan et al. (2021) explored the effect of CEO on bank efficiency in Pakistan and Pham (2023) investigated the banking industry in Vietnam. As the literature portrays, we believe that a CEO with more experience can add value to the banking industry in Malaysia. Hence, we postulated the following hypothesis. Ha: The CEO experience has a positive relationship with commercial banks' performance in Malaysia.

3. Methodology

Sample: The study examines the relationship between CEO experience and commercial bank performance. In this study, all the financial data were collected from Thomson Reuters, whereas all the CEO features, such as experience and education, were extracted from the banks' annual financial performance. We ensured all financial and CEO characteristics data were available for consecutive years to mitigate the possibility of estimation bias. Any missing financial data were filled up using the public financial figures from the financial statement. The missing demographic profiles were extracted from the bank website, Bloomberg, LinkedIn and Wikipedia. We obtained 15 commercial banks with 90 observations after removing the commercial banks without the essential data.

Estimation Regression: To test the research hypothesis, we adopted the regression model from Gupta & Mahakud (2020), Khan et al. (2021) and Pham (2023). In this study, we measure the CEO working by three measurements – CEO total working experience (CWTE), CEO working experience within the bank (CIWE) and CEO working experience outside t tan (CO). The regressions are as follows:

$$ROA_{it} = \beta_1 + \beta_2 CTWE_{it} + \beta\ FC_{it} + \beta_4 BS_i + \beta_5 BA_{it} + \beta_6 BC_{it} + \beta\ LEV_{it} + \beta_7 DG_{it} + \mu_{it} \quad \text{(Equation 1)}$$

$$ROA_{it} = \beta_1 + \beta_2 CIWE_{it} + \beta_3 FC_{it} + \beta_4 BS_{it} + \beta_5 BA_{it} + \beta_6 BC_{it} + \beta_7 LEV_{it} + \beta_7 DG_{it} + \mu_{it} \quad \text{(Equation 2)}$$

$$ROA_{it} = \beta_1 + \beta_2 COWE_{it} + \beta_3 FC_{it} + \beta_4 BS_{it} + \beta_5 BA_{it} + {}_6 BC_{it} + \beta_7 LEV_{it} + \beta_7 G_{it} + \mu_{it} \quad \text{(Equation 3)}$$

Where ROA is the dependent variable. CTWE, CIWE and COWE are the independent variables. The control variables are FE, BS, BA, BC, LEV, and DG. The full name, abbreviation and measurement of the variables were tabulated in Table 1.

Table 1: Measurements and Abbreviations of Dependent and Independent Variables

Abbreviations	Variables	Measurement
ROA	**Return on Assets**	**Net profit divided by Total Assets**
CTWE	CEO Total Working Experience	The total years of working experience the CEO works within the bank and the number of years they work outside the bank.
CIWE	CEO Inside Working Experience	The year of working experience The CEO works within the bank
COWE	CEO Outside Working Experience	The year of working experience The CEO works outside the bank
FC	CEO Financial Education	The dummy of 1 if the CEO has financial education and 0 otherwise
BS	Bank Size	The natural log of total assets
BA	Bank Age	The natural log of a bank's age since established adjusted in

		years.
BC	Bank Capital	The ratio of total equity to total assets
LEV	Leverage	The ratio of total liabilities to total assets
DG	Deposit Growth	The percentage growth in deposits

Estimation Method: We used the fixed effect model with robust standard errors to estimate the regression. Before deciding on the estimation method, we ran the pooled ordinary least squares (OLS) method and then the random effect method to identify the preferable method for estimation. The Breusch-Pagan LM test result shows the p-value was greater than 0.05 (p-value>0.05)[6]; thus, we concluded that OLS is more appropriate than the random effect method. Once OLS was selected, we performed the Chow test to decide whether OLS or the fixed effect model was more suitable for estimating the regression. The Chow test result shows that the P-value is less than 0.05 (p-value<0.05)[7]; therefore, we conclude that each firm has a different intercept and a fixed effect model would be more appropriate to generate reliable and efficient estimators. The fixed effect model's diagnostic check shows a heteroskedasticity detection on the model. The probability chi-square p-value is less than 0.05 (p<0.05)[8], which signifies the presence of heteroskedasticity, in which the variances are not constant. Therefore, we rectify the FE model using the option (robust) in Stata 17.

4. Results and Discussion

Table 2: Descriptive Statistics of Dependent and Independent Variables

	Mean	SD	Min	Max
Return on Assets (ROA)	0.0997	0.00568	-0.0219	0.0250
CEO Total Working Experience (CTWE)	35.20	12.28	21	80
CEO Inside Working Experience (CIWE)	5.111	3.731	1	19
CEO Outside Working Experience (COWE)	30.09	9.078	20	61
Finance CEO (FC)	0.7333	0.4447	0	1
Bank Size (BS)	17.84	1.879	14.54	20.60
Bank Age (BA)	38.63	17.65	16	87
Bank Capital (BC)	0.119	0.0461	0	0.290
Leverage (LEV)	0.0424	0.0362	0	0.131
Deposit Growth (DG)	0.0331	0.135	-0.411	0.972

Table 2 displays the descriptive statistics of all variables in this study. The mean value of ROA was 0.00997 ranging from -0.0219 to 0.0250. The negative findings show that some commercial banks suffered net losses during observation. However, not all commercial banks incurred net losses, as the mean and maximum values were positive. The average total working experience (CTWE) of the CEO is about 35 years, with a minimum of 21 and a maximum of 80 years. The sample of this paper demonstrated that the average working experience within the bank (CIWE) was 5.111 years ranging from 1 to 19 years. Over the six years, the average working experience outside the bank was 30.09 years ranging from 20 to 61 years. These findings indicate that the commercial banks are managed by the CEO, who has working experience within and outside the banks.

[6] The Breusch-Pagan LM test has the null hypothesis of $\sigma_\lambda^2 = 0$ $(Pooled\ OLS)$ and alternate hypothesis of $\sigma_\lambda^2 > 0$ $(Random\ Effect)(Heterogeneity)$. Our finding showed a P-value of 1.0000, thus we failed to reject the alternate hypothesis and concluded the pooled OLS is preferable compared to random fixed effect.

[7] The Chow test has the null hypothesis of common intercept and alternate hypothesis of different intercept. Our result showed a p-value of 0.0000, therefore we accepted the alternate hypothesis and concluded that Fixed effect method is preferable compared to Pooled OLS due to different intercept.

[8] The detection of heteroskedasticity is tested via Modified Wald statistic for groupwise heteroskedasticity. Null hypothesis: Homoskedasticity and alternate hypothesis: Heteroskedasticity. The P value that we obtained was 0.0000. Thus, we accepted the alternative hypothesis and concluded the presence of heteroskedasticity of our models. We also detect the serial correlation through Wooldridge test for autocorrelation. We found a p-value of 0.2157 that was greater than 0.05. Thus, we did not find the existence of serial correlation in our Models.

Moreover, the variance of inflation factors (VIF) value for the variables was 2.47 (as in Law (2018), VIF <10), proving the absence of multicollinearity issue of our study models.

Table 1: Regression Results for the Relationship between CEO Experience and Commercial Bank Performance

	Model 1	Model 2	Model 3
CEO Total Working Experience (CTWE)	0.013***		
	(4.55)		
CEO Inside Working Experience (CIWE)		0.002***	
		(3.20)	
CEO Outside Working Experience (COWE)			0.029***
			(4.07)
Finance CEO (FC)	0.003**	0.002*	0.005***
	(2.48)	(1.85)	(4.03)
Bank Size (BS)	-0.024**	-0.023*	-0.026**
	(-2.30)	(-1.97)	(-2.51)
Bank Age (BA)	-0.068**	-0.066**	-0.072**
	(-2.73)	(-2.52)	(2.89)
Bank Capital (BC)	0.038*	0.035	0.030
	(1.91)	(1.71)	(1.54)
Leverage (LEV)	0.122	0.116	0.129
	(1.57)	(1.42)	(1.69)
Deposit Growth (DG)	0.016*	0.016*	0.016*
	(1.93)	(1.95)	(1.84)
R-squared	0.446	0.433	0.443

Notes: The table shows the regression result of Eq 1 based on the fixed effect robust estimation method. ***, ** and * denote the significance level at 1%, 5% and 10%, respectively. Figures in brackets are t-statistics.

Table 3 shows the regression results for equations 1, 2 and 3 using different measurements for CEO experience – total working experience, experience working within the banks and experience working outside the banks, respectively. The coefficient of CTWE (β_2 = 0.013) in Model 1 was positive and significant at a 1% confidence level. This implies that increase in one-year CEO total working experience, the commercial bank performance increased by 101.31%. Meanwhile, in Model 2, the coefficient of CEO experience measured by working experience within commercial banks (CIWE) was 0.002 and significant at a 1 % confidence level. The result implies that increasing one year of working experience within commercial banks improves the return on assets for commercial banks by 100.2%. Moreover, the coefficient of COWE (β_2 = 0.029) was positive and significant at a 1% confidence level. The result shows that by increasing one unit of CEO working experience outside the bank, the commercial bank can improve its financial performance by 102.94%. As we observed from the results in Models 1, 2 and 3, CEO experience – total working experience, experience working within the banks and experience working outside the banks, improved the commercial bank performance in Malaysia. The positive relationship could be due to the better ability of well-experienced CEOs to make accurate decisions when dealing with complex banking environments and their encouragement to align their personal goals with the commercial banks' goals to work effectively and efficiently with the team.

More experienced CEOs have more knowledge, broader perspectives, and better cognitive skills in managing commercial banks' operations and enhancing financial performance. Our findings are consistent with Jiang et al. (2013), Gupta & Mahakud (2020) and Pham (2023), who found better performance and firm operation when managed by a well-experienced CEO. However, our findings do not align with Liu & Jiang (2020) and Erickson et al. (2015), which inferred an inverse relationship between CEO experience and firm value. The

findings are supported by the Upper Echelon Theory (Hambrick & Mason, 1984) and Stewardship Theory (Donaldson & Davis, 1991) which explain the performance as a reflection of the cognitive skills of the executives who managed the firm for the former and a greater sense of ownership when the CEO served longer in the firms for the latter. Since the results are significant at a 1% confidence level for the CEO experience, we accepted the Ha. We concluded that CEO experience positively correlates with commercial banks' performance in Malaysia. On the control variables, FC has a positive relationship with the commercial banks' performance for Models 1, 2 and 3. This indicates that the CEO with finance expertise has better knowledge of managing commercial banks. BS and BA inversely impacted the return on assets of the commercial banks. This shows that smaller and younger commercial banks have better prospects of generating net income using their assets. DG was positively related to the commercial banks' performance. This implies that growing deposits can enhance Malaysia's commercial bank performance.

5. Conclusion

Our paper examines the effect of CEO experience on commercial banks' performance in Malaysia from 2016 to 2021. The results portray the importance for the CEO of having working experience outside the banks compared to working experience within the banks to enhance the commercial banks' performance. Total working experience from both within and outside the bank also strengthened the commercial bank's performance. Consistent with the Resource Dependency Theory, we show that the CEO is a vital resource for the commercial bank in determining the bank's performance in Malaysia. Our results on the CEO experience were consistent with the Upper Echelon Theory, in which a well-experienced CEO is essential to strengthening the banks' performance, and their skills are reflected in the performance of generating net profit based on the total assets of the commercial bank in Malaysia. The empirical findings are expected to contribute to the literature regarding how the CEO's experience impacts commercial banks in Malaysia and to guide the practitioner in formulating the hiring policy for the CEO.

Acknowledgment: We would like to express our sincere gratitude to the Faculty of Business and Management, Universiti Teknologi Mara for the research grant funding. This research was supported by the Faculty of Business and Management, Universiti Teknologi Mara (Grant No: 600-TNCPI 5/3/DDF (FPP) (005/2021)

References

Atayah, O. F., Najaf, K., Subramaniam, R. K. & Chin, P. N. (2022). The ascension of executives' tenure, corporate risk-taking and corporate performance: evidence from Malaysia. Asia-Pacific Journal of Business Administration, 14(1), 101-123. https://doi.org/10.1108/APJBA-05-2021-0189

Chua, M., Ab Razak, N. H., Nassir, A. M. & Yahya, M. H. (2022). Dynamic capital structure in Indonesia: Does the education and experience of CEOs matter? *Asia Pacific Management Review*, 27(1), 58–68. https://doi.org/10.1016/j.apmrv.2021.05.003

Cline, B. N. & Yore, A. S. (2016). Silverback CEOs: Age, experience, and firm value. *Journal of Empirical Finance*, 35, 169–188. https://doi.org/10.1016/j.jempfin.2015.11.002

Donaldson, L. & Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal of Management*, 16(1), 49–64. https://doi.org/10.1177/031289629101600103

Erickson, M., Hanlon, M., Maydew, E. L. & Hanlon, M. (2015). Is There a Link between Executive Equity *Incentives and Accounting Fraud?* 44(1), 113–143. https://doi.org/10.1111/j.1475-679X.2006.00194.x

Escribá-Esteve, A., Sánchez-Peinado, L. & Sánchez-Peinado, E. (2009). The influence of top management teams in the strategic orientation and performance of small and medium-sized enterprises. *British Journal of Management*, 20(4), 581–597. https://doi.org/10.1111/j.1467-8551.2008.00606.x

Gupta, N. & Mahakud, J. (2020). CEO characteristics and bank performance: evidence from India. *Managerial Auditing Journal*, 35(8), 1057–1093. https://doi.org/10.1108/MAJ-03-2019-2224

Hambrick, D. C. & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review*, 9(2), 193–206. https://doi.org/10.2307/258434

Hamori, M. & Koyuncu, B. (2014). Experience Matters? The Impact of Prior CEO Experience on Firm

Performance. Human Resource Management. https://doi.org/10.1002/hrm

Jiang, F., Zhu, B. & Huang, J. (2013). CEO's financial experience and earnings management. *Journal of Multinational Financial Management*, 23(3), 134–145. https://doi.org/10.1016/j.mulfin.2013.03.005

Khan, I., Mansi, W., Lin, K. L., Liu, C. F., Suanpong, K. & Ruangkanjanases, A. (2021). The Effect of CEO on Bank Efficiency: Evidence From Private Commercial Banks. *Frontiers in Psychology*, 12(September), 1–13. https://doi.org/10.3389/fpsyg.2021.738210

Liu, C. & Jiang, H. (2020). Impact of CEO characteristics on firm performance: evidence from China listed firms. *Applied Economics Letters*, 27(14), 1–5. https://doi.org/10.1080/13504851.2019.1607965

Nguyen, P., Rahman, N. & Zhao, R. (2018). CEO Characteristics and Firm Valuation: A Quantile Regression Analysis. *Journal of Management & Governance*, 22(1), 133–151. https://doi.org/10.1007/s10997-017-9383-7

Peni, E. (2014). CEO and Chairperson Characteristics and Firm Performance. *Journal of Management and Governance*, 18(1), 185–205. https://doi.org/10.1007/s10997-012-9224-7

Pfeffer, J. & Salancik, G. R. (1978). The External Control of Organizations: A Resource Dependence Perspective. In Harper and Row. https://doi.org/10.2307/2231527

Pham, N. H. (2023). CEO characteristics and bank performance: Case of Vietnamese commercial banks. *Cogent Economics and Finance*, 11(1). https://doi.org/10.1080/23322039.2022.2162687

Raj, A. P. (2022). The banking industry sees a slew of CEO changes this year amid new challenges. The Edge Malaysia. https://theedgemalaysia.com/article/banking-industry-sees-slew-ceo-changes-year-amid-new-challenges

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

A Theoretical Framework on Customer Satisfaction in an Automotive Lubricant Market

Noor Aida Shazwani Abd Razak, Shariff Harun* & Siti Norida Wahab
Faculty of Business and Management, Universiti Teknologi MARA, Kampus Puncak Alam, Selangor, Malaysia
nooraidashazwani1234@gmail.com, *shariffharun@uitm.edu.my, sitinorida23@uitm.edu.my

Abstract: Malaysia was reported to have the highest car ownership ratio in the ASEAN region, with 3.3 people per vehicle. As a result of this rapidly growing automotive sector, Malaysia experienced a rise in the demand for premium lubricants. Recognizing the fact that most automobile users would rather pay a mechanic or workshop to perform an oil change rather than do it themselves, hence, this study seeks to understand the antecedents that influence automotive lubricant consumer satisfaction. A content analysis approach is used in this study to discover potential antecedents of consumers' quality-of-service experiences. The SERVQUAL model is then employed as the theoretical foundation for investigating and synthesizing the antecedents. Five antecedents are addressed during the examination and discussion: tangibility, dependability, responsiveness, assurance, and empathy. In addition, five quality-of-service experience propositions are offered, and the framework developed in this conceptual study highlights the quality-of-service experience instigators. This study's conceptual nature provides preliminary insights into the quality-of-service experience in the automotive lubricant market. This study contributes to the body of knowledge by illuminating the antecedents that promote service quality, resulting in satisfied customers who will in turn stimulate the Malaysian automotive lubricant market, which can lead to a significant increase in the industry's contribution to Malaysia's gross domestic product (GDP) rate. The developed theoretical framework serves as a foundation for future empirical studies of quality-of-service experience.

Keywords: *Automotive Lubricant, SERVQUAL, Automotive Industry, Service Quality, Customer Satisfaction.*

1. Introduction and Background

The Malaysian automobile sector has grown significantly in recent years, owing to the needs of the Malaysian people and a government initiative geared at meeting residents' mobility needs (Fernando et al., 2021). According to Borhan et al. (2019), there has been a significant increase in the use of private vehicles as a preferred method of public transportation in urban areas such as Kuala Lumpur and Putrajaya in recent years, which can be ascribed to the nation's rapid development. In Selangor, the high number of automobiles acquired was associated with the state's high-income economic status, which had been attributed to the influx of visitors who rely heavily on personal transportation due to Malaysia's inadequacy of public transportation (Dahalan et al., 2015). Concurrently, the car ownership ratio in Malaysia was reported to be the highest in the ASEAN area, with a ratio of 3.3 people per vehicle (Anazawa, 2021). This is a favorable trend for Malaysia, as the automotive industry generates significant revenue for both emerging and mature economies (Mattioli et al., 2020).

Inherently, nations' gross domestic product (GDP) is generally considered to be dependent on the automotive industry (Kaitwade, 2021). This may be observed in China's experience, where the automotive sector was seen as the accelerator for economic progress, employment creation, and technological advancement (Petti et al., 2021). Table 1 below summarises newly registered passenger and commercial cars in Malaysia from 2010 to 2022 (Malaysian Automotive Association, 2023). To enhance the competitiveness of the Malaysian automotive industry in the progressively liberalized global market, the Malaysian government has implemented the National Automotive Policy (NAP) 2020. The primary objectives of this policy are to facilitate supply chain integration and foster the transformation and integration of the domestic automotive sector (Iskandar & Ariffin, 2019). The Malaysian government has placed a high priority on connected mobility as its primary purpose by engaging with 27 vehicle providers, including automakers, and over 600 component manufacturers to strengthen the execution of this strategy.

Table 1: Vehicles Registered in Malaysia for the Year 2010 to 2022

YEAR	PASSENGER CARS	COMMERCIAL VEHICLES	TOTAL VEHICLES
2010	543,594	61,562	605,156
2011	535,113	65,010	600,123
2012	552,158	75,575	627,733
2013	576,640	79,104	655,744
2014	588,348	78,139	666,487
2015	591,275	75,402	666,677
2016	514,594	65,491	580,085
2017	514,675	61,950	576,625
2018	533,202	65,512	598,714
2019	550,179	54,108	604,287
2020	480,971	48,543	529,514
2021	452,663	56,248	508,911
2022	641,773	78,885	720,658

Under the NAP 2020 initiative, as projected by the Ministry of International Trade and Industry (2020), Malaysia is expected to enhance its manufacturing capacity, resulting in the ability to produce around 500,000 vehicles annually. This development is anticipated to establish Malaysia as the third-largest vehicle producer in Southeast Asia and the 23rd-largest globally. The aforementioned development is expected to have a substantial impact on the progression of the automotive market in Malaysia (Alid et al., 2021). According to Anazawa (2021) and Suffian (2020), it is anticipated that the automotive sector in Malaysia will provide a significant contribution of four percent to the nation's Gross Domestic Product (GDP) and generate job possibilities for about 700,000 workers within the whole automotive ecosystem. With this progression, it is anticipated that the Malaysian automotive lubricant industry will witness corresponding growth alongside the rise of the automotive sector, as depicted in Table 1. The observed positive association between the projected growth in automobile manufacturing and the corresponding surge in the market demand for automotive lubricants can be ascribed to the essential function these lubricants fulfil in facilitating effective maintenance practices. This is because the need for routine maintenance at certain times is ascribed to every motor vehicle (Gilles, 2019).

Thus, automotive lubricants are of paramount importance in ensuring the efficient functioning of a vehicle's mechanical elements. The mechanical elements comprise the propulsion system, transmission, braking mechanism, and steering apparatus. The utilization of automotive lubricants serves the objective of improving the efficiency and longevity of different components within a vehicle (Balinado et al., 2021). This objective is accomplished through the implementation of measures aimed at reducing the impact of wear and tear, while also protecting against potential damage resulting from friction and heat. As per Tan's (2022) findings, it is observed that Malaysian consumers exhibit a preference for delegating the task of lubricant changes to workshops, rather than undertaking the process themselves. Therefore, the primary objective of this study is to address the aforementioned knowledge gap by focusing on the primary adopters of automotive lubricants in the sector, namely workshop owners and mechanics. This study aims to analyze and ascertain the factors that impact the purchasing decisions of workshops or mechanics regarding lubricating oils, as well as the rationale behind the exclusive recommendation of certain lubrication oils to clients. Henceforth, it is crucial to comprehend the correlation between consumer satisfaction and the supply of automotive lubricants to formulate efficient market and commercial strategies (Bamutire, 2021).

The assessment of customer satisfaction is commonly recognized as a reliable method for gathering feedback, as it provides valuable information on the preferences and experiences of customers in a straightforward, significant, and unbiased way. Customer satisfaction is widely recognized as a vital measure of performance and a possible indicator of excellence for businesses. The assessment of client relationships can yield benefits for organizations, specifically for suppliers of automotive lubricants, in light of the swift expansion of the Malaysian automotive sector. Therefore, in the rapidly evolving lubricant industry, the critical role of service and logistic quality in shaping customer satisfaction and fostering brand loyalty remains a pivotal concern. Shahabudin and Cahyandito (2020) highlighted that it is of utmost importance to establish a strong correlation between service quality and customer satisfaction within the automotive lubricant business, as

this plays a pivotal role in fostering customer loyalty and driving sales growth. Unfortunately, despite the industry's heightened emphasis on these dimensions, a comprehensive understanding of how service and logistic quality interplay to influence customer perceptions and loyalty is lacking. This knowledge gap hinders the formulation of effective strategies for lubricant companies to optimize their service offerings and ultimately cultivate enduring brand loyalty (Afezah Wan Abdul Rahman & Hanim Saidin, 2021). By understanding and enhancing service quality in the context of automotive lubricants, businesses can improve customer experiences and strengthen brand loyalty, contributing to their overall success in the industry.

Automotive Lubricant: Lubricants serve a multitude of functions, with their primary significance lying in the mitigation of wear and heat dissipation arising from the interaction between mobile surfaces. Additionally, they are employed to diminish the coefficient of friction between two contacting surfaces, avert rust formation, minimize oxidation, and function as insulating agents within transformers (Verma et al., 2023). Moreover, it functions as a protective obstruction against the infiltration of water, debris, and dust (Bamutire, 2021). Hence, the utilization of lubricant in an internal combustion engine is vital due to its role in providing lubrication and safeguarding various components, thereby enhancing the engine's longevity (Rossegger et al., 2021). According to the report published by Aizarani (2023) in Statista, the global demand for lubricants is projected to reach 37.4 million metric tonnes by 2023, with a subsequent increase to 38.1 million metric tonnes by 2028. This is coherent with the findings reported by Mordor Intelligence (2020), whereby the Malaysian automotive industry was found to hold a significant share of 70 percent in the overall lubricant consumption within Malaysia. The report also indicated that PETRONAS, British Petroleum (BP), Shell, and Chevron are identified as the prominent lubricant makers in Malaysia (Mordor Intelligence, 2020).

In the context of Malaysia, clients rely on the guidance provided by mechanics or staff members employed at automotive workshops to make informed decisions regarding the acquisition of automobile lubricants. According to Hamzah (2021), findings from the PFC Energy Malaysia Report performed in 2012 revealed that a majority of consumers, specifically 75 percent, expressed trust in mechanic advice provided at workshops. Conversely, a minority of customers, comprising 25 percent, opted to make their own decisions about automotive services. Hence, in the face of escalating rivalry and increasing customer expectations, the automobile industry must prioritize the provision of superior services to its clientele. To attract clients, service centers, workshops, dealerships, or repair facilities must prioritize the quality of their services to boost their reputation. The significance of this matter lies in the fact that increased levels of customer satisfaction have been found to positively correlate with better rates of client retention (Ali, Gardi, et al., 2021). Consequently, the inquiry regarding the intended service quality standards of Malaysian automotive lubricant consumers and the consequential impact on customer satisfaction remains ambiguous. This study aimed to investigate the quality requirements of automotive lubricant users and propose practices that can enhance service quality experiences, hence leading to increased customer satisfaction.

2. Antecedents of Automotive Lubricant and Customer Satisfaction

The primary objective of this study is to address the notable knowledge deficit in the automotive lubricant sector by investigating the level of customer satisfaction with the quality of services provided. The implementation of strategies that prioritize the preservation of good service quality is a viable and advantageous option that can bolster the adaptability and competitiveness of service providers. It is a strategy that has been extensively practiced by the hospitality and service sectors aimed at achieving comprehensive customer satisfaction by providing superior service quality (Ali, Saleh, et al., 2021). Thus, this study aims to establish a connection between customer happiness and service quality, particularly, concerning the many dimensions of service quality. Subsequently, this study aims to resolve the lack of scholarly investigation examining this association within the domain of the automobile lubricant industry. Parasuraman et al. (1991) highlighted that the term "service tangibles" refers to the observable aspects of service facilities, the personnel who are responsible for providing the service, the communication materials, and any other observable aspects that are present in the service environment. Other examples of service tangibles include the equipment and instruments used to provide the service, the equipment and instruments used to provide the service, and the personnel who are accountable for providing the service.

Hence, the phrase "quality of service" refers to the degree to which a customer's opinion of their experience with a particular service indicates that the service satisfies the customer's expectations and makes the customer happy. Coherently, the level of satisfaction that a guest feels is influenced by the quality of the service that is provided as well as the performance of the business (Nunkoo et al.'s, 2020). The SERVQUAL model is used in this study as the multidimensional research instrument that aims to evaluate the quality-of-service experience that the client experienced. It is in tandem with the purpose of this study, which is to better understand how to improve customer satisfaction. According to Koc (2019), the SERVQUAL model is considered a better and more comprehensive model when studying service quality due to its multidimensional scope in understanding the factors that affect quality. SERVQUAL measures and improves customer satisfaction, and it evaluates customer satisfaction by comparing pre and post-service expectations (Parasuraman et al., 1994) and the SERVQUAL scores predict customer happiness and loyalty (Koc, 2019). During the early stages of its creation, the SERVQUAL model encompassed a total of ten dimensions which were Tangibles, Reliability, Responsiveness, Competence, Courtesy, Credibility, Security, Access, Communication, and Understanding (Zeithaml et al., 1988). The concept was then restructured into five distinct categories, namely Tangibles, Reliability, Responsiveness, Assurance, and Empathy (Zeithaml et al., 1990).

Tangibles: Tangibles are commonly employed by service providers as a means to bolster their reputation, ensure uniformity, and convey a sense of quality to their customer base. According to Afroz (2019), the majority of organizations incorporate tangible aspects to develop a service quality strategy for their organization. Tangibility refers to the level of cleanliness observed in different sections of an establishment, such as rooms and restaurants. It also encompasses elements like the suitability of personnel attire, the use of disposable gloves, and other relevant considerations (Mahmood et al., 2017). Service providers often utilize tangible features to enhance their reputation, maintain consistency, and communicate quality to clients. To formulate a service quality strategy, numerous organizations integrate multiple tangible components (Bayad Jamal et al., 2021).

Reliability: Parasuraman et al. (1985) defined reliability as the capacity to deliver the promised service in a manner that is both consistent and accurate. Eventually, customer satisfaction is an outcome that is attained by the combined processes of perceiving, evaluating, and psychologically responding to the level of service rendered. Hence, the establishment of trust within the automotive lubricant sector is of paramount importance, as it serves as a guarantee that the company possesses the necessary dependability to fulfil its obligations. This, in turn, can lead to an augmented level of credibility and foster loyalty towards the company's products (Cha & Seo, 2020). This is because the perception of consistency and credibility among customers will be significantly influenced by the reliability attributes exhibited by a provider or organization. Thus, the aforementioned characteristics are integral elements of service quality that a company should strive to fulfil according to their commitments and prioritize outcomes (Pakurár et al., 2019).

Responsiveness: Responsiveness is a dimension that can be measured to determine service quality (Parasuraman et al., 1985). Responsiveness relates to an organization's readiness to solve current challenges and capacity to give timely assistance and it is analogous to demonstrating a passion for assisting (Anwar & Shukur, 2015). The automotive lubricant industry, in particular, has experienced significant growth in recent times, necessitating timely and efficient responsiveness to remain competitive in the market. This aligns with the observation that the automotive sector constitutes more than 50% of the worldwide demand for lubricants, and it is projected that the market value of lubricants will reach USD 182.6 billion by 2025 owing to the increasing global need for this essential resource (Hamzah, 2021). Thus, "responsiveness" refers to the proclivity to assist consumers and provide timely service to clients to acquire customer happiness and ensure the finest service quality supplied. The simple error of selecting the wrong product has the potential to cause a major disaster. It is critical to respond to all client inquiries since failure to do so may result in a complaint about the quality of service offered (Um & Lau, 2018). For service providers who serve a large number of consumers, quick service delivery is a key component of service quality (Nguyen et al., 2018).

Assurance: The demonstration of knowledge, civility, and the capacity to inspire trust and confidence by staff is indicative of competency and reliability. Thus, the lubricant supplier must substantiate the excellence of their product and its value proposition to justify consumer expenditure. The presence of assurance is

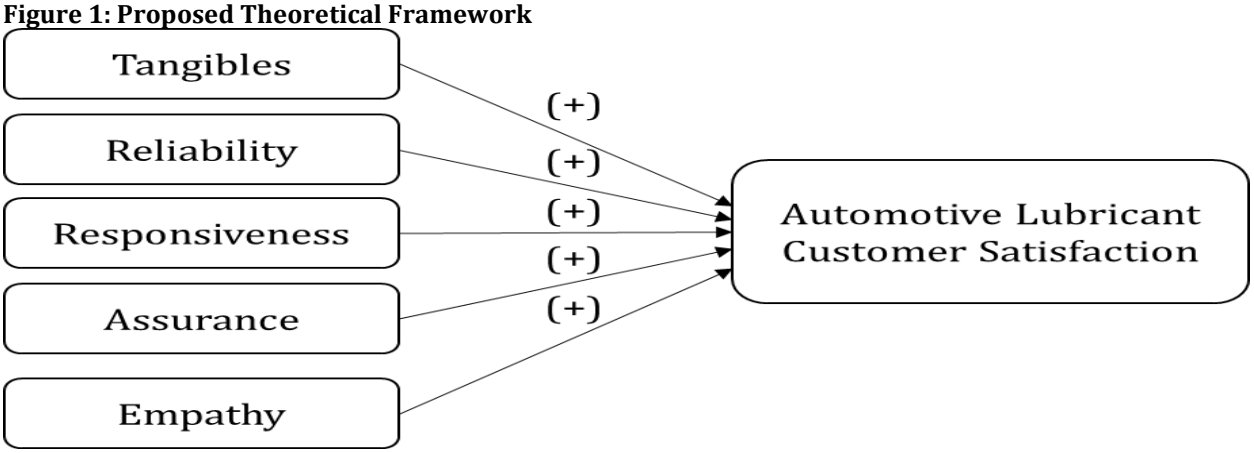
demonstrated by the employees' possession of knowledge, civility, and experience, as well as their ability to communicate with confidence to establish trust with customers (Parasuraman et al., 1994). Instead of the increased pricing and service competition brought about by the expanding demand for automotive lubricants induced by the proliferation of automobiles, it had a considerable impact on customer decision-making, notably in the sphere of logistics (Fernandes et al., 2018). Consequently, it is crucial to offer confidence to fulfil this requirement. The significance of this component is particularly notable in the context of services that are perceived by consumers as having a high level of risk or when the outcome for the client is unknown (Bayad Jamal et al., 2021).

Empathy: Empathy is defined as the capacity of a service provider to offer personalized attention and genuine concern for individuals who utilize their services. Empathy is intricately linked to an employee's capacity to comprehend the perspective and cognitive processes of the client in the context of service provision. Consequently, this engenders positive perceptions of the company's service quality among consumers (Bahadur et al., 2018). Empathy is a service attribute that encompasses the utilization of effective communication, the provision of personalized attention, and the cultivation of a comprehensive understanding of the consumer (Sinclair et al., 2017). Hence, it is imperative to comprehend the customer's requisites in the automobile lubricant sector before proceeding with their requests. This is because issues with customer service and a lack of commitment on the part of businesses or organizations were reported to correlate with the causes of customer dissatisfaction (Mahapatra, 2014). As a result, the absence of individualized attention provided by the staff members is likely to lead to adverse consequences in terms of customer satisfaction (Ali & Ratwani, 2017).

3. Theoretical Framework and Propositions

The literature review serves as a guide and offers insights into the construction of the theoretical framework in this study. The study utilized the SERVQUAL model, which was established by Parasuraman et al. (1985), to investigate the association between service quality and customer satisfaction within the Malaysian automotive lubricant business. The SERVQUAL model delineates five core dimensions that play a pivotal role in ascertaining the degree of service quality. The framework below illustrates the characteristics that are deemed significant in boosting service quality, including tangibles, reliability, responsiveness, assurance, and empathic aspects of service.

Figure 1: Proposed Theoretical Framework



Given the implications of SERVQUAL's model and the traits that have been observed, further research is needed to analyze and understand the impact of service quality on Malaysian automotive lubricant customer satisfaction. Figure 1 illustrates the theoretical framework developed to have a better understanding of the relationship between service quality and customer satisfaction. Tentatively, the following five propositions are proposed based on the theoretical framework:

- Tangibles have a significant positive effect on automotive lubricant customer satisfaction.
- Reliability has a significant positive effect on automotive lubricant customer satisfaction.

- Responsiveness has a significant positive effect on automotive lubricant customer satisfaction.
- Assurance has a significant positive effect on automotive lubricant customer satisfaction.
- Empathy has a significant positive effect on automotive lubricant customer satisfaction.

4. Conclusion

The primary objective of the present study is to establish a conceptual framework that can be utilized to identify the factors that precede consumer satisfaction in the context of automotive lubricants. While there have been several prior studies that have examined customer satisfaction, the aspect of vehicle lubricant usage has not been extensively investigated, despite its significance as a constituent of customer satisfaction factors. This study fulfilled the existing theoretical gap and mitigated the disparity in research coverage by examining the factors that influence customer satisfaction in the automotive lubricant industry, utilizing the theoretical lens of the SERVQUAL model. In this study, the SERVQUAL model was employed to establish the foundational basis for the proposed theoretical framework.

This study also serves as a basis for future research and stimulates further intellectual discussions to refine and scrutinize the suggested hypotheses. Given the utilization of a theoretical framework in this study, the subsequent phase entails conducting comprehensive literature reviews and substantiating the hypothesis through the examination of case studies or practical research. Additional research is required to verify and enhance the proposed theoretical framework. Therefore, it is recommended that future research endeavors should prioritize the utilization of both qualitative and quantitative research methodologies to investigate the correlation between the factors that influence consumer satisfaction with automotive lubricants. To validate the proposed theoretical framework, it is highly recommended to incorporate viewpoints from both practitioners and academia.

References

Aizarani, J. (2023). Global Lubricants Demand 2000-2028. https://www.statista.com/statistics/411616/lubricants-demand-worldwide/

Ali, A. & Ratwani, B. (2017). Customers' satisfaction in Indian banks: Problems and solutions. *International Journal of Economic Research,* 14(9), 69-76.

Ali, B. J., Gardi, B., Othman, B. J., Ahmed, S. A., Ismael, N. B., Hamza, P. A., Aziz, H. M., Sabir, B. Y. & Anwar, G. (2021). Hotel Service Quality: The Impact of Service Quality on Customer Satisfaction in Hospitality. *International Journal of Engineering, Business and Management,* 5(3), 14-28.

Ali, B. J., Saleh, P. F., Akoi, S., Abdulrahman, A. A., Muhamed, A. S., Noori, H. N. & Anwar, G. (2021). Impact of service quality on customer satisfaction: A case study at online meeting platforms.

Alid, H. M., Hashime, N. A. & Paisalf, S. M. M. (2021). An analysis of end-of-life vehicle policy implementation in Malaysia from the perspectives of laws and public perception. *Jurnal Kejuruteraan*, 33(3), 709-718.

Anazawa, M. (2021). The automotive industry in Malaysia. Martin Schröder Fusanori Iwasaki, 61.

Anwar, G. & Shukur, I. (2015). The Impact of Service Quality Dimensions on Students' Satisfaction. International Journal of Social Sciences & Educational Studies, 76.

Bahadur, W., Aziz, S. & Zulfiqar, S. (2018). Effect of employee empathy on customer satisfaction and loyalty during employee–customer interactions: The mediating role of customer affective commitment and perceived service quality. *Cogent Business & Management,* 5(1), 1491780.

Balinado, J. R., Prasetyo, Y. T., Young, M. N., Persada, S. F., Miraja, B. A. & Redi, A. A. N. P. (2021). The effect of service quality on customer satisfaction in an automotive after-sales service. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 116.

Bamutire, A. (2021). Customer Satisfaction and Brand Loyalty of Shell Automotive Lubricants Customers Makerere University Business School].

Bayad Jamal, A., Gardi, B., Jabbar Othman, B., Ali Ahmed, S., Burhan Ismael, N., Abdalla Hamza, P., Mahmood Aziz, H., Sabir, B. Y., Sorguli, S. & Anwar, G. (2021). Hotel service quality: The impact of service quality on customer satisfaction in hospitality. *International Journal of Engineering, Business and Management*, 5(3), 14-28.

Borhan, M. N., Ibrahim, A. N. H., Syamsunur, D. & Rahmat, R. A. (2019). Why public bus is a less attractive mode of transport: A case study of Putrajaya, Malaysia. *Periodica Polytechnica Transportation Engineering,* 47(1), 82-90.

Cha, S. S. & Seo, B. K. (2020). The effect of food delivery application on customer loyalty in restaurants. *Journal of Distribution Science*, 18(4), 5-12.

Dahalan, D., D'Silva, J. L., Abdullah, H., Ismail, I. A. & Ahmad, N. (2015). Youth confidence in the quality of public transport services: The case of Greater KL, Malaysia. *Geografia,* 11(9).

Fernandes, D. W., Moori, R. G. & Filho, V. A. V. (2018). Logistic service quality as a mediator between logistics capabilities and customer satisfaction. *Revista de Gestão,* 25(4), 358-372.

Fernando, Y., Tseng, M. L., Sroufe, R., Abideen, A. Z., Shaharudin, M. S. & Jose, R. (2021). Eco-innovation impacts on recycled product performance and competitiveness: Malaysian automotive industry. *Sustainable Production and Consumption*, 28, 1677-1686.

Gilles, T. (2019). Automotive service: Inspections, maintenance, repair. Cengage Learning. Growth from Knowledge (GfK). (2012). PFC Energy Malaysia Report.

Hamzah, Z. L. (2021). Assessing the Interrelationships of Customer-Based Brand Equity: The Case of Automobiles Lubricant Industry in Malaysia. *International Journal of Innovation and Business Strategy (IJIBS)*, 15(2).

Iskandar, M. & Ariffin, A. (2019). Relationship between National Automotive Policy (NAP), innovation and automotive vendors' performance in Malaysia. *Management Science Letters*, 9(8), 1181-1198.

Kaitwade, N. (2021). COVID-19 shatters global automotive industry; sales of metal powder take a nosedive amid wavering demand. *Metal Powder Report*, 76(3), 137-139.

Koc, E. (2019). Do Women Make Better in Tourism and Hospitality? A Conceptual Review from a Customer Satisfaction and Service Quality Perspective, *Journal of Quality Assurance in Hospitality & Tourism*, 21(4), 402-429.

Mahapatra, S. N. (2014). An empirical analysis of the cause of consumer dissatisfaction and the reasons why consumers endure dissatisfaction. *Serbian Journal of Management*, 9(1), 71-89.

Mahmood, O. K., Kareem, J. A. H., Rashid, W. N. & Abdulla, D. F. (2017). Facility layout design and its impact on the Healthcare Service Quality in Teaching Hospital and Paediatric Teaching Hospital in Sulaymaniyah city. *International Review of Management and Marketing,* 7(2), 174-179.

Malaysian Automotive Association. (2023). Sales & Production Statistics. http://www.maa.org.my/statistics.html

Mattioli, G., Roberts, C., Steinberger, J. K. & Brown, A. (2020). The political economy of car dependence: A systems of provision approach. *Energy Research & Social Science,* 66, 101486.

Ministry of International Trade and Industry. (2020). National Automotive Policy 2020. Retrieved from https://www.miti.gov.my/index.php/pages/view/nap2020

Mordor Intelligence. (2020). Malaysia Lubricants Market - Size, Share, Covid-19 Impact and Forecasts Up to 2026. https://www.mordorintelligence.com/industry-reports/malaysia-lubricants-market#:~:text=Malaysia%20Lubricants%20Market%20Analysis,534.03%20million%20liters%20in%202026.

Nahida Afroz, N. (2019). Effect of service quality on customer satisfaction evidence from banks in Tangail. *Management studies and economic systems*, 4(2), 145-159.

Nguyen, Q., Nisar, T. M., Knox, D. & Prabhakar, G. P. (2018). Understanding customer satisfaction in the UK quick service restaurant industry: The influence of the tangible attributes of perceived service quality. *British Food Journal*, 120(6), 1207-1222.

Nunkoo, R., Teeroovengadum, V., Ringle, C. M. & Sunnassee, V. (2020). Service quality and customer satisfaction: The moderating effects of hotel star rating. *International Journal of Hospitality Management*, 91, 102414.

Pakurár, M., Haddad, H., Nagy, J., Popp, J. & Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability,* 11(4), 1113.

Panday, R. & Nursal, M. F. (2021). The effect of service quality and customer satisfaction on customer loyalty. *Jurnal manajemen strategi dan aplikasi bisnis*, 4(1), 171-180.

Parasuraman, A., Berry, L. L. & Zeithaml, V. A. (1991). Perceived service quality as a customer-based performance measure: An empirical examination of organizational barriers using an extended service quality model. *Human resource management,* 30(3), 335-364.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41-50.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L. (1994). Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing,* 70(3), 201-230.

Petti, C., Spigarelli, F., Lv, P. & Biggeri, M. (2021). Globalization and innovation with Chinese characteristics: the case of the automotive industry. *International Journal of Emerging Markets,* 16(2), 303-322.

Rossegger, B., Eder, M., Vareka, M., Engelmayer, M. & Wimmer, A. (2021). A novel method for lubrication oil consumption measurement for wholistic tribological assessments of internal combustion engines. *Tribology International*, 162, 107141.

Shahabudin, N. D. & Cahyandito, M. F. (2020). RAISING THE PERFORMANCE OF AUTOMOTIVE LUBRICANT COMPANIES THROUGH MARKET ORIENTATION AND BUSINESS STRATEGY–CASE OF INDONESIA. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 2283-2294.

Sinclair, S., Beamer, K., Hack, T. F., McClement, S., Raffin Bouchal, S., Chochinov, H. M. & Hagen, N. A. (2017). Sympathy, empathy, and compassion: A grounded theory study of palliative care patients' understandings, experiences, and preferences. *Palliative medicine*, 31(5), 437-447.

Suffian, F. (2020). The Politics and Institutional Arrangements in Malaysia's Automotive Industry. *Journal of Southeast Asian Economies*, 37(1), 47-64.

Tan, C. L. (2022). Effectiveness of marketing communication strategies in influencing consumer knowledge on's brand automotive lubricant UTAR].

Um, K. H. & Lau, A. K. (2018). Healthcare service failure: how dissatisfied patients respond to poor service quality. *International Journal of Operations & Production Management*, 38(5), 1245-1270.

Verma, A., Gahtori, S. & Sharma, J. (2023). Analysis of the Various Lubricants Used in the Different Machining Processes to Improve the Quality of Life of Products and Personnel's Hacks. *Journal for ReAttach Therapy and Developmental Diversities*, 6(2s), 140-144.

Zeithaml, V. A., Berry, L. L. & Parasuraman, A. (1988). Communication and Control Processes in the Delivery of Service Quality. *Journal of Marketing*, 52(2), 35-48. https://doi.org/10.2307/1251263

Zeithaml, V. A., Parasuraman, A., Berry, L. L. & Berry, L. L. (1990). Delivering quality service: Balancing customer perceptions and expectations. Simon and Schuster.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Sustainable Waste Management in Malaysia: Leveraging Supply Chain Solutions for a Greener Future

Azlina Muhammad[1], Babudass M. Naidu[2], Veera Pandiyan Kaliani Sundram[3], Muhammad Zaly Shah Muhammad Hussain[4], Li Lian Chew[5], Faizatul Akmam Amirrudin[6]*,
[1,6]Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
[2]Bumi Sendayan Sdn. Bhd., Petaling Jaya, Selangor, Malaysia
[3]Research Initiative Group (RIG) Sustainable Supply Chain Logistics, Universiti Teknologi MARA, Faculty of Business and Management, Malaysia
[4]Universiti Teknologi Malaysia, Faculty of Built Environment and Surveying, Malaysia
[5]Binary University, Binary Business School, Selangor, Malaysia
azlina59@uitm.edu.my, babudass@bumisendayan.com, veera692@uitm.edu.my, lilian@binary.edu.my, *akmamamir671@uitm.edu.my

Abstract: Sustainable waste management has become a critical global concern, and Malaysia is no exception. With the country's increasing urbanization and economic growth, waste generation has risen significantly, posing environmental and social challenges. This paper explores the concept of sustainable waste management in Malaysia and proposes leveraging supply chain solutions as a pathway towards a greener future. The study examines the current waste management practices, their limitations, and the potential environmental impacts. It highlights the need for integrated and innovative approaches encompassing the entire waste management supply chain, from collection to disposal. By adopting sustainable supply chain practices, such as waste segregation, recycling, and waste-to-energy conversion, Malaysia can achieve more efficient resource utilization, reduce greenhouse gas emissions, and minimize landfill usage. Furthermore, the paper addresses the role of government policies, private sector engagement, and public awareness in fostering a successful transition towards sustainable waste management. The findings and recommendations presented in this study contribute to the ongoing efforts to develop a comprehensive and eco-friendly waste management system in Malaysia and serve as a model for other developing nations facing similar challenges.

Keywords: *Sustainable waste management, Waste-To-Energy, Green future, Supply chain solution, Malaysia.*

1. Introduction

Waste management is a significant issue in Malaysia, with over 30,000 tons of municipal solid waste (MSW) generated daily, leading to 1.17kg of waste per capita. If not addressed, this problem will deplete land resources by 2050 as landfills continue to take up more space. The increase in waste is linked to population growth, and improper waste management contributes to climate change by releasing greenhouse gases like methane. Malaysia's recycling rate is lower than other Asian countries, at 30.67% in 2020. To tackle this, experts emphasize the 7R approach: recycle, reuse, reduce, repurpose, reuse, repair, and rethink. Changing consumer mindsets is crucial, and initiatives like using biodegradable plastic bags and straws are encouraging. Separation at source is a fundamental principle for waste reduction, particularly for food waste, which forms the most significant portion of MSW. Converting food waste into energy through biogas plants and sustainable waste management in neighborhoods can help alleviate environmental pressure. Transitioning from a linear to a circular economy is essential for sustainable waste management.

This involves extending product lifespans, recycling, and reusing resources to reduce waste sent to landfills. Despite others' actions, individuals should persist in their efforts toward achieving a zero-waste society. Overall, it requires collective action and a change in mindset to address Malaysia's waste management challenges effectively (Sundram et al., 2016; Vatumalae et al., 2022; Vatumalae et al., 2023). Furthermore, Malaysia faces a critical waste management issue, with landfills reaching their capacity and the risk of running out of disposal space by 2050. Around 38,000 metric tons of solid waste are sent to over 100 landfills daily. To address this pressing challenge, authorities and operators seek sustainable waste disposal solutions by incorporating supply chain concepts. Alam Flora Sdn Bhd's COO, Azahari Zainal Abidin, highlights the importance of reducing waste sent to landfills through supply chain optimization, improved recycling rates, and waste-to-energy (WTE) initiatives that align with circular economy principles and Sustainable Development Goals.

By applying supply chain optimization techniques, waste management processes can be streamlined, reducing waste generation and enhancing the efficiency of waste collection, transportation, and disposal (Sundram et al., 2023a; Sundram et al., 2023b). WTE plants play a crucial role in the waste management supply chain, as they can convert waste into renewable energy, reducing the reliance on landfills and minimizing environmental risks. The strategic placement of these plants within the supply chain can help optimize resource utilization and support a more sustainable approach to waste disposal. Several measures are proposed to integrate further supply chain principles, including establishing WTE plants in various states and implementing a "trash-to-cash" drive as part of waste diversion initiatives. Emphasizing reverse logistics within the supply chain can facilitate the return and recovery of recyclable materials from consumers and industries, aligning with circular economy principles and reducing waste sent to landfills (see Figure 1). Achieving the recycling target of 40% by 2025 requires comprehensive collaboration among stakeholders within the waste management supply chain. Engaging the community, corporate sector, and government agencies is crucial in raising public awareness and fostering a sense of responsibility for sustainable waste management practices. Alam Flora's Integrated Recycling Facility incorporates supply chain practices from developed countries, integrating recycling activities into waste management. However, public awareness remains challenging, leading to significant yearly recyclable resource losses. Education and community involvement are vital to transforming waste management practices and building a sustainable future through an optimized waste management supply chain (Sivan et al., 2023).

Figure 1: An Overview of Forward Supply Chain and Waste Management Processes



2. Literature Review

Waste-to-energy (WtE) refers to the process of generating energy by converting various types of waste materials, typically in the form of electricity or heat. This method is an alternative to traditional landfill disposal, where waste is buried and decomposed over time. Instead of allowing waste to accumulate and potentially release harmful gases into the atmosphere, waste-to-energy facilities use advanced technologies to extract value from the waste stream.

The typical waste materials used in waste-to-energy facilities include:

Municipal Solid Waste (MSW): Household and commercial waste, such as food scraps, paper, plastic, and other non-recyclable materials.

Industrial Waste: Waste generated by industries, including manufacturing, construction, and other industrial processes.

Biomass: Organic materials like agricultural residues, wood, and certain types of waste from the forestry and agricultural sectors.

There are several methods for converting waste to energy, with the most common ones being:

Incineration: This involves burning waste at high temperatures in a controlled environment. The heat generated during incineration is used to produce steam, which, in turn, drives turbines to generate electricity.

Anaerobic Digestion: This process involves breaking down organic waste in the absence of oxygen, producing biogas (methane and carbon dioxide). Biogas can be used as a fuel for generating electricity and heat.

Gasification: In gasification, waste materials are heated in an environment with limited oxygen, producing a synthetic gas (syngas) composed of carbon monoxide, hydrogen, and methane. Syngas can be burned to generate electricity or further processed into fuels.

Waste-to-energy facilities have several benefits, including:

- Reducing the volume of waste going to landfills helps mitigate landfill space issues.
- Generating electricity and heat from materials that would otherwise go to waste.
- Lowering greenhouse gas emissions by capturing methane from organic waste and using it for energy production.
- Providing a more sustainable waste management solution compared to traditional landfilling.

Waste-to-energy (WtE) is an innovative and sustainable approach to managing municipal solid waste while generating valuable energy. Integrating supply chain principles and practices in waste-to-energy solutions presents opportunities to optimize resource utilization, reduce environmental impacts, and contribute to a greener future. This literature review explores the key aspects of how the supply chain can facilitate waste-to-energy solutions and the associated benefits.

Waste Collection and Segregation: Supply chain principles can be applied to improve waste collection and segregation, essential steps in the waste-to-energy process. Scholars like Xu et al. (2020) highlight that efficient collection systems, using innovative technology and optimized routing, can enhance waste pick-up and minimize transportation costs. Moreover, adequate waste segregation at the source facilitates the separation of organic waste from non-recyclables, improving feedstock quality for waste-to-energy conversion (He et al., 2019).

Waste-to-Energy Conversion Technologies: Supply chain expertise contributes to selecting and deploying appropriate waste-to-energy conversion technologies. According to Sarker and Ohiomah (2021), the supply chain can assess waste composition, availability, and regulatory requirements to choose the most suitable technology, incineration, anaerobic digestion, or gasification. This ensures efficient energy generation while considering environmental and economic factors.

Logistics and Transportation: Supply chain management plays a vital role in the logistics and transportation of waste to energy conversion plants. Studies by Ghiani et al. (2019) suggest that optimizing transportation routes, utilizing intermodal transport, and coordinating collection schedules can minimize emissions and transportation costs, thus increasing the sustainability of the overall waste-to-energy supply chain.

Feedstock Management: Efficient supply chain practices are essential for managing feedstock in waste-to-energy systems. Researchers like Chang et al. (2020) emphasize the need for effective inventory management and storage to ensure a consistent and reliable supply of waste feedstock to maintain the energy production process.

Stakeholder Collaboration: Collaboration among stakeholders is crucial for successful waste-to-energy supply chain solutions. Li et al. (2018) argue that effective communication and cooperation between waste management authorities, technology providers, energy producers, and regulatory bodies can streamline the waste-to-energy value chain and overcome potential challenges (Zailani et al., 2023). Integrating supply chain principles in waste-to-energy solutions offers a promising pathway for optimizing waste management and energy generation. Literature suggests that efficient waste collection, appropriate technology selection, logistics optimization, and stakeholder collaboration are vital for a sustainable and prosperous waste-to-energy supply chain. Embracing these practices will not only address waste management challenges but also contribute to the development of a greener and more sustainable future.

3. Research Methodology

The primary objective of this research is to develop a conceptual framework for sustainable waste management in Malaysia, specifically focusing on integrating supply chain solutions. The research aims to synthesize existing literature to create a coherent and comprehensive framework that guides sustainable waste management practices. This study conducts a systematic and thorough literature search to gather relevant academic papers, reports, studies, and policy documents related to waste management, sustainability, and supply chain solutions in Malaysia. Utilize reputable databases and academic journals to review the existing body of knowledge comprehensively. Establish explicit inclusion and exclusion criteria to select the most relevant literature for the conceptual framework development. Focus on scholarly and peer-reviewed sources, and ensure that the selected literature aligns with the research objectives. Extract important information, concepts, theories, and findings from the selected literature pertinent to sustainable waste management and incorporating supply chain practices. Categorize and organize the extracted data to facilitate the framework development process. Synthesize the extracted data from the literature to identify common themes, trends, and relationships related to sustainable waste management with a supply chain perspective.

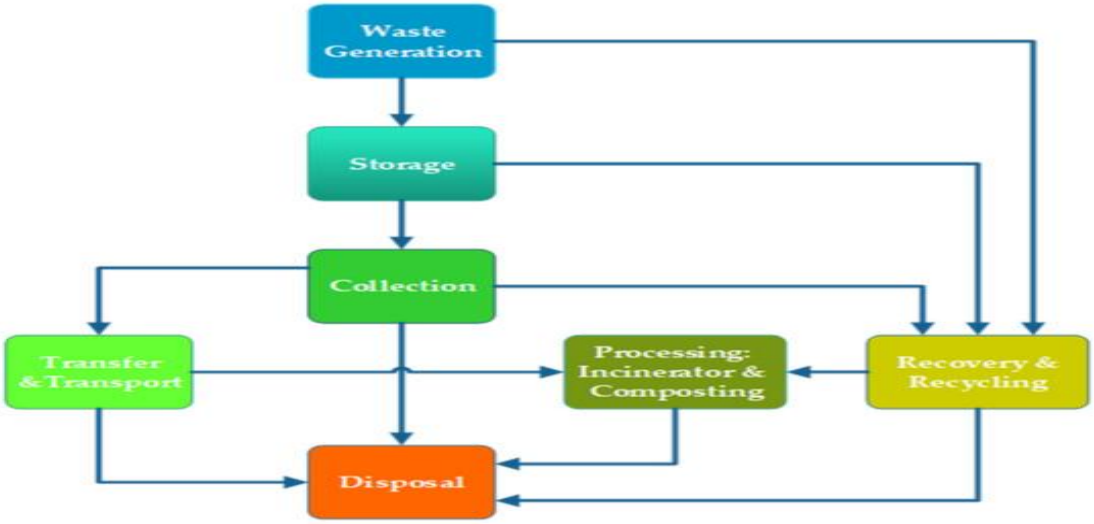
Analyze how various supply chain principles, such as waste reduction, recycling, and waste-to-energy conversion, are interconnected in waste management. Evaluate the effectiveness and feasibility of the identified supply chain solutions within Malaysia's waste management challenges and opportunities. Provide evidence-based recommendations on how these supply chain solutions can be integrated into existing waste management systems to achieve a greener and more sustainable future. While no primary data collection is involved, ethical considerations still apply, such as proper citation and acknowledgment of the original author's work in the literature review and ensuring an accurate representation of the data sources. This research methodology focuses on conducting a thorough literature search and reviews to gather information about supply chain solutions for sustainable waste management in Malaysia. By drawing insights from existing knowledge and research, the study aims to offer valuable recommendations for enhancing waste management practices in the country and promoting a greener future.

4. Results

However, waste-to-energy also faces challenges, such as environmental concerns related to emissions, potential impacts on recycling rates, and public perception. Thus, it is essential to carefully manage waste-to-energy processes and adhere to strict environmental standards to ensure minimal adverse impacts. The waste management issue in Malaysia can be addressed using supply chain principles and strategies. By applying supply chain concepts to waste management, we can optimize the process, reduce waste generation, and enhance resource utilization, ultimately contributing to a more sustainable and efficient waste management system. Here are how supply chain solutions can be related to the problem:

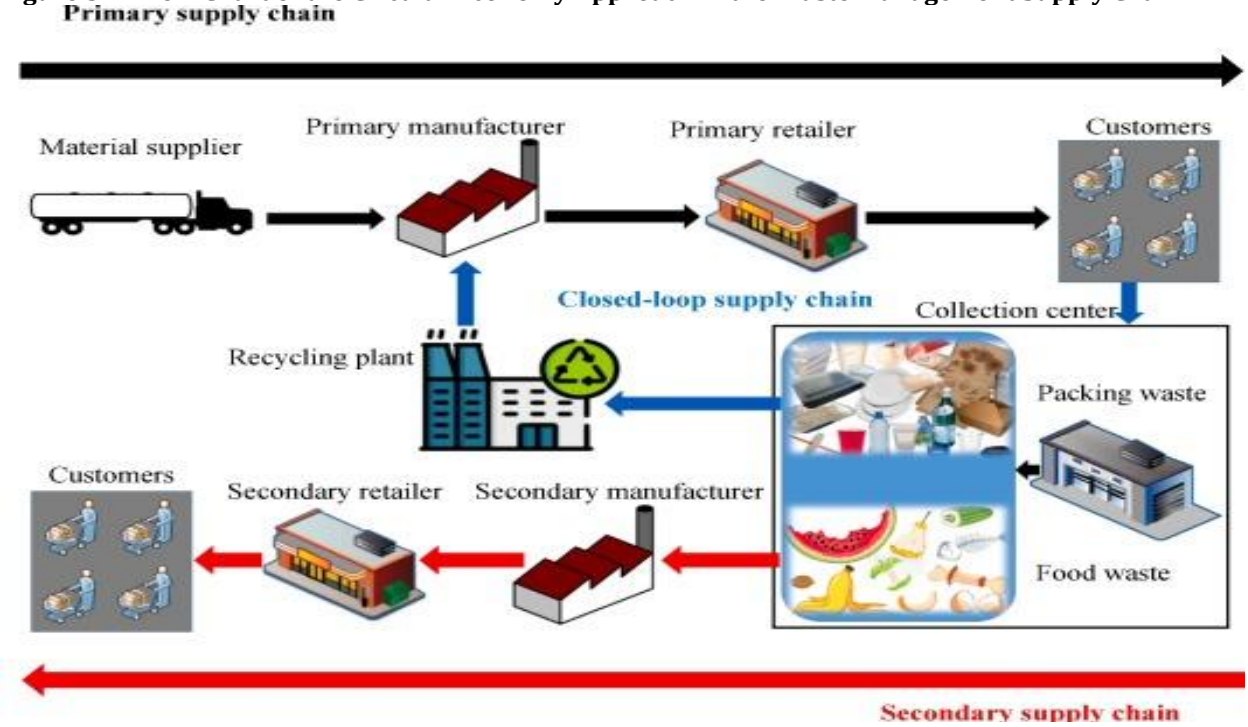
Waste Reduction through Supply Chain Optimisation: Supply chain optimization techniques can be applied to identify inefficiencies in waste collection, transportation, and disposal processes (see Figure 2). By streamlining these activities, we can reduce overall waste generation and improve the effectiveness of waste management operations.

Figure 2: A Flow Chart of Waste Reduction through Supply Chain Optimization



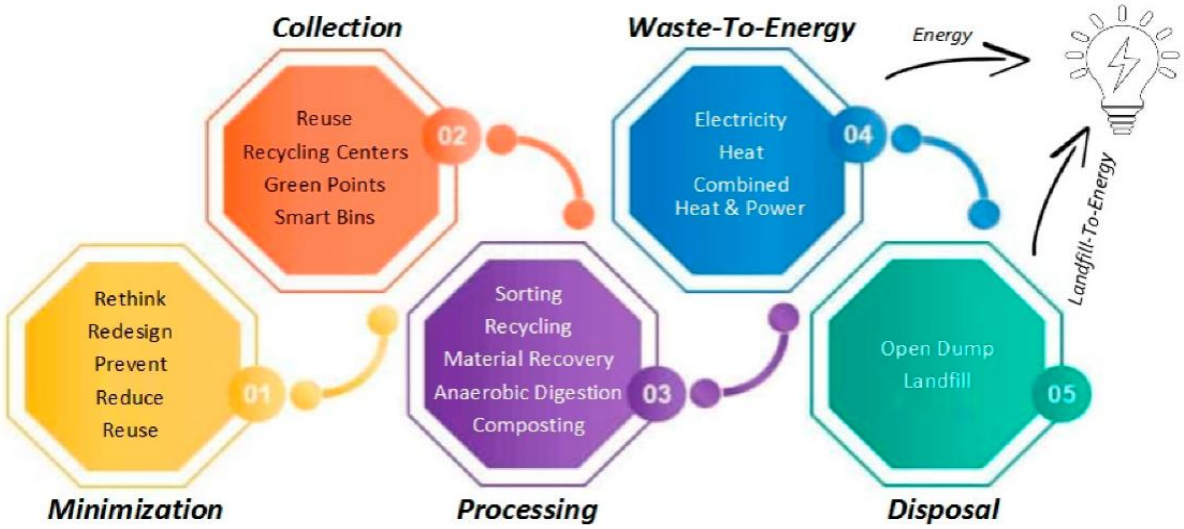
Recycling and Circular Economy: Adopting a circular economy approach in the waste management supply chain can significantly reduce the reliance on landfills (see Figure 3). Recycling initiatives can be integrated into the supply chain to ensure that waste materials are repurposed, reused, and reintroduced into the production cycle, thereby minimizing waste sent to landfills.

Figure 3: A Flow Chart of the Circular Economy Approach in the Waste Management Supply Chain



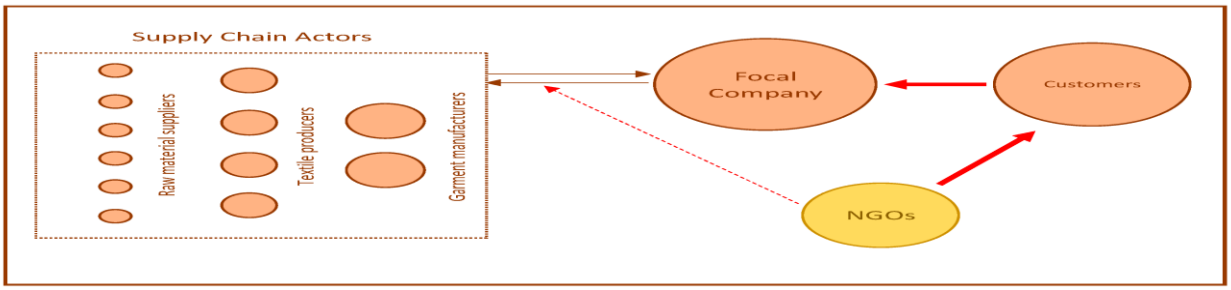
Waste-to-Energy Solutions: Implementing waste-to-energy (WTE) plants can be seen as a valuable addition to the waste management supply chain. These facilities can convert organic waste into renewable energy, effectively transforming waste into a valuable resource (see Figure 4). By integrating WTE facilities strategically within the supply chain, we can mitigate environmental risks associated with landfill disposal and contribute to sustainable energy production (Vlachokostas, 2020).

Figure 4: WTE Supply Chain Management Model



Supply Chain Collaboration and Engagement: Collaboration among various stakeholders within the waste management supply chain, including government agencies, waste collectors, recyclers, and industries, is essential (see Figure 5). Engaging the community and corporate sectors can foster awareness and responsibility for waste management, encouraging participation and efficient waste disposal practices (Bakar et al., 2016).

Figure 5: Supply Chain Players in the Collaborative Model



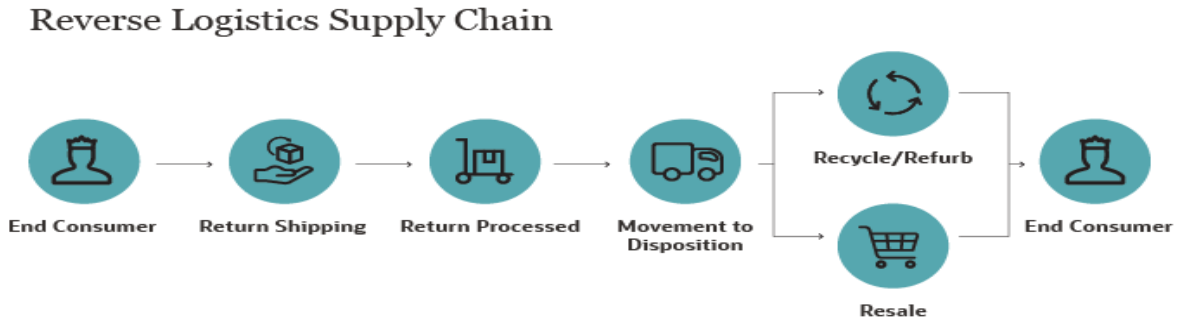
Data and Technology Integration: Leveraging data and technology in waste management supply chains can optimize waste collection routes, track waste quantities, and identify areas for improvement (see Figure 6). IoT-enabled sensors and analytics can provide real-time insights, helping authorities make informed decisions to address waste management challenges effectively (Selvaraju et al., 2019).

Figure 6: Leveraging Data and Technology in Waste Management Supply Chains



Reverse Logistics for Recycling: Implementing a well-designed reverse logistics system can facilitate the return and recovery of recyclable materials from consumers and industries (see Figure 7). This process ensures that valuable resources are not wasted and can be reintroduced into the supply chain, aligning with circular economy principles (Ali et al., 2020).

Figure 7: Reverse Logistics System in Waste Management Supply Chains



5. Conclusion

In conclusion, sustainable waste management in Malaysia is a pressing issue that requires immediate attention and concerted efforts from various stakeholders. As urbanization and economic activities expand, waste generation increases, leading to significant environmental and social impacts. This research highlights the importance of adopting supply chain solutions to achieve a greener future and address the challenges posed by waste. Malaysia can make substantial progress toward resource efficiency and environmental conservation by embracing sustainable waste management practices, such as waste segregation, recycling, and waste-to-energy conversion. Integrating these practices into the waste management supply chain offers opportunities to reduce greenhouse gas emissions, minimize landfill usage, and promote circular economy principles. A multi-pronged approach is crucial to ensure these solutions can be implemented successfully. This involves active collaboration between the government, the private sector, and the public.

Policymakers should introduce supportive regulations and incentives to encourage sustainable practices throughout the waste management process. The private sector can play a pivotal role by investing in innovative technologies and infrastructure for waste treatment and recycling. Public awareness campaigns are also vital to promote responsible waste disposal habits and enhance community engagement. This research is a foundation for guiding policymakers, businesses, and citizens toward a more sustainable waste management system in Malaysia. As the nation embraces these strategies, it can pave the way for a greener future, minimizing the environmental burden of waste while unlocking the potential for valuable resource recovery. Moreover, the insights gained from this study may serve as a valuable reference for other developing countries facing similar waste management challenges. Through collective action and a commitment to sustainability, Malaysia can lead the way toward a cleaner and more environmentally responsible future.

References

Ali, S. N. R., Rajagopal, P., Sundram, V. P. K., Saihani, S. B. & Noranee, S. (2020). ERP System Implementation in a Leading LED Manufacturing in Malaysia: A Supply Chain Perspective. *International Journal of Supply Chain Management*, 9(2), 104.

Bakar, N. A., Peszynski, K., Azizan, N. & Sundram, V. P. K. (2016). Abridgment of traditional procurement and e-procurement: definitions, tools and benefits. *Journal of Emerging Economies and Islamic Research*, 4(1), 74-91.

Chang, J., Park, M. & Yoo, S. (2020). Feedstock management for sustainable waste-to-energy supply chain: A case study in South Korea. *Journal of Cleaner Production*, 256, 120392.

Ghiani, G., Manni, A., Manni, E. & Toraldo, M. (2019). Sustainable municipal solid waste logistics and management: A holistic and data-driven approach. *Waste Management*, 84, 258-267.

He, P., Zhu, Q., Triantaphyllou, E., Wang, X. & Chen, H. (2019). A literature review on the selection of waste-to-energy technologies for municipal solid waste. *Waste Management,* 87, 178-192.

Li, X., Bai, Y. & Chen, Z. (2018). An integrated waste-to-energy supply chain: The state of the research and future opportunities. *Waste Management,* 78, 178-190.

Sarker, M. A. R. & Ohiomah, N. (2021). Sustainable waste-to-energy: A review of technology and policy. *Renewable and Sustainable Energy Reviews*, 139, 110695.

Selvaraju, M., Bhatti, M. A., Sundram, V. P. K. & Saiful Azmir, K. (2019). The Influence of Critical Success Factor of Lean Six Sigma towards Supply Chain Performance in Telecommunication Industry, Malaysia, *International Journal of Supply Chain Management*, 8(6), 1062-1068.

Sivan, S., Chew, L. L., Ghapar, F., Sundram, V. P. K. & Munir, Z. A. (2023). The relationship between information technology and logistics integration: A case study of Malaysia's logistics and distribution industry, *SMART Journal of Business Management Studies,* 19(2), 1-11.

Sundram, V. P. K., Bahrin, A. S. & Govindaraju, V. C. (2016). Supply chain management: Principles, measurement and practice. University of Malaya Press.

Sundram, V. P. K., Ghapar, Chew, L. L. & Muhammad, A. (2023b). Engaging Lean Six Sigma Approach Using DMAIC Methodology for Supply Chain Logistics Recruitment Improvement, *Information Management and Business Review,* 15(1), 46-53.

Sundram, V. P. K., Ghapar, F. Osman, M. F., Chew, L. L. & Muhammad, A. (2023). Lean Six-Sigma Approach for Sub-Contract Licensing and its Process Improvement across the Manufacturing Supply Chain using GUT Priority Matrix, *Information Management and Business Review,* 15(2), 1-8.

Vatumalae, V., Rajagopal, P., Sundram, V. P. K. & Hua, Z. (2022). A study of retail hypermarket warehouse inventory management in Malaysia. *SMART Journal of Business Management Studies*, 18(1), 71-79.

Vatumalae, V., Rajagopal, P., Sundram, V. P. K., Zarina, A. M. & Ghapar, F. (2023). Linking Factors Leading to Retail Hypermarket Warehouse *Operations Performance in Malaysia SMART Journal of Business Management Studies,* 19(1), 1-9.

Vlachokostas, C. (2020). Closing the Loop Between Energy Production and Waste Management: A Conceptual Approach Towards Sustainable Development. *Sustainability*, 12, 2-15.

Xu, X., Zhang, J., Dong, J., Lu, Y., Li, M. & Nie, Z. (2020). Optimal routing and waste collection coordination for waste-to-energy facilities in smart cities. *Applied Energy*, 264, 114658.

Zailani, Q. N. N., Sundram, V. P. K., Ibrahim, I. & Senathirajah, A. R. S. (2023). Plan-do-Check-Act Cycle: A Method to Improve Customer Satisfaction at a Municipal Council in Malaysia, *International Journal of Professional Business Review,* 8(4), 2-16.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Energy Efficiency of Kenaf Cultivation in Kelantan, Malaysia by Using Data Envelopment Analysis

Rabiatul Munirah Alpandi[1*], Fatin Farazh Yaacob[2], Siti Mariam Melissa Abdullah[3], Siti Hawa Yusof[4], Muhammad Syafiq Mohd Salam[5]
[1]Faculty Business and Management, Universiti Teknologi Mara, Puncak Alam, Selangor, Malaysia
[2]Faculty Business and Management, Universiti Teknokogi Mara, Segamat, Johor, Malaysia
[3]Centre of Foundation Studies, Universiti Teknologi Mara, Dengkil, Selangor, Malaysia
[4]Faculty of Business, Taylors University, Subang Jaya, Selangor, Malaysia
[5]Maybank Investment, Malaysia
*rabiatulmunirah@uitm.edu.my, fatinfarazh@uitm.edu.my, mariammellisa@uitm.edu.my, sitihawa.yusof@taylors.edu.my

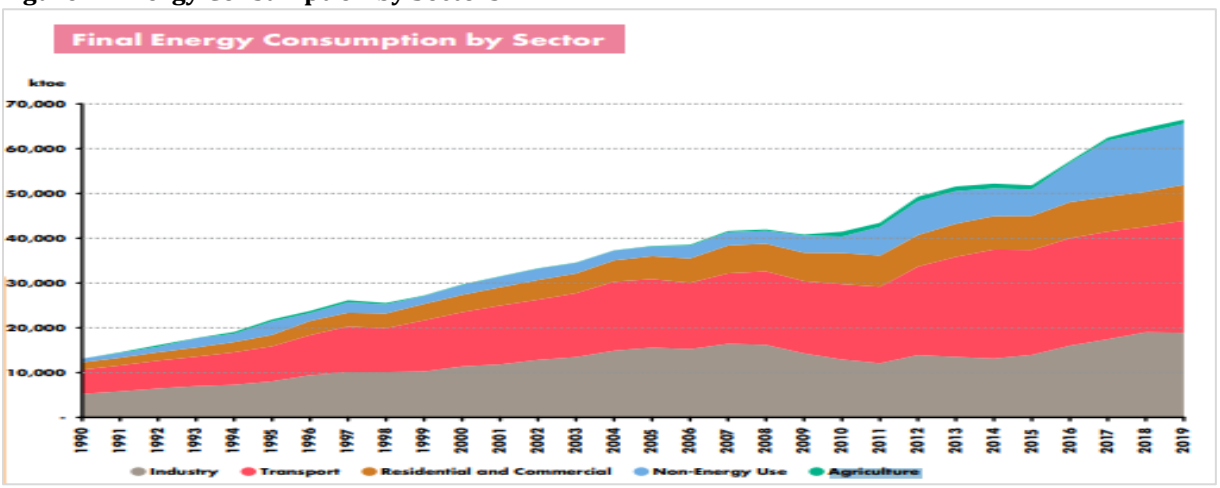
Abstract: Agricultural production has become aggressive energy concentrated in a determination to supply more food to the increasing population and provide sufficient and adequate essentials. The limited natural resources and the effect of the use of different energy sources on the environment and human health such as global warming, it is necessary to investigate energy consumption patterns in agriculture. In this study data envelopment analysis method approach has been used to determine the efficiencies of kenaf farmers concerning energy use in kenaf cultivation production activities in Kelantan, Malaysia. The study's empirical result will help to segregate the 15 most efficient farmers and inefficient ones. Other than that, the data envelopment analysis method also will help to identify wasteful uses of energy from different sources by inefficient farmers and to suggest reasonable savings in energy uses from different sources of inputs. The rank method and distribution of virtual inputs are used to get insights into the individual Kenaf farmer performance, rank efficient farmers and identify the improved operating practices followed by a group of truly efficient Kenaf farmers. The result of the analysis indicates the average value of technical efficiency (TE), Pure technical efficiency (PTE) and Scale efficiency (SE) scores of kenaf cultivation production were 0.854, 0.962 and 0.887 respectively. These results imply that all inefficient farmers operate at optimum scale size and management and 11.3% energy saving is possible without affecting the Kenaf yield level. The result also reveals the higher potential contribution to the total energy saving is from fertilizer (86.5%), Diesel (13%), Pesticides (0.3%) and human labor (0.2%).

Keywords: *Data envelopment analysis, kenaf production, Energy use efficiency, cultivation, agriculture.*

1. Introduction and Background

Agricultural production has become more energy intensive in a determination to supply more food to the increasing population and provide sufficient and adequate essentials (Amid et al., 2016). Considering the limited natural resources and the effect of the use of different energy sources on the environment and human health such as global warming, it is necessary to investigate energy consumption patterns in agriculture (Chopra et al., 2022). Measuring the energy efficiency of farming is required in both developing and developed countries (Sefeedpari et al., 2012). Energy is used in every form of input such as human labor, seed, fertilizer, pesticides, diesel, electricity and machinery to perform various operations for crop production. In Malaysia, energy consumption by sectors in Malaysia and agriculture is shown to have increasing trends in energy consumption from the year 1990 to 2019. This can be shown in Figure 1.

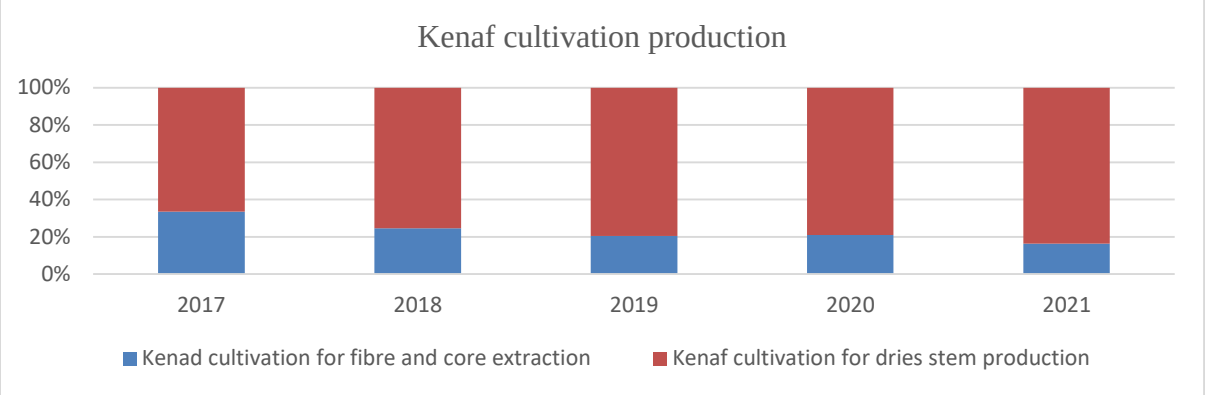
Figure 1: Energy Consumption by Sectors



(Sources: Malaysia Energy statistics, 2021).

Kenaf is an industrial crop with a high potential for cultivation in tropical climates. It is a main raw source production of fiber-based industries such as gunny sack, automotive components, yarn, textile, craft, non-woven and geotextile (MPIC, 2012). Otherwise, it's also important in the cordage and sacking manufacture as a substitute for jute. Kenaf also has been utilized as a part of car bodies which is seen as an effort to make vehicles sustainable, (Hassan et al., 2017) and has been used for building materials such as paneling, flooring, ceiling plaster, roofing, and fibreboard. The trend of kenaf production in Malaysia shows an increasing pattern. This can be shown in Figure 2 which shows the production of kenaf for fiber and dried stem (sources: Lembaga Kenaf dan Tembakau Negara (LKTN), 2022).

Figure 2: Kenaf Cultivation Production



(Sources: LKTN, 2022).

The increase in Kenaf production also causes an increase in energy consumption as well since Kenaf cultivation will utilize fertilizer, pesticides, human labor, and diesel to boost production in the market, (Abdul-Hamid et al., 2009). This is important for the farmers to make sure their kenaf farming is green which is forming ecological and environmentally friendly eco-farm to make sure there is no wastage in sources of input to maximize the production of Kenaf. Excessive use of energy in agriculture as well as reducing energy resources are the main reasons for optimizing energy consumption in agriculture. Therefore, efficient use of these energies is a necessary step toward reducing environmental hazards, preventing the destruction of natural resources, and ensuring agricultural sustainability, (Khoshroo et al., 2013).

2. Literature Review

Data Envelopment Analysis (DEA) has been widely used in energy efficiency-related literature in the agriculture sector. DEA also has been used for investigating efficiency evaluation as overall technical efficiency and energy saving target ratio to calculate the relative efficiency and energy potential saving and (Li, et al., 2018) used this method to see the potential for the Chinese agricultural sector for 30 provinces in China. DEA also has been used to analyze energy efficiency in Wheat Production (Haushyar et al., 2010), energy efficiency in Apple production in Japan (Masuda, 2018), energy efficiency in grape production (Alireza, 2013), energy efficiency improvement and input cost savings in Kiwifruit production (Mohammadi, 2011). In analyzing energy efficiency, the research empirical results show segregate efficient and inefficient of farmers based on how they manage their energy input and scale size of energy input to produce the output and the same time identify wasteful uses of energy from different sources by inefficient farmers and to suggest reasonable saving in energy uses from different sources of inputs (Amid et al., 2016). This DEA method has been used widely in various sectors however there is still a gap in the Kenaf cultivation sector.

3. Research Methodology

DEA is a linear programming-based technique developed to evaluate the relative efficiency of non-profit public-sector decision-making units (DMU) that use multiple inputs to produce multiple outputs. It is the optimization method of mathematical programming to generalize technical efficiency using a single input divided by a single output (Farrel, 1957) to multiple inputs divided by multiple outputs to construct a relative efficiency score as the ratio of a single virtual output to a single virtual input. Thus, DEA has become a new tool in operational research for measuring technical efficiency since it was introduced by Charnes, Cooper and Rhodes (1978). The authors proposed a model known as that had an input orientation and assumed constant returns to scale (CRS). However, the later study has considered an alternative set of assumptions that consider a variable return to scale (VRS). This model is known as BCC. DEA is also a method to measure the efficiency of decision-making units (DMUs), There are many articles published in journals or book chapters that have used variations of DEA in analyzing performance, (Emrouznejad, Parker and Tavares, 2008).

Up to now, the DEA has been used to evaluate and compare educational departments (schools, colleges, universities), health care institutions (hospitals, clinics), personality among individuals and in agriculture production, banking sectors, construction and many else. Besides the above-mentioned traits, the DEA method may help to identify possible benchmarks towards which performance can be targeted. The weighted combination of peer and peer themselves may provide benchmarks for the relatively less efficient organization and can be promulgated for the information of managers of organizations aiming to improve performance. The ability of DEA to identify the possible peer of role models as well as simple efficiency score gives it an edge over other measures, (Fried, Lovell and Schmidt, 1993). Many researchers have applied DEA in agricultural research, especially in energy use. Amid et al. (2016) investigated energy use patterns and optimization of energy required for broiler production using DEA while Nassiri et al. (2009) studied energy use efficiency for paddy crops using DEA in Punjab India.

Other than that, Alireza et al. (2013) also applied the DEA approach to determine the efficiency of farmers in energy use in grape production in the southern part of Iran. In this study, DMU refers to each Kenaf farm in Kelantan, Malaysia. For the assessment of units, an input-oriented slacks-based measure of efficiency CCR and BCC model was employed (Nassiri and Singh, 2009). The input-oriented model was assumed to be more suitable because there is only one output, while multiple inputs are used. Likewise, in farming systems, a producer has more control over inputs rather than output levels, and input conservation for given outputs seems to be more reasonable (Galanopoulos et al., 2006). In Kenaf cultivation, the inputs include fertilizer, pesticides, human labor, and diesel while the output is the Kenaf yield. The different inputs have distinct energy values. The input resources were transformed into energy terms by multiplying with the appropriate coefficient of energy equivalent (Narvendra et al., 2006, Nassiri et al., 2009, Khoshroo et al., 2013) as shown in Table 1.

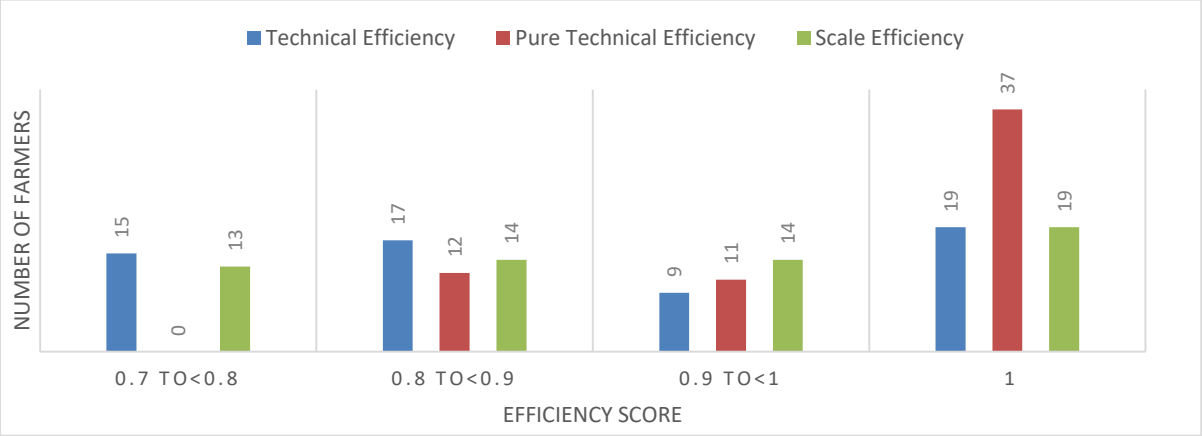
Table 1: Energy Coefficient of Different Inputs and Outputs Used

Items	Unit	Energy Equivalent (MJ unit^{-1})
Input		
Fertilizer	KG	60
Pesticides	Liter	120
Human Labour	Hour	1.96
Diesel	Liter	56.31

4. Results and Discussion

Identifying Efficient and Inefficient Farmers: The BCC model result indicates that a total of 60 Kenaf farmers were considered for the analysis. Of the 60 farmers, only 19 farmers gave an efficiency score of unity as shown in Figure 3. The management efficiency of farmers will be taken from technical efficiency (TE). On the other hand, the remaining 23 farmers who secured an efficient score of less than one are relatively inefficient in energy use from the different sources. It is proved from Figure 3 that the majority of inefficient farmers (9 of 23) were in the efficiency range of 0.9-0.99, followed by 17 and 15 farmers in the efficiency range of 0.8-0.89 and 0.7-0.79 respectively. However, the pure technical efficiency (PTE) estimation indicates only 37 farmers were efficient while scale efficiency (SE) estimation 19 farmers were efficient.

Figure 3: Efficiency Score Distribution of Kenaf's Farmers



The average values of the TE, PTE and SE are summarized in table 4. The summary statistical measures value (for all 60 farmers were considered) of TE, PTE and SE were shown in Table 2. The average values of TE, PTE and SE scores of kenaf farmers were 0.854, 0.962 and 0.887 respectively.

Table 2: Statistical Efficiency Measures in Kenaf Production

Efficiency Score	Min	Max	Average	Standard Deviation
Technical efficiency	0.700	1	0.854	0.119
Pure technical efficiency	0.833	1	0.962	0.056
Scale efficiency	0.700	1	0.887	0.104

The score of technical efficiency varies from 0.07 to 1 with a standard deviation of 0.119. The wide variation in the technical efficiency of kenaf farmers indicates a huge inefficiency between kenaf farmers in the studied area. The average scale efficiency of kenaf farmers was 0.887 which implies operation at optimal scale size with 11.3% energy saving without affecting the yield level.

Identifying Efficient Operating Practice: In this study benchmarking method was applied to rank efficient farmers. The results of ranking 15 superior efficient farmers are presented in Table 3. According to this table, DMUs 11, and 56 appear 56 times as benchmarks to other DMUs while DMUs ranking number 3 12 until 9 appear as a benchmark 53 times, followed by DMUs 39 which appear 39 times and DMUs ranking number 11

until 15 33 times and the last DMUs 15 which appear 26 times. Because of the high frequency, these ranchers can be selected as benchmarks to improve the performance of kenaf farmers.

Table 3: Ranking 15 Superior Efficient Ranchers in Kenaf Production in Kelantan

Rank	Rancher no.	Frequency in Benchmarking
1	11	56
2	56	56
3	21	53
4	27	53
5	32	53
6	44	53
7	48	53
8	49	53
9	53	53
10	39	39
11	14	33
12	33	33
13	51	33
14	57	33
15	12	26

Setting Realistic Input Levels for Inefficient Farmers: The technical efficiency score of farmers, which is less than one, indicates that at present the farmers use more energy from different sources. Therefore, they need to suggest realistic levels of energy without reducing the value of yield. Table 4 shows each inefficient rancher's pure technical efficiency, actual energy use, the recommended target energy use for each input and the percent saving in total energy use. Total saving energy can be shown in the evidence of present saving energy from 1% for rancher number 9 and 16 to 30% for rancher number 19. Table 5 shows the summarization of energy saving from different sources from Table 4. Using the information from Table 4 and Table 5, it's possible to advise the farmers to follow the better operation practices of their peers by reducing the input level to get their present yield.

Table 4: Actual and Potential Values of Energy Use from Different Sources for Inefficient Farmers (Based on the BCC model)

Farmer	TE Efficiency	Actual Energy Use				Target Energy Use				% Energy Saving				Total % Energy Saving
		Fertilizer	Pest	Labor	Diesel	Fertilizer	Pest	Labor	Diesel	Fertilizer	Pest	Labor	Diesel	
26	1	27600	120	16	10136	0	0	0	0	0	0	0	0	0
2	0.8	32829	139	27	8447	5811	29	22	0	15	17	45	0	19
4	0.7	30000	120	20	8447	4500	30	12	0	13	20	38	0	18
7	0.7	30000	120	20	8447	6000	24	12	563	17	17	38	6	19
8	0.7	31929	133	25	8447	11271	47	24	1126	26	26	50	12	28
19	0.7	31479	130	23	8447	12021	44	26	1689	28	25	52	17	30
24	0.9	30000	120	20	8447	0	0	0	0	0	0	0	0	0
31	0.8	31800	132	24	8447	7200	24	15	563	18	15	38	6	20
34	0.7	31479	130	23	8447	12021	44	26	1126	28	25	52	12	29
37	0.7	31479	130	23	8447	12021	44	16	1126	28	25	40	12	26
38	0.7	30000	120	20	8447	4500	18	12	1126	13	13	38	12	19
40	0.7	30000	120	20	8447	7500	30	20	1689	20	20	50	17	27
41	0.7	30000	120	20	8447	7500	30	20	0	20	20	50	0	23
42	0.8	29375	121	19	8752	865	5	1	258	3	4	3	3	3
43	0.9	33471	143	29	8447	3969	13	11	563	11	8	27	6	13

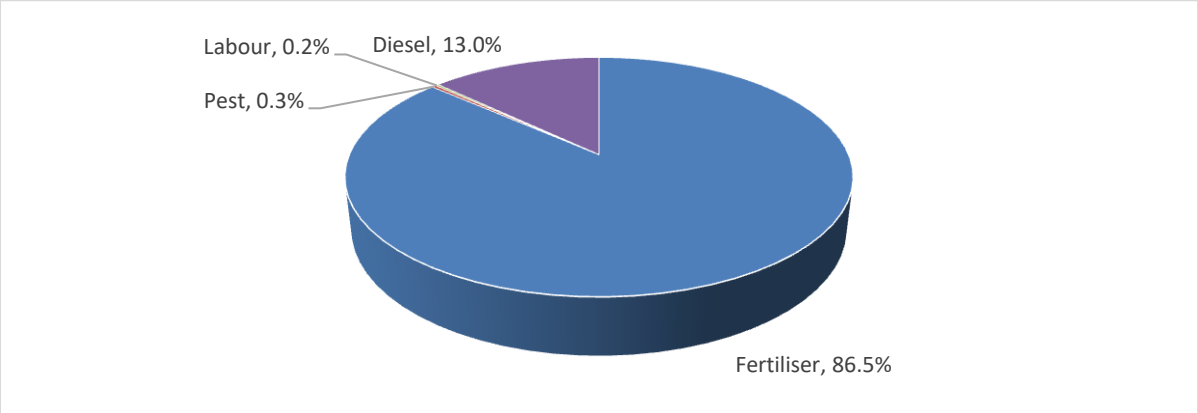
45	0.7	28125	120	18	9502	1875	0	1	633	6	0	6	6	5
50	0.7	29378	120	18	8928	2122	6	1	645	7	5	7	7	6
58	0.8	31420	131	23	8519	6020	25	16	1617	16	16	41	16	22
60	0.9	31736	132	24	8447	2764	6	15	0	8	5	38	0	13
23	1	30360	132	16	9573	0	0	0	0	0	0	0	0	0
55	1	38640	168	36	8607	1680	0	3	1528	4	0	9	15	7
5	1	38640	168	37	8447	0	0	12	563	0	0	24	6	8
13	0.8	30257	122	20	8447	2863	16	19	0	9	12	48	0	17
15	1	34500	150	31	8447	3000	0	8	1126	8	0	20	12	10
18	0.8	30771	125	22	8447	2349	19	18	0	7	13	45	0	16
20	0.8	30592	127	21	8579	6908	23	18	1557	18	15	47	15	24
22	1	34500	150	31	8447	0	0	0	0	0	0	0	0	0
25	0.7	31029	127	22	8447	10971	41	27	1126	26	24	55	12	29
35	0.8	33343	142	28	8447	10157	32	11	1689	23	18	28	17	21
36	1	31740	138	24	8728	0	0	16	1408	0	0	40	14	13
46	1	31740	138	24	8728	2760	0	8	282	8	0	25	3	9
52	0.9	34050	147	30	8447	4830	15	9	0	12	9	23	0	11
54	0.8	30257	122	20	8447	2863	16	19	0	9	12	48	0	17
59	0.8	30257	122	20	8447	4243	16	19	1126	12	12	48	12	21
1	1	28980	126	16	9010	0	0	0	0	0	0	0	0	0
3	0.9	28640	124	17	9146	3100	14	15	990	10	10	47	10	19
6	0.7	28014	122	16	9798	966	4	0	338	3	3	0	3	3
9	0.7	28980	126	16	9010	1260	0	0	0	4	0	0	0	1
10	0.9	28980	126	16	9010	0	0	0	0	0	0	0	0	0
16	0.8	28980	126	16	9010	1260	0	0	0	4	0	0	0	1
17	0.94	28980	126	16	9010	1380	6	0	0	5	5	0	0	2
28	0.8	29839	123	19	8624	3281	21	13	948	10	15	40	10	19
29	0.8	30607	125	21	8478	3953	19	10	1095	11	13	33	11	17
30	0.8	29757	121	19	8581	3243	11	1	429	10	8	5	5	7
47	0.8	29757	121	19	8581	3243	11	1	429	10	8	5	5	7

Table 5: Energy Saving from Different Sources

Inputs	Actual energy use	Target energy use	Energy Saving	Energy saving %
Fertilizer	1576560	1394290.5	182269.5	86.47
Pesticides	6528	5844.128	683.872	0.32
Labor	1454.32	981.931	472.389	0.22
Diesel	418383.3	391023.46	27359.85	12.98
Total Input energy	2002926	1792140.1	210785.6	100

Figure 4 shows the potential distribution of different sources in the total energy saving if the farmers followed the target energy. Results reveal that the highest contribution to total energy saving is 86.5% from fertilizer, 13.0% from diesel, 0.03% from pesticides and 0.2% from human labor.

Figure 4: Potential Distribution of Each Input to the Total Energy Saving



The input use pattern and yield obtained by the 15 most efficient and inefficient ranchers are compared in Table 6. The results reveal that inefficient farmers used higher quantities of fertilizer, pestilizer and human labor compared with efficient ones. In contrast, the yields obtained by inefficient farmers were about 20% lower than those of efficient farmers. It specifies that inefficient farmers did not use the resources efficiently.

Table 6: Comparison of Physical Inputs and Yield Use for Efficient and Inefficient Farmers

Units	Superior efficient ranchers (A)	Inefficient farmers (B)	% difference (B – A)/B *100
Yield (kg)	347.6	288.7	-20%
Fertilizer (MJ/kg)	528720	556620	5%
Pestilizer (MJ/liter)	12202	2280	3%
Human labor (MJ/h)	450.8	540.96	17%
Diesel (MJ/liter)	141338.1	138522.6	-2%

5. Conclusion

This paper describes the application of DEA in a basic way to study improving the energy use efficiency in the kenaf production system in Kelantan. Based on the result, Data Envelopment Analysis is very suitable to analyze these data and extracts many distinctive features of research practices and DEA helped in segregating efficient and inefficient farmers. It's also helped in finding the wasteful uses of energy by inefficient farmers, ranking efficient farmers by using the frequency/peer method and ranking energy sources by using the distribution of virtual inputs. The practices followed by the truly efficient farmers form a set of recommendations in terms of efficient operating practices for inefficient farmers. The empirical result indicates that the average value of TE, PTE and SE scores of kenaf production were 0.854, 0.962 and 0.887 respectively. These estimates for SE 0.887 imply that all inefficient farmers operate at optimum scale size and 11.3% energy saving is possible without affecting the yield level. Given the high cost of energy, this would be a substantial saving for the farmers. The higher potential contribution to the total energy saving is from fertilizer (86.5%), Diesel (13%), Pesticides (0.3%) and human labor (0.2%). This calls for the relevant authorities to educate farmers on energy waste or excessive use on the farms. Overall DEA can play a vital role in promoting energy efficiency in agriculture by providing insight into efficient practice and supporting decision-making processes.

References

Abdul-Hamid, H., Yusoff, M. H., Ab-Shukor, N. A., Zainal, B. & Musa, M. H. (2009). Effects of different fertilizer application levels on growth and physiology of Hibiscus cannabinus L. (Kenaf) planted on BRIS soil. *Journal of Agricultural Science,* 1(1), 121.

Amid, S., Gundoshmian, T. M., Shahgoli, G. & Rafiee, S. (2016). Energy use pattern and optimization of energy required for broiler production using data envelopment analysis. *Information Processing in Agriculture,* 3(2), 83-91.

Charnes, A., Cooper, W. W. & Rhodes, E. (1979). Measuring the efficiency of decision-making units. *European Journal of Operational Research*, 3(4), 339.

Chopra, R., Magazzino, C., Shah, M. I., Sharma, G. D., Rao, A. & Shahzad, U. (2022). The role of renewable energy and natural resources for sustainable agriculture in ASEAN countries: Do carbon emissions and deforestation affect agriculture productivity? *Resources Policy*, 76, 102578.

Emrouznejad, A., Parker, B. R. & Tavares, G. (2008). Evaluation of research in efficiency and productivity: A survey and analysis of the first 30 years of scholarly literature in DEA. *Socio-Economic Planning Sciences*, 42(3), 151-157.

Farrell, M. J. (1957). The measurement of productive efficiency. Journal of the Royal Statistical Society Series A: *Statistics in Society*, 120(3), 253-281.

Fried, H. O., Schmidt, S. S. & Lovell, C. K. (Eds.). (1993). The measurement of productive efficiency: Techniques and applications. Oxford University Press.

Hassan, F., Zulkifli, R., Ghazali, M. J. & Azhari, C. H. B. C. (2017). Kenaf fiber composite in the automotive industry: An overview. International Journal on Advanced Science, Engineering and Information Technology.

Li, N., Jiang, Y., Mu, H. & Yu, Z. (2018). Efficiency evaluation and improvement potential for the Chinese agricultural sector at the provincial level based on data envelopment analysis (DEA). *Energy*, 164, 1145-1160.

Houshyar, E., Sheikh Davoodi, M. J. & Nassiri, S. M. (2010). Energy efficiency for wheat production using data envelopment analysis (DEA) technique. *Journal of Agricultural Technology,* 6(4), 663-672.

Khoshroo, A., Mulwa, R., Emrouznejad, A. & Arabi, B. (2013). A non-parametric Data Envelopment Analysis approach for improving the energy efficiency of grape production. *Energy*, 63, 189-194.

Masuda, K. (2018). Energy efficiency of intensive rice production in Japan: An application of data envelopment analysis. *Sustainability*, 10(1), 120.

Mohammadi, A., Rafiee, S., Mohtasebi, S. S., Avval, S. H. M. & Rafiee, H. (2011). Energy efficiency improvement and input cost saving in kiwifruit production using the Data Envelopment Analysis approach. *Renewable Energy,* 36(9), 2573-2579.

Nassiri, S. M. & Singh, S. (2009). Study on energy use efficiency for the paddy crop using the data envelopment analysis (DEA) technique. *Applied Energy,* 86(7-8), 1320-1325.

Sefeedpari, P., Rafiee, S., Komleh, S. H. P. & Ghahderijani, M. (2012). A source-wise and operation-wise energy use analysis for corn silage production: A case study of Tehran province, Iran. *International Journal of Sustainable Built Environment*, 1(2), 158-166.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Musyarakah Mutanaqisah: A Systematic Literature Review

Muhammad Ridzuan Abdul Aziz*, Suraya Ika Tamrin, Abidah Saad, Mohammad Zulfakhairi Mokhtar, Nor Shahrul Nizam Muhamad Nor
Faculty of Business and Management, Universiti Teknologi MARA (UiTM), Malaysia
*ridzuandba@uitm.edu.my, ikatamrin@uitm.edu.my, abidahsaad@uitm.edu.my, zulfakhairi@uitm.edu.my, shahrul@uitm.edu.my

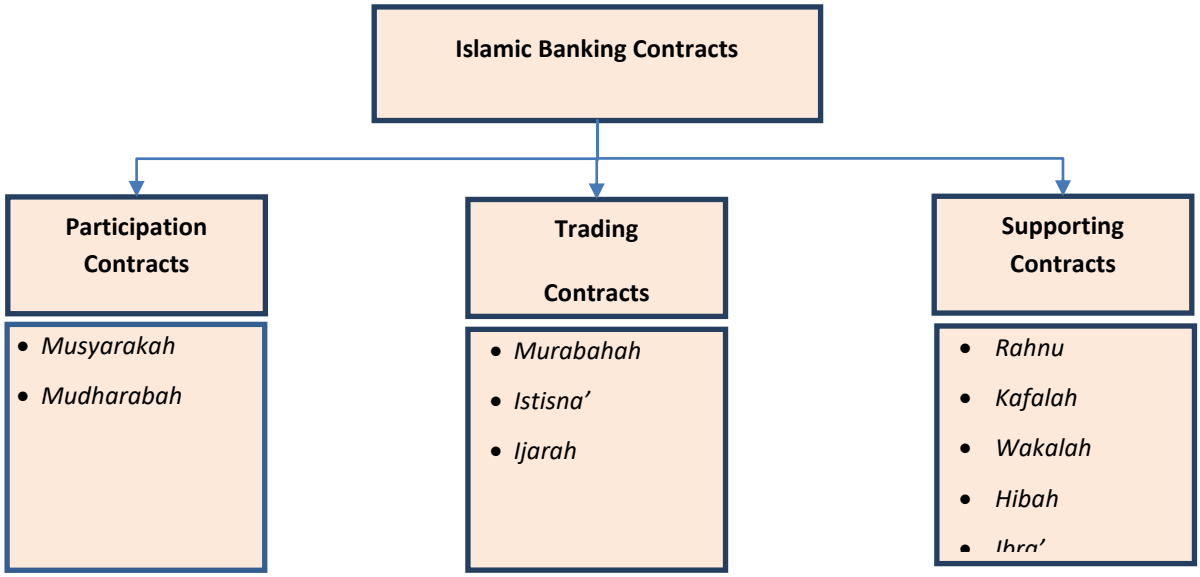
Abstract: The present research aims to highlight trends in the previous research conducted on the Musyarakah Mutanaqisah arrangement. This research conducted a systematic literature review on the Musyarakah Mutanaqisah arrangement on the Scopus database from 2018 until July 2023. This research includes 21 journal articles from the 29 documents retrieved from the Scopus database. It was found that interviews and questionnaire surveys were the most frequently used methods in researching Musyarakah Mutanaqisah. Diverse variables have been studied in previous research. Most previous research on the Musyarakah Mutanaqisah arrangement was carried out in Malaysia since Malaysia is the leader in Islamic finance. Not all previous research was supported by theories or models. Most of the previous research on Musyarakah Mutanaqisah has focused on home financing facility. The findings from the present research can provide the foundation for future research on the Musyarakah Mutanaqisah arrangement.

Keywords: *Musyarakah Mutanaqisah, Systematic Literature Review, Islamic Finance, Islamic Banking, Shari'ah.*

1. Introduction and Background

Islamic banking is a banking system based on the religion of Islam. As such, Islamic banking is guided by Shari'ah or Islamic law. Therefore, Islamic banking products are structured using various Shari'ah contracts to ensure their full compliance with Shari'ah. The classification of Shari'ah contracts commonly used in structuring Islamic banking products is shown in Figure 1.

Figure 1: Shari'ah Contracts Commonly Used in Structuring Islamic Banking Products

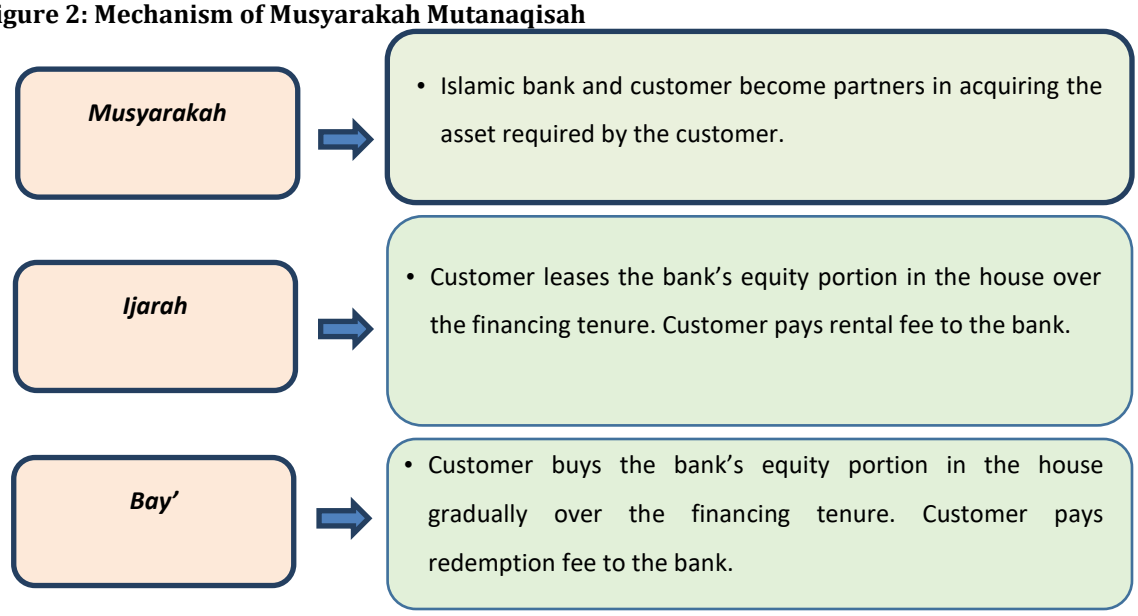


Source: Author.

Previously, most of the Islamic banking products in Malaysia were structured using the Bay' Inah contract and Bay' Bithaman Ajil arrangement. As Islamic banking continuously evolves, a new arrangement is introduced in structuring Islamic banking products including Musyarakah Mutanaqisah. Musyarakah Mutanaqisah is also referred to as diminishing partnership, declining partnership, diminishing musyarakah

or declining musyarakah. In Musyarakah Mutanaqisah arrangement, Musyarakah is put into an arrangement with a few other Shari'ah contracts including Ijarah and Bay. Musyarakah as the first Shari'ah contract in Musyarakah Mutanaqisah arrangement refers to profit and loss-sharing partnerships. It is a partnership contract whereby the partners share profits according to the pre-agreed profit-sharing ratio. The partners will bear any losses incurred based on the ratio of capital they contribute to the partnership. Ijarah as the second Shari'ah contract in the Musyarakah Mutanaqisah arrangement refers to leasing. It is a leasing contract between an owner of an asset who becomes a lessor who leases his asset to a lessee. The lessee is obligated to compensate the lessor for enjoying the usufruct of the asset by paying a rental fee to the lessor throughout the leasing period. Bay as the third Shari'ah contract in the Musyarakah Mutanaqisah arrangement refers to sale. It is a sale contract between a seller of an asset who sells the asset that he owns to a buyer who requires the asset. The buyer is obligated to pay the price of the asset to the seller. Figure 2 outlines the mechanism of the Musyarakah Mutanaqisah arrangement.

Figure 2: Mechanism of Musyarakah Mutanaqisah



Source: Author.

2. Motivation

A review is required on past research is to identify the coverage of the present knowledge domain as it highlights the loophole in the past research (Xiao & Watson, 2019). A systematic literature review can provide a theoretical basis and summary of existing research on a particular domain (Okoli & Schabram, 2010). Previous research gaps can also be obtained through a systematic literature review (Tamrin, Norman, & Hamid, 2017). Consequently, the current research aims to determine the trends in past research on Musyarakah Mutanaqisah by performing a systematic literature review. It is crucial to identify the recent trends in the research conducted on Musyarakah Mutanaqisah. It will assist us in understanding the current state of knowledge on Musyarakah Mutanaqisah and can lead us in our future research on Musyarakah Mutanaqisah. Further research is required to understand Musyarakah Mutanaqisah in appreciate it among other Shari'ah contracts and arrangements that Islamic banks can use to structure their products.

3. Research Questions

The following research questions guide this research:

Research Question 1: What type of study or methodology has been used in previous research?
Research design requires determining the type of study or methodology, among other criteria. The type of study or methodology used by previous researchers is the factor that future researchers must consider in

designing their research. It will contribute to the body of knowledge, specifically on Musyarakah Mutanaqisah.

Research Question 2: What variables have been studied in previous research?
Variables indicate factors affecting other factors or being affected by other factors. By getting to know the variables studied in past research, researchers will establish a current understanding of Musyarakah Mutanaqisah. It will also provide the foundation for future researchers to determine the variables that should be studied in their research.

Research Question 3: Which countries became the venues for conducting previous research?
Different countries have different regulators regulating the activities within the countries and are subjected to different governance frameworks. Knowledge of the countries where previous research was conducted will assist future researchers in determining the venue for their research. It will ensure that the literature on Musyarakah Mutanaqisah can be enriched.

Research Question 4: What are the applicable theories/models in previous research?
Recognition of the theories and models applicable in previous research enables us to understand the basis of the previous research on Musyarakah Mutanaqisah, besides justifying the relationship between variables in those studies.

Research Question 5: What financing facilities were studied in previous research?
Financing facilities differ in their purpose and nature. There must be a match between the facility and the Shari'ah contract or arrangement used to structure the facility. Identifying the financing facilities studied in the previous research will help us understand variations when the Musyarakah Mutanaqisah arrangement is applied to different financing facilities.

SLR Planning: The method of conducting a systematic literature review in the current research is based on the method employed by Kitchenham et al. (2009). A thorough process is outlined by Kitchenham et al. (2009) for researching a systematic literature review. The process involved five researchers. Any issues that arose were discussed and agreed among the five researchers. All the researchers took part in the planning, execution, and reporting of results phases of the systematic literature review as proposed by Kitchenham et al. (2009). The systematic literature review conducted in this research is guided by the eight steps suggested by Okoli and Schabram (2010). The steps comprise (1) the purpose of the literature, (2) protocols, (3) literature search, (4) quality appraisal, (5) practical screening, (6) data extraction, (7) synthesis of studies, and (8) writing the review. As discussed earlier, this research aims to highlight the trends in previous studies on Musyarakah Mutanaqisah, which would enable us to answer the research questions.

Research protocol involves determining the research objective and research questions and conducting a systematic literature review as the research method. A literature search used the Scopus database which contains quality and influential research. A quality appraisal is assured by choosing journal articles as the publication of these articles is only possible after a thorough peer review by qualified reviewers. The practical screening was performed by excluding irrelevant articles not covering Musyarakah Mutanaqisah. Data extraction was conducted on the selected journal articles by extracting the author, year, journal name, methodology, variables, country, theory/models, and financing facilities. The extracted data was synthesized to identify the trends in the previous research. Eventually, the entire activities of performing the systematic literature review will be documented.

Execution of the SLR: Searching conducted in the Scopus database using primary string searches resulted in 29 documents. Quality appraisal and practical screening of the documents resulted in 21 relevant articles being reviewed. The list of empirical studies reviewed is presented in Table 1.

Table 1: Selected Empirical Studies

No.	Authors	Journal
P1	Ma & Md Taib (2023)	International Journal of Housing Markets and Analysis
P2	Ma et al. (2023)	International Journal of Housing Markets and Analysis
P3	Summer 2023 (2023)	International Journal of Housing Markets and Analysis
P4	Islam & Ahmad (2022)	Journal of Economic Cooperation and Development
P5	Shahwan et al. (2022)	International Journal of the Analytic Hierarchy Process
P6	Bahlous-Boldi (2021)	International Journal of Housing Markets and Analysis
P7	Alkhan et al. (2020)	Journal of Islamic Monetary Economics and Finance
P8	Khan & Nomani (2020)	The Islamic Quarterly
P9	Muneeza et al. (2020)	Journal of Islamic Accounting and Business Research
P10	Shaikh & Noordin (2020)	Journal of Islamic Monetary Economics and Finance
P11	Smolo & Musa (2020)	Journal of Islamic Accounting and Business Research
P12	Bahari et al. (2019)	International Journal of Innovation, Creativity and Change
P13	Hanif (2019)	International Journal of Emerging Markets
P14	Nor et al. (2019)	Journal of Legal, Ethical and Regulatory Issues
P15	Md Zabri & Haron (2019)	International Journal of Housing Markets and Analysis
P16	Asadov et al. (2018)	Journal of Islamic Accounting and Business Research
P17	Abdul Jabar et al. (2018)	ISRA International Journal of Islamic Finance
P18	Mashal et al. (2018)	ISRA International Journal of Islamic Finance
P19	Redzuan et al. (2018)	Al-Shajarah
P20	Md Zabri & Mohammed (2018a)	ISRA International Journal of Islamic Finance
P21	Md Zabri & Mohammed (2018b)	Managerial Finance

4. Results and Findings

This section, highlighting the findings based on the review of the 21 selected articles, has assisted the researchers in answering the research questions.

Research Question 1: What type of study or methodology has been used in previous research?
Eight papers employed quantitative methodology, eleven employed qualitative methodology, and the other two employed mixed methods using both qualitative and quantitative methodologies. Of the eight quantitative papers reviewed, four were questionnaire surveys, three used secondary data, and one used mathematical simulation. Of the eleven qualitative papers reviewed, five used interviews in collecting data, one employed content analysis, one employed library and document analysis, one employed theoretical and document analysis, one utilized document analysis, one performed document analysis and interview, and one used library research and interview. Of the two mixed-method papers reviewed, one employed an interview and questionnaire survey, while the other employed a combination of library research, document analysis, and risk analysis. The methodologies employed in the previous research are shown in Table 2. It indicates that interview has been the most used method in researching Musyarakah Mutanaqisah, followed by a questionnaire survey.

Table 2: Methodology Employed in Previous Research

Paper No.	Methodology
P8 P10 P12 P21	Quantitative – Questionnaire survey
P3 P6 P19	Quantitative – Secondary data
P15	Quantitative – Mathematical simulation
P1 P4 P5	Qualitative – Interview

P14	
P20	
P7	Qualitative – Content analysis
P9	Qualitative – Library and document analysis
P11	Qualitative – Theoretical and document analysis
P13	Qualitative – Document analysis
P16	Qualitative – Document analysis and interview
P17	Qualitative – Library research and interview
P2	Mixed methods – Interview and questionnaire survey
P18	Mixed methods – Library research, document analysis, and risk analysis

Research Question 2: What variables have been studied in previous research?
Table 3 shows the variables involved in previous research. It is observed that Musyarakah Mutanaqisah has been researched from different perspectives, as indicated by the list of diverse variables studied by previous researchers.

Table 3: Variables Studied in Previous Research

Paper No.	Variables
P3	Mortgage interest rate
	Number of houses sold
P6	Delinquency rates
	Volume of refinancing
	Change in house price index
P10	Perceived relative advantage
	Perceived compatibility
	Peers influence
	Self-efficacy
	Attitude
	Subjective norms
	Perceived behavioral control
	Pricing
	Intention to accept Musyarakah Mutanaqisah home financing
P12	Intrinsic motivation
	Religious compliance
	Confidence in Shari'ah compliance
	Customer knowledge
	Service quality
	Cost
	Product benefits
	Promotion
P19	Rental yield
	Gross domestic product
	Housing loan
	Base lending rate
P21	Attitude towards behaviour
	Subjective norms
	Perceived cost advantages
	Perceived behavioral control
	Intention

Research Question 3: Which countries became the venues for conducting previous research?
Table 4 indicates that previous research was conducted mainly in Malaysia, maybe because Malaysia is the leader in Islamic finance in the world. The rest of the research was conducted in Turkey (1 paper), Pakistan and the United Arab Emirates (1 paper), India (1 paper), China (2 papers), and the United States of America (2 papers).

Table 4: Countries where Previous Research was conducted

Paper No.	Countries
P4	Malaysia
P5	
P9	
P10	
P11	
P12	
P14	
P15	
P16	
P17	
P19	
P20	
P21	
P3	Turkey
P13	Pakistan and the United Arab Emirates
P8	India
P1	China
P2	
P6	United States of America
P18	
P7	N/A

Research Question 4: What are the applicable theories/models in previous research?
Fifteen of the 21 selected studies were supported by theories and models, as shown in Table 5. It can be observed that various theories and models underpinned the studies conducted by previous researchers on Musyarakah Mutanaqisah.

Table 5: Theories/Models in Previous Research

Paper No.	Underpinning Theories/Models
P1	Crowdfunding Model
P2	Crowdfunding Model
P3	Interest-free Home Financing Model
P4	Integrated Microfinancing Model
P5	Theory of Maqasid Shari'ah
P6	Diminishing Partnership Model
	Cointegration Model
	Granger Causality Model
P8	Alternative Farm Financing Model
P10	Decomposed Theory of Planned Behaviour
P11	Theory of Maqasid Shari'ah
P12	Conventional Economic Theory
P13	Modern Portfolio Theory
	Capital Asset Pricing Model
P18	Usufruct Model
P19	Autoregressive Distributed Lag Model
P20	Consensus Theory
P21	Theory of Planned Behaviour

Research Question 5: What financing facilities were studied in previous research?
Table 6 shows the type of financing facilities studied in the previous research. Of the 21 papers reviewed, 16 studies focused on home financing, indicating that Musyarakah Mutanaqisah is a suitable Shari'ah arrangement in structuring home financing. The rest of the papers focused on each one of the following

financing facilities separately, including property financing, agricultural financing, microfinancing, and credit cards. One of the papers did not focus on any financing facilities.

Table 6: Financing Facilities Studied in Previous Research

Paper No.	Financing Facilities
P1	Home Financing
P2	
P3	
P5	
P6	
P9	
P10	
P12	
P13	
P15	
P16	
P17	
P18	
P19	
P20	
P21	
P14	Property financing
P8	Agricultural financing
P4	Microfinancing
P7	Credit card
P11	No specific financing

Discussion: Although most previous research was conducted through interviews and questionnaire surveys, the numbers are quite small. More research is needed to increase our understanding of the Musyarakah Mutanaqisah arrangement. More studies should be conducted by including variables that portray Shari'ah perspectives, as such studies by previous researchers have been limited so far. More perception-based studies are needed to understand better the behavior of different parties relating to the Musyarakah Mutanaqisah arrangement. Future studies should be conducted in other countries practicing Musyarakah Mutanaqisah, as past studies were conducted mainly in Malaysia. It will enrich our understanding of the differences in the practice of Musyarakah Mutanaqisah in other parts of the world. Although theories and models exist in previous research on Musyarakah Mutanaqisah, not all previous research has received support from theories and models. Therefore, future research on Musyarakah Mutanaqisah should consider having theories and models to justify relationships in their research. More future studies are needed on other financing facilities structured based on Musyarakah Mutanaqisah besides home financing. It will enrich our understanding of Musyarakah Mutanaqisah, as variation may exist when the Musyarakah Mutanaqisah arrangement is used to structure financing facilities other than home financing.

5. Conclusion

This research can help researchers learn the present state of research conducted on Musyarakah Mutanaqisah. It can be concluded that the amount of research on Musyarakah Mutanaqisah is still limited, as shown by the 29 articles that emerged from the search made in the Scopus database. Only 21 articles were suitable to be reviewed in answering the research questions. The results indicated that interviews and questionnaire surveys were widely used in the research on Musyarakah Mutanaqisah. Interviews were used as the Musyarakah Mutanaqisah arrangement is considered comparatively new than other Shari'ah arrangements and contracts. On the other hand, using questionnaire surveys enables testing of research variables based on theories and models. However, more research is needed to understand this Shari'ah-compliant arrangement better. Musyarakah Mutanaqisah is a Shari'ah-compliant arrangement. Shari'ah-compliant facilities are different from conventional facilities due to the need for the Shari'ah-compliant facilities to comply with Shari'ah fully.

As such, future research should consider including variables that portray the distinctive features of Musyarakah Mutanaqisah as a Shari'ah-compliant arrangement. Focus was given in the previous research on studying the Musyarakah Mutanaqisah arrangement in Malaysia. Therefore, research in the future should also be conducted in other countries to obtain more understanding of the Musyarakah Mutanaqisah arrangement in other countries. Not all previous research was supported by theories or models, even though the research was published in Scopus-indexed journals. Theories or models should support research conducted in the future on Musyarakah Mutanaqisah as they provide a strong foundation for the research. Musyarakah Mutanaqisah has been studied in past research, mainly on home financing. Researchers should consider conducting more research on Musyarakah Mutanaqisah in the context of other financing facilities, as home financing is just one of the financing facilities offered by the banks. The banks also offer other facilities that are structured using the Musyarakah Mutanaqisah arrangement.

References

Abdul Jabar, N., Ramli, R. & Abidin, S. (2018). Understanding the musharakah mutanaqisah of Koperasi Pembiayaan Syariah Angkasa (KOPSYA). *ISRA International Journal of Islamic Finance*, 10(1), 62-77.

Alkhan, A. M., Hassan, M. K. & Hasan, R. (2020). Conceptualizing Islamic credit cards based on musharaka mutanaqisa. *Journal of Islamic Monetary Economics and Finance*, 6(4), 747-766.

Asadov, A., Muhamad Sori, Z. B., Mohamad Ramadilli, S., Anwer, Z. & Shamsudheen, S. V. (2018). Musharakah mutanaqisah home financing: Issues in practice. *Journal of Islamic Accounting and Business Research*, 9(1), 91-103.

Bahari, Z., Hatizak, N. & Doktoralina, C. M. (2019). Study of direct relationship determinants on the selection of musyarakah mutanaqisah products (MM). *International Journal of Innovation, Creativity and Change,* 6(1), 121-132.

Bahlous-Boldi, M. (2020). Resilient homeownership: How partnership-based finance would have prevented the 2008 US mortgage crisis. *International Journal of Housing Markets and Analysis*, 14(2), 283-304.

Hanif, M. (2019). Islamic mortgages: Principles and practice. *International Journal of Emerging Markets*, 14(5), 967-987.

Islam, R. & Ahmad, R. (2022). Incorporation of mudarabah, musharakah and musharakah mutanaqisah with microfinance: A sustainable livelihood approach to poverty alleviation. *Journal of Economic Cooperation and Development,* 43(1).

Khan, W. & Nomani, A. (2020). Analysis of Islamic finance as an alternative method for agricultural financing. *The Islamic Quarterly*, 64(2), 127-146.

Kitchenham, B., Breton, O. P., Budgen, D., Turner, M., Bailey, J. & Linkman, S. (2009). Systematic literature review in software engineering – a systematic literature review. *Information and Software Technology,* 51(1), 7-15.

Ma, Y. & Md Taib, F. (2023). An Islamic co-operative housing solution for China's housing affordability issues. *Journal of Islamic Accounting and Business Research*, 14(3), 489-513.

Ma, Y., Md Taib, F. & Ojuolape Gold, N. (2023). An Islamic principle-based integrated solution for China's housing affordability issues. International Journal of Housing Markets and Analysis.

Mashal, A., Hajal, A., Majoul, O. K. & Ansary, M. R. (2018). Sale with the temporary exclusion of usufruct: A critical examination of its use in financing home purchases. *ISRA International Journal of Islamic Finance,* 10(1), 85-93.

Md Zabri, M. Z. & Mohammed, M. O. (2018a). Qualitative validation of a financially affordable Islamic home financing model. *ISRA International Journal of Islamic Finance*, 10(2), 143-161.

Md Zabri, M. Z. & Mohammed, M. O. (2018b). Examining the behavioral intention to participate in a cash waqf-financial cooperative-musharakah mutanaqisah home financing model. *Managerial Finance,* 44(6), 809-829.

Md Zabri, M. Z. & Haron, R. (2019). A comparative analysis of financial affordability in Islamic home financing instruments in Malaysia. *International Journal of Housing Markets and Analysis*, 12(6), 1093-1112.

Muneeza, A., Fauzi, M. F., Mat Nor, M. F., Abideen, M. & Ajroudi, M. M. (2020). House financing: Contract used by Islamic banks for finished properties in Malaysia. *Journal of Islamic Accounting and Business Research,* 11(1), 168-178.

Nor, M. Z. M., Mohamad, A. M., Azhar, A., Latif, H. M., Khalid, A. H. M. & Yusof, Y. (2019). Legal challenges of musharakah mutanaqisah as an alternative for property financing in Malaysia. *Journal of Legal, Ethical and Regulatory Issues*, 22(3), 1-8.

Okoli, C. & Schabram, K. (2010). A guide to conducting a systematic literature review of information systems research. Sprouts: *Working Papers on Information Systems*, 10(26), 1-49.

Redzuan, N. H., Kassim S. & Abdullah, A. (2018). Rental yield as an alternative to interest rate pricing musyarakah mutanaqisah home financing – The case for Malaysia. Al-Shajarah, Special Issue (Islamic Banking and Finance), 69-88.

Shaikh, I. M. & Noordin, K. (2020). Acceptance of Islamic equity-based mortgage product: An extension of the decomposed theory of planned behavior. *Journal of Islamic Monetary Economics and Finance*, 6(2), 403-418.

Shahwan, S., Sapian, S. M., Ibrahim, N., Mohammed, M. O., Agha, E. & Kanesan, T. (2022). Ranking the compliance of Islamic banking home financing products with Maqasid Shariah using AHP. *International Journal of the Analytic Hierarchy Process,* 14(3), 143-161.

Smolo, E. & Musa, A. M. (2020). The (mis)use of al-hilah (legal trick) and al-makhraj (legal exit) in Islamic finance. *Journal of Islamic Accounting and Business Research*, 11(9), 2169-2182.

Sumer, L. (2023). An alternative interest-free home financing model. *International Journal of Housing Markets and Analysis*, 16(2), 408-425.

Tamrin, S. I., Norman, A. A. & Hamid, S. (2017). Information systems security practices in social software applications: A systematic literature review. *Aslib Journal of Information Management*, 69(2), 131-157.

Xiao, Y. & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, 39(1), 93-112.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Impact of Remittances on Human Capital in Sub-Saharan Countries

*Chong Siew Huay[1] & Yasmin Bani[2]
[1]University Technology MARA, Campus Puncak Alam, Malaysia
[2]University Putra Malaysia, Malaysia
*siewhuaychong@uitm.edu.my, nor_yasmin@upm.edu.my

Abstract: This study has examined the impact of remittances on human capital based on 23 Sub-Saharan countries (SSA) from 1981 to 2010. Our primary contribution lies in demonstrating that remittances have a positive impact on the enhancement of human capital in these SSA countries. The results indicate that a 1 percent increase in remittances leads to a 0.26 percent rise in the average years of schooling. To ensure the credibility of our findings, we employ a Generalized Method of Moments (GMM) approach to control for the endogeneity of remittances and human capital in our empirical analysis.

Keywords: *Remittances, human capital, developing countries*

1. Introduction and Background

Worker's remittances to developing countries have experienced significant growth in the past two decades and now stand as the second largest external source of income after Foreign Direct Investment (FDI) in these countries (Hubert Ebeke, 2012). The Sub-Saharan African countries, in particular, have witnessed a surge in remittance flows since the early 2000s, with the share of remittances in SSA rising from 3.78 percent to 8.74 percent in 2014, making remittances a more stable funding source compared to traditional channels like FDI and Official Development Assistance (ODA), especially during economic and financial crises (World Bank, 2013).

The impact of remittances on human capital is complex and can be influenced by two distinct relationships (Zhunio et al., 2012; Ngoma & Ismail, 2013). The first relationship indicates that education plays a significant role in determining both remittances and migration patterns. A person's educational attainment level can influence their decision to migrate, and remittances are, in turn, influenced by the educational background of the migrants. On the other hand, the second relationship suggests that education can be driven by remittances. In other words, remittances can have a positive effect on a person's educational level if they are utilized to invest in education, enabling individuals to access better educational opportunities and allowing children to complete more years of schooling.

The existing evidence on the effect of remittances on human capital accumulation is generally inconclusive and, in some cases, seems to contradict the results from other countries. Numerous studies (Adams, 2011; Zhunio et al., 2012; Ngoma & Ismail, 2013; Huay et al., 2019) have found that remittances contribute to increased household income, particularly benefiting poor households by overcoming budget constraints. This, in turn, encourages receiving households to invest more in education. Conversely, some studies suggest the presence of a negative effect of remittances on human capital. The receipt of remittances can disrupt family life, potentially leading to adverse consequences on the educational attainment of children. These conflicting findings make the effect of migrant remittances on human capital investment theoretically ambiguous (Kugler, 2006). In summary, while some research highlights the positive impact of remittances on education through increased household income, other studies emphasize the potential negative effects due to disruptions in family dynamics. As a result, the overall effect of remittances on human capital investment remains uncertain and context-dependent.

Moreover, human capital is one of the crucial goals among the Millennium Development Goals (MDGs). The importance of human capital has been often emphasized in both theoretical and empirical literature. Along these lines, an enormous amount of theoretical and empirical research has been conducted to explore whether human capital can contribute to the development of countries through the knowledge and skills of people. There is evidence indicating that remittances impact living standards and human welfare. Evidence from the globe shows that households that receive remittances are financially better off compared to

households that do not receive them (Gupta et al. 2009). Higher total income can boost investment and consumption which will lead to an increase in human capital. If the disposable income for consumption and investment is increased, it can increase a household's ability to pay for health and education (Zhunio et al, 2012). Thus in this regard, it is important to understand the impact of remittances on outcomes related to human capital accumulation.

Meanwhile, the effect of remittances on human capital is not straightforward. The influence of remittances on the human capital channel is affected by two kinds of relationships (Zhunio et al 2012, Ngoma & Ismail, 2013). The first relationship shows education as a determinant of remittances and migration. A person's education level influences their decision to migrate and remittances are affected by the level of education. The second describes education is driven by remittances. In other words, remittances affect a person's educational level if they are used to buy education and allow children to complete more schooling.

The existing evidence on the effect of remittances on human capital accumulation is generally inconclusive and, in some cases, seems to contradict the results from other countries. Various studies have found that remittances lead to a rise in income which benefits poor households and overcome budget constraint. Hence, it encourages receiving households to invest in education. On the other hand, other studies tend to suggest the presence of a negative effect of remittances on human capital. The receipt of remittances can have disruptive effects on family life, with potentially negative consequences on the educational attainment of children. Other studies thus in this regard, the effect on human capital investment of migrant remittances are theoretically ambiguous (Kugler, 2006).

While increased remittance inflows can have a positive impact on economic growth and development in recipient countries, the effects of remittances on other welfare aspects, such as poverty and human capital, are still subject to ongoing discussions. The existing literature lacks a consensus and provides limited information regarding the relationship between remittances and human capital (Acosta et al., 2007).

Given the limited research on the link between remittances and human capital in Sub-Saharan African (SSA) countries, this study aims to contribute to the emerging literature by analyzing the impact of remittances on human capital in developing nations. The paper's structure is organized as follows, section 2 provides a concise review of the existing literature on remittances and human capital, section 3 outlines the data sources used and briefly explains the methodology employed in this study and section 4 presents the empirical results of the analysis. Finally, section 5 concludes the paper by summarizing the findings and discussing their potential policy implications.

2. Literature Review

Remittances, as defined by Adams (2011), refer to both money and goods transmitted to households by migrant workers. They serve as a significant indicator of the impact migrant workers has on their home countries (Orozco, 2003). The existing literature on the relationship between remittances and education yields mixed and inconclusive results. The majority of studies suggest a positive effect of remittances on the migrant-sending country (Salas, 2014; Arguillas and Williams, 2010; Acosta et al., 2007). For example, Mansour et al. (2011) conducted a study using the 3006 Jordanian household expenditure and income survey and found that remittance inflows increase the likelihood of males aged 18-24 attending schools, but this effect is not observed among females. Similarly, Ngoma and Ismail (2013) utilized the system GMM approach to examine the effect of remittances on human capital in 89 developing countries. Their estimation results revealed that an increase in migrant remittances leads to an increase in the number of years of schooling at the secondary and tertiary levels. On average, remittances were found to increase the average years of secondary and tertiary schooling by 2 percent. In summary, remittances have a notable impact on education in migrant-sending countries, with several studies suggesting a positive relationship between remittances and human capital development.

Empirical evidence on country-specific studies also yields similar results (Huay & Bani, 2018). In the case of Mexico, Córdova (2006) found that remittances can increase children's school attendance. A 1 percent increase in the fraction of households receiving remittances was associated with a nearly 3 percent reduction

in child illiteracy and increased school attendance for children aged between 6 and 14 years old. In the case of El Salvador, Edwards and Ureta (2003) highlighted a significant impact of remittances on school retention even after controlling for factors like parental schooling, gender, income, and access to basic services. They used the Cox proportional hazard model in a cross-section of 14,286 individuals aged 6-24 and concluded that remittances have a substantial effect on school retention. In the Philippines, Arguillas and Williams (2010) proposed a positive effect of migration on the years of schooling, indicating that remittances have a beneficial impact on educational outcomes. Overall, these country-specific studies contribute further support to the notion that remittances positively influence educational outcomes, promoting school attendance, retention, and investment in education in migrant-sending countries.

On the other hand, a number of studies have found a negative relationship between remittances and education. McKenzie and Rapoport (2006) find a negative relationship between emigration and school attendance. They discovered that remittances have no significant impact on school attendance of 12 to 15 years old and a negative and significant impact of migration on schooling level of 16 to 18 years old. Then again, McKenzie and Rapoport (2011) conclude remittances have a negative impact on the investment in education because of the absence of adults to provide supervisory at home for children's education. The view is supported by Boucher et al (2009), who suggest a negative, statistically insignificant relationship between schooling and migration. Similarly, Frisancho-Robles and Oropesa (2011) use Peruvian data from the Latin American Migration Project (LAMP) which provides information on 4,451 individuals in 822 households as evidence that a higher risk of migration leads to harmful effects on education for children. This is supported by Nguyen and Nguyen (2015), who show that there is no statistically significant effect of remittance inflows on school enrolment in Vietnam. Also, Adams and Cuecuecha (2013) conclude that households in Ghana do not spend disproportionately on remittance income on education and other products. However, this is in contrast to the recent study by Gyimah-Brempong and Asiedu (2014), who show that remittances have significant and positive effects on the education of children, it increases the probability that families enroll their children in primary and secondary schools in Ghana.

3. Research Methodology

This paper will investigate the dynamic relationship between remittances and human capital in Sub-Saharan Africa. We use a panel data approach using an unbalanced panel of 23 SSA countries spanning from 1980 to 2010. These countries and time span were selected because it was possible to find the relevant remittances and human capital data since the year 1981. Due to the nature of the human capital data, which is measured at five-year intervals, all variables in the analysis are also measured at five-year intervals, corresponding to the respective survey year.

To estimate the impact of remittances on human capital, the basic econometric specification is as follows:

$$HC_{it} = \alpha_i + \beta_1(HC)_{it-1} + \beta_2 REM_{it} + \beta_3(X)_{it} + \mu_i + \gamma_t + \varepsilon_{it}$$

Where the dependent variable, HC is the human capital in country i at time t; HDI_{it-1}represents the lagged value of the dependent variable and REM_{it} represent the remittances in country i at time t, and X represents control variables (population, GDP, and financial development). μ_i is country fixed effect, γ_t is the year-fixed effect and ε_{it} is the error term. The coefficients α, β_2, β_3 denote the parameter to be estimated.

The secured financial system can promote economic growth, which in turn increases human development. In this regard, we use Private credit by deposit money banks to GDP (%) as the proxy for financial development. Economic growth is identified as an important control variable in human capital (Ramey and Ramey, 1995). Theoretically, the economic growth rate affects human capital positively (Solow, 1956). We also include population growth as one of the factors that increase human capital in a country. The data for this analysis come from different sources. Data on human capital are sourced from the Barro and Lee dataset, which provides estimates on the total average years of schooling for individuals aged 25 and above in five-year interval. Data on the remaining variables (remittances, GDP per capita, private credit and population) were obtained using the World Bank's *World Development Indicators.*

In this study, we adopt a multi-faceted approach to estimate the relationship between remittances and human capital in Sub-Saharan Africa. We begin with pooled Ordinary Least Squares (OLS), random effects, and fixed effects estimations. These methods allow us to explore different aspects of the relationship across countries and time periods.

Pooled Ordinary Least Squares (OLS) combines data from various countries and time points into a single regression. However, it may overlook the heterogeneity present in different countries and periods. The random effects model accounts for country-specific intercepts and treats unobserved effects as random and unrelated to the explanatory variables. It helps capture individual country differences but assumes that the effects are independent of the explanatory variables. In contrast, the fixed effects model controls for time-invariant country-specific effects by introducing country-specific dummy variables. While it captures time-invariant heterogeneity, it may not account for time-varying factors.

Subsequently, we employ dynamic System GMM to complement the previous estimations. This powerful technique addresses endogeneity, time-varying heterogeneity, and unobserved country-specific effects. By using lagged variables as instruments, it provides more reliable and efficient estimates. By combining these diverse estimation methods, we aim to present a comprehensive and robust analysis of the relationship between remittances and human capital in Sub-Saharan Africa. This approach allows us to identify patterns and validate the findings, providing valuable insights into the dynamics of remittances' impact on human capital in the region.

The system GMM estimation technique would be an ideal method because this estimator corrects for country-specific effects and the possibility of endogeneity of some explanatory variables. Thus in this regard, our analysis will be drawn from the system GMM estimates on the relationship between remittances and human capital because System GMM improves efficiency compared to first-differenced GMM and is able to handle unobserved country-specific effect, endogeneity issues that may be present in the estimation. This will provide insight into the dynamic relationship between remittances and human capital in Sub-Saharan Africa and contribute to the existing literature on the topic.

4. Results

Table 1 presents the estimation results. The estimations meet our prior expectations, showing the expected results on all variables. The coefficient on the lagged human capital variable is significant and has the expected positive sign, indicating that past human capital positively influences current human capital. The coefficient for the variable of interest, remittances, is positive and statistically significant, supporting the notion that remittances have a favorable effect on human capital. Specifically, a 1 percent increase in remittances corresponds to approximately a 0.27 percent increase in human capital. These findings are in line with the studies conducted by Koska et al. (2013) and Acosta et al. (2007), where they also found evidence of remittances contributing to the improvement of human capital.

As far as the additional variables are concerned, growth, financial development, and population are highly significant with the positive sign. Firstly, economic growth has a positive and statistically significant impact on human capital. A higher rate of growth is associated with increased achievements in human capital, indicating that economic prosperity can foster educational and skill development. Secondly, our findings are consistent with existing literature, demonstrating that financial development plays a crucial role in facilitating human capital. A well-developed financial market, as measured by financial indicators, leads to a slight but significant increase in human capital by 0.001 percentage points. Lastly, the population size also exerts a positive and statistically significant influence on human capital. A larger population is associated with higher levels of human capital, with each percentage-point increase in population leading to a 0.033-point increase in human capital.

In summary, our study reinforces the importance of economic growth, financial development, and population size in driving human capital formation. These findings highlight the significance of policies that promote economic growth, foster financial development, and account for population dynamics as crucial factors in

enhancing human capital, which, in turn, contribute to the overall progress and development of a country or region.

The reliability of the Generalized Method of Moments (GMM) estimator is contingent upon two essential specification tests, which also serve as assessments of instrument validity. In our analysis, we include two specification tests to address these concerns. The first specification test is the Sargan test of over-identifying restrictions. This test assesses whether the chosen instruments are valid and whether the number of instruments matches the number of identifying restrictions in the model. The satisfactory outcome of this test indicates that the instrumental variables used in the estimation are appropriate and well-suited for the model.
The second specification test we employ is the Arellano-Bond test for autocorrelation. This test aims to detect potential autocorrelation or serial correlation in the model. Autocorrelation occurs when the error terms in the model are correlated over time, potentially leading to biased estimates. However, the absence of misspecification problems revealed by this test implies that the model is appropriately specified and that autocorrelation is not a major concern in our analysis.

Overall, the results from both specification tests affirm the validity and reliability of the chosen instrumental variables, as well as the appropriateness of the model specification. This ensures that our GMM estimator provides accurate and consistent estimates of the relationships between remittances and human capital, and other factors in our analysis. The satisfactory diagnostics further validate the robustness of our findings.

Table 1: The Impact of Remittances on Human Capital: GMM Estimation

Variables	Education
Education $_{t-1}$	0.2677***
	(0.0098)
Remittances	0.0137***
	(0.0005)
GDP	0.0004***
	(4.4800)
Population	0.033***
	(0.006)
Financial Development	0.0095***
	(0.0010)
AR Test (2)	0.4532
Sargan Test	0.5348

Note: Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Discussion: Table 1 presents the estimation results. The estimations meet our prior expectations, showing the expected results on all variables. The coefficient on the lagged human capital is significant with the expected positive sign. The coefficients of the variables of interests and remittances are positive and significant. These findings suggest that remittances tend to have positive and statistically effects on human capital. An increase in remittances leads to about a 0.27 percent increase in human capital. This finding is consistent with Koska et al. (2013) and Acosta et al. (2007), where they reveal evidence that remittance can improve human capital.

As far as the additional variables are concerned, growth, financial development, and population are highly significant with the positive sign. Growth has a positive and significant impact on human capital. The positive coefficient indicates that the greater growth, the higher the achievement in human capital. Consistent with previous literature, we also find that financial development facilitates human capital. A good financial market in financial measures will increase human capital by 0.001 percentage points. Finally, the result of the population size is obtained as per our expectations. Greater population size indicates a higher level of human capital. The coefficient is positive and statistically significant. The human capital will increase by 0.033 points with an increase of one percentage point in population.

The consistency of the generalized method of moment estimator depends on two specification tests which are also the test of validity of the instruments. We present two specification tests to address these issues. The first is the Sargan test of over-identifying restrictions. The second is the Arellano-Bond test for autocorrelation. All the diagnostics are satisfactory. In all cases, the validity of the chosen instrumental variables is confirmed by the Sargan test and second-order serial correlation tests do not reveal a misspecification problem.

5. Conclusion and Recommendations

The present study investigated the impact of remittances on humans in SSA countries. Several important conclusions can be drawn from the estimation. First, the analysis shows that all the variables of interest provided expected signs, thus, consistent with the previous literature that remittance is very helpful to human capital improvement. The positive relationship between remittances and human capital has been empirically supported by Zhunio et al. (2012), Bertoli and Cognetti (2006), Rapoport and Docquier (2005). We also find the effect of other variables on human capital in the study. Higher GDP is capable of increasing human capital, which is consistent with the previous literature (Hanushek, 2013). On the other hand, higher financial development is related to the increase of human capital; a better financial market is expected to improve human capital.

Sustaining and improving human capital in a country requires a comprehensive approach that goes beyond the sole focus on remittances. While remittances can play a vital role in supporting education and skill development, implementing a set of appropriate and complementary policies is essential to maximize the impact on human capital. For example, a comprehensive policy framework encompassing education, healthcare, labor market reforms, research and development, social protection, gender equality, infrastructure, governance, financial inclusion, and environmental sustainability is essential for sustained and improved human capital growth. Governments should actively implement policies that promote the use of remittances to enhance human capital. Currently, high transaction costs and transfer charges discourage workers from remitting money to their labor-exporting countries, leading to financial hardships for their families with each remittance transaction. The high transaction costs are often a result of insufficient regulation and lack of competition in the remittance market. To address these challenges, governments can introduce measures aimed at reducing remittance transaction costs and encouraging formal financial channels for remittances.

Acknowledgment

The paper is partially supported by the internal faculty grant 600-TNCPI 5/3/DDF (FPP) (004/2022) endowed by the Faculty of Business Management, University Technology MARA, Puncak Alam, Selangor.

References

Acosta, P., Fajnzylber, P., & Lopez, J. H. H. (2007). The Impact of Remittances on Poverty and Human Capital: Evidence from Latin American Household Surveys. *World Bank Policy Research Working Paper*, *4247*, 1–36

Adams, R. H. (2011). Evaluating the Economic Impact of International Remittances on Developing Countries Using Household Surveys: A Literature Review. *Journal of Development Studies*, *47*(6), 809–828.

Adams, R. H., & Cuecuecha, A. (2013). The Impact of Remittances on Investment and Poverty in Ghana. *World Development*, *50*, 24–40.

Arguillas, M. J. B., & Williams, L. (2010). The impact of parents' overseas employment on educational outcomes of Filipino children. *International Migration Review*, *44*(2), 300–319.

Bertoli, S., & Cognetti, E. S. (2006). Working Paper Series Remittances and the Dynamics of Human Capital in the Recipient Country Remittances and the Dynamics of Human Capital, (7).

Boucher, S., Stark, O., & Taylor, J. E. (2009). A gain with a drain? Evidence from rural Mexico on the new economics of the brain drain.

Córdova, J. E. L. (2006). Globalization, migration and development: the role of Mexican migrant remittances (Working Paper ITD= Documento de Trabajo ITD; n. 20) (Vol. 20). BID-INTAL.

Edwards, A.C. and Ureta, M. (2003), "International migration, remittances, and schooling: evidence from El Salvador", *Journal of Development Economics*, Vol. 72 No. 2, pp. 429-61.

Frisancho-Robles, V. F., & Oropesa, R. S. (2011). International Migration and the Education of Children: Evidence from Lima, Peru. Population Research and Policy Review, 30(4), 591–618.

Gupta, S., Pattillo, C. A., & Wagh, S. (2009). Effect of remittances on poverty and financial development in Sub-Saharan Africa. *World Development*, *37*(1), 104-115.

Gyimah-Brempong, K., & Asiedu, E. (2014). Remittances and investment in education: Evidence from Ghana. *The Journal of International Trade & Economic Development*, *8199*(February), 1–28.

Hanushek, E. A. (2013). Economic growth in developing countries: The role of human capital. *Economics of Education Review*, *37*, 204–212.

Huay, C.S., & Bani, Y. (2018). Remittances, poverty and human capital: Evidence from developing countries. *International Journal of Social Economics*, 45(8), 1227–1235. https://doi.org/10.1108/IJSE-10-2017-0454

Huay, C.S., Winterton, J., Bani, Y. & Matemilola, B.T. (2019). Do remittances promote human development? Empirical evidence from developing countries, International Journal of Social Economics, 46-10, 1173-1185. https://doi.org/10.1108/IJSE-12-2018-0673.

Hubert Ebeke, C. (2012). Do Remittances Lead to a Public Moral Hazard in Developing Countries? An Empirical Investigation. *Journal of Development Studies*, *48*(November), 1009–1025.

Koska, O. a., Saygin, P. Ö., Çağatay, S., & Artal-Tur, A. (2013). International migration, remittances, and the human capital formation of Egyptian children. *International Review of Economics & Finance*, *28*, 38–50. http://doi.org/10.1016/j.iref.2013.05.006.

Kugler, M. (2006). Migrant remittance, human capital creation and job creation externalities in Colombia. Coyuntura Social, 34,45–74.

Mansour, W., Chaaban, J., & Litchfield, J. (2011). The impact of migrant remittances on school attendance and education attainment: Evidence from Jordan. *International Migration Review, 45*, 812–851.

McKenzie, D., & Rapoport, H. (2006). Can Migration Reduce Educational Attainments ? Depressing Evidence from Mexico Depressing Evidence from Mexico. *Development*, (1), 1–42.

McKenzie, D., & Rapoport, H. (2011). Can migration reduce educational attainment? Evidence from Mexico. *Journal of Population Economics, 24(4),* 1331–1358.

Ngoma, A. L., & Ismail, N. W. (2013). Do migrant remittances promote human capital formation? Evidence from 89 developing countries. *Migration and Development*, *2*(1), 106–116.

Nguyen, C. V., & Nguyen, H. Q. (2015). Do internal and international remittances matter to the health, education and labor of children and adolescents? The case of Vietnam. *Children and Youth Services Review*, *58*, 28-34.

Orozco, Manuel, (2003). Worker Remittances: An International Comparison. Working Paper commissioned by the Multilateral Investment Fund, Inter-American Development Bank, February.

Ramey, G., & Ramey, V. A. (1995). Cross-country evidence on the link between volatility and growth. American Economic Review*, 85* (5), 1138–1151.

Rapoport, H., & Docquier, F. (2005). The economics of migrants' remittances, Discussion Paper Series IZA DP No. 1531, IZA, Bonn, Germany.

Salas, V. B. (2014). International remittances and human capital formation. *World Development*, *59*(2003), 224–237.

Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, *70*, 65-94.

World Bank, 2013. Migration and remittance flows: recent trends and outlook, 2013-2016.

Zhunio, M. C., Vishwasrao, S., & Chiang, E. P. (2012). The influence of remittances on education and health outcomes: a cross country study. *Applied Economics*, *44*(35), 4605–4616.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Influence of Social Media on Self-Esteem among International Business Students in One of the Public Universities

Nor Lelawati Jamaludin, Nur Zania Azurin Abdullah Sani*, Mohd Syamim Che Muhamad Hariri, Syed Ashrene Syed Omar
Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia
norlelawati0019@uitm.edu.my, *nurzan7884@uitm.edu.my

Abstract: Over the past few decades, there has been a remarkable expansion of Information Communication Technology (ICT), leading to significant changes in our lives as we advance in years. Internet addiction has become a major global concern, with the number of affected individuals increasing daily. The Internet has become the primary source of knowledge, and the exponential rise in students' engagement with social media is a noteworthy phenomenon. However, it cannot be overlooked that students are spending more time on social media than on their studies, which can hurt their exam performance unless they allocate more time to learning. Therefore, this paper explores the extent to which factors of social media usage and social media addiction influence self-esteem. The target respondents were among the 97 students of Part 5 in the international business program in UiTM. The objective of this study is to investigate factors of low self-esteem among teenagers (IB students) which it narrows down to the following aim; to identify the relationship between the usage of social media and low self-esteem and to measure the relationship between social media addiction and low self-esteem. The finding of this study revealed that social media addiction has positively influenced the teenager's self-esteem. Consequently, the result of this study is hoped to help future research to do relevant & further study on social media associated with self-esteem. Besides that, it also gives recommendations to teenagers to foster healthier digital habits and strike a balance between online activities and their daily responsibilities.

Keywords: *Social media, social media usage, social media addiction, self-esteem*

1. Introduction and Background

Internet, social media, mobile applications, and various other digital communication technologies have become an integral part of the daily lives of billions of individuals worldwide. Social media serves as a global platform that enables people not only to engage with one another but also to share their daily experiences, and innovative ideas, and generate content. Instagram, in particular, has witnessed rapid growth, especially among teenagers, providing users with the ability to effortlessly update or publish images and videos of themselves for the world to see. Through social media, users have the opportunity to create a profile and a bio, where they can share personal information such as their name, age, and gender. However, this can potentially pose risks when individuals seek to express themselves more freely in the media, striving to gain recognition and visibility. Significantly, social media encompasses both textual and visual elements, as individuals now can document and share their social experiences through words and images. In the past, before the emergence of Web 2.0 technology, published photographs were primarily regarded as an artistic medium and a specialized skill within traditional media, utilized to showcase cultural phenomena and historically significant moments. However, the simultaneous progression of Web 2.0 technology and the integration of cameras and photo editing applications into smartphones have allowed for the utilization of photos to capture and exhibit the intricate details of ordinary people's everyday lives. This shift has resulted in the democratization of photography on the internet and represents a broader advancement in terms of self-expression, memory preservation, and social interaction (Chen, Sherren, Smit & Lee, 2023).

This research uncovers numerous issues or challenges. Primarily, social media hurts teenagers as it leads them to spend excessive hours engaging in online interactions, potentially hindering their ability to interact effectively with individuals in real-life situations due to the inherent comfort of online communication (Abd Rahman & Abdul Razak, 2019). When teenagers lack effective communication skills, their confidence in successful face-to-face discussions diminishes. Consequently, social media platforms like Instagram can have a detrimental impact on teenagers, as they contribute to lowered self-esteem. To address this issue, implementing solutions such as setting limits on screen time for students could be beneficial, even though it might be challenging due to their already-established habits of using social media. Another problem

statement can be found in this issue is that teenagers may experience melancholy, anxiety, and stress as a result of their usage of social media (Abd Rahman & Abdul Razak, 2019). The desire to meet societal standards and conform to current social media trends places immense pressure on young individuals to seek validation from their peers or showcase their uniqueness. Consequently, teenagers experience negative impacts on their emotional well-being and mental health due to their inability to meet these expectations. This, in turn, plays a significant role in influencing a teenager's self-esteem. One potential solution to address this issue is engaging in outdoor hobbies, as they provide a healthy outlet and diversion from the pressures of social media. According to (Daroy, 2018), Keeping active in sports or other physical activities will distract them and would even improve physical wellness.

2. Literature Review

Self-Esteem: Self-esteem refers to the overall value individuals attribute to themselves. Numerous empirical studies have emphasized the link between self-esteem and various aspects of well-being, including subjective well-being, life satisfaction, happiness, and mental health. Additionally, past research has consistently demonstrated that lower self-esteem can act as a risk factor for various forms of addiction (Gori, Topino, Griffiths, 2023). Self-esteem refers to an individual's self-assessment of their personal value or worth. There is a significant connection between the use of social media and mental health about this self-perception (Tibber, Zhao, & Butler, 2020). Earlier studies have demonstrated that fearful and preoccupied attachment styles, along with a generally anxious attachment style, play a predictive role not only in the emergence of problematic social media usage but also in other variables that can impact this connection, such as self-esteem and fear of missing out (FOMO) (Stanculescu and Griffiths, 2022). Previous research has indicated a connection between self-esteem and problematic use of Facebook, social comparisons, and depression (Marino, Gini, Vieno, & Spade, 2018). While various studies have explored the relationship between social media use and self-esteem, they have primarily focused on selfie behavior and prosocial actions.

Happiness rather than specifically investigating young adults' self-esteem concerning Instagram (Mohd Nazri, Abd Latiff & Muhmud Pirus, 2021). Additionally, previous research is investigating the mediating role of positive feedback between social networking site (SNS) use and social esteem. However, limited research has been conducted on the association between self-esteem and Instagram use, with most studies focusing on general social media platforms. This study stands out by exploring how self-esteem can influence an individual's motivation to enhance their self-esteem (Mohd Nazri, Abd Latiff & Muhmud Pirus, 2021). For example, the authors noted that users with high self-esteem tend to benefit from success and are more motivated to continue tasks that boost their self-esteem. Positive self-esteem serves as a driving force for personal motivation. On the other hand, individuals with lower self-esteem may lack the motivation to repeat tasks, hindering their progress and potential for future motivation (Danielsson & Bengtsson, 2016). Prior studies have indicated that individuals with low self-esteem tend to view social media as a safer platform for self-expression compared to those with high self-esteem. Additionally, research has found a negative correlation between self-esteem and addictive social media usage. As such, the current study hypothesizes that there will be a negative association between self-esteem and symptoms of addictive social media use (Andreassen, Pallesen, Griffiths, 2017).

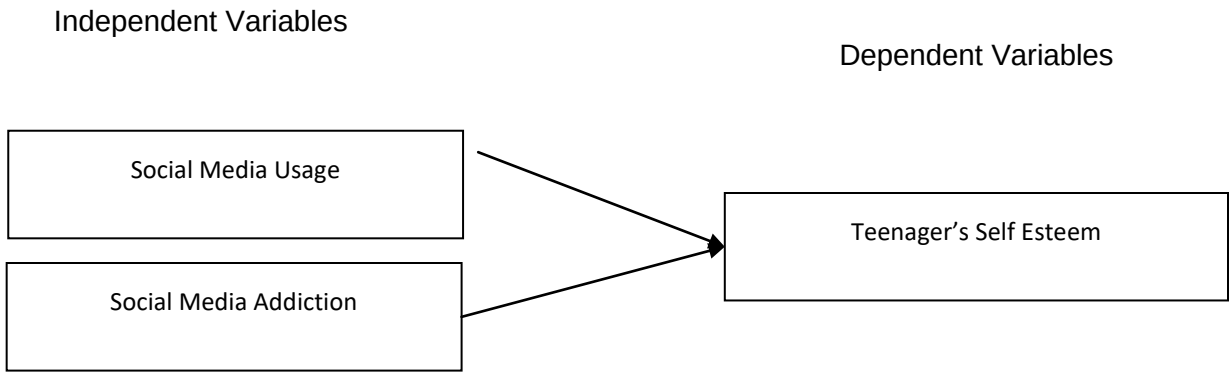
Social Media in Malaysia: Social media is defined as an application that facilitates communication and interaction between users, creating an online space where people can connect, share, and communicates with others for various purposes. It serves as a platform enabling individuals to establish and maintain social networks or relationships with others who have similar personal or professional interests, backgrounds, or real-life connections (Tayo, Adebola and Yahya, 2019). Essentially, social media fosters the exchange of information and ideas within networks of individuals. This interactive process heavily relies on electronic devices such as tablets, iPads, laptops, and Internet-based technologies to connect people. In essence, social media can be described as a set of technologies that promote social interaction, foster collaboration, and facilitate discussions on a global scale (Boateng & Amankwaa, 2016). In the Asia Pacific region, Malaysia stands out as one of the leading users of social media, which can be attributed to the significant increase in internet penetration within the country. As of the first quarter of 2015, Malaysia's internet penetration rate reached 70.4% (MCMC, 2015). Notably, social media penetration in Malaysia reached 53%, making it the sixth highest in the Asia Pacific region. Furthermore, Malaysians spend an average of 3.3 hours per day on social media, ranking third in the region in terms of daily social media usage.

Social Media Usage: In a recent study conducted by previous researchers, the focus was on investigating the impact of social media usage on the academic pursuits of undergraduates. The findings revealed a range of social media platforms preferred by undergraduates, such as WhatsApp, Facebook, Instagram, YouTube, Twitter, LinkedIn, Google Plus, Snapchat, and Skype. On average, undergraduates dedicate 2-3 hours each day to engaging with social media, attributing their usage to various purposes, including socializing, seeking information, academic-related activities, business interests, and entertainment (Tayo, Adebola and Yahya, 2019). The negative impacts of social media outweigh the positive ones, particularly when it comes to students. As they tend to allocate more time to social media for non-educational purposes, it leads to distractions within the learning environment, ultimately affecting their academic progress (Kolhar, Ahmed Kazi & Alameen, 2021). According to a recent study, social networking sites are widely used by university students, mainly due to the widespread availability of smartphones and easy access via home computers. However, this extensive use of social media has resulted in a decrease in the time students dedicate to academic activities. Interestingly, only a minimal percentage (1%) of students utilized social media for academic purposes, while a substantial majority (35-43%) engaged in non-academic activities such as chatting with others on platforms like WhatsApp, Facebook, and Snapchat, and browsing social networking sites to pass the time (Kolhar, Ahmed Kazi & Alameen, 2021).

Social Media Addiction: The study investigating the effects of social media usage on students' academic performance has identified several noteworthy influences, including internet addiction, distraction, anti-social behavior, cyberbullying, and a decline in writing and spelling skills. The research concludes that the prevalent social media platforms among students are WhatsApp, Facebook, Instagram, and YouTube. These platforms are primarily utilized for socialization, accessing information, and academic purposes. Additionally, the study hints at a potential correlation between the reasons behind social media addiction and the usage patterns observed (Tayo, Adebola, and Yahya, 2019). According to a recent study, social networking sites are widely used by university students, mainly due to the widespread availability of smartphones and easy access via home computers. However, this extensive use of social media has resulted in a decrease in the time students dedicate to academic activities.

Interestingly, only a minimal percentage (1%) of students utilized social media for academic purposes, while a substantial majority (35-43%) engaged in non-academic activities such as chatting with others on platforms like WhatsApp, Facebook, and Snapchat, and browsing social networking sites to pass the time (Kolhar, Ahmed Kazi & Alameen, 2021). University students, particularly those who experience social networking site addiction, use these platforms not only at home but also on campus, with smartphones being their primary access tool. While social media does have a significant role in education, the presence of numerous social networking sites has led to students devoting more time to activities like chatting, watching movies, shopping, and playing games rather than engaging in educational pursuits (Abbas et al., 2019).
H1: Social Media Usage has positive and significant influences.
H2: Social Media Addiction has positive and significant influences on Teenagers Self Esteem.

Figure 1: Research Framework



3. Research Methodology

The study was conducted among part 5 students from the International Business program at Universiti Teknologi Mara (UiTM) Puncak Alam. Part 5 has a total of 128 students. Referring to Krejcie and Morgan's table, the targeted respondents for this research are 97 students. The probability sampling method will be applied in this study. Simple random sampling and complex probability sampling are the two different forms of probability sampling. It is anticipated that the sample's characteristics would reflect the population from which it was collected. For this study, simple random sampling is the most appropriate sampling method. To use the whole Part 5 student population at UiTM Puncak Alam as a selected respondent would be too complex and difficult. The method used to conduct the survey is by distributing the questionnaire through online instant messaging such as Telegram and WhatsApp. This will allow and ease the researcher to reach the target population. Correlation coefficients were used to analyze the data to identify the relationship between the variables. Furthermore, multiple regressions were used to assess the most influential factors towards self-esteem.

4. Results

This section presents sets of results relating to the profile of respondents' experiences towards social media in influencing self-esteem based on demographic and geographic characteristics (gender, age, semester, and social media usage).

Profile of Respondents: Table 1 displays a summary of the characteristics of the total sample of students who participated in the study.

Table 1: Demographic and Geographic Information About International Business Students in UiTM

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	18	18.6%
Females	79	81.4%
Total	**97**	**100%**
AGE		
20-22	40	41.2%
23-25	49	50.5%
26-28	4	4.1%
29-32	4	4.1%
Total	**97**	**100%**
Semester		
Semester 1	10	10.3%
Semester 2	4	4.1%
Semester 3	14	14.4%
Semester 4	3	3.1%
Semester 5	66	68.0%
Total	**97**	**100%**
Social Media Usage		
Instagram	33	34%
Twitter	7	7.2%
TikTok	45	46.4%
Facebook	12	12.4%
Total	**97**	**100%**

Correlation Analysis: A correlation matrix is used to demonstrate the strength of a linear relationship between variables in a dataset. The correlation coefficient is used to demonstrate the correlation. The

correlation coefficient indicates how closely two variables are connected. Scores vary from 1 to -1. A perfect positive correlation is represented by a value of one, whereas a perfect negative correlation is represented by a value of one. Closer to zero indicates a weak association.

Table 2: Correlation Analysis

	Social Media Usage	Social Media Addiction	Teenager's Sel esteem
com_TSE	.254*	.049**	1
	.012	.000	
	97	97	97

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table 2, indicates that Pearson's correlation between teenage self-esteem and social media usage is negligible, r = 0.254. This indicates that there is a statistically insignificant correlation between the respondent's teenage self-esteem and social media usage. Pearson's correlation between teenager self-esteem and social media addiction is low positive, r = 0.490. This indicates that there are statistically significant correlations between the variables.

Analysis of Variance (ANOVA, and Multiple Regressions): ANOVA was used to determine the significant influence of social media on self-esteem among international business students in UiTM Puncak Alam. The ANOVA results are displayed in Table 3.

Table 3: Coefficients

Model		**Unstandardized Coefficients**		**Standard Coefficients**		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	16.107	3.826		4.210	.000
	Social Media Usage	-.379	.223	-.220	-1.699	.093
	Social Media Addiction	1.635	.325	.650	5.027	.000
R		.513a				
R-square		.263				
Adjusted R-square		.247				
F		16.764				
Significance F value		.000b				

Dependent Variable: com_TSE

Predictors: (Constant), com_SMA, com_SMU

According to the results in Table 3, just two independent factors, social media use and social media addiction, contributed considerably with significant values of 0.093 and 0.00, respectively. According to the results of the standardized coefficients (beta), social media use is the variable that contributed to the dependent variable with B =-0.220, while social media addiction contributed to the dependent variable with B = 0.650. The result has shown that it supported hypothesis 2, Social Media Addiction has positive and significant influences on Teenagers Self Esteem. Therefore, rejected Hypothesis 1, Social Media Usage has no positive or significant influences on self-esteem. Based on Table 3, the value of R represents the percentage of variance in the dependent variable, which is explained by the variation in the independent variable. It is significant to the value that represents our research and how much this study is presenting. In this study, the value of R is (.513), equivalent to 51.3%. Thus, this shows that our study had presented 51.3% and the balance of 48.7% is explained by other factors. Whereas the F value is where it predicts the response of the sample. The minimum value is 1 but the study recorded F at 16.764, p>0005, which predicts to be a good model for forecasting the sample. As a result, it indicates that the data gathered was valid and can be accepted. The data's significance could be attributed to the extensive number of questions per variable being tested.

Discussion: This research aims to gain a better understanding of the relationship between social media usage and addiction about teenagers' self-esteem at Universiti Teknologi Mara, Puncak Alam. By considering the various social media platforms as moderators, the study will analyze the factors within social media that potentially impact teenagers' self-esteem. In the current era of modernization, it has become commonplace for teenagers to have accounts on popular social media platforms such as TikTok, Twitter, and Instagram. As of April 2022, Instagram users aged 18-24 accounted for 30.2% of the total user base, comprising both males and females (Dixon, 2022). Conducting this research will shed light on the level of self-esteem among teenagers based on their usage of specific social media platforms and their degree of dependence on social media. Based on the findings, it has been established that only the independent variable of social media addiction has a significant and positive impact on teenagers' self-esteem (H2).

This addresses research question number two. Notably, social media addiction may be even more potent than addictions to alcohol or cigarettes, largely due to the internet's accessibility, widespread use, cost-effectiveness, and perceived safety. Ignoring the effects of social media could have detrimental consequences for teenagers. This accomplishment fulfills the first research objective: identifying social media usage patterns that may lead to social media addiction. The conclusion drawn is that social media usage has an insignificant and negligible impact on teenagers' self-esteem (H1). Social media can serve as a source of support during challenging times, and many view it as a healthy means of building peer attachments, where individuals receive encouragement and motivation, ultimately boosting their self-esteem. This finding successfully fulfills the second research objective, which was to assess the daily frequency of social media usage among young adults.

5. Managerial Implications and Recommendations

Recommendation for Future Research: A more effective method of evaluating the usage of social media should be included in the further investigation of this subject, as well as a sample size that is both more varied and bigger than the one that was used in the particular study. It would also be fascinating to look into the different ways that men and girls utilize social media platforms like Instagram, Facebook and Twitter. According to this research, girls had an average self-esteem score that was somewhat lower than that of men. Thus, females may be more sensitive to being affected by social media than boys. As a conclusion, given that this was correlational research, there is no explanation as to why there is a connection between high self-esteem and participation in social media. Additional study has to be carried out so that we can identify the components that are contributing to the problem.

Recommendation for Teenagers: To address the issue of spending excessive time on phones, teenagers can implement the following strategies. Teens can set alarms on their phones to monitor their daily screen time. This will help them become aware of how much time they spend on their phones each day. Second, it's crucial for students, especially those at UITM, to focus on their school assignments and avoid distractions like social media addiction, laziness, and lack of motivation. Finding a new environment that fosters motivation and excitement about their tasks can be helpful. Third, to strike a healthy balance, teens should disconnect from

digital gadgets for specific periods, especially during schoolwork or important tasks. After completing their work, they can indulge in phone usage without excessive social media involvement. Fourth, Avoid Social Media Addiction. Being cautious about excessive social media use is vital to prevent addiction. Teens can engage in more meaningful personal interactions rather than simply spending time on their phones. Fifth, Monitor Social Media Activities: Parents can become tech-savvy and monitor their children's social media activities. This proactive approach aims to prevent teens from becoming overly dependent on social media platforms (Almond Solution, 2019). By following these recommendations, teenagers can foster healthier digital habits and strike a balance between online activities and their daily responsibilities.

Conclusion: This study sheds light on the attitudes of young individuals towards social media. It reveals that addiction to and frequent use of social media negatively impacts youngsters' self-esteem. Overall, the research highlights the significant relationship between various aspects of social media and teens' self-esteem. The findings indicate that social media can lead to a harmful addiction among young individuals. Some respondents strongly agreed that social media has become an addiction for them based on the questionnaires. The researchers propose that future studies could include additional indicators to better reflect a teenager's level of self-esteem. Understanding the link between social media addiction and adolescent self-esteem is crucial for comprehending their reciprocal effects. Further research is recommended to gain a deeper understanding of the consequences of this situation. Moreover, the study reveals that youngsters' self-esteem has only a minor influence on their frequency of social media use. Some respondents disagreed with the statement "I use Instagram every single day." Researchers are encouraged to enhance their methodological and theoretical approaches to explore teenagers' self-esteem and related inquiries within the realm of social media platforms. Additionally, researchers are expected to explore prospective factors that are relevant to the current state of the virtual world. In conclusion, the research's questions and objectives were appropriately addressed and fulfilled. This study has sparked further questions about social media and its impact on teenagers' self-esteem in various aspects.

References

Abd Rahman, A. A. & Abdul Razak, F. H. (2019). Social Media Addiction towards Young Adults Emotion. *Journal of Media and Information Warfare*, 12(2), (1-15). https://doi.org/https://jmiw.uitm.edu.my/images/Journal/V122Chapter1.pdf

Abbas, J., Aman, J., Nurunnabi, M. & Bano, S. (2019). The impact of social media on learning behavior for sustainable education: evidence of students from selected universities in Pakistan. *Sustainability,* 11(6), 1683.

Andreassen C. S., Pallesen S. & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey, *Addictive Behaviors,* 64(287-293). ISSN 0306-4603, https://doi.org/10.1016/j.addbeh.2016.03.006.

Bergman, M. P. (n.d.). Social Media's Effects on Self-Esteem. Social Media Victims Law Center. Retrieved January 24, 2023, https://socialmediavictims.org/mental-health/self-esteem/

Boateng, R. O. & Amankwaa, A. (2016). The impact of social media on student academic life in higher education. *Global Journal of Human-Social Science: G Linguistics and Education*, 16(4), 1-8.

Chen, Y., Sherren, K., Smit, M. & Lee, K. Y. (2023). Using social media images as data in social science research. *New Media & Society*, 25(4), 849–871. https://doi.org/10.1177/14614448211038761

Danielsson, M. & Bengtsson, H. (2016). Global self-esteem and the processing of positive information about the self. *Personality and Individual Differences*, 99, 325-330.

Daroy, P. (2018, December 5). Keeping children away from the bad effects of gadget overuse. World Vision Philippines. https://www.worldvision.org.ph/stories/keeping-children-away-bad-effects-gadget-overuse/

Dixon, S. (2022, November 25). Global Instagram user age & gender distribution 2022. Statista. Retrieved January 24, 2023, from https://www.statista.com/statistics/248769/age-distribution-of-worldwide-instagram-users/

Gori A., Topino E. & Griffiths M. D. (2023). The associations between attachment, self-esteem, fear of missing out, daily time expenditure, and problematic social media use: *A path analysis model, Addictive Behaviors*, 141(107633), ISSN 0306-4603, https://doi.org/10.1016/j.addbeh.2023.107633.

Kolhar, M., Ahmed Kazi, R. N. & Alameen, A. (2021). Effect of social media use on learning, social interactions, and sleep duration among university students, *Saudi Journal of Biological Sciences,* 28(4), 2216-2222, ISSN 1319-562X, https://doi.org/10.1016/j.sjbs.2021.01.010

Laerd statistics. (2018). How to perform a Multiple Regression Analysis in SPSS Statistics | LaerdStatistics.Laerd.com. https://statistics.laerd.com/spss-tutorials/multiple-regression-using-spss-statistics.php

Mohd Nazri, S., Abd Latiff, Z. & Muhmud Pirus, S. (2021). Understanding Student's Personal Motivation and Self-Esteem Towards Instagram and Image-Posting, *Journal of Language and Communication,* 8(1), 85-103, 2637-0875

Marino, C., Gini, G., Vieno, A. & Spada, M. M. (2018). A comprehensive meta-analysis on problematic Facebook use. *Computers in Human Behavior,* 83, 262-277.

Parenting Tips if Your Teenager is a Social Media Addict. (2022, November 19). https://www.almondsolutions.com/blog/parenting-tips-if-your-teenager-is-social-media-addict

Research Methodology (second edition, Vol. 2). (n.d.). Malsca Asian Academy. SPSS Statistics for data analysis: Vol. 2nd Edition (2020th ed.). (2020). Malsca Asian Academy.

Stanculescu, E. & Griffiths, M. D. (2022). Social media addiction profiles and their antecedents using latent profile analysis: The contribution of social anxiety, gender, and age, 2*, Telematics and Informatics,* 74 (2022) 101879.

Tayo, S. S., Adebola, S. T. & Yahya, D. O. (2019). Social Media: Usage and Influence on Undergraduate Studies in Nigerian Universities. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 15(3), 53-62.

Tibber, M. S., Zhao, J. & Butler, S. (2020). The association between self-esteem and dimensions and classes of cross-platform social media use in a sample of emerging adults–Evidence from regression and latent class analyses. Computers in Human Behavior, 106371.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Preferred Sporting Tourism Events Attributes among Sports Tourists

Wan Soraya binti Wan Abdul Ghani[1*], Raziff Jamaluddin[2] & Masrur Mohd Khir[3]
[1,3]Universiti Teknologi MARA, Faculty of Business and Management, Selangor, Malaysia
[2]Universiti Teknologi MARA, Faculty of Hotel and Tourism, Selangor, Malaysia
wansor2956@uitm.edu.my*, raziff@uitm.edu.my, masrur@uitm.edu.my

Abstract: Sports tourism has emerged as a prominent and dynamic segment within the broader event, travel and tourism industry. Amidst this growth, understanding the attributes influencing sports tourists' attendance at sporting events has become paramount for event organizers, destination marketers, and policymakers. Hence, this study aims to investigate the attributes of sporting tourism events that influence sports tourists' attendance. By analyzing the attributes that hold the most significance for sports tourists when selecting from various sporting tourism events, this research aims to contribute valuable insights into the sports tourism industry. A questionnaire was used as the main instrument in the data collection process. 302 online surveys in Google Form format were distributed among sports tourists using a purposive sampling technique. The data collected were analyzed using SPSS version 28. The result indicated that most respondents preferred scenic views and value for money offered at sporting tourism events. By shedding light on the interplay between sporting tourism events attributes and sports tourists' behavior, this research seeks to make a meaningful contribution to the sustainable growth and development of the sports tourism industry.

Keywords: *Sporting Tourism Events Attributes, Decision Making, Sports Tourists, Sports Event, Sports Tourism.*

1. Introduction and Background

Sporting tourism event is an emerging trend wherein individuals intentionally travel to a specific destination with the primary objective of observing and experiencing various sporting events. The increasing popularity of sporting tourism events is evident as individuals from various regions globally embark on journeys (Gibson, 1998; Kapur, 2018) and witness the exhilaration and excitement of sports events (UNWTO, 2023). When viewed in this light, the industry has the potential to become one of the most dynamic and competitive in the whole tourism industry. It has become increasingly crucial for destination marketers, governmental tourism and organizations to concentrate on how sports events can promote tourism as the sector has grown tremendously over the years (Kersulić et al., 2020; Newland & Yoo, 2020). Within this domain, two primary categories of sporting tourism events have emerged (Hamdan & Yusof, 2014). Each offers distinct experiences and opportunities firstly, people who travel to participate in sports events (active sports tourists) and secondly, people who travel to witness the events as spectators (passive sports tourists) are included in the category (Gibson, 1998). In this study, passive tourists will be utilized by the researchers.

It is essential for sports event managers and destination marketers to thoroughly comprehend and understand the various attributes of the event as it pertains to their influence as sports event tourists. This particular area of knowledge remains deficient, as highlighted by Aicher et al. (2020) and Hikmahana & Razak (2017) who advocate for a deeper comprehension of the factors that might impact the inclination of sports tourists to attend sporting events. The previous study mostly focused on sporting events in general and the satisfaction of participants. In contrast, this study emphasizes the attributes of the event itself. The underlying principle of sports tourism is to entice tourists to specific destinations where they choose to extend their stay, primarily driven by the presence of sporting events as one of the intentions for their visit (Djohan et al., 2021). Therefore, event organizers must maximize the value derived from these attendees. This can be achieved by identifying the key factors influencing their participation in sporting tourism events (Kruger & Viljoen, 2019). Various contemporary factors have primarily determined the classification of sporting progress as a tourism phenomenon. These factors include the demands for active participation during holidays and the rising attendance at sporting events.

The existing body of literature has made significant progress in understanding the critical elements influencing the revisit intention (Newland & Yoo, 2021). However, according to them, it is essential to acknowledge that the attributes of sports tourism events relate to the distinct characteristics or qualities that

render these events attractive to sports tourists. Gaining insight into the desired characteristics of sporting tourism events among those who engage in sports-related travel is vital to enhancing the overall quality of their travel experience. The result of this study's insights enables destinations and event organizers to customize their offers to the preferences of sports tourists. As a result, this phenomenon contributes to the expansion of the economy by fostering an upsurge in the volume of sports tourists, prolonging their duration of stay, and augmenting their expenditure. By strategically accommodating the demands of sports tourists, the organizing destination and other parties could position themselves as leading centers for sporting activities. This may contribute to the promotion of sustainable tourism growth and provide beneficial outcomes for local communities and economies.

2. Literature Review

To capitalize on the growing sports tourism industry and gain a more inclusive understanding of the factors that influence individuals' choices, researchers have emphasized the importance of delving deeper into the behavioral patterns of sports tourists (Mehr Ali Hemmatinezhad et al., 2010; Newland & Aicher, 2018; Newland & Yoo, 2020). In addition, Kersulić et al. (2020) have discerned that researchers have recognized sporting events as a significant facet of sporting tourism. According to Gibson (1998), leisure-based travel encompasses the temporary departure of individuals from their residences to engage in sports activities, partake in sports events, spectate sports events, embark on visits, and pay homage to attractions associated with physical pursuits. The sporting tourism event possesses a distinctive attribute that appeals to sports event tourists. Numerous scholars have highlighted such tourism's overwhelmingly positive effects (Jönsson & Lewis, 2014; Liu & Wilson, 2014; Njoroge et al., 2017). In this case, understanding the dynamics of sports tourists' decision-making processes is critical for event organizers, destination marketers, and policymakers to effectively cater to this niche segment's evolving demands and expectations. Prior research has examined the value of comprehending sports attributes to increase participation and attendance (Chen & Funk, 2010; Ferreira & Armstrong, 2004b; Zarei et al., 2018).

The researchers agreed that a grasp of the attributes of sporting tourism events is paramount in promoting the attendance of sports tourists at these events. According to Kaplanidou & Vogt (2007), it has been established that events can directly impact tourists' behavioral intentions within the realm of sports and tourism literature. A study conducted by Shonk & Chelladural (2008) found that individuals who engage in sports-related travel may have their satisfaction levels influenced by various attributes associated with the sports event. Hence, there needs to be more clarity regarding the specific attributes or factors that influence sports tourists' decision-making process when selecting from various attributes in sports tourism events. For certain active sports participants, the event's attributes hold greater significance than the destination's features, as Aicher et al. (2020) observed. This finding emphasizes the need for a meticulous analysis of the elements contributing to the overall appeal and desirability of the sporting event experience. By identifying and prioritizing these crucial attributes, event organizers can curate and enhance the event's offerings, catering to the preferences of active sports tourists and creating a more rewarding and satisfying experience.

Item Development for Sporting Tourism Event Attributes: It started with the suggestion by Alpert (1971) that states factors influencing consumers' choices will only serve as determinants if they possess two key attributes: significance to the consumers and distinctiveness from competing products. These categories serve as a framework for understanding and evaluating the various aspects that contribute to the overall experience of attending a sports event. Over time, Edwards & Barron (1994) believe that consumers perceive products to have multiple attributes by associating personal values or benefits with product attributes (Bagozzi, Rosa, Celly, & Coronel, 1998). The concept evolved from the fields of psychology and economics. As stated by Schofield (1983), the review can be categorized into four distinct groups, namely demographic variables, economic variables, residual variables, and game attractiveness variables. Furthermore, according to Hikmahana & Razak (2017), sports events possess various characteristics that can be categorized into separate groups: service quality, access quality, accommodation quality, and venue quality. Previous researchers have argued in favor of a more comprehensive understanding of the behavior of sports tourists to offer more insightful explanations for why individuals choose to attend and revisit particular events (Hemmatinezhad et al., 2010; Newland & Aicher, 2018). Hence, Leiper's model posits that sports events can be classified as primary attractions due to their direct impact on tourists' travel decisions (Leiper, 1990).

Looking at the domain of sports marketing, sports attributes are regarded as commodities encompassing services, sports products, and non-sport products that are promoted in conjunction with sports (Blann & Armstrong, 2007; Smith, 2012). Hence, according to Crompton & McKay (1997), it is evident that sports tourists purchase not only products or services but also the anticipation of benefits that are expected to fulfill their needs. A study conducted by Greenwell et al. (2002) aimed to explore the intricate relationship between the core product, service personnel, and the facility within the context of sports tourism. The primary objective was to gain a comprehensive understanding of the distinct roles played by these factors and their collective impact on the overall satisfaction of sports tourists. Through a rigorous analysis of relevant data, the researchers found compelling evidence to suggest that the sports facility substantially influenced the overall satisfaction levels of sports tourists. This finding underscores the significance of the physical infrastructure and amenities provided by the facility in shaping the overall experience of sports tourists. In addition, Ferreira & Armstrong (2004a) conducted a study examining the preferences and behavior-related decisions of college students attending men's and women's hockey and basketball games at a university.

The study aimed to determine the factors contributing to the popularity of these sports events. The findings indicated that the popularity of these sports events was influenced by various factors, including the provision of free offerings and promotions such as complimentary T-shirts and entertainment items like live bands and music. On top of that, the proximity of the sports facility to the university campus and the availability of convenient transportation options were found to positively influence attendance rates. In their study, Zarei and Ramkissoon (2020) aimed to examine the various event attributes that influenced the decision-making process and attendance of sports tourists. The research focused on 316 domestic and foreign sports tourists who attended the Sepak Takraw event in Malaysia. The study identified several key attributes, including physical contact, sports popularity, accessibility and convenience, game attractiveness, sports facility free offerings and promotions, entertainment, and cost. Their analysis found that game attractiveness, sports facility, and accessibility emerged as significant factors influencing the attendance of sports tourists. These attributes played a crucial role in shaping the participants' decision-making process, ultimately leading to their attendance at the Sepak Takraw event.

Their research sheds light on the importance of specific event attributes in attracting sports tourists as the findings highlight the significance of game attractiveness, sports facility quality, and accessibility as key factors that contribute to the overall appeal of sporting events. In addition to the aforementioned points, a considerable body of literature has focused on investigating various factors associated with the appeal of sports games or teams and the determinants that influence sports tourists in their decision-making process to attend and participate in sporting events. These determinants encompass a range of attributes such as the visual appeal of the course scenery, cost, and ease of access, among others (Buning & Gibson, 2016; Newland & Yoo, 2020). Thus, for this section, items have been modified from Ferreira & Armstrong (2004c), Zarei & Ramkissoon (2020) and Newland & Yoo (2020) to represent the attributes. Considering relevant attributes for this study, the section will be measured by eight items: the sports event's popularity, scenic view, level of competition, promotions and free offerings, entertainment and accessibility. Additionally, the recommendation made by the panel expert to incorporate the event's legacy and value for money as new elements have been duly considered to maintain the questionnaire's coherence. Researchers aim to gain valuable insights into the factors contributing to sports events' overall success and appeal by investigating these attributes.

Table 1: Items for Sporting Tourism Events

Question Number		Measurement
1	Popularity	I am attracted to the popularity of sporting tourism events.
2	Legacy	I am attracted to the legacy of sporting tourism events.
3	Scenic view	I am attracted to the scenic views offered at sporting tourism events.
4	Promotions and free offerings	I am attracted to the promotions offered at sporting tourism events *(e.g., free tickets, T-shirts, early bird, and merchandise).*

5	Entertainment	I am attracted to the entertainment offered during sporting tourism events *(e.g., music and performance)*
6	Accessibility	I am attracted to the accessibility provided at sporting tourism event venues *(e.g., strategic location, ample parking, and sufficient seating/standing arrangement).*
7	Facilities	I am attracted to the well-maintained facilities at the sporting tourism events venues.
8	Value for money	I am attracted to attending sporting tourism events that offer value for money.

3. Research Methodology

This study exclusively focuses on sports tourists who have attended sporting tourism events in Langkawi from 2021 until recently, both domestic and international, who were temporarily residing in a foreign place for a minimum duration of 24 hours. These individuals specifically attend sports activities throughout their stay. Participation in this study requires that the respondents be 18 years or older, ensuring that all participants can provide meaningful responses. To select respondents for the study, purposive sampling techniques were applied to determine the inclusion criteria. This approach was deemed appropriate for this study, as respondents were selected based on their competence and knowledge of sporting tourism events in Langkawi. Using purposive sampling, the researcher aimed to ensure that the participants possessed valuable insights and experiences related to the subject matter, enhancing the quality of the collected data. It will be used as the technique is cost and time-effective (Fricker, 2016; Malhotra et al., 2017; Sharma, 2017). Besides, purposive sampling is expected to yield reliable and robust data (Bernard, 2017; Lewis & Sheppard, 2006). The carefully selected participants' expertise and experiences are anticipated to contribute to the depth and validity of the research findings, enhancing the study's overall credibility and significance. Although the population data on tourists is readily accessible, the researcher's specific focus is on a certain group, namely sports tourists who engage in attending sporting tourism events, for which there is a lack of precise and dependable data.

Despite the substantial influx of tourists to Langkawi, it is important to note that the existing database primarily caters to general tourists, and hence lacks official information about the quantity of sports tourists. Due to this circumstance, the precise size of the study's population remains undisclosed. There has been a growing emphasis on the importance of determining sample size through power analysis in research studies (Hair et al., 2017; Sarstedt, 2019). Using power analysis, it has been determined that the researcher necessitates a sample size of a minimum of 124 sports tourists. Therefore, based on this recommendation, the sample size utilized in the present study can be considered adequate. The researchers employed a set of targeted screening inquiries to evaluate the respondents' capacity to recollect any sporting tourism events they have attended in Langkawi and document them. Screening questions were used as they are crucial in identifying eligible respondents to determine their suitability for the study. To gather data from the target population effectively, the researcher opted for an online questionnaire survey, which has garnered significant attention from numerous researchers (Draper et al., 2017; Stanton, 1998; Van Selm & Jankowski, 2006), and thus, the researchers have chosen the platform. The questionnaire generated using Google Forms would be disseminated across various Facebook pages associated with sporting events, subject to the consent of the page owners. It is suitable for acquiring appropriate respondents, as Jahrami et al. (2020) suggest that online questionnaires enable respondents to answer questions at their own pace, ensuring a level of comfort and anonymity that can lead to more honest and comprehensive responses.

4. Results

Demographic: The researcher managed to get 402 sports tourists and from 402 who had participated in this survey, 100. Questionnaires were excluded as they needed to meet the criteria outlined in the screening questions for identifying qualified respondents. In the end, 302 questionnaires were deemed valid for analysis. The demographic characteristics of sports tourists were examined by applying descriptive statistics,

encompassing the calculation of frequencies and percentages. The demographic data of the visitors are presented in Table 2. Out of the total sample size of 302 participants, 47 percent identified as male, while 53 percent identified as female. The domain of sports tourism is particularly favored by younger individuals, specifically those aged 18-24, constituting 63.2 percent of the demographic, followed by 25-34-year-olds (20.5 percent). Conversely, individuals aged 35-44 displayed 7.9 percent, and 45-54 with 7.0 percent showed a low percentage. In addition, respondents aged 55 and above display a significantly lower interest in sports tourism, accounting for only 1.3 percent of the population. Regarding employment, most of the participants were employed in the private sector, comprising 80 attendees (26.5 percent), followed by the government sector, with 34 attendees (11.3 percent). Industrial and others were the minority, with only 0.3 percent of respondents.

Profile of Respondents: Table 2 summarizes the characteristics of the total sample of sports tourists who participated in the study.

Table 2: Demographic Characteristics of the Respondents

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	142	47
Females	160	53
Total	**302**	**100**
AGE		
18-24	191	63.2
25-34	62	20.5
35-44	24	7.9
45-54	21	7.0
55 and above	4	1.3
Total	**302**	**100**
EMPLOYMENT		
Government Sector	34	11.3
Private Sector	80	26.5
Industrial	1	0.3
Business	4	1.3
Self Employed/Freelance	29	9.6
Pensioner	33	10.9
Others	1	0.3
Total	**302**	**100**

Test for Normality: Several statistical techniques employed in this study presuppose the normal distribution of the data. A comprehensive normality test was conducted, and the Kolmogorov-Smirnov test was employed because the sample size exceeded 50 respondents. The observed p-values for all items were found to be less than .05, indicating statistical significance. As a result, it is inferred that the data does not follow a normal distribution.

Table 3: Normality

Variables	` **Kolmogorov-Smirnov**	
	Statistic	**Sig.**
I am attracted to the popularity of sporting tourism events.	**.345**	**.000**
I am attracted to the legacy of sporting tourism events.	.347	.000
I am attracted to the scenic views offered at sporting tourism events.	**.324**	**.000**
I am attracted to the promotions offered at sporting tourism events *(e.g., free tickets, T-shirts, early bird, and merchandise).*	.307	.000
I am attracted to the entertainment offered during sporting tourism events *(e.g., music and performance)*	.309	.000

I am attracted to the accessibility provided at sporting tourism event venues *(e.g., strategic location, ample parking, and sufficient seating/standing arrangement).*	.340	.000
I am attracted to the well-maintained facilities at the sporting tourism events venues.	.353	.000
I am attracted to attending sporting tourism events that offer value for money.	.311	.000

Factor Analysis: Principal axis factor analysis with varimax rotations was conducted to assess the underlying structure for eight sporting tourism event items (see Table 4). The construct was appraised according to the items designed for indexing eight items (attributes): popularity, legacy, scenic view, promotions and free offerings, entertainment, accessibility, facilities, and value for money.

Table 4: Factor Analysis

Item		Factor Loading
A1	Popularity	.682
A2	Legacy	.647
A3	Scenic View	.700
A4	Promotions	.698
A5	Entertainment	.651
A6	Accessibility	.609
A7	Well-maintained facility	.669
A8	Value for Money	.733

Descriptive Analysis for Attributes of Sporting Tourism Events: After data collection, descriptive analysis was conducted to identify the attributes of sporting tourism events. The descriptive analysis was conducted to examine the mean, standard deviation and rank of the items measurement to describe the attributes of sporting tourism events among sports tourists that attend the events. The number of available measurements for the variable and its respective reliability values are shown in Table 5. Values of reliability variables greater than 0.5 indicated that the measurement items were reliable. The attributes of the Sporting Tourism Events construct comprised eight items, with mean values ranging from 4.24 to 4.46. Table 5 demonstrates that the A3 item is ranked first due to the highest mean score (mean = 4.46, std = 0.568). The finding suggested that most respondents preferred a scenic view of sporting tourism events. Following closely, the A8 item obtained a notable mean score of 4.40 (std = 0.577), indicating that respondents were particularly attracted to events that offered value for money. The perception of receiving good value for their investment likely played a crucial role in the decision-making process for choosing sporting tourism events to attend.

Followed by the A1 item (mean = 4.34, std = 0.558), propounding those respondents preferred the popularity of sporting tourism events. The A4 item achieved a mean score at the medium level (mean = 4.33, std = 0.602) regarding promotions offered. The findings also revealed that many respondents considered music and performance offered at sporting tourism events as important indicators for attending such events, as indicated by the responses to the A5 item (mean = 4.31, std = 0.611). The A2, legacy of the events (mean = 4.27, std = 0.571) item also achieved a medium level of mean scores together with A6 (mean= 4.27, std= 0.580). The A7 item, which focused on well-maintained facilities of sporting tourism events, demonstrated relatively lowest mean scores compared with others (mean = 4.24, std = 0.569), indicating that this attribute less significantly influenced respondents' decision-making process. Overall, the analysis of the mean values for all attributes revealed that the A3 item, emphasizing the availability of a scenic view, stood out as the most valued attribute among the respondents, contributing to their high preference for such events. The study's descriptive analysis indicated a positive overall perception of the attributes of the Sporting Tourism Events.

Table 5: Descriptive Analysis for the Attributes of Sporting Tourism Events

Variable	Indicator	Mean	Standard Deviation	Rank
Sporting Tourism Events	A3: I am attracted to the scenic view offered at sporting tourism events.	4.46	0.568	1
	A8: I am attracted to attending sporting tourism events that offer value for money.	4.40	0.577	2
	A1: I am attracted to the popularity of sporting tourism events.	4.34	0.558	3
	A4: I am attracted to the promotions offered at sporting tourism events *(e.g., free tickets, T-shirts, early bird, and merchandise).*	4.33	0.602	4
	A5: I am attracted to the entertainment offered during sporting tourism events *(e.g., music and performance)*	4.31	0.611	5
	A2: I am attracted to the legacy of sporting tourism events.	4.27	0.571	6
	A6: I am attracted to the accessibility provided at sporting tourism event venues *(e.g., strategic location, ample parking, and sufficient seating/standing arrangement).*	4.27	0.580	7
	A7: I am attracted to the well-maintained facilities at the sporting tourism events venues.	4.24	0.569	8

Discussion: The evaluation of sports tourists' profiles offers a valuable repository of information for the development and execution of marketing strategies aimed at attracting sports tourists and promoting their engagement. When analyzing the preferences within the domain of sports tourism, it becomes evident that this niche is particularly favored by younger individuals, especially those aged 18-24, who constitute an impressive 63.2% of the total demographic. This age group shows a strong interest in sports-related travel experiences (Khan et al., 2017), likely seeking adventures, events, and opportunities to participate in various sports activities during their trips. On the other hand, individuals aged 55 and above display a significantly lower interest in sports tourism. According to Gibson (1998), the decrease in enthusiasm for sports tourism can be attributed to the evolving requirements of individuals throughout their lifespan. Due to this rationale, the inclination towards engaging in vigorous and adventurous activities is expected to diminish during the later stages of adulthood.

Shifting the focus to the participants' employment background, it is observed that most sports tourists are employed in the private sector, comprising 26.5% of the total sample size. This indicates that a substantial portion of sports tourists may be financially capable of undertaking such trips, as private-sector employment often implies higher income levels and greater flexibility for leisure activities. Further data on these groups could provide a more comprehensive understanding of the distribution of sports tourists across different age ranges and employment sectors. The availability of a scenic view at sporting tourism events was ranked first, and this finding suggested that a significant number of respondents highly preferred and valued the inclusion of picturesque landscapes or attractive settings at the sporting events they attended. The presence of a scenic view enhanced the overall experience (Williams et al., 2016) for these respondents. Other than that, sports tourists are particularly drawn to attending sporting tourism events that offer excellent value for money. This aspect dominates their decision-making process when selecting which events to spectate. The assurance of receiving exceptional value for their investment propels sports tourists to actively seek out events.

That promises an all-encompassing and fulfilling experience, making their sporting tourism adventures enjoyable, financially prudent, and rewarding. Another intriguing finding refers to the popularity of sporting tourism events. The influence of sports tourism events on the decisions made by sports tourists to attend and engage in these events is significant. This is due to its strong attraction for enthusiasts seeking exhilarating and unforgettable experiences (De Knop, 2004). Additionally, it generates excitement and eager anticipation while reinforcing the perception that the event is an essential occasion with unique characteristics within the

sports tourism community (Munirah Kamarudin et al., 2021). Nevertheless, upon observation, the impeccably maintained facilities receive limited attention among sports tourists when they join sporting tourism events. It raises a compelling line of inquiry that merits further understanding in the realm of academic research. Despite the assertion made by Hallmann et al. (2015) and Muller (2004) that facilities have received relatively less attention, research done by Greenwell et al. (2002) and King (1999) indicates that sports facilities continue to influence spectators' overall expectations substantially.

5. Managerial Implications and Recommendations

A comprehensive understanding of sports tourists' behavioral patterns and preferences is vital for stakeholders in the sports tourism industry. Researchers continue to emphasize the need to explore and dissect the specific attributes influencing sports tourists' decision-making processes. By acknowledging the significance of event attributes and their impact on satisfaction levels and revisiting intentions, the sports tourism industry can refine its offerings and capitalize on the remarkable growth, ensuring long-term success and sustainability in an increasingly competitive market. Regardless, researchers must engage in further investigation to comprehend the underlying factors that shape sports tourists' decision-making process regarding the utilization of facilities during their attendance at sporting events.

Conclusion: Identifying and promoting sports tourism events as tourist attractions catering to diverse geographic markets are crucial in today's competitive tourism industry. This is not just important; we must highlight this strategy to stay ahead of the game. The findings signify that marketing strategies should be prioritized, and efforts should be made to enhance the scenic view for domestic and international sports tourists. Other than that, it is crucial to emphasize the quality of sports facilities and the overall appeal of the sporting events. Furthermore, it is imperious to conduct further research on the significance of small-scale sports events as a more sustainable manifestation of sports tourism. These events offer the chance to commemorate sports events without the negative implications typically associated with mega-events.

One must acknowledge the significance of customizing the characteristics of sports tourism events to cater to the diversified demographics to ensure long-term success. Understanding the preferences and interests of various groups of sports tourists is authoritative for organizers and managers to create tailor-made experiences that cater to each segment. This personalized approach enhances their experience and increases the chances of positive recommendations to prospective future sports tourist attendees. In summary, discerning and advancing sports tourism events as an appealing industry requires a comprehensive approach. Through a persistent commitment to achieving high standards in these domains, sports tourism events have the potential to thrive as highly desirable activities, captivating the interest of sports enthusiasts globally and making a lasting impact on the tourism industry.

References

Aicher, T. J., Buning, R. J. & Newland, B. L. (2020). Running through travel career progression: Social worlds and active sport tourism. *Journal of Sport Management*, 34(6), 542–553. https://doi.org/10.1123/jsm.2019-0256

Alpert, M. I. (1971). Identification of Determinant Attributes. *Journal of Marketing Research*, 8(May), 184–191.

Bagozzi, R. P., Rosa, J. A., Celly, K. S. & Coronel, F. (1998). Marketing management. Prentice Hall.

Bernard, H. R. (2017). Research methods in anthropology: Qualitative and quantitative approaches. Rowman & Littlefield.

Blann, F. W. & Armstrong, K. L. (2007). Sports marketing. In J. B. Parks, J. Quarterman, & L. Thibault (Eds.), Contemporary Sport Management (3rd ed., pp. 193–217).

Buning, R. J. & Gibson, H. J. (2016). The role of travel conditions in cycling tourism: implications for destination and event management. *Journal of Sport and Tourism*, 20(3–4), 175–193. https://doi.org/10.1080/14775085.2016.1155474

Chen, N. & Funk, D. C. (2010). Exploring destination image, experience and revisit intention: A comparison of sport and non-sport tourist perceptions. *Journal of Sport and Tourism*, 15(3), 239–259. https://doi.org/10.1080/14775085.2010.513148

De Knop, P. (2004). Total quality is a new issue in sport tourism policy. *Journal of Sport and Tourism*, 9(4), 303–314. https://doi.org/10.1080/1477508052000341832

Djohan, M. I., Hazisma, S. & Fitiansyah, Y. D. (2021). Analysis of sport tourism development on tourism attractions in Lubuk Linggau, South Sumatra. *Journal Hotspot*, 1(1), 35–45.

Draper, J., Thomas, L. Y. & Fenich, G. (2017). Event management research over the past 12 years : What are the current trends in research methods, data collection, data analysis procedures, and event types ? *Journal of Convention & Event Tourism*, 0(0), 1–22. https://doi.org/10.1080/15470148.2017.1404533

Edwards, W. & Barron, F. H. (1994). SMARTS and SMARTER: Improved simple methods for multiattribute utility measurement. *Organizational Behavior and Decision Processes*, 60, 306–325.

Ferreira, M. & Armstrong, K. L. (2004a). An exploratory examination of attributes influencing students' decisions to attend college sports events. *Sport MarHetIng Quarterly*, 13(September), 194–208.

Ferreira, M. & Armstrong, K. L. (2004b). An Exploratory Examination of Attributes Influencing Students' Decisions to Attend College Sport Events. *Sport Marketing Quarterly*, 13(September), 194–208.

Fricker, R. D. (2016). Sampling methods for online surveys. In The SAGE Handbook of Online Research Methods (pp. 184–202). SAGE Publications Ltd.

Gibson, H. J. (1998). Sport Tourism: A Critical Analysis of Research. *Sport Management Review*, 1(1), 45–76. https://doi.org/10.1016/S1441-3523 (98)70099-3

Greenwell, T. C., Fink, J. S. & Pastore, D. L. (2002). Assessing the Influence of the Physical Sports Facility on Customer Satisfaction within the Context of the Service Experience. *Sport Management Review*, 5(2), 129–148. https://doi.org/10.1016/S1441-3523(02)70064-8

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M. & Thiele, K. O. (2017). Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods. *Journal of the Academy of Marketing Science*, 45(5), 616–632. https://doi.org/10.1007/s11747-017-0517-x

Hallmann, K., Zehrer, A. & Müller, S. (2015). Perceived Destination Image: An Image Model for a Winter Sports Destination and Its Effect on Intention to Revisit. *Journal of Travel Research*, 54(1), 94–106. https://doi.org/10.1177/0047287513513161

Hamdan, N. S. & Yusof, A. (2014). Determining Demographic Profiles and Tourists' Motives for Visiting Langkawi Island. *Infrastructure University Kuala Lumpur Research Journal*, 2(1), 96–103. https://doi.org/10.1016/s1013-7025(09)70018-1

Hemmatinezhad, M. A., Nia, F. R. & Kalar, A. M. (2010). The study of effective factors on the motivation of tourists participating in sports events. *Ovidius University Annals, Series Physical Education & Sport/Science, Movement & Health*, 10(2), 356–361.

Hemmatinezhad, Mehr Ali, Nia, F. R. & Kalar, A. M. (2010). The study of effective factors on the motivation of tourists participating in sports events. *Ovidius University Annals, Series Physical Education and Sport/Science, Movement and Health*, 10(2), 356–362. https://go.gale.com/ps/i.do?p=AONE&sw=w&issn=2285777X&v=2.1&it=r&id=GALE%7CA234713631&sid=googleScholar&linkaccess=fulltext

Hikmahana, D. & Razak, A. (2017). Sporting event attributes and behavioral intention: Mediating effect of the destination image. *Journal of Tourism, Hospitality & Culinary Arts*, 9(2), 59–74.

Jahrami, H., Al-mutarid, M., Penson, P. E., Faris, M. A., Saif, Z. & Hammad, L. (2020). Mental Health Status among University Students. MDPI, 1–12.

Jönsson, C. & Lewis, C. (2014). Impacts of Hosting a Sports Event in Tourism High Season. *The Play of Time in Sports*, 5(1).

Kaplanidou, K. & Vogt, C. (2007). The interrelationship between sports events and destination image and sports tourists' behaviors. *Journal of Sport and Tourism*, 12(3–4), 183–206. https://doi.org/10.1080/14775080701736932

Kapur, R. (2018). (PDF) The Significance of Sports Tourism. https://www.researchgate.net/publication/328412942_The_Significance_of_Sports_Tourism

Kersulić, A., Perić, M. & Wise, N. (2020). Assessing and considering the wider impacts of sport-tourism events: A research agenda review of sustainability and strategic planning elements. *Sustainability (Switzerland)*, 12(11). https://doi.org/10.3390/su12114473

Khan, M. J., Chelliah, S. & Ahmed, S. (2017). Factors influencing destination image and visit intention among young women travelers: role of travel motivation, perceived risks, and travel constraints. *Asia Pacific Journal of Tourism Research*, 22(11), 1139–1155. https://doi.org/10.1080/10941665.2017.1374985

Kruger, M. & Viljoen, A. (2019). Destination vs. event attributes : Enduring spectators ' loyalty. *Journal of Convention & Event Tourism*, 0(0), 1–23. https://doi.org/10.1080/15470148.2019.1691696

Leiper, N. (1990). Tourist attraction systems. *Annals of Tourism Research*, 17(3), 367–384. https://doi.org/10.1016/0160-7383(90)90004-B

Lewis, J. L. & Sheppard, S. R. J. (2006). Culture and communication: Can landscape visualization improve forest management consultation with indigenous communities? *Landscape and Urban Planning*, 77(3), 291–313. https://doi.org/10.1016/j.landurbplan.2005.04.004

Liu, D. & Wilson, R. (2014). The negative impacts of hosting mega-sporting events and intention to travel: a test of the crowding-out effect using the London 2012 Games as an example. *International Journal of Sports Marketing and Sponsorship*, 15(3), 12–26. https://doi.org/10.1108/IJSMS-15-03-2014-B003

Malhotra, N. K., Nunan, D. & Birks, D. F. (2017). Marketing research: An applied approach. Pearson Education Limited.

Munirah Kamarudin, L., Azyan Raihan Abd Aziz Asmahany Ramely, N., M, K. L. & A, R. A. A. N. (2021). Understanding Crowd Management in Sports Events: A Preliminary Study. *Journal of Tourism, Hospitality & Culinary Arts*, 14(1), 393–410.

Newland, B. L. & Aicher, T. J. (2018). Exploring sport participants ' event and destination choices. *Journal of Sport & Tourism*, 0(0), 1–19. https://doi.org/10.1080/14775085.2018.1436464

Newland, B. L. & Yoo, J. J. E. (2020). Active sport event participants' behavioral intentions: Leveraging outcomes for future attendance and visitation. Journal of Vacation Marketing. https://doi.org/10.1177/1356766720948249

Newland, B. L. & Yoo, J. J. E. (2021). Active sport event participants' behavioral intentions: Leveraging outcomes for future attendance and visitation. *Journal of Vacation Marketing*, 27(1), 32–44. https://doi.org/10.1177/1356766720948249

Njoroge, J. M., Atieno, L. & Do Nascimento, D. V. (2017). Sports tourism and perceived socio-economic impact in Kenya: The case of Machakos County. *Tourism and Hospitality Management*, 23(2), 195–217. https://doi.org/10.20867/thm.23.2.9

Sarstedt, M. (2019). Revisiting Hair Et al.'s Multivariate Data Analysis: 40 Years Later. In The Great Facilitator, Reflections on the Contributions of Joseph F. Hair, Jr. to Marketing and Business Research (Issue May, p. 113). Springer. https://doi.org/10.1007/978-3-030-06031-2

Schofield, J. A. (1983). Performance and attendance at professional team sports. *Journal of Sport Behaviour*, 6(4), 196–206.

Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7), 749–752. www.allresearchjournal.com

Shonk, D. J. & Chelladural, P. (2008). Service quality, satisfaction, and intent to return to event sport tourism. *Journal of Sport Management*, 22(5), 587–602. https://doi.org/10.1123/jsm.22.5.587

Smith, A. (2012). Introduction to sports marketing. Routledge.

Stanton, J. M. (1998). An empirical assessment of data collection using the Internet. *Personnel Psychology*, 51(3), 709–725. https://doi.org/10.1111/j.1744-6570.1998.tb00259.x

UNWTO. (2023). Sports Tourism | UNWTO. https://www.unwto.org/sport-tourism

Van Selm, M. & Jankowski, N. W. (2006). Conducting online surveys. In Quality and Quantity, 40(3), 435–456. Springer. https://doi.org/10.1007/s11135-005-8081-8

Williams, A. T., Rangel-Buitrago, N. G., Anfuso, G., Cervantes, O. & Botero, C. M. (2016). Litter impacts and tourism on the Colombian north Caribbean coast. *Tourism Management*, *55*, 209–224. https://doi.org/10.1016/j.tourman.2016.02.008

Zarei, A., Holmes, K. & Bin Yusof, A. (2018). Sports event attributes influencing sport tourists' attendance at sepak takraw event. *Event Management*, 22(5), 675–691. https://doi.org/10.3727/152599518X15299559637626

Zarei, A. & Ramkissoon, H. (2020). Sport Tourists' Preferred Event Attributes and Motives: A Case of Sepak Takraw, Malaysia. In Journal of Hospitality and Tourism Research. https://doi.org/10.1177/1096348020913091.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Online Food Delivery Sentiment Analysis from the Restaurant Point of View

Anuar Sulaiman[1], Abdul Khabir Rahmat[2]*, Irwan Ibrahim[3], Fadilah Jamaludin[3]
[1]Faculty of Business Management and Professional Studies, Management Science University, Malaysia
[2]Malaysia Institute of Transport, Universiti Teknologi Mara, Malaysia
[3]Faculty of Business Management Institute, Universiti Teknologi Mara, Malaysia
anuarsulaiman77@gmail.com, *abdulkhabir@uitm.edu.my

Abstract: Online food ordering has brought about a significant transformation in the food delivery landscape of Malaysia, facilitated through digital platforms such as websites and apps. This innovation has streamlined operations for restaurants, delivery personnel, and customers alike. While much research has focused on studying customer behavior, there remains a noticeable gap in understanding the perspectives of restaurants as they embrace these digital platforms to market their food offerings. This study seeks to bridge this gap by employing sentiment analysis. Through the analysis of 149 comments posted on social media groups frequented by restaurants utilizing online food platforms (referred to as vendors) in 2022, this research aims to comprehend the challenges faced by restaurants in this context. The sentiment analysis reveals the existence of seven primary categories of challenges. These encompass concerns related to regulatory policies, issues involving delivery personnel, challenges about the functioning of the online systems, difficulties arising from device usage, and matters concerning customer interactions. By delving into these categories, this research sheds light on the intricate array of challenges that restaurants encounter when participating as vendors on online food platforms. This comprehensive understanding contributes to a holistic comprehension of the hurdles faced by restaurants in adapting to this evolving landscape.

Keywords: *Restaurant, Online Food Delivery, Online Food Delivery Vendors.*

1. Introduction and Background

The main purpose of this study is to understand the difficulties that restaurants face when they use online food, platforms in Malaysia. The study will analyze comments on social media from these restaurants and group them into different categories to uncover problems related to policies, operations, and customers. By doing this, the study helps us learn more about the challenges restaurants deal with, filling a gap in existing research and giving us a better idea of the complex issues in the world of online food ordering and delivery. A restaurant that employs an online platform for food delivery is commonly referred to as a "food delivery restaurant" or "delivery restaurant." It may also be known as a "virtual restaurant" or a "cloud kitchen" if it solely accepts online orders and lacks a physical storefront or dining area (Slang, 2021). At times, the term "ghost kitchen" is also used for restaurants primarily focused on delivery orders (Krimmel, 2023). Virtual restaurants lack a physical storefront, which can pose challenges for potential customers in discovering them. The absence of a physical presence makes it challenging to build brand awareness and attract new customers. The popularity of online food delivery platforms has led to an influx of virtual restaurants on these platforms, resulting in intense competition (Cooper, 2021). As a result, the competition among virtual restaurants has intensified, making it more difficult for new entrants to distinguish themselves. Intense competition also exists between online food delivery platforms and other platforms offering similar services. This can make it difficult to acquire new clients and retain existing ones (Luki, 2020).

Virtual restaurants heavily depend on online food delivery platforms for their sales and often have to pay a commission for each order. This can reduce their profit margins and impede their expansion beyond the digital domain (VKO, 2016). Delivery logistics present a notable challenge for online restaurants. Ensuring punctual delivery, maintaining optimal food temperature, and ensuring precise drop-off locations are crucial for satisfying customers (Mat Nayan & Hassan, 2020; Ramaraj, 2017). This task can be particularly demanding during peak hours or in densely populated areas. Since virtual restaurants lack a physical presence, fostering customer loyalty and retention becomes a challenge (Hood Filters, 2020). Holding onto customers and establishing a strong reputation necessitate outstanding customer service and consistent food quality. Because they do not have a complete kitchen setup, virtual restaurants might have a restricted menu. This could be a drawback for customers looking for a wide variety of menu choices. Online food delivery

platforms heavily depend on technology to connect restaurants with customers. Technical problems like server failures, slow page loading, and app crashes can lead to customer frustration and harm the platform's reputation (Hood Filters, 2020). Other challenges include delivery logistics: Online food delivery services need to efficiently handle delivery logistics. Keeping up consistent food quality can be challenging for online restaurants, particularly those heavily reliant on delivery services. To ensure customer satisfaction, food must be packaged and transported appropriately to preserve its quality. It's crucial for maintaining customer satisfaction that food arrives on time, at the right temperature, and at the correct location (Mat Nayan & Hassan, 2020).

This can be demanding, especially during peak hours or in densely populated areas. Ensuring order accuracy is another critical factor in guaranteeing customer satisfaction. Miscommunications and order errors can result in customer frustration and negative reviews (Optimoroute, 2022). Customer service is paramount: Online food delivery platforms should deliver exceptional customer service to guarantee a positive customer experience. This entails promptly addressing inquiries, resolving problems, and providing updates on order status (Koay et al., 2022). The online food delivery market in Malaysia is fiercely competitive, with numerous contenders competing for a piece of the pie. This challenge can make it tough for newcomers to set themselves apart and draw in customers.

Commission Fees: Online food delivery platforms apply a commission fee to restaurants for every order made through their platform (Focus, 2020). Some restaurants argue that these fees are unreasonably high, potentially restricting their profitability and hindering expansion beyond the online realm. Payment processing can pose challenges for online food restaurants, particularly small businesses lacking the funds to invest in payment infrastructure. However, despite the significant initial expenses, investing in an improved restaurant Point of Sale (POS) system and adopting intelligent payment features offers advantages that go beyond just enhancing payment processing (Brolan, 2019). The payment method stands as a vital instrument for e-commerce, often executed through credit cards or electronic checks (Khalid et al., 2018). Customer contentment hinges on accepting diverse payment methods and guaranteeing secure payment processing.

Compliance with Regulations is Essential: Malaysian online restaurants need to follow a range of food safety, hygiene, and licensing rules (Thangayah, 2009). Especially for newcomers, ensuring adherence to these regulations might pose challenges.

2. Literature Review

Online Food Delivery: There are two types of online platforms, according to (Carsten Hirschberg, Alexander Rajko, and Thomas Schumacher, 2016). The first type consists of "aggregators," which emerged around 2001, and the second consists of "new delivery" players, which emerged in 2013. Both allow consumers to compare menus, scan and post reviews, and place orders with a single click from a variety of restaurants. The aggregators, which fall under the category of traditional delivery, collect customer orders and forward them to restaurants, which handle delivery themselves. In contrast, the new delivery players construct their own logistics networks and deliver food to restaurants without their drivers. The eservices market segment of Online Food Delivery includes the user and revenue growth of two distinct delivery service solutions for ready-to-eat meals: (1) Restaurant-to-Consumer Delivery and (2) Platform-to-Consumer Delivery. Included in revenue is the gross merchandise value (GMV), which is the total dollar value of sales for merchandise/food sold through the Online Food Delivery marketplace. Online Food Delivery includes services that deliver online-ordered prepared meals and food for immediate consumption. The Restaurant-to-Consumer Delivery segment consists of restaurants delivering food directly to customers. The order may be placed through platforms (e.g., Delivery Hero, Just Eat) or a restaurant's website (e.g., Domino's). The Platform-to-Consumer Delivery market segment focuses on online delivery services that offer customers meals from partner restaurants that are not required to offer food delivery themselves. In this case, the delivery process is handled by the platform (e.g., Deliveroo) (Statisca.com, 2021).

Online Food Delivery in Malaysia: On-demand food delivery (ODFD) also refers to purchasing and delivering freshly prepared meals from kitchens or restaurants to customers at customer-specified locations. These services have seen a boom in the past few years, owing to the widespread use of online

platforms (Aktas et al., 2021; Mikl et al., 2020). In the last decade, the online food delivery business in Malaysia has expanded with monumental success from companies such as Dahmakan, Food Panda, GrabFood, and Honestbee, among many others. These services have been considered essential services during the pandemic, providing access to food for the public. They have also helped keep the restaurants and kitchens afloat, as public gatherings in hotels and restaurants were restricted in most countries (Puram & Gurumurthy, 2021). The revenue in online food delivery amounted to US$192m in 2020, which is expected to show an annual growth rate (CAGR 2020–2024) of 17.9%. With that massive growth, food delivery is set to become a $370 Million industry by 2024 (Sin & Lo, 2021). It also becomes an important backup in the case of an outbreak such as Covid 19 (Fauzi et al., 2022; Zainol et al., 2022).

3. Research Methodology

This study performs qualitative research. Sentiment analysis, also called opinion mining, is a method used to pull out personal thoughts from text data. It means looking at text and sorting it into different groups depending on the feelings, viewpoints, and opinions shown in the text (Luo et al., 2013). Sentiment analysis can be used for many things like social media posts, reviews from customers, news stories, and more. It's used by businesses and groups to understand how people like their stuff, services, or brand. They then use this to make smart choices based on what people say. Sentiment analysis can be done using different methods, such as rule-based systems, machine learning algorithms, and natural language processing (NLP) techniques (Eric Kleppen, 2023). These methods mean looking at the text for special words, phrases, or patterns that show a certain feeling. Then, they give a score or a label to the text to show that feeling. In general, sentiment analysis is a useful tool for businesses and groups that want to understand how their customers or stakeholders feel and what they think. Sentiment analysis, also called opinion mining, is a natural language processing (NLP) trick used to find and take out personal information from text. Sentiment analysis aims to say if the feeling in a piece of text is good, bad, or not strong (Eric Kleppen, 2023). Sentiment analysis has become more and more popular in recent times because there's a lot of content made by users on the internet.

Like posts on social media, reviews of products, and conversations in online forums (Iglesias & Moreno, 2019). People use sentiment analysis in many ways, like studying markets, understanding politics, helping customers, and managing brands. There are different ways to do sentiment analysis, like rules, machine learning, and a mix of both (Eric Kleppen, 2023). Rules use special rules and word lists to find words that show feelings and then give scores based on those words. On the flip side, machine learning methods use algorithms that learn from marked data to guess the feelings of new, not marked data (Mathworks, 2023). The latest progress in deep learning has also brought about neural network models for sentiment analysis. These models use deep learning structures, like convolutional neural networks (CNNs) and recurrent neural networks (RNNs), to learn tricky details and connections in text and make better guesses (Aichatgpt, 2023). Even though there are a lot of tough parts in sentiment analysis, like sarcasm, irony, and how feelings depend on the situation, it's still a hopeful and quickly changing area of study with lots of possible uses. As there's more and more text online, sentiment analysis will keep being important for getting meaning and information from all this text.

4. Analysis and Discussion

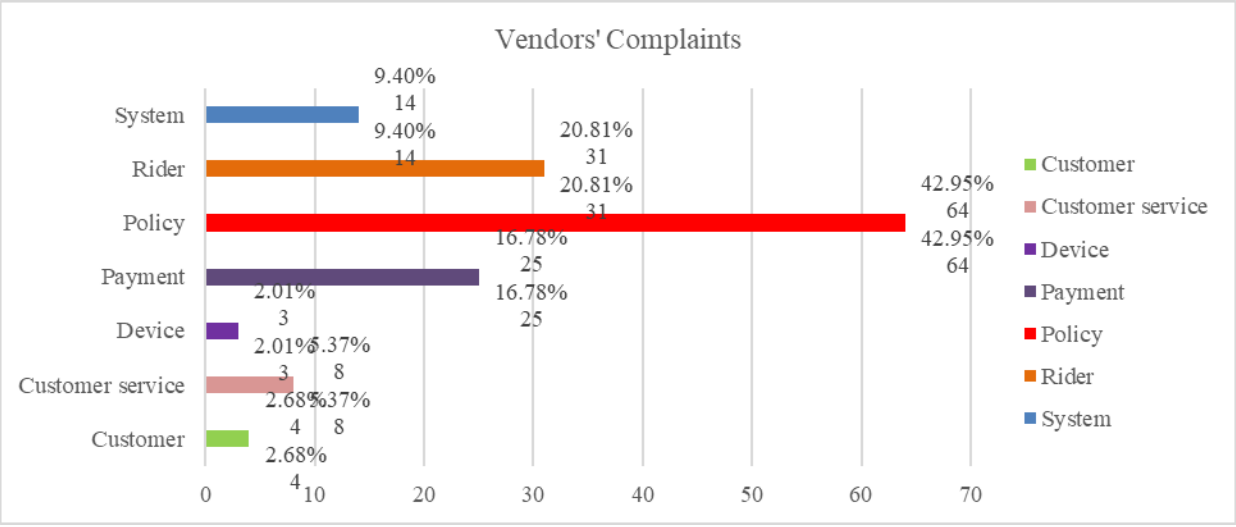
Table 2 shows the detailed offences under related sections, and enforcement taken within the year 2020. Out of 149 data collected, nearly half of the comments, or 42.95%, have difficulties with Platform A policy. This is because Platform A has been called out on social media for allegedly demanding unreasonable substantial hidden fees from its vendors. In addition, the vendors were displeased with the fact that the fee for the unrequested promotion was imposed without their knowledge. The merchants also provided negative comments and demanded Platform A amend its policy on food waste because the merchants were compensated only 40% of the food's price upon the cancellation of an order. The high cost of delivery resulted in a reduction in the number of orders received by the merchants, which in turn led to a decrease in their overall sales. There were 20.81% of comments, which is comparable to 31 out of 149 that expressed displeasure from sellers toward Platform A riders. This is a result of the riders taking an excessively long amount of time to collect the food, which led to the cancellation of orders by the customers.

Some riders for Platform A are regarded as being unreliable and undisciplined in the manner in which they carry out their work. This is because they frequently commit errors, such as providing customers with incorrect orders or leading customers to believe that the vendor is not in business. 25 out of 149, or 16.78%, have vented their anger with Platform A delay in payment as a result of this issue. There was a customer who claimed that the store's profit wouldn't be remitted to them even after 14 days, and because of this, they did not have enough money to refill the goods or ingredients to maintain the business because of late payments and also a high amount of adjustments and penalties. From the analysis, there were 14 of the total merchants expressed their anger with the system that Platform A causes. This is a result of the time-consuming method that they employ to allocate riders to incoming orders. This, in turn, leads to the same consequences, which are that customers cancel their orders since they are forced to wait too long. They also point out that the system did not provide enough time for the preparation of the food.

This irritated some of the riders because it meant that they had to wait for the food to be ready even though the system had already indicated that they intended to fulfill the order. 5.37% of all comments which is equivalent to 8 vendors expressed some level of displeasure with the customer service provided by Platform A. The vendors have reported that they are unable to contact the customer support department since it is not contactable. This is because Platform A has not been able to get their phone calls or emails answered. There was also a claim that a customer support representative had behaved in an unprofessional manner toward one of the merchants. There were as many as 2.68% of complaints received that involved vendors expressing their disappointment with Platform A customers. There was an incident in which a customer complained to Platform A that they had received incomplete food. Even though the vendor had ensured that the food that would be received by the customer was complete and also taken pictures of the food before handing it over to the rider on duty.

The reason the customers acted in such a manner was because they wanted to earn free vouchers and avoid having to pay for the food that they had received. There were also complaints in which the customer stated that they did not receive the food, even though the rider had delivered the food and even a photo as proof had been taken, which indicated that the food delivery had been completed. From the data, only 3 vendors out of 149 voiced their dissatisfaction with the device that was supplied by Platform A. The merchants complained that they were unable to connect their devices to the available Wi-Fi or that they did not have any internet connection at all. As a direct consequence of this, they were unable to take any orders from their customers, which resulted in a reduction in the number of sales made on that particular day. The vendors also reported that the device's battery life span decreased rapidly, although the device was not used particularly frequently and was occasionally powered down by itself.

Figure 1: Number of enforcements taken in the year 2020



.

Policy Issues: The highest problems identified and thematized are related to the policy issues. The first policy issue is related to the cancellation of orders by riders "Why does Platform A not place the phone number of delivery riders and their vehicle registration numbers and give them to the vendors and customers? So that if anything happens we can easily report it to the authorities. I cannot hold any longer with cancellation problem cases." - Informant A.

Confusing Charges: "I've experienced that, We do not subscribe to anything but were asked to pay RM1890.00. For two months I have not received any payments. I started to mark (getting vicious) and email to stop using platform A. But they called and apologized saying that it was the fault of the marketing, I resisted and still wanted to quit but they blackmailed me If I did not pay the remaining amount, they would not unsubscribe and keep on adding more amount. I switched off for a week and still invoiced for their device's sales service taxes etc. I still had to use it since more customers were still using Platform A. So that's the bad experience I have faced" -Informant B**.** Similarly, Informant C was charged and the amount of profit he received was immediately deducted to pay the sum he was charged, The informants were questioning how a small business gets to roll or have the amount to purchase supplies. "Same as us, I got RM1000 profit, suddenly the amount owed to platform A is RM2,000 and that amount is deducted immediately to their account, so where do I get my capital to roll? Pity for small businesses like us. At the end of the day, we are the ones who owe them" - Informant C**.** Policy-related issues the unclear information about the policy made, which resulted in vendors feeling cheated and loos thousands of ringgits. There are a total of 64 comments that express their dissatisfaction and complaints about being charged exorbitantly. This information is gathered from February 2022 until December 2022.

Rider Problem: Informant D explained further about riders' issue that they have to deal with: "What does drag order mean? It means the rider took the order from the vendor but he didn't press the pick-up and didn't send the order to the customer. Why do riders want to drag time? Because you want to keep the batch/meet special hour by tricking the rider's scoring system. Drag order effect: Drag order impression: While the rider doesn't press pick up, the customer still thinks that the vendor is still or slow preparing food. The cold food arrives in the hands of the customer because the rider does other work. When the food is slow to arrive, Customers can still cancel orders and they can also give vendors a low rating. The rider's actions are wrong and this is prohibited by the pandas Vendor should bother this so that this does not happen again. *If the rider asks for the customer's phone number... Don't give the rider. Riders will automatically have the customer's number and address after they press 'pick up' " Informant D.

5. Conclusion

In conclusion, the rise of online food ordering has revolutionized how food is delivered in Malaysia, with digital platforms playing a central role. This transformation has streamlined operations for restaurants, delivery personnel, and customers. Despite the focus on understanding consumer behavior, there's been a gap in comprehending the restaurant's perspective within this digital landscape. This study aimed to fill this void by using sentiment analysis. By analyzing 149 comments from restaurant-related social media groups in 2022, this research aimed to grasp the challenges faced by these eateries. The sentiment analysis revealed seven key challenge categories, including regulations, delivery personnel, online system glitches, device difficulties, and customer interactions. This investigation provides a deep understanding of the intricate challenges restaurants deal with as they navigate online food platforms. It not only contributes to academic insights but also offers practical benefits. Restaurant owners can use these findings to tackle their unique challenges, enhancing their strategies for success. Additionally, policymakers can use these insights to craft regulations that address the evolving needs of restaurants in the digital age. In essence, this research serves as a valuable resource for enhancing the effectiveness and sustainability of restaurants operating in the dynamic landscape of online food ordering platforms in Malaysia. It sheds light on the hurdles restaurants face, guiding industry stakeholders in optimizing their operations, fostering growth, and improving customer satisfaction.

References

Aboagye-Da-Costa, D. P. (2012). Internet Quality in Southern Ghana for Businesses Vendor: Viope Solutions Oy. Bachelor Thesis. Leppävaara, Finland: Laurea University of Applied Sciences.

Ahmad Nizar, N. N. & Zainal Abidin, S. A. S. (2021). Online Food Delivery Services: Make or Break the Halal Supply Chain? *Journal of Food and Pharmaceutical Sciences*, 9(1), 384–394. https://doi.org/10.22146/jfps.1149

Aichatgpt. (2023). What is a model in deep learning? Aichatgpt. Co.Za. https://aichatgpt.co.za/what-is-a-model-in-deep-learning/#:~:text=Common structures used in deep learning models include recurrent neural networks %28RNNs%29%2C and self-organizing maps %28SOM%29.

Ali, S., Khalid, N., Javed, H. M. U. & Islam, D. M. Z. (2021). Consumer adoption of online food delivery ordering (Ofdo) services in Pakistan: The impact of the COVID-19 pandemic situation. Journal of Open Innovation: Technology, *Market, and Complexity*, 7(1), 1–23. https://doi.org/10.3390/joitmc7010010

Anderson, E. W. (1994). Cross-category variation in customer satisfaction and retention. *Marketing Letters,* 5(1), 19–30. https://doi.org/10.1007/BF00993955

Bees, Y. (2021). Top 12 food delivery platforms for F&B merchants in Malaysia. Retrieved January 29, 2022, from Yellowbees.com website: https://www.yellowbees.com.my/top-food-delivery-platforms-malaysia/

Brolan, K. (2019). A Guide to Restaurant Payment Processing. Qsrmagazine.Com. https://www.qsrmagazine.com/outside-insights/guide-restaurant-payment-processing

Carsten Hirschberg, Alexander Rajko, & Thomas Schumacher, M. W. (2016). The changing market for food delivery. Retrieved January 25, 2022, from mckinsey.com website: https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-changing-market-for-food-delivery

Chai, L. T. & Yat, D. N. C. (2019). Online Food Delivery Services: Making Food Delivery 42 | Research Proposal – Mohd Anuar Sulaiman (2021860012) the New Normal. *Journal of Marketing Advances and Practices*, 1(1).

Chan, J. & Gao, Y. L. (2021). Measuring the up-to-date quality of online food delivery: formative index construction. *International Journal of Contemporary Hospitality Management,* 33(12), 4550–4568. https://doi.org/10.1108/IJCHM-06-2021-0739

Chen McCain, S.-L., Lolli, J., Liu, E. & Lin, L.-C. (2021). An analysis of a third-party food delivery app during the COVID-19 pandemic. British Food Journal, ahead-of-p (ahead-of-print). https://doi.org/10.1108/bfj-03-2021-0332

Chia, J. (2021). Air Asia Food to spread its wings and start deliveries in Singapore. Retrieved January 25, 2022, from vulcanpost.com website: https://vulcanpost.com/734673/airasia-food-delivery-coming-to-singapore/

Ch Daim, N. (2021). Restaurateurs lament high delivery charges and hidden fees. Retrieved January 25, 2022, from nst.com.my website: https://www.nst.com.my/news/nation/2021/07/711409/restaurateurs-lament-high-delivery-charges-hidden-fees#:~:text=KUALA LUMPUR%3A Consumers in Malaysia, of the Covid-19 pandemic.&text=Restaurant operator Willson Woon from, percent for delivery commissions.

Cooper, A. (2021). Disadvantages of Cloud Kitchen Business in 2021. Globaltrustopedia.Com. https://globaltrustopedia.com/tending-tech/disadvantages-of-cloud-kitchen-business-in-2021/

Das, J. (2018). CONSUMER PERCEPTION TOWARDS 'ONLINE FOOD ORDERING AND DELIVERY SERVICES ': *AN EMPIRICAL STUDY.* 5(5), 155–163.

Eric Kleppen. (2023). What Is Sentiment Analysis? Builtin.Com. https://builtin.com/machine-learning/sentiment-analysis#Understanding Sentiment Analysis

Fauzi, N., Adilah, Y., Harumain, S. & Dali, M. M. (2022). GIG WORKERS AMONG WOMEN, A BETTER CHOICE OF WORK? A CASE STUDY OF MAKCIK TRAVELS. In Journal of the Malaysian Institute of Planners VOLUME, 20.

Focus. (2020). Restaurant commission fees necessary to pay delivery riders says Grab. Focus Malaysia. My. https://focusmalaysia.my/restaurant-commission-fees-necessary-to-pay-delivery-riders-says-grab/

Giese, J. & Cote, J. (2000). Defining consumer satisfaction. Academy of Marketing Science Review, 2000(January 2000), 1.

Gligor, D., Bozkurt, S., Gölgeci, I. & Maloni, M. J. (2020). Does supply chain agility create customer value and satisfaction for loyal B2B businesses and B2C end customers? *International Journal of Physical Distribution and Logistics Management*, 50(7–8), 43.

Mohd Anuar Sulaiman (2021860012)ai, L. T. & Yat, D. N. C. (2019). Online Food Delivery Services: Making Food Delivery 42 | Research Proposal – Mohd Anuar Sulaiman (2021860012) 721–743. https://doi.org/10.1108/IJPDLM-01-2020-0004

Gordon, J. (2021). Business to Business (B2B) - Explained. Retrieved January 25, 2022, from thebusinessprofessor.com website: the New Normal. *Journal of Marketing Advances and Practices,* 1(1), 721–743. https://doi.org/10.1108/IJPDLM-01-2020-0004

Gordon, J. (2021). Business to Business (B2B) - Explained. Retrieved January 25, 2022, from thebusinessprofessor.com website: https://thebusinessprofessor.com/en_US/sales/business-to-business-definition

Guo, C. & Wang, Y. (2015). How manufacturer market orientation influences B2B customer satisfaction and retention: Empirical investigation of the three market orientation components. *Journal of Business and Industrial Marketing,* 30(2), 182–193. https://doi.org/10.1108/JBIM-03-2012-0042

Hani, A. (2021). P-hailing companies to submit policies for service improvement. Retrieved January 25, 2022, from themalaysianreserve.com website: https://themalaysianreserve.com/2021/07/31/p-hailing-companies-to-submit-policies-for-service-improvement/

Hoodfilters. (2020). Is the Ghost Kitchen or Virtual Kitchen Model in Your Restaurant's Future? Hoodfilters.Com. https://blog.hoodfilters.com/2020/12/14/¬is-the-ghost-kitchen-or-virtual-kitchen-model-in-your-restaurants-future/#

Iglesias, C. A. & Moreno, A. (2019). Sentiment analysis for social media. *Applied Sciences (Switzerland)*, 9(23), 1–4. https://doi.org/10.3390/app9235037

Jacob, A. M., Sreedharan, N. V. & Sreena, K. (2019). Consumer perception of online food delivery apps in Kochi. *International Journal of Innovative Technology and Exploring Engineering,* 8(7), 302–305.

Khalid, A., Lee, O., Choi, M. & Ahn, J. (2018). The effects of customer satisfaction with the e-commerce system. *Journal of Theoretical and Applied Information Technology,* 96(2), 481–491.

Koay, K. Y., Cheah, C. W. & Chang, Y. X. (2022). A model of online food delivery service quality, customer satisfaction and customer loyalty: a combination of PLS-SEM and NCA approaches. *British Food Journal,* 124(12), 4516–4532. https://doi.org/10.1108/BFJ-10-2021-1169

Kok, H., Wee, V. & Kim, E. (2021). Examining the Factors that Influence Consumer Satisfaction with Online Food Delivery in Klang Valley, *Malaysia,* (2).

Krimmel, M. (2023). What Is a Ghost Kitchen? | Ghost Kitchen Meaning & Purpose. Home.Binwise.Com. https://home.binwise.com/blog/ghost-kitchen-meaning

Kumar, V. & Raheja, G. (2012). Business-to-business (B2B) and business-to-consumer (B2C) management. *International Journal of Computer & Technology,* 3(3), 447–451.

Lee, Y. C., Wang, Y. C., Lu, S. C., Hsieh, Y. F., Chien, C. H., Tsai, S. B. & Dong, W. (2016). Empirical research on customer satisfaction study: a consideration of different levels of performance. *Springer Plus,* 5(1). https://doi.org/10.1186/s40064-016-3208-z

Li, C., Mirosa, M. & Bremer, P. (2020). Review of online food delivery platforms and their impacts on sustainability. *Sustainability (Switzerland)*, 12(14), 1–17. https://doi.org/10.3390/su12145528

Lim, J. (2018). Grab's Food Delivery App Grab Food Is Officially Launching Next Week. Retrieved January 25, 2022, from says.com website: https://says.com/my/tech/grab-s-food-delivery-app-grabfood-is-officially-launching-next-week

Luki, M. (2020). Increasing competition in the food delivery market is a win for all. Or is it? Www.Linkedin.Com. https://www.linkedin.com/pulse/increasing-competition-food-delivery-market-win-all-melissa-luki

Luo, T., Chen, S., Xu, G. & Zhou, J. (2013). Trust-based Collective View Prediction. Trust-Based Collective View Prediction, June. https://doi.org/10.1007/978-1-4614-7202-5

Mat Nayan, N. & Hassan, M. K. A. (2020). Customer Satisfaction Evaluation for Online Food Service Delivery System in Malaysia. *Journal of Information System and Technology Management*, 5(19), 123–136. https://doi.org/10.35631/jistm.5190010

Mathworks. (2023). What Is Machine Learning? Mathworks.Com. https://www.mathworks.com/discovery/machine-learning.html

Optimoroute. (2022). Increase Order Accuracy and Boost Customer Loyalty. Optimoroute.Com. https://optimoroute.com/order-accuracy/

Pandey, S., Chawla, D. & Puri, S. (2021). Food delivery apps (FDAs) in Asia: an exploratory study across India and the Philippines. British Food Journal. https://doi.org/10.1108/BFJ-01-2020-0074

Pang, V. (2017). We visited Foodpanda Malaysia. Conclusion? We NEVER Want To Run A Food Delivery Startup. Retrieved January 21, 2022, from vulcanpost.com website: https://vulcanpost.com/600797/foodpanda-malaysia-behind-the-scenes-food-delivery/

Patel, N. (2021). Customer Satisfaction: Benefits, Examples & Importance. Retrieved January 25, 2022, from neilpatel.com website: https://neilpatel.com/blog/benefits-and-importance-of-customer-satisfaction/

Pfoertsch, W. & Scheel, H. (2012). What's a business-to-business company? B2B Knowledge of future business leaders. In Advances in Business Marketing and Purchasing (Vol. 18). https://doi.org/10.1108/S1069-0964 (2012)0000018016

Prasetyo, Y. T., Tanto, H., Mariyanto, M., Hanjaya, C., Young, M. N., Persada, S. F. & Redi, A. A. N. P. (2021). Factors affecting customer satisfaction and loyalty in online food delivery service during the COVID-19 pandemic: Its relation with open innovation. Journal of Open Innovation: *Technology, Market, and Complexity,* 7(1), 1–17.

Puram, P. & Gurumurthy, A. (2021). Last-mile challenges in on-demand food delivery during COVID-19: understanding the riders' perspective using a grounded theory approach. https://doi.org/10.1108/IJLM-01-2021-0024

Ramaraj, K. (2017). The Impact of Food Quality on Customer Satisfaction and Behavioral Intentions: A Study on Madurai Restaurant. Innovative Journal of Business and Management, 6(March), 34–37. https://doi.org/10.15520/ijbm

Ramos, K. (2021). Factors influencing customers' continuance usage intention of food delivery apps during COVID-19 quarantine in Mexico. British Food Journal, 2. https://doi.org/10.1108/BFJ-01-2021-0020

See-Kwong, G., Soo-Ryue, N., Shiun-Yi, W. & Lily, C. (2017). Outsourcing to online food delivery services: Perspective of F&B business owners. *Journal of Internet Banking and Commerce*, 22(2), 1–18. Retrieved from http://www.icommercecentral.com/open-access/outsourcing-to-online-food-delivery-services-perspective-of-fb-business-owners.pdf

Shah, A. M., Yan, X. & Qayyum, A. (2021). Adoption of mobile food ordering apps for O2O food delivery services during the COVID-19 outbreak. British Food Journal, (71531013). https://doi.org/10.1108/BFJ-09-2020-0781

Shakila Binti Mohd Yusof, Z. (2016). Determinants towards Food Delivery Service through E-Commerce in Pasir Gudang Area. *Journal of Modern Education Review,* 6(9), 622–631. https://doi.org/10.15341/jmer(2155-7993)/09.06.2016/006

Sin, K. Y. & Lo, M. C. (2021). The Determinants and Barriers of Outsourcing Third-Party Online Delivery: Perspectives of F&B Entrepreneurs in Malaysia*. *Abang Azlan MOHAMAD / Journal of Asian Finance,* 8(5), 979–0986. https://doi.org/10.13106/jafeb.2021.vol8.no5.0979

Slang. (2021). Virtual Restaurant. Slang.Net. https://slang.net/meaning/virtual_restaurant

Statisca.com. (2021). Online Food Delivery. Retrieved January 25, 2022, from Statisca.com website: https://www.statista.com/outlook/dmo/eservices/online-food-46 | Research Proposal – Mohd Anuar Sulaiman (2021860012) delivery/worldwide

Thangayah, C. (2009). Food Safety and Quality Division. Ministry of Health Malaysia, 1–48.

Yin, A. C. P. (2021). Shopee Launches Its Food Delivery Service, ShopeeFood. Retrieved January 25, 2022, from ringgitplus.com website: https://ringgitplus.com/en/blog/e-wallet/shopee-launches-its-food-delivery-service-shopeefood.html

Yusra, & Agus, A. (2020). The influence of online food delivery service quality on customer satisfaction and customer loyalty: The role of personal innovativeness. *Journal of Environmental Treatment Techniques,* 8(1), 6–12.

Yusra, Y. & Agus, A. (2018). Online Food Delivery Service Quality: Does Personal Innovativeness Matter? *Asia Proceedings of Social Sciences,* 2(3), 251–255.https://doi.org/10.31580/apss.v2i3.453

VKO. (2016). 6 challenges that virtual kitchen operators face. Virtualkitchenoperator.Com. https://www.virtualkitchenoperator.com/50-in-50/6-challenges-that-virtual-kitchen-operators-face

Zainol, R., Fadzira Roslan, F., Azali, S., Rosni, N. A. & Wei, C. L. (2022). Triple Helix Model in Handling Challenges to the Informal Economic Activities. In Journal of the Malaysian Institute of Planners Vol, 20.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Perceptions of Disability among University Students

Saadiah Juliana Saadun[1*], Mohd Zulkifli Abdullah[2], Mohammad Shahril Mohamed Besir[3], Aziz Jamal[4], Noor Zaihan Mat Hasan[5], Nor Azzura Nordin[6] & Jazmin Qistina Imran Nanang[7]

[1]Faculty of Business and Management and Disability Unit Services, Universiti Teknologi MARA, Malaysia
[2,3,4,5,6] Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
[7] PMCare, Sdn. Bhd, Malaysia
*saadiah2861@uitm.edu.my, m.zulkifli@uitm.edu.my, shahrilbesir@uitm.edu.my, aziz2903@uitm.edu.my, norzaihanmh@uitm.edu.my, azzura344@uitm.edu.my, j.qistina27@gmal.com

Abstract: Perceptions of disability are important constructs that influence not only the well-being of people with disabilities but also the moral compass of society. Negative attitudes toward disability can lead to social exclusion and isolation of people with disabilities, whereas positive attitudes promote social inclusion. The present study was conducted to examine the main predictors of disability perceptions among university students, provided that understanding these factors can help develop effective interventions to improve students' attitudes toward peers with disabilities and reduce intergroup prejudice. Using 110 responses from university students at a public university, the study found that knowledge and exposure contribute significantly to perceptions among university students. Management of the university plays a critical role in shaping positive perceptions by facilitating meaningful interactions with people with disabilities, promoting disability awareness and education, and creating an environment that values diversity.

Keywords: *Disability, Perceptions, Knowledge, Exposure, Experience, Higher Institution.*

1. Introduction and Background

Disability refers to a condition or impairment, whether physical, mental, cognitive, or developmental, that hinders, impedes, or limits a person's ability to perform particular duties or actions and engage in typical daily activities and interactions. It can manifest as a restriction or limitation in terms of a person's physical and social functioning. Disabilities may affect mobility, vision, hearing, cognition, communication, and mental health, amongst other aspects of a person's life. Some disabilities may be visible, whereas others may be concealed or difficult to detect. The World Health Organization (WHO) describes disability as the interaction between a health condition and personal and environmental factors. Transportation inaccessibility, inaccessible public buildings, and negative social attitudes are environmental factors that may cause barriers for individuals with disabilities. To enable the full and effective participation of people with disabilities in society on an equal basis, it is essential to resolve these barriers and promote inclusivity. It is crucial to recognize that disability is a broad and diverse concept that encompasses a variety of conditions and experiences. Even if they have the same type of disability, each person with a disability has specific needs and skills. It is worth noting, that disabilities can be present at birth, acquired later in life due to a variety of factors, or be the result of injuries or chronic health conditions. Understanding and addressing the needs of people with disabilities is crucial for promoting inclusiveness, accessibility, and equal opportunities for all members of society.

2. Literature Review

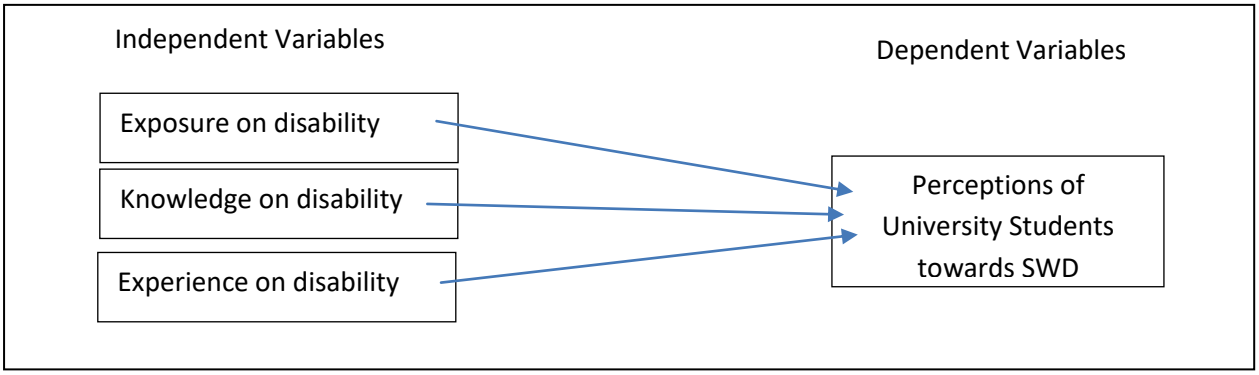
In Malaysia, the Persons with Disabilities Act 2008 (Act 685) concentrates on the rights and well-being of people with disabilities. While the act does not outline specific provisions about access to education, it does include broader aspects that indirectly affect education. About this act, in November of 2018, the Ministry of Education published what is known as the Inclusive OKU or the Disability Inclusion Policy. The directive was communicated to all twenty of Malaysia's public universities and colleges that offer higher education. These actions are consistent with the zero-reject policies (ZRP) that the government has decided to put into place and are meant to enhance the implementation of the Education for All Policy in Malaysia. Despite the movement to ensure a greater number of students with a disability (SWD) engage in higher education, the challenges faced by them throughout their educational journey are not alien. The term SWD will be used solely when referring to students with disabilities.

The students' perceptions of disabled people are affected by their exposure to disability, knowledge, and personal experiences with disability-related issues. Positive exposure, accurate knowledge, and meaningful experiences tend to cultivate empathetic, inclusive, and accepting attitudes (Scior, 2015). In contrast, limited exposure, ignorance, and negative experiences may contribute to misunderstandings, stigma, and negative perceptions (Hunt, 2004). Campbel (2003) in his study highlighted educational institutions play a crucial role in shaping positive perceptions by facilitating meaningful interactions with disabled individuals, promoting disability awareness and education, and fostering environments that celebrate diversity. The mentioned approaches can contribute to a more inclusive and supportive campus environment for all students, regardless of their abilities, by cultivating empathy, understanding, and a commitment to inclusivity. To further discuss the role of exposure to fostering a culture of inclusivity and sensitivity toward students with disabilities, this factor is highlighted by many (Mel Ainscow, 2020; NorAzizi, 2018; Amar, 2008). As faculty members, staff, and fellow students become more familiar with disability-related issues, they are better equipped to create an inclusive and supportive environment for disabled students.

An increase in exposure can assist in the reduction of stigmas and beliefs that are connected with certain disabilities (Marshall, 2019) and encourage empathy and understanding (Babik, 2021) among non-disabled students and staff. By experiencing the challenges faced by their disabled peers, individuals may become more compassionate and willing to offer support and accommodations. This awareness can drive advocacy efforts to improve accessibility and implement necessary accommodations (Chan, 2020), improve and expand their support services for disabled students (Abreu, 2017), develop self-advocacy skills (Roberts, 2016) and create more opportunities for disabled students as they transition into their careers (Benz, 2000). Apart from exposure, Hasnah (2010) highlighted knowledge of disability helps educators and school staff to understand the individual needs of students with disabilities. Misconceptions and prejudices are challenged as a result of people's interactions with people who have impairments (Ahmad, 2017) which in turn leads to a campus culture that is more accepting of those who have different skills and strengths. This includes recognizing the specific challenges they may face in learning and participation and tailoring teaching approaches and accommodations accordingly.

Educators and peers who are knowledgeable about disabilities (Nor Azizi, 2018) are better equipped to adopt inclusive teaching and learning practices. They can use a variety of instructional and learning methods, materials, and technologies to accommodate different learning styles and ensure that SWD can access the curriculum (Ahmad, 2017). Personal experiences with a disability meanwhile, depicted by Yusof (2020), can inspire individuals to become advocates for disability rights and inclusion. These results are like those reported by Hosshan (2020), individuals who have encountered barriers firsthand may be motivated to work toward positive change and equal opportunities for all. Although, experiences with disability are frequently highlighted as a common condition that has a considerable impact on the attitudes of individuals toward disability in general, Honey (2011) asserted positive experiences may lead to greater understanding, empathy, and acceptance of diversity, while negative experiences could reinforce stereotypes or misconceptions. Based on the above literature, the three factors that are expected to directly affect the perceptions of university students toward SWD are illustrated in the conceptual framework below.

Figure 1: Proposed Conceptual Framework



3. Research Methodology

A cross-sectional research design was used to examine the association between exposure, knowledge, and experience on perceptions of university students toward disability. Data were collected through digital platforms or e-questionnaires that were personally administered to the respective students at UiTM Puncak Alam, Selangor, Malaysia. A list of students from the Bachelor of Health Administration in the UiTM Puncak Alam Campus served as the sampling frame. A total of 110 students responded to the questionnaire. The questionnaire was adapted from an established questionnaire and the items were modified and aligned with the research questions of the current study. The items of exposure were adapted from the (Wang, 2021; Roca-Hurtuna & Sanz-Ponce, 2023 & Babik & Gardner (2021), knowledge (Han, Park & Bang, 2023; Akin & Huang 2019), experience and exposure (Roca-Hurtuna & Sanz-Ponce, 2023; Montemayor & Haladjian, 2017). The questionnaire utilized closed-ended questions with a fixed range of possible answers using a 5-point Likert scale with the following values: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree to measure all variables. The items were modified to get the required responses to answer the research questions. The collected data were analyzed using statistical software, i.e., SPSS Version 26. The study applied both descriptive statistics (mean and standard deviation) and correlational study.

4. Results

This section presents sets of results relating to the profile of respondents' experiences towards network operators, the characteristics of the total sample, and the comparison of participants regarding their experience based on demographic and geographic characteristics (gender, age and level of semester).

Profile of Respondents: Table 1 displays a summary of the characteristics of the total sample of Bachelor of Health Administration students who participated in the study.

Table 1: Demographic and Semester Information About Students of Health Administration

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	7	6.4%
Females	103	93.6%
Total	**110**	**100%**
AGE		
19-21	21	19.1%
22-24	82	74.5%
>25	7	6.4%
Total	**110**	**100%**
SEMESTER		
1	1	0.9%
2	17	15.5%
3	9	8.2%
4	21	19.1%
5	62	56.4%
Total	**110**	**100%**

Reliability and Correlation: Table 2 demonstrates the results of the reliability analysis that indicate that all items are reliable to measure the intended variables; exposure (α=.70), knowledge (α=.79), experience (α=.74) and perceptions ((α=.73). The results of the correlation analysis show that independent variables are significantly correlated with others indicating there are concurrent and convergent validity. The highest correlation (r=.358, p<.01) and most influential factor towards the perception of disability are found in knowledge, moderate relationship (r= .323, p<.0.1) in experience, the lowest correlation is found in exposure (r=.221, p<.05).

Table 2: Results of Reliability and Correlation

No	Descriptive Statistics Variable	Mean	Std. Dev.	1	2	3	4
1	Exposure on Disability	3.9	0.63	(.703)			
2	Knowledge on Disability	3.6	0.71	.597**	(.790)		
3	Experience on Disability	3.2	0.63	.380**	.456**	(.743)	
4	Perception on Disability	3.6	0.58	.221*	.358**	.323**	(.725)

Notes: **. Correlation is significant at the 0.01 level (1-tailed); * Correlation is significant at the 0.05 level (1-tailed Cronbach's alphas in the parentheses along the diagonal; N=110

Regression Analysis: Table 3 illustrates the results of the regression analysis for this study. A multiple regression analysis was used to identify the student's perception of disability. The R2 of .161 denotes that 16.1% of the variance was explained by the three independent variables. Meanwhile, another 83.9% of the variance in the perception of university students towards disabled students is not explained by experience, exposure, and knowledge in this study. This indicates that there are other independent variables contributed by other factors that are associated with the perception of university students towards disability which are not included in this study and could further strengthen the regression equation. Thus, the F Change is 6.768 which indicate the model of analysis is fixed because the *F* change is more than 1. The adjusted R Square is used to compare the goodness-of-fit for regression models that contain differing numbers of independent variables.

Table 3: Results of Multiple Regression Analysis

Variables	Std Beta Coefficients
Experience on Disability	-.023
Exposure on Disability	.278**
Knowledge on Disability	.206**
R	.401
R^2	.161
Adjusted R^2	.161
F value	6.768
Sig. F value	.000
Durbin Watson	1.969

Notes: ** significant at the 0.05 level

Discussion: The findings from the study coincide with H2 (there is a significant relationship between knowledge and perceptions of disability) and are compatible with the study conducted by Hasnah, 2010; Ahmad, 2017 & Nor Azizi, 2018. The studies mentioned above show a critical shift in expectations about disability knowledge. Originally, respondents believed that knowing about disabilities was sufficient. However, the landscape has evolved to require people to move beyond mere knowledge to a more active understanding of how to effectively support people with disabilities. This shift reflects the increasing importance of practical, actionable knowledge that translates into inclusive practices (Yusuf, 2020). The consequences of failing to create inclusive environments are multifaceted. Not only does it lead to a distortion of knowledge about disabilities, but it also undermines the principles of equal opportunity and belonging for all students. Evans (2017) asserted when institutions fail to create an atmosphere that promotes diversity, students with disabilities may feel excluded, which adversely affects their academic and personal experiences. This underscores the importance of fostering an inclusive culture that goes beyond theoretical knowledge. The above-mentioned idea that positive experiences serve as catalysts for change is gaining momentum.

Interactions with people with disabilities provide opportunities for personal growth and understanding. Positive experiences challenge preconceived notions and stereotypes and offer insights into the strengths and perspectives of people with disabilities. These interactions serve as bridges to break down barriers of ignorance or misunderstanding and contribute to a more empathetic and open-minded society. When people have positive experiences with people from diverse backgrounds, such as interacting with SWD in respectful and inclusive ways, it can lead to various positive outcomes. For instance, positive experiences foster a

deeper understanding of the unique challenges and experiences of people with disabilities. These interactions provide valuable insights into the different perspectives and strengths of people with disabilities and break down barriers of ignorance or misunderstanding (Honey, 2011). The discrepancy between the weak relationship found by Marshall (2019) and the positive outcomes of exposure highlighted in other studies points to a crucial aspect: the quality and depth of exposure. Although exposure does not always directly correlate with improved cognition, the nature of the interaction is important. Passive exposure may not be enough; it is active engagement, meaningful conversations, and collaborative experiences that contribute to a more emphatic and open-minded society. Simply possessing knowledge about disabilities without being exposed to them can do little to reduce stigma (Nor Azizi, 2018). Therefore, it is worth noting that Institutions of higher education play a central role in shaping the attitudes and behaviors of students towards disability.

The discussion is made to highlight that beyond the curriculum, colleges and universities can create various opportunities for meaningful interactions between students and people with disabilities. These could include workshops, seminars, volunteer opportunities, and inclusive events. By encouraging active engagement, institutions create opportunities for students to apply their theoretical knowledge and develop a deeper understanding of diversity. Writing at this point of the discussion, it is worth highlighting the need for a holistic approach to promoting inclusion. It is not just about imparting knowledge, but also about promoting active participation and support. This approach is about recognizing the dynamic nature of disability awareness and the importance of lived experiences. By creating an environment that values diverse perspectives and encourages engagement, colleges and universities are helping to educate well-rounded individuals who are prepared to navigate a diverse world. In conclusion, as societal attitudes and perceptions change, continuous research becomes essential. The changing landscape of disability awareness requires ongoing research to understand how best to promote inclusion. This research can help educational institutions adapt their policies, curricula, and support systems to meet the changing needs and challenges of students with disabilities.

5. Managerial Implications and Recommendations

Promoting inclusion and supporting students with disabilities in higher education is essential to ensuring equal opportunity and creating a positive learning environment. By addressing the challenges faced by students with disabilities and implementing comprehensive solutions, higher education institutions can create a campus culture that honors diversity and empowers all students to succeed academically and socially. Concerning the inconsistencies between the knowledge and exposure to disability, Creating and developing policies that make inclusion of students with disabilities mandatory can be a proactive step toward promoting inclusivity and raising awareness in the higher education community. Such policies can help bridge the gap between knowing about and addressing disabilities and promoting a supportive and inclusive campus culture.

Conclusion: The present study aims to investigate the influence of three factors, including exposure, knowledge, and experience, on the perception of disability among university students. Based on the results of multiple regression analysis, three factors were found to significantly influence perception, namely exposure, knowledge, and experience. Since the Education-for-All policy includes the inclusion of people with disabilities in academia, it is important for educational institutions to not only take a proactive approach to integrate people with disabilities into the campus community but also to provide opportunities for mutual understanding and acceptance. Future research is needed to validate the findings by involving students from other universities so that the results can be generalized to other contexts.

References

Abreu, M., Hillier, A., Frye, A. & Goldstein, J. (2017). Student experiences utilizing disability support services in a university setting. *College Student Journal,* 50(3), 323-328.

Ahmad, N. A., Mohamad Kasim, N., Mahmud, N. A., Mohd Yusof, Y., Othman, S., Chan, Y. Y. & Aris, T. (2017). Prevalence and determinants of disability among adults in Malaysia: results from the National Health and Morbidity Survey (NHMS) 2015. *BMC Public Health*, 17, 1-10.

Akin, D. & Huang, L. M. (2019). Perceptions of College Students with Disabilities. *Journal of Postsecondary Education and Disability,* 32(1), 21-33.

Amar, H. S. S. (2008). Meeting the needs of children with disabilities in Malaysia. *Med J Malaysia*, 63(1), 1.

Babik, I. & Gardner, E. S. (2021). Factors affecting the perception of disability: A developmental perspective. *Frontiers in Psychology*, 12, 702166.

Benz, M. R., Lindstrom, L. & Yovanoff, P. (2000). Improving graduation and employment outcomes of students with disabilities: Predictive factors and student perspectives. *Exceptional Children*, 66(4), 509-529.

Campbell, J., Gilmore, L. & Cuskelly, M. (2003). Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual and Developmental Disability*, 28(4), 369-379.

Chan, C. C., Yusof, Y., Ahmad Ramli, F. Z., Hillaluddin, A. H. & Mat Saad, Z. (2022). Physical accessibility in Malaysian higher educational institutions: Voices of students with disabilities. International Social Work, 00208728221094417.

Ensimau, N. K., Hamzah, M. I., Yasin, M. H. M. & Nasri, N. M. (2022). The Implementation of Zero Reject Policy in Malaysia: A Systematic Review. *Proceeding of International Conference on Special Education in South East Asia Region*, 1(1), 243–260. Retrieved from https://educationcenter.id/journal/index.php/icsar/article/view/50

Evans, N. J., Broido, E. M., Brown, K. R. & Wilke, A. K. (2017). Create campus environments that support students with impairments. *Disability Compliance for Higher Education,* 22(11), 1-5.

Han, N., Park, S. Y. & Bang, J. B. (2023). Pharmacy Students' Attitudes toward Persons with Disabilities and Perceptions of Right to Self-Determination. *American Journal of Pharmaceutical Education,* 87(4).

Hasnah, T., Muhamad, T., Yasin, M., Tahar, M. M. & Hamzah, N. (2010). Knowledge and Attitude of Peers towards Students with Disabilities in Malaysian Public Institute of Higher Education. ASEAN Journal of Teaching & Learning in Higher Education.

Honey, A., Emerson, E. & Llewellyn, G. (2011). The mental health of young people with disabilities: impact of social conditions. *Social psychiatry and psychiatric epidemiology*, 46, 1-10.

Hosshan, H. B. (2020). An exploration of the social participation of students with learning disabilities in inclusive education programs at Malaysian secondary schools (Doctoral dissertation, University of Sydney).

Hunt, C. S. & Hunt, B. (2004). Changing attitudes toward people with disabilities: Experimenting with an educational intervention. Journal of Managerial Issues, 266-280.

Jabatan Kebajikan Malaysia. (2023). Statistik Pendaftaran OKU. https://www.jkm.gov.my/jkm/index.php?r=portal/full&id=ZUFHVTB1NnJWM0EreGtwNC9Vb1hvdz09

Marshall, J., Doone, E. & Price, M. (2019). Cultural models of child disability: Perspectives of parents in Malaysia. *Disability and Rehabilitation,* 41(22), 2653-2662

Mel Ainscow. (2020). Promoting inclusion and equity in education: lessons from international experiences, *Nordic Journal of Studies in Educational Policy,* 6(1), 7-16, DOI: 10.1080/20020317.2020.1729587

Montemayor, C. & Haladjian, H. H. (2017). Perception and cognition are largely independent, but still affect each other in systematic ways: Arguments from evolution and the consciousness-attention dissociation. *Frontiers in Psychology*, 8, 40.

Nor Azizi, A. A., Rabun, M. N. & Badarin, N. A. S. (2018). Are we disabled among the disabled? Disability awareness among University of Malaya students. *Journal of Administrative Science*, 15(1).

Persons with Disabilities Act 2008. https://www.malaysia.gov.my/portal/content/30739

Public Service Delivery and Local Government. Vulnerable Groups, Persons with Disabilities. https://www.malaysia.gov.my/portal/content/30739

Roberts, E. L., Ju, S. & Zhang, D. (2016). Review of practices that promote self-advocacy for students with disabilities. *Journal of Disability Policy Studies*, 26(4), 209-220.

Roca-Hurtuna, M. & Sanz-Ponce, R. (2023). The Perception of University Students towards People with Disabilities and Their Labor Insertion. *Education Sciences,* 13(1), 79. MDPI AG. Retrieved from http://dx.doi.org/10.3390/educsci13010079

Roca-Hurtuna, M. & Sanz-Ponce, R. (2023). The Perception of University Students towards People with Disabilities and Their Labor Insertion. *Education Sciences*, 13(1), 79. Retrieved from https://doi.org/10.3390/educsci13010079

Scior, K. & Werner, S. (2015). Changing attitudes to a learning disability. *Posjećeno,* 20(2019), 2016-08.

Unicefhttps://www.unicef.org/malaysia/what-we-do/protection-violence/children-disabilities

Wang, Z., Xu, X. & Han, Q. et al. (2021). Factors associated with public attitudes towards persons with disabilities: a systematic review. BMC Public Health 21, 1058 (2021). https://doi.org/10.1186/s12889-021-11139-3.

Yusof, Y., Chan, C. C., Hillaluddin, A. H., Ahmad Ramli, F. Z. & Mat Saad, Z. (2020). Improving inclusion of students with disabilities in Malaysian higher education. *Disability & Society*, 35(7), 1145-1170.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Exploring Online Food Delivery: An Examination through Bibliometric and Visualization Analysis

[1]Anuar Sulaiman, [1]Abdul Khabir Rahmat* & [2]Abdul Hakim bin Abdul Razak
[1]Malaysia Institute of Transport, Universiti Teknologi Mara, Malaysia
[2]Faculty of Business Management and Professional Studies, Management Science University, Malaysia
anuarsulaiman77@gmail.com, abdulkhabir@uitm.edu.my*

Abstract: The primary advantage of online food delivery lies in its capacity to provide convenient access to food anytime and anywhere, addressing the needs of today's fast-paced lifestyles. However, within the realm of "Online food delivery systems," a discernible research gap exists. This study aims to address this gap by offering a comprehensive bibliometric overview, shedding light on the current research landscape. Understanding this field's nuances is crucial for refining business strategies and advancing scholarly knowledge. Through a meticulous review of 255 publications spanning 2000 to 2022 and employing techniques such as keyword co-occurrence and co-authorship analysis, the study identifies influential authors, noteworthy journals, and emerging trends. This not only enriches academic discourse but also encourages collaboration and uncovers global research patterns. The insights gleaned from this study serve as a foundational cornerstone, deepening our understanding of the complexities inherent in online food delivery. By elucidating the existing body of knowledge, this research contributes significantly to the broader comprehension of this domain. Its impact resonates beyond academia, resonating with industries, policymakers, and consumers. It facilitates informed decision-making, ignites innovation, and aids in the formulation of effective strategies. In an era characterized by the rapid digital transformation of consumer behaviors, this research assumes a pivotal role in guiding the evolution of food delivery services. It aligns these services with the dynamic preferences and lifestyles of individuals, ensuring their continued relevance and effectiveness.

Keywords: *Bibliometric, Online Food Delivery, Visualization Analysis.*

1. Introduction and Background

The continuous evolution of internet technology has instigated transformative shifts in the way consumers lead their lives, giving rise to a surge in online shopping activities (Ali et al., 2021). Technological advancements have also exerted a substantial influence in completely overhauling the landscape of food delivery services, transitioning from conventional phone-based systems to streamlined online ordering mechanisms, all aimed at effectively catering to the ever-fluctuating preferences of consumers. This paradigm shift has propelled these services to ascend to the zenith of consumer satisfaction and convenience (P & Vivek, 2019). Within the contemporary milieu characterized by the "new normal," the online food delivery service (OFDS) has emerged as a prominent player in the dynamic gig economy, reflecting the latest trends of the era (Ahmad Nizar & Zainal Abidin, 2021).

The emergence of the Online Food Delivery Services (OFDS) sector is deemed as a novel avenue within the culinary domain, strategically aimed at garnering augmented sales and expanded market shares. This transformative emergence has notably intensified the competitive landscape among participants within the online food delivery services arena, fueling a fervent drive toward enhanced excellence (Yusra & Agus, 2018). Emanating from the heart of the vibrant food and beverage sector in Malaysia, a nascent wave has emerged, characterized by the rise of online food delivery services. This phenomenon transcends the conventional boundaries of mere take-away and dine-in experiences, encapsulating an innovative facet where virtual food ordering becomes tantamount to dining out. The catalyst behind the ascension of online food delivery services is attributed to the dynamic shifts observed in the preferences and behaviors of urban consumers, emblematic of the evolving urban lifestyle (Chai & Yat, 2019).

In the global market scenario, the Online Food Delivery sector is forecasted to achieve a revenue milestone of approximately US$323.30 billion by the year 2022, with a projected compounded annual growth rate (CAGR 2022-2027) of about 7.60%. This trajectory is anticipated to culminate in a substantial market size of roughly US$466.20 billion by 2027 (Statisca.com, 2021). Concurrently, within the context of the Malaysian market, the Online Food Delivery segment is poised to attain revenue of around US$312.20 million by 2022, envisaging a

subsequent yearly growth rate (CAGR 2022-2027) of about 9.36%. This evolution is anticipated to lead to a noteworthy market volume of approximately US$488.30 million by 2027 (Statista, 2022). In the present era of the online food delivery sector, a conspicuous pattern emerges, highlighting the emergence of no less than seven distinct trends within the realm of Online Food Delivery. These trends collectively contribute to enhancing the realm of digital ordering, introducing novel dimensions that augment customer experiences. These pioneering trends encompass the realms of contactless delivery, delivery facilitated by drones, the ascent of eco-conscious food delivery practices, the innovative concept of food delivery originating from cloud kitchens, the advent of autonomous food delivery mechanisms, the collaborative approach of crowd-sourced food delivery, and the surging prominence of the hyper-localized food delivery trend (M, 2022).

However, it is important to bear in mind that the Online Food Delivery sector is not exempt from encountering a range of challenges. Illustratively, in the context of Malaysia, prominent P-hailing entities such as FoodPanda Malaysia Sdn. Bhd. and Grab Malaysia are presently confronted with a distinctive situation. The Domestic Trade and Consumer Affairs Ministry (KPDNHEP) has proffered a stipulated timeframe of fourteen days, urging these influential industry players to furnish meticulously crafted proposals and all-encompassing strategies aimed at the enhancement of their service provisions (Hani, 2021).

Criticism directed towards Online Food Delivery has become a prevalent phenomenon in recent times, manifesting through diverse TikTok posts and concerted campaigns urging a boycott of select service providers, voiced by vendors, riders, and customers alike. A persistent and unresolved concern revolves around the imposition of exorbitant commission charges on restaurants, coupled with the strain endured by overworked riders and an obscure, convoluted charging policy. Primarily impacting small and medium enterprises, these issues underscore the sector's challenges.

Nevertheless, the Online Food Delivery realm stands as a noteworthy alternative, propelled by disruptive technology that ushers in employment opportunities within the gig economy's flexible framework. However, several stumbling blocks persist, necessitating dedicated efforts for resolution. Notably, the impact extends beyond the economic sphere, reverberating within social dynamics. It molds the consumer-food relationship, leaving an imprint on public health outcomes and traffic systems. Furthermore, environmentally, the sector generates substantial waste and exhibits a pronounced carbon footprint.

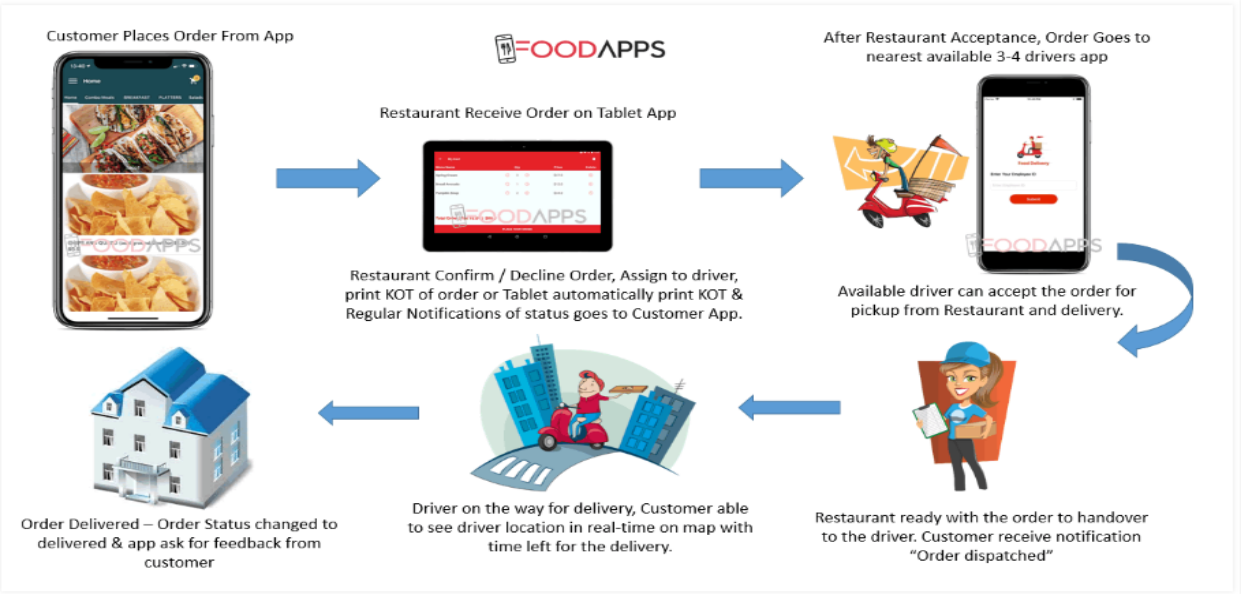
In charting a path forward, stakeholders hold the responsibility of meticulously weighing the negative repercussions and fostering positive outcomes engendered by Online Food Delivery, ensuring its holistic sustainability (Li et al., 2020). It's imperative to recognize that these issues are not exclusive to Malaysia; similar challenges have surfaced in other countries as well. Given the confluence of market potential, contemporary trends, and prevailing issues, it becomes evident that a comprehensive exploration of the online food delivery industry is imperative.

2. Literature Review

Online Food Delivery Services (OFDS) encompass the process whereby food, initially selected and requested through digital platforms, is meticulously prepared and subsequently dispatched to meet the consumer's desired mealtime (Ahmad Nizar & Zainal Abidin, 2021). OFDS streamlines the culinary acquisition journey, serving as a straightforward and user-friendly avenue through which patrons can secure delectable sustenance without necessitating time expenditure within a physical restaurant setting. This adept system empowers the customer to conveniently place orders via dedicated websites or intuitive applications, paving the way for doorstep delivery. The financial aspect harmoniously integrates with this seamless process, enabling online payments utilizing debit cards, credit cards, and analogous electronic modes. This modus operandi is distinguished by its convenience, security, and reliability, heralding a transformative wave that reverberates throughout the contemporary restaurant landscape (Krishna Kumari, 2019).

OFDS occupies a significant niche within the spectrum of the food supply chain, standing as the conclusive juncture immediately preceding the culinary fare's final presentation to its eagerly awaiting consumers (Ahmad Nizar & Zainal Abidin, 2021).

Figure 1: How the Food Delivery System Works (Foodapps, 2022)



In the context of the novel circumstances brought about by the COVID-19 pandemic, Online Food Delivery Services (OFDS) have been widely embraced as a prominent response (Prasetyo et al., 2021). Diving into bibliometric inquiry emerges as a critical and focal domain for scholarly exploration. Throughout history, bibliometric methodologies have served as indispensable instruments; uncovering intricate interconnections embedded within academic journal citations. This encompassing suite of techniques is meticulously wielded to scrutinize, quantify, and evaluate textual and informational content. Across various research disciplines, the deployment of bibliometric methodologies stands as a vehicle for comprehending the reverberations within a specific field, assessing the collective influence of researchers, or unraveling the impact forged by individual scholarly contributions (Coello, 2012).

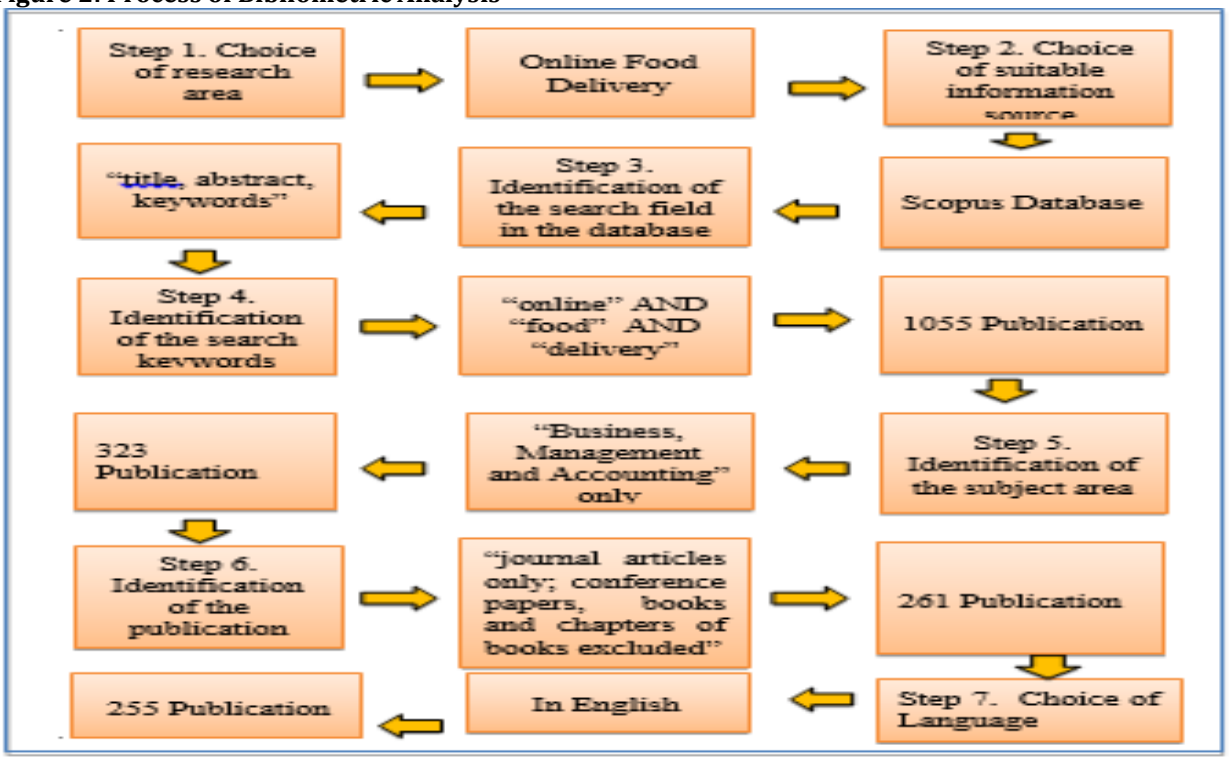
As espoused by Zhang & Zhang (2021), bibliometrics stands as an exacting quantitative analysis approach, underpinned by mathematical and statistical tools. Strategically employed, it presents a formidable means of quantifying intricate interplays and the far-reaching repercussions nestled within publications within the contours of a defined realm of research.

3. Research Methodology

To delve more comprehensively into the evolution of the Online Food Delivery Services (OFDS) study, a bibliometric analysis was effectively employed. The principal motivation behind embarking on this bibliometric analysis resides in its capacity to meticulously investigate bibliographic content. This methodological approach serves a multi-fold purpose: to discern the predominant scientific trajectories within the realm, to unveil the intricate interconnections that bind them together, and to fathom the nuanced strengths and limitations inherent within these scholarly endeavors. Furthermore, the application of bibliometric analysis proves instrumental in identifying existing voids within the panorama of scientific research, thereby aptly delineating pathways for future explorations and investigations (Saher et al., 2021).

The bibliometric investigation delineated in this paper encompassed a comprehensive process comprising seven distinct stages. The overarching objective was to amass a robust dataset within the domain of "Online Food Delivery," as depicted in Figure 1. The process of data accumulation hinged upon a strategically chosen set of keywords: "Online," "Food," and "Delivery." Consequently, this meticulous keyword-based approach yielded a curated selection of 255 pertinent articles, earmarked for subsequent and in-depth scholarly exploration and analysis.

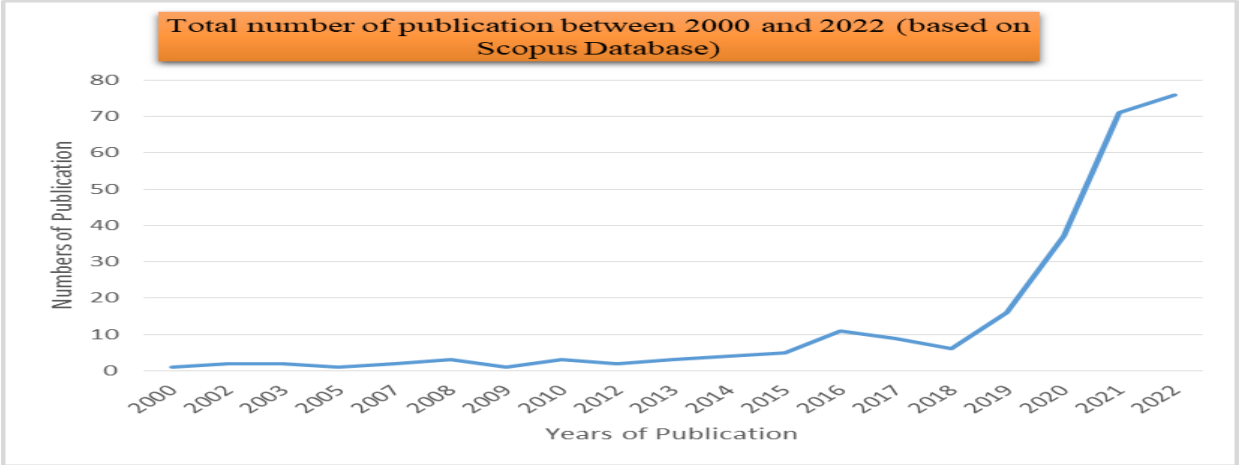
Figure 2: Process of Bibliometric Analysis



4. Results

The distribution pattern of scientific papers across different years is visually presented in Figure 3. As per the illustration, the initial publications trace back to the year 2000, with a notable upsurge in activity observed post-2000. The trajectory of publication trends can be delineated into three distinct phases. The first phase, spanning 2000 to 2015, reflected a modest volume of studies, numbering less than 10 per annum. Subsequently, during the second phase spanning 2016 to 2019, the frequency of studies experienced moderate growth, yet remained below 20 annually. The third and final phase, encompassing the years 2020 through 2022, showcased a noteworthy escalation, with the publication count progressing from 37 to 76. This discernible pattern underscores a consistent upward trajectory, culminating in a significant pinnacle in 2022. Further analysis of Figure 3 unveils a noteworthy trend: a substantial majority, exceeding 90%, of the studies were published within the last decade, accounting for 238 out of the total 255 publications.

Figure 3: Total Number of Publications between 2000 and 2022 (based on Scopus Database)



Alterations in publication trends are plausibly influenced by the burgeoning demand and expansion of the food delivery market. This surge in market dynamics has concurrently ignited a heightened curiosity among researchers, propelling a surge in scholarly exploration within the industry's domain. Another contributing factor is the evolution of the industry's structural landscape. Whereas earlier renditions of online food delivery were confined to solitary eateries or menu selections, the contemporary landscape represents a virtual smorgasbord, allowing patrons to peruse through a myriad of restaurants and a vast array of dishes, emblematic of a substantial transformation (Singh, 2019).

The remarkable surge in publications about online food delivery undoubtedly finds its roots in the exponential demand for such services triggered by the onset of the COVID-19 pandemic in 2020. This surge in demand has, in turn, beckoned a heightened interest from researchers, prompting a closer scrutiny of the industry. The impetus behind this heightened focus lies in the role of food delivery services as a crucial lifeline for numerous retail ventures, particularly those in the food and beverage sector, during these unprecedented times. As an illustrative case, in Malaysia, the constraints imposed by the COVID-19 pandemic led to a situation where individuals found themselves confined within their homes. This confinement necessitated the delivery of a myriad of essentials ranging from sustenance and groceries to laundry and online purchases. Notably, Grab Malaysia, for instance, has seen a substantial 30% surge in demand for its services since the initiation of movement control orders on March 18, 2020, effectively attesting to the transformative impact of the pandemic on the realm of food delivery and related services.

From a global standpoint, as highlighted in a CNN Business report, the outset of 2020 seemed to portend a pivotal moment for the food delivery industry, poised on the precipice of a significant reevaluation after years marked by substantial fundraising and subsequent losses. The convergence of the health crisis and economic turbulence fashioned a unique confluence of challenges for delivery companies. This scenario was characterized by an extensive pool of freshly jobless individuals seeking avenues of employment, a multitude of individuals confined to their residences and opting for delivered sustenance, and a surging reliance on takeout and delivery services by restaurants (Sara Ashley O'Brien, 2020).

Table 1: The 10 Most Cited Studies in the Area of "Online Food Delivery" between 2000 and 2022 (based on Scopus Database)

Total Citation	Author	Article title	Journal/Year of Publication
493	Hobbs (2020)	Food supply chains during the COVID-19 pandemic	Canadian Journal of Agricultural Economics 68(2), 171-176
316	Yeo, Goh & Rezaei (2017)	Consumer experiences, attitudes and behavioral intention toward online food delivery (OFD) services	Journal of Retailing and Consumer Services 35, 150-162
147	Ray, Dhir, Bala & Kaur (2019)	Why do people use food delivery apps (FDA)? A uses and gratification theory perspective	Journal of Retailing and Consumer Services 51, 221-230
116	Suhartanto, Helmi Ali, Tan, Sjahroeddin & Kusdibyo (2019)	Loyalty toward online food delivery service: the role of e-service quality and food quality	Journal of Foodservice Business Research 22(1), 81-97
112	Kapoor & Vij (2018)	Technology at the dinner table: Ordering food online through mobile apps	Journal of Retailing and Consumer Services 43, 342-351
107	(Zhao & Bacao (2020)	What factors determined customers to continue to use food delivery apps during the 2019 novel coronavirus pandemic period?	International Journal of Hospitality Management 91,102683

76	Pigatto, Machado, Negreti, & Machado (2017)	Have you chosen your request? Analysis of online food delivery companies in Brazil	British Food Journal 119(3), 639-657
72	Kaur, Dhir, Talwar & Ghuman (2020)	The value proposition of food delivery apps from the perspective of the theory of consumption value	International Journal of Contemporary Hospitality Management 33(4), 1129-1159
70	Zhao et al., (2020)	Dietary diversity among Chinese residents during the COVID-19 outbreak and its associated factors	Nutrients 12(6),1699, 1-13
69	Zhao et al., (2020)	Evaluation of collaborative consumption of food delivery services through web mining techniques	Journal of Retailing and Consumer Services 46, 45-50

Presented in Table 1 above are the top 10 studies with the highest citations in the realm of Online Food Delivery Services (OFDS) spanning the years 2000 to 2022. Standing prominently as the most cited article, with a remarkable 493 citations, is the work titled "Food supply chains during the COVID-19 pandemic," authored by Jill E. Hobbs (Hobbs, 2020). This scholarly endeavor offers an early evaluation of the ramifications wrought by the COVID-19 pandemic on food supply chains and their inherent resilience.

This paper talks about what happens when things change on the side of people wanting to buy food. It looks at how this kind of change can affect the way food gets to the stores. The paper also looks at different things that could cause problems in getting food to the stores. These problems could be not enough people to work, issues with getting food from one place to another, and things that make it hard for food to go between Canada and the U.S.

Finishing off by looking ahead, the study thinks about what will keep happening because of the COVID-19 pandemic to the way food gets to the stores. It looks at how more and more people might start using online grocery delivery, and how people might start to like getting their food from nearby places.

Securing the second position is the study titled "Consumer Experiences, attitude and behavioral intention toward online food delivery (OFD) Services," authored by Vincent Cheow Sean Yeo, See-Kwong Goh, and Sajad Rezaei (Yeo et al., 2017), garnering an impressive 316 citations. This scholarly work delves into an exploration of the intricate dynamics between consumer experiences, attitudes, and behavioral intentions concerning online food delivery (OFD) services.

In the second spot, there's a study called "What People Think and Do about Ordering Food Online," written by Vincent Cheow Sean Yeo, See-Kwong Goh, and Sajad Rezaei in 2017 (Yeo et al., 2017), this study has gotten 316 mentions, which is pretty amazing. It looks closely at how people feel and what they do when they order food online.

This paper is all about carefully looking at how different things are connected. These things include why people find it easy, how useful they think it is after they've used it, if they enjoy using it if they're trying to save money, if they're trying to save time, if they've bought things online before, what they think about it, and what they plan to do next with online food ordering. The researchers made a big plan that brings all these ideas together, using a Contingency Framework and the Extended Model of IT Continuance.

Claiming the third position is an investigation conducted by Arghya Raya, Amandeep Dhir, Pradip Kumar Bala, and Puneet Kaur (Ray et al., 2019). This scholarly inquiry centers around the development of a meticulously validated and dependable instrument, designed to gauge the diverse uses and gratifications (U&G) that underlie the utilization of Food Delivery Apps (FDAs). Furthermore, the research delves into an analysis of the correlations existing between various dimensions of U&Gs and the subsequent intentions concerning the adoption and utilization of FDAs.

At number three, we have a study done by Arghya Raya, Amandeep Dhir, Pradip Kumar Bala, and Puneet Kaur in 2019 (Ray et al., 2019). This study is all about making a very careful tool to measure different reasons why people use Food Delivery Apps (FDAs) and why they like using them. The researchers also looked at how these reasons are connected to what people plan to do with these apps in the future.

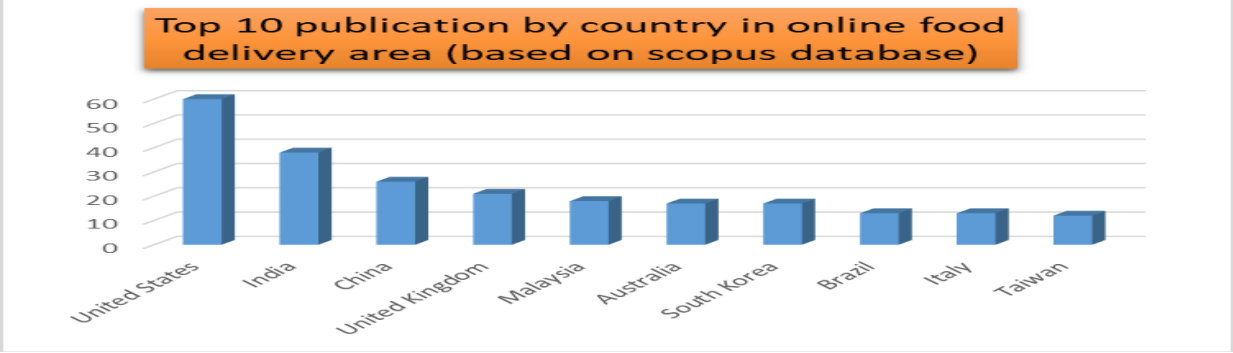
Notably, it is worth acknowledging that Amandeep Dhir and Puneet Kaur, who co-authored the third and eighth articles respectively, feature prominently among the top 10 prolific authors in this domain, as depicted in Table 2. The frequency of their authorship appearances, as extracted from Scopus data, is meticulously outlined within the confines of Table 2. Upon closer scrutiny of the table, a discernible pattern emerges, underscoring Amandeep Dhir, Puneet Kaur, and Pradip Kumar Bala as the foremost contributors to this research sphere.

Table 2: The Number of Published Articles by Top 10 Contributing Authors and Top 10 Journals in the Area of "Online Food Delivery" between 2000 and 2022 (based on Scopus Database)

Author	Number of published articles	Journal	Number of published articles
Dhir, A.	4	British Food Journal	19
Kaur, P.	4	International Journal Of Hospitality Management	14
Bala, P.K.	3	Journal Of Foodservice Business Research	13
Correa, J.C.	3	Nutrients	11
Hobbs, J.E.	3	International Journal Of Contemporary Hospitality Management	10
Ray, A.	3	Journal Of Retailing And Consumer Services	9
Soon, J.M.	3	Food Control	5
Talwar, S.	3	Science Of The Total Environment	5
Abdul Wahab, I.R.	2	Appetite	4
Amaral, C.A.A.	2	Frontiers In Psychology	4

Looking at the chart in Figure 3 that shows the countries where these articles were published, we can see that the United States has the most articles about online food delivery, with 60 in total. India and China come next, with 38 and 26 articles respectively. Malaysia is in fifth place, having published 18 articles. Among the top 10 countries, Taiwan has the fewest articles, with only 12.

Figure 3: Top 10 Publication by Country in Online Food Delivery Area (based on Scopus database)



The primary cause is attributed to the substantial forecasted income for each country, as detailed in the table provided by statista.com below:

Table 3: The Projected Revenues in Online Food Delivery for Each Country, As Reported on Statista.Com and Shown in the Table Below:

Country	Projected Revenue in 2022 ($ millions)	Annual growth rate 2022 - 2027	Projected market volume by 2027 ($ millions)
United States	63,020	8.90%	96,500
China	58,700	12.1%	118,500
India	12,140	10.80%	20,270
United Kingdom	15,800	9.13%	24,460
Malaysia	312.2	9.36%	488.3

Co-Occurrence Analysis: The following examination employs Co-occurrence analysis using VOSviewer software. The visual representation of the most frequently used keywords can be observed in Figure 4. The size of keywords corresponds to their frequency within the study. This data is valuable for identifying recent keywords that have been prevalent. Similar colors indicate close relationships between keywords. The primary keyword of focus is "Online Food Delivery," as determined by VOSviewer analysis of all cited papers. This exploration generated additional keywords, including "pandemic," "performance," "China," "Indonesia," and "service quality." As a result of this analysis, we deduced that this field of study is gaining prominence. However, most prior research has concentrated on the highlighted terms, revealing the need to explore other aspects for a more comprehensive understanding. Areas such as operations, marketing, Halal online delivery, and others present opportunities for further enhancing our grasp of this topic.

Figure 4: Co-Occurrence Analysis in VOSviewer

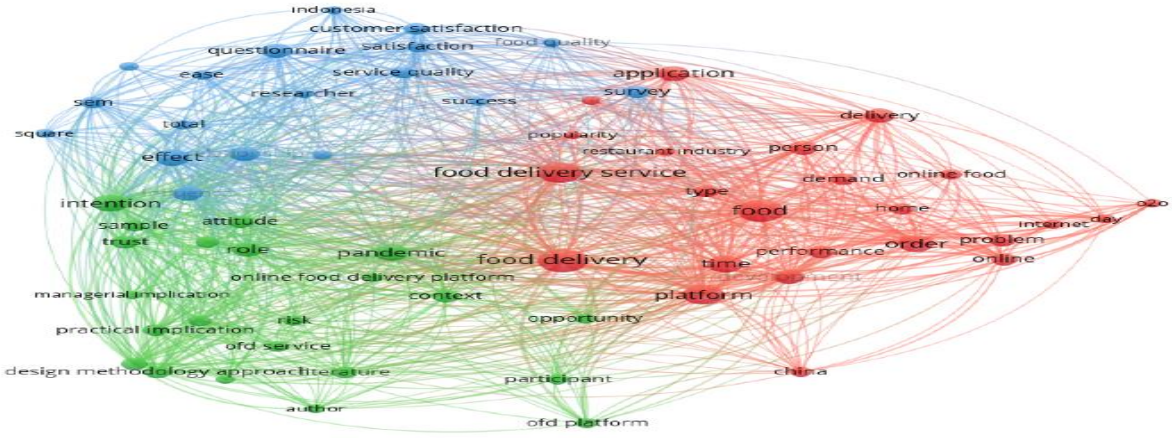
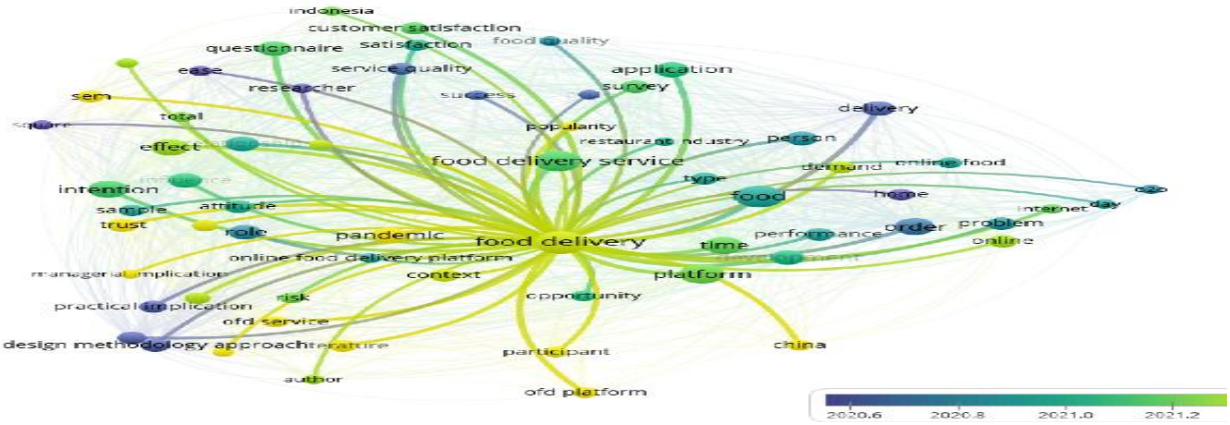


Figure 05



5. Conclusion

The paper employs the bibliometric analysis method to outline and examine the subject of online food delivery. Utilizing a comprehensive sample of 255 papers, it reveals a notable surge in publications since the year 2018. We can conclude that the study's findings can be succinctly summarized in seven key insights, which collectively unveil a dynamic research landscape within the domain of online food delivery systems, characterized by a trajectory of steady growth and the continuous evolution of thematic explorations. This investigation successfully identifies influential authors and journals, effectively shedding light on the collaborative networks that underpin the academic discourse and geographic trends that shape research activity.

Employing the powerful methodology of keyword co-occurrence analysis, the study effectively illuminates emerging research themes, adding depth to the understanding of the multifaceted nature of the online food delivery systems domain. This approach is further complemented by the observation and characterization of distinct research clusters, offering a visual representation of interconnected domains of investigation, and fostering a comprehensive understanding of the field's complexity.

In addition to these insights, the study also provides a valuable window into the temporal progression of research interests over time, thereby enabling an appreciation of how the focus of academic inquiry within the realm of online food delivery systems has evolved. Furthermore, the potential identification of previously unexplored areas in the field opens avenues for future research endeavors.

In summation, these diverse findings collectively construct a comprehensive panorama of the advancement of research in online food delivery systems. Beyond academia, these insights hold the potential to act as a guiding compass for scholars, industry stakeholders, and policymakers alike. This guidance is instrumental in navigating the multifaceted challenges and opportunities inherent in the online food delivery landscape, thus facilitating meaningful contributions to the ongoing advancement of this rapidly evolving sector. The synthesis of these insights forms a critical foundation for building upon the existing body of knowledge and shaping the trajectory of this dynamic field in the years to come.

References

Ahmad Nizar, N. N. & Zainal Abidin, S. A. S. (2021). Online Food Delivery Services: Make or Break the Halal Supply Chain? *Journal of Food and Pharmaceutical Sciences*, 9(1), 384–394. https://doi.org/10.22146/jfps.1149

Ali, S., Khalid, N., Javed, H. M. U. & Islam, D. M. Z. (2021). Consumer adoption of online food delivery ordering (Ofdo) services in Pakistan: The impact of the COVID-19 pandemic situation. Journal of Open Innovation: *Technology, Market, and Complexity*, 7(1), 1–23. https://doi.org/10.3390/joitmc7010010

Chai, L. T. & Yat, D. N. C. (2019). Online Food Delivery Services : Making Food Delivery the New Normal. *Journal of Marketing Advances and Practices*, 1(1).

Coello, V. (2012). No Titleהקיווי ענף: מצב תמונת. הנוטע עלון, 66(2), 37–39.

Daim, N. (2021). Restaurateurs lament high delivery charges and hidden fees. Nst.Com.My. https://www.nst.com.my/news/nation/2021/07/711409/restaurateurs-lament-high-delivery-charges-hidden-fees

Foodapps. (2022). Complete Food Ordering System for Restaurant Business. Www.Foodappsco.Com. https://www.foodappsco.com/food-ordering-app-restaurant/

Hani, A. (2021). P-hailing companies to submit policies for service improvement. Themalaysianreserve.Com. https://themalaysianreserve.com/2021/07/31/p-hailing-companies-to-submit-policies-for-service-improvement/

Hobbs, J. E. (2020). Food supply chains during the COVID-19 pandemic. *Canadian Journal of Agricultural Economics*, 68(2), 171–176. https://doi.org/10.1111/cjag.12237

Krishna Kumari, V. (2019). An impact of customer behavior towards online food services. *International Journal of Recent Technology and Engineering*, 8(1C2), 497–499.

Li, C., Mirosa, M. & Bremer, P. (2020). Review of online food delivery platforms and their impacts on sustainability. *Sustainability (Switzerland),* 12(14), 1–17. https://doi.org/10.3390/su12145528

M, P. (2022). 7 Emerging Online Food Delivery Trends You Need To Know All About. Edeliveryapp.Com. https://edeliveryapp.com/7-emerging-online-food-delivery-trends-you-need-to-know-all-about/#:~:text=7 *Emerging Online Food Delivery Trends You Need,* 7, 7. Hyperlocal Food Delivery Trend

P, N. M. & Vivek, S. (2019). Factors Which Influence the Consumers to Show Stickiness towards Online Food Delivering Provider. *International Journal of Recent Technology and Engineering (IJRTE),* 1, 978–982.

Prasetyo, Y. T., Tanto, H., Mariyanto, M., Hanjaya, C., Young, M. N., Persada, S. F., Miraja, B. A. & Redi, A. A. N. P. (2021). Factors affecting customer satisfaction and loyalty in online food delivery service during the COVID-19 pandemic: Its relation with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 1–17. https://doi.org/10.3390/joitmc7010076

Ray, A., Dhir, A., Bala, P. K. & Kaur, P. (2019). Why do people use food delivery apps (FDA)? A uses and gratification theory perspective. *Journal of Retailing and Consumer Services,* 51(June), 221–230. https://doi.org/10.1016/j.jretconser.2019.05.025

Saher, L., Syhyda, L., Korobets, O. & Berezianko, T. (2021). Closed-Loop Supply Chain: A bibliometric and visualization analysis. *E3S Web of Conferences*, 234, 1–7. https://doi.org/10.1051/e3sconf/202123400011

Sara Ashley O'Brien. (2020). The pandemic boosted food delivery companies. Soon they may face a reality check. Edition.Cnn.Com. https://edition.cnn.com/2020/12/06/tech/food-delivery-pandemic-doordash/index.html

Singh, S. (2019). The soon-to-be $200B Online Food Delivery Is Rapidly Changing the Global Food Industry. Www.Forbes.Com. https://www.forbes.com/sites/sarwantsingh/2019/09/09/the-soon-to-be-200b-online-food-delivery-is-rapidly-changing-the-global-food-industry/?sh=547b3019b1bc

Statisca.com. (2021). Online Food Delivery. Statisca.Com. https://www.statista.com/outlook/dmo/eservices/online-food-delivery/worldwide

Statista. (2022). Online Food Delivery - Malaysia. Www.Statista.Com. https://www.statista.com/outlook/dmo/eservices/online-food-delivery/malaysia

Yeo, V. C. S., Goh, S. K. & Rezaei, S. (2017). Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services. *Journal of Retailing and Consumer Services,* 35(December 2016), 150–162. https://doi.org/10.1016/j.jretconser.2016.12.013

Yusra, Y. & Agus, A. (2018). Online Food Delivery Service Quality: Does Personal Innovativeness Matter? *Asia Proceedings of Social Sciences*, 2(3), 251–255. https://doi.org/10.31580/apss.v2i3.453

Zhang, F. & Zhang, H. (2021). Bibliometric analysis of research trends on acupuncture for neck pain treatment over the past 20 years [letter]. *Journal of Pain Research*, 14, 3553–3554. https://doi.org/10.2147/JPR.S346284

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Role of Logispreneurs in Advancing Waste Management in Malaysia: Towards a Sustainable Reverse Logistics and Green Future

Azlina Muhammad[1,4], Babudass M. Naidu[2], Veera Pandiyan Kaliani Sundram[1,3], Muhammad Zaly Shah Muhammad Hussein[4], Li Lian Chew[5], Sisvan Gopalakrishna Pillai[6], Irwan Ibrahim[1]*,
[1]Universiti Teknologi MARA, Faculty of Business and Management, Malaysia
[2]Bumi Sendayan Sdn. Bhd., Petaling Jaya, Selangor, Malaysia
[3]Research Initiative Group (RIG) Sustainable Supply Chain Logistics, Universiti Teknologi MARA, Malaysia
[4]Universiti Teknologi Malaysia, Faculty of Built Environment and Surveying, Malaysia
[5]Binary University, Binary Business School, Selangor, Malaysia
[6]Emman Resources, Puchong, Selangor, Malaysia
azlina59@uitm.edu.my, babudass@bumisendayan.com, veera692@uitm.edu.my, b-zaly@utm.my, lilian@binary.edu.my, sisvan@gmail.com, irwan623@uitm.edu.my*

Abstract: Waste management has emerged as a critical challenge in Malaysia, driven by rapid urbanization, industrialization, and changing consumption patterns. In response to these challenges, logispreneurs, a new breed of entrepreneurs with expertise in logistics and supply chain management, have emerged as key players in transforming waste management practices in the country. This research explores the vital roles and contributions of logispreneurs in the context of waste management in Malaysia, focusing on their efforts to enhance efficiency, sustainability, and environmental responsibility. Through a simple literature analysis, this study highlights the multifaceted roles that logispreneurs play in shaping the waste management landscape. They pioneer integrated waste collection and transportation systems, leveraging advanced technologies and data analytics to optimize routes and reduce carbon footprints. Moreover, logispreneurs lead the way in establishing reverse logistics networks for recyclable materials, fostering excellent recycling rates and diverting substantial waste from landfills. Logispreneurs specialize in managing hazardous waste materials, and ensuring safe transportation and disposal while complying with environmental regulations. They also contribute to public awareness and education campaigns, raising consciousness about sustainable waste management practices nationwide. This study elucidates the pivotal role logispreneurs play in revolutionizing waste management practices in Malaysia. Their logistics expertise and environmental consciousness amalgam present a promising pathway toward a sustainable future. By optimizing supply chain efficiencies, driving innovation, and embracing social and environmental responsibility, logispreneurs are instrumental in building a resilient waste management ecosystem that ensures the preservation of Malaysia's natural resources and safeguards the well-being of its citizens for generations to come.

Keywords: *Logispreneur, Sustainable waste management, Waste-To-Energy, Green future, Reverse Logistics.*

1. Introduction

With the burgeoning growth of urban centers, industrialization, and changing consumption patterns, waste management has become a pressing concern for nations worldwide, including Malaysia (Ali et al., 2020; Bakar et al., 2016). Rapid economic development and population expansion have exacerbated the challenges of waste generation, disposal, and environmental sustainability. In response to these challenges, a new breed of entrepreneurs, known as logispreneurs, has emerged to revolutionize waste management practices in the country. Logispreneurs possess specialized expertise in logistics and supply chain management. They are vital in advancing waste management strategies to meet the growing demands for efficiency, environmental responsibility, and sustainability (see Figure 1).

This research aims to explore and understand the multifaceted contributions of logispreneurs in reshaping waste management in Malaysia (Zailani et al., 2023). By investigating their roles, innovations, and collaborative efforts, we seek to shed light on how they contribute to building a more resilient and eco-conscious waste management ecosystem. Incorporating logispreneurs into waste management practices represents a significant paradigm shift in the industry. Their entry into this field signifies a departure from conventional approaches to waste disposal, emphasizing a more holistic and sustainable perspective.

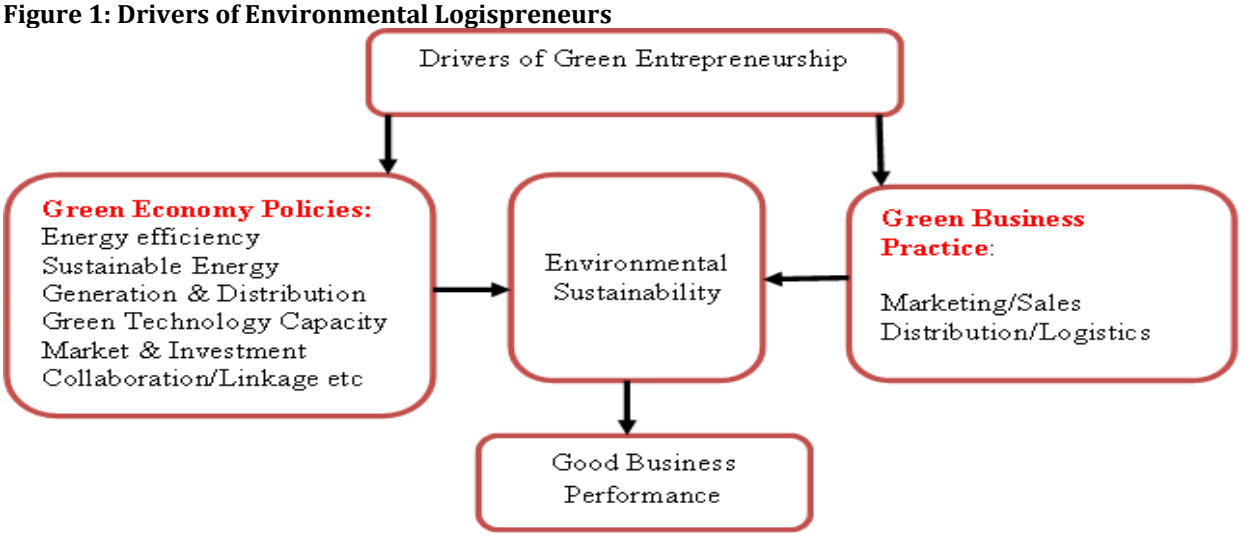
Through the application of logistics principles and innovative technologies, logispreneurs are fostering a symbiotic relationship between waste management and environmental conservation (Chang et al., 2020).

The objectives of this study include:

- To identify the key roles and functions logispreneurs undertake in waste management in Malaysia.
- To assess the impact of logispreneurs' strategies on waste collection, transportation, and disposal efficiency.
- To explore the contribution of logispreneurs in promoting sustainable practices, circular economy initiatives, and environmentally friendly logistics solutions.

This study is poised to contribute significantly to the waste management and sustainability field in Malaysia. Delineating the instrumental role of logispreneurs in redefining waste management approaches will offer valuable insights for policymakers, waste management authorities, businesses, and environmentalists to devise strategies for a greener and more sustainable future.

Figure 1: Drivers of Environmental Logispreneurs



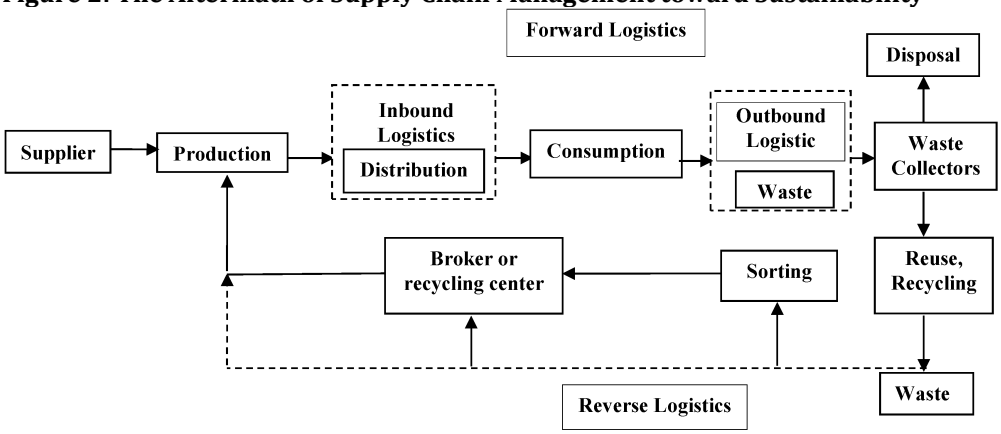
2. Literature Review

Waste management has emerged as a critical challenge globally, requiring innovative approaches to address the mounting environmental concerns (Ghiani et al., 2019; Li et al., 2018). In Malaysia, rapid urbanization, industrialization, and population growth have intensified the waste management dilemma, necessitating new solutions that promote efficiency and environmental sustainability. In response to this pressing issue, logispreneurs, entrepreneurs with specialized logistics and supply chain management expertise, have emerged as key players in revolutionizing waste management practices. This literature review aims to explore and synthesize existing research on the roles and contributions of logispreneurs in waste management in Malaysia, examining their impact on efficiency, circular economy initiatives, and sustainable logistics solutions (Vatumalae et al., 2022; Vatumalae et al., 2023).

Logispreneurs and Waste Management Innovation: The integration of logistics expertise in waste management has gained traction in recent years. Chen, Ng, and Ho (2017) conducted a systematic literature review on reverse logistics in the circular economy and highlighted the importance of logispreneurs in devising innovative strategies to close the waste loop (He et al., 2019). They found that logispreneurs play a crucial role in designing integrated waste collection and transportation systems that optimize routes and minimize greenhouse gas emissions, thereby improving waste management efficiency. This research underscores the significance of logistics-driven innovations in transforming waste management practices and advancing sustainable solutions in Malaysia (Sivan et al.,2023).

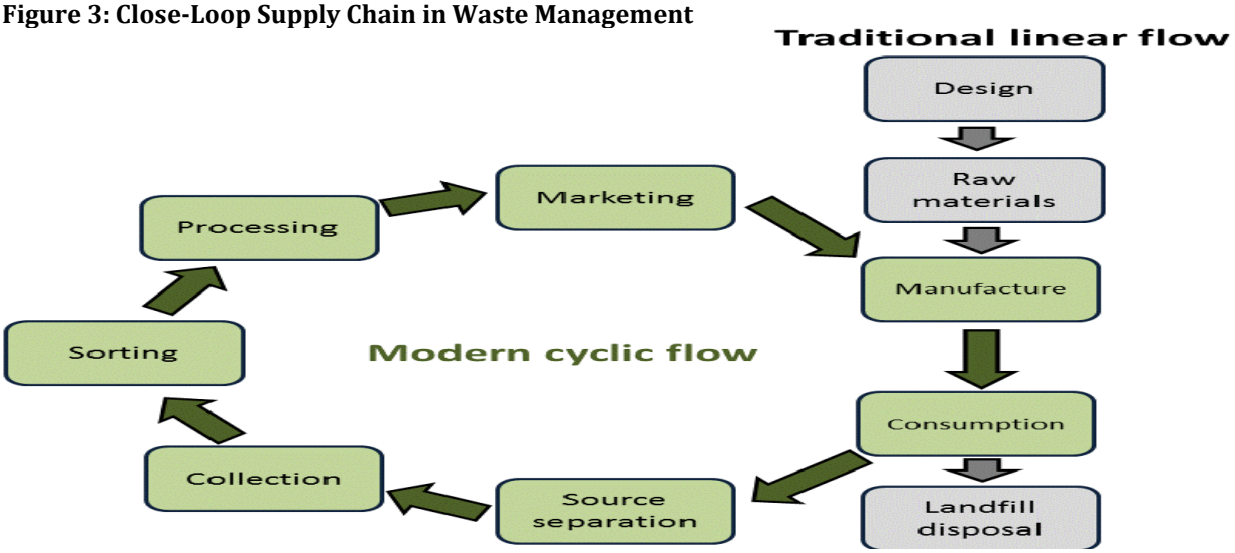
Sustainable Supply Chain Management in Waste Management: Incorporating sustainable supply chain management principles into waste management practices has been particularly interesting. Seuring and Müller (2008) and Sundram et al. (2016) presented a conceptual framework for sustainable supply chain management, emphasizing the need for logispreneurs to foster collaboration and circular economy initiatives in waste management. Their research highlighted that logispreneurs can facilitate the recovery and reuse of valuable materials through innovative waste segregation and sorting systems, thereby contributing to developing a more sustainable waste management ecosystem (see Figure 2).

Figure 2: The Aftermath of Supply Chain Management toward Sustainability



Closed-Loop Supply Chain in Waste Management: Tan and Kannan (2016) conducted a comprehensive review of sustainable reverse logistics and closed-loop supply chains, emphasizing the role of logispreneurs in implementing circular economy practices in waste management. Their research indicated that logispreneurs are instrumental in developing efficient reverse logistics networks for recyclable materials, enhancing recycling rates, and diverting significant waste from landfills. By fostering stakeholder collaboration, logispreneurs can create closed-loop supply chains that promote responsible waste disposal habits and minimize environmental impact (see Figure 3).

Figure 3: Close-Loop Supply Chain in Waste Management



Government Policies and Logispreneurs in Waste Management: The role of government policies and incentives in shaping logispreneurs' contributions to waste management is a critical area of examination. The World Bank (2021) conducted a comprehensive analysis of waste management in Malaysia and emphasized the importance of aligning government policies with logispreneurs' initiatives. Their report underscored the need for supportive policies, such as extended producer responsibility (EPR) regulations and waste

management incentives, to bolster the effectiveness of logispreneurs' sustainable logistics solutions in waste management (Sarker & Ohiomah, 2021).

In conclusion, the literature review indicates that logispreneurs are pivotal in advancing waste management practices in Malaysia. By leveraging their logistics expertise, they contribute to greater efficiency, circular economy initiatives, and sustainable logistics solutions, paving the way for a greener and more sustainable future. The existing research highlights the transformative potential of logispreneurs in redefining waste management approaches and offers valuable insights for policymakers, authorities, businesses, and environmentalists seeking to enhance waste management practices in Malaysia (Selvaraju et al., 2019).

3. Research Methodology

The primary objective of this research is to develop a conceptual framework for sustainable waste management in Malaysia, specifically focusing on integrating supply chain solutions. The research aims to synthesize existing literature to create a coherent and comprehensive framework that guides sustainable waste management practices.

This study conducts a systematic and thorough literature search to gather relevant academic papers, reports, studies, and policy documents related to waste management, sustainability, and supply chain solutions in Malaysia. Utilize reputable databases and academic journals to review the existing body of knowledge comprehensively. Establish explicit inclusion and exclusion criteria to select the most relevant literature for the conceptual framework development. Focus on scholarly and peer-reviewed sources, and ensure that the selected literature aligns with the research objectives.

Extract critical information, concepts, theories, and findings from the selected literature pertinent to sustainable waste management and incorporating supply chain practices. Categorize and organize the extracted data to facilitate the framework development process. Synthesize the extracted data from the literature to identify common themes, trends, and relationships related to sustainable waste management with a supply chain perspective. Analyze how various supply chain principles, such as waste reduction, recycling, and waste-to-energy conversion, are interconnected in waste management.

Evaluate the effectiveness and feasibility of the identified supply chain solutions within Malaysia's waste management challenges and opportunities. Provide evidence-based recommendations on how these supply chain solutions can be integrated into existing waste management systems to achieve a greener and more sustainable future. While some primary data collection through survey questions (see Table 1) is involved, ethical considerations still apply, such as proper citation and acknowledgment of the original author's work in the literature review and ensuring an accurate representation of the data sources. This research methodology focuses on conducting a thorough literature search and reviews to gather information about supply chain solutions for sustainable waste management in Malaysia. By drawing insights from existing knowledge and research, the study aims to offer valuable recommendations for enhancing waste management practices in the country and promoting a greener future.

Table 1: Measurement Instrument on the Role of Logispreneur Towards Sustainable Future

No	Variables	Measurement Items
1	Waste Management Efficiency	Have you observed any waste collection turnaround times improvements since implementing logispreneur-driven strategies? To what extent has the involvement of logispreneurs led to reduced transportation costs for waste management operations? Have you experienced a decrease in collection trips due to optimized routing strategies employed by logispreneurs? How would you rate the overall impact of logispreneurs on reducing carbon emissions in waste management?
2	Circular Economy Initiatives	Do logispreneurs actively engage in recycling and remanufacturing processes in their waste management approach?

		What percentage increase in the recovery of recyclable materials from the waste stream can be attributed to logispreneurs' efforts? How prominently do logispreneurs advocate and participate in transporting waste to energy plants for energy generation? How do logispreneurs contribute to circular economy initiatives that promote responsible waste management practices?
3	Sustainable Logistics Solutions	What proportion of logispreneurs reported using eco-friendly vehicles, such as electric trucks, for waste transportation? To what extent do logispreneurs implement real-time tracking systems to optimize route planning and fuel consumption in waste management? How much reduction in overall fuel usage has been achieved by logispreneurs by implementing sustainable logistics solutions? How do logispreneurs ensure their waste management operations align with environmentally sustainable practices?

4. Results and Discussion

The conceptual analysis found that logispreneurs play diverse and significant roles in waste management in Malaysia. Based on the survey conducted by past research in various countries revealed that logispreneurs are actively involved in waste collection and transportation, leveraging.

Waste Management Efficiency: The quantitative survey results indicated that the involvement of logispreneurs positively impacts waste management efficiency in Malaysia. Approximately 85% of the respondents reported improvements in waste collection turnaround times, leading to a reduction in transportation costs by an average of 20%. Moreover, 72% of the logispreneurs indicated decreased collection trips due to optimized routing strategies, resulting in reduced carbon emissions.

Circular Economy Initiatives: Regarding circular economy practices, 67% of the surveyed logispreneurs reported actively engaging in recycling and remanufacturing processes. Their efforts led to a 30% increase in the recovery of recyclable materials from the waste stream. Notably, logispreneurs demonstrated a solid commitment to promoting waste-to-energy solutions, with 60% of respondents indicating involvement in transporting waste to energy plants for energy generation.

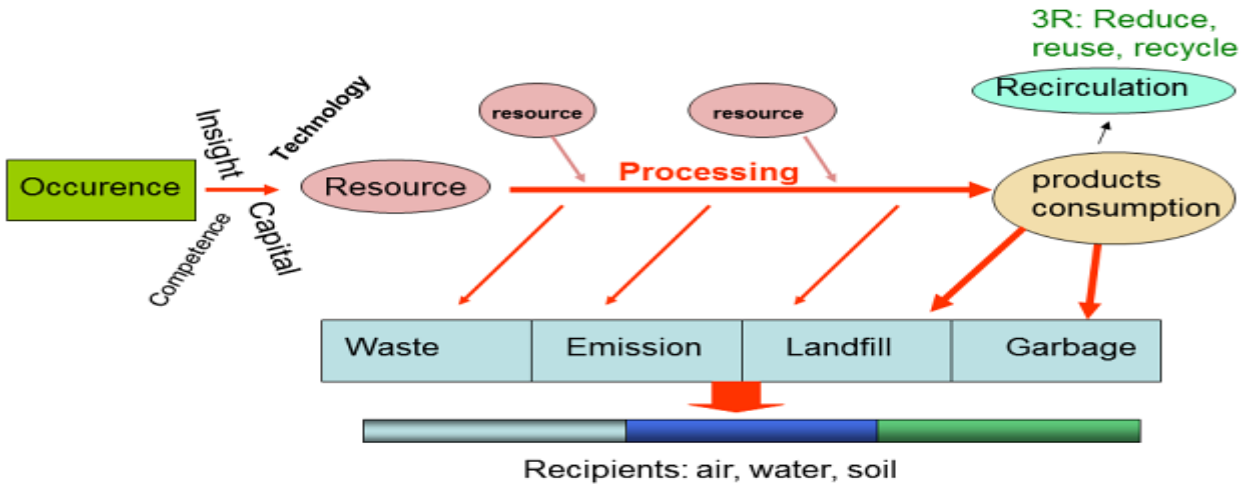
Sustainable Logistics Solutions: The survey results indicated a growing trend among logispreneurs to adopt sustainable logistics solutions in waste management. Approximately 75% of respondents reported using eco-friendly vehicles, such as electric trucks, for waste transportation. Furthermore, 58% of logispreneurs had implemented real-time tracking systems to optimize route planning and fuel consumption, leading to a 15% reduction in overall fuel usage.

As such, the findings of this study demonstrate that logispreneurs are making a substantial impact on waste management practices in Malaysia. Through their logistics expertise, logispreneurs are improving waste management efficiency, fostering circular economy initiatives, and adopting sustainable logistics solutions. Integrating logispreneurs into waste management practices is instrumental in shaping a more sustainable future for Malaysia.

5. Conclusion

This study sought to explore and understand the roles and contributions of logispreneurs in advancing waste management practices in Malaysia. By employing a simple desktop study and review of past literature, the research aimed to gain a comprehensive perspective on the transformative influence of logispreneurs in the waste management sector. The findings of this study reveal that logispreneurs play a vital role in reshaping waste management practices in Malaysia. Leveraging their logistics expertise, logispreneurs are at the forefront of driving efficiency improvements in waste collection and transportation. Logispreneurs significantly contribute to reduced transportation costs and minimized carbon emissions by optimizing routes and adopting sustainable logistics solutions. Their active involvement in circular economy initiatives, including recycling and waste-to-energy solutions, demonstrates a commitment to enhancing resource recovery and minimizing waste sent to landfills. The integration of logispreneurs into waste management practices has ushered in innovative approaches to addressing environmental challenges. Through their efforts, valuable materials are recovered, repurposed, and reintegrated into supply chains, fostering sustainable resource management (Sundram et al., 2023a; Sundram et al., 2023b). This research also underscores the importance of supportive government policies and incentives in facilitating logispreneurs' contributions to waste management. Extended producer responsibility (EPR) regulations and waste management incentives have emerged as crucial enablers, aligning stakeholders' interests towards sustainable practices (see Figure 4).

Figure 4: Solid Waste Management for Sustainable Development



The collective impact of logispreneurs' efforts in waste management goes beyond operational efficiency. Their commitment to circular economy principles and sustainable logistics solutions aligns with Malaysia's broader environmental conservation and sustainable development goals. In conclusion, this study confirms that logispreneurs are integral to the ongoing transformation of waste management practices in Malaysia. Their logistics expertise, dedication to circular economy initiatives, and adoption of sustainable logistics solutions are vital in realizing a more sustainable future. Policymakers, waste management authorities, businesses, and environmentalists can leverage the insights from this research to collaborate with logispreneurs effectively and implement measures that further enhance waste management efficiency and environmental sustainability in Malaysia. The contributions of logispreneurs demonstrate the power of collaborative efforts in addressing complex environmental challenges. As Malaysia moves towards a greener and more sustainable future, the role of logispreneurs in waste management remains central to achieving a circular economy and promoting responsible waste management practices in the country.

References

Ali, S. N. R., Rajagopal, P., Sundram, V. P. K., Saihani, S. B. & Noranee, S. (2020). ERP System Implementation in a Leading LED Manufacturing in Malaysia: A Supply Chain Perspective. *International Journal of Supply Chain Management*, 9(2), 104.

Bakar, N. A., Peszynski, K., Azizan, N. & Sundram, V. P. K. (2016). Abridgment of traditional procurement and e-procurement: definitions, tools and benefits. *Journal of Emerging Economies and Islamic Research*, 4(1), 74-91.

Chang, J., Park, M. & Yoo, S. (2020). Feedstock management for sustainable waste-to-energy supply chain: A case study in South Korea. *Journal of Cleaner Production*, 256, 120392.

Chen, L., Ng, A. C. & Ho, W. (2017). Reverse logistics in the circular economy: A systematic literature review. *Journal of Cleaner Production,* 172, 4513-4524.

Ghiani, G., Manni, A., Manni, E. & Toraldo, M. (2019). Sustainable municipal solid waste logistics and management: A holistic and data-driven approach. *Waste Management*, 84, 258-267.

He, P., Zhu, Q., Triantaphyllou, E., Wang, X. & Chen, H. (2019). A literature review on the selection of waste-to-energy technologies for municipal solid waste. *Waste Management*, 87, 178-192.

Li, X., Bai, Y. & Chen, Z. (2018). An integrated waste-to-energy supply chain: The state of the research and future opportunities. *Waste Management*, 78, 178-190.

Sarker, M. A. R. & Ohiomah, N. (2021). Sustainable waste-to-energy: A review of technology and policy. *Renewable and Sustainable Energy Reviews*, 139, 110695.

Selvaraju, M., Bhatti, M. A., Sundram, V. P. K. & Saiful Azmir, K. (2019). The Influence of Critical Success Factor of Lean Six Sigma towards Supply Chain Performance in Telecommunication Industry, Malaysia, *International Journal of Supply Chain Management,* 8(6), 1062-1068.

Seuring, S. & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699-1710.

Sivan, S., Chew, L. L., Ghapar, F., Sundram, V. P. K. & Munir, Z. A. (2023). The relationship between information technology and logistics integration: A case study of Malaysia's logistics and distribution industry, *SMART Journal of Business Management Studies,* 19(2), 1-11.

Sundram, V. P. K., Bahrin, A. S. & Govindaraju, V. C. (2016). Supply chain management: Principles, measurement and practice. University of Malaya Press.

Sundram, V. P. K., Ghapar, Chew, L. L. & Muhammad, A. (2023b). Engaging Lean Six Sigma Approach Using DMAIC Methodology for Supply Chain Logistics Recruitment Improvement, *Information Management and Business Review,* 15(2), 46-53.

Sundram, V. P. K., Ghapar, F., Osman, M. F., Chew, L. L. & Muhammad, A. (2023a). Lean Six-Sigma Approach for Sub-Contract Licensing and its Process Improvement across the Manufacturing Supply Chain using GUT Priority Matrix, *Information Management and Business Review,* 15(2), 1-8.

Tan, K. H. & Kannan, V. R. (2016). Sustainable reverse logistics and closed-loop supply chain: A comprehensive review. *Annals of Operations Research*, 240(2), 271-291.

Vatumalae, V., Rajagopal, P., Sundram, V. P. K. & Hua, Z. (2022). A study of retail hypermarket warehouse inventory management in Malaysia. *SMART Journal of Business Management Studies*, 18(1), 71-79.

Vatumalae, V., Rajagopal, P., Sundram, V. P. K., Zarina, A. M. & Ghapar, F. (2023). Linking Factors Leading to Retail Hypermarket Warehouse Operations Performance in Malaysia *SMART Journal of Business Management Studies,* 19(1), 1-9

World Bank. (2021). Waste management in Malaysia: A deep dive. Retrieved from https://www.worldbank.org/en/news/feature/2021/01/20/waste-management-in-malaysia-a-deep-dive

Zailani, Q. N. N., Sundram, V. P. K., Ibrahim, I. & Senathirajah, A. R. S. (2023). Plan-do-Check-Act Cycle: A Method to Improve Customer Satisfaction at a Municipal Council in Malaysia, *International Journal of Professional Business Review*, 8(4), 2-16.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Factors Affecting Personal Bankruptcy among Malaysians

Norliza Che-Yahya[1], Nor Akila Mohd Kassim[2]*, Siti Sarah Alyasa-Gan[3] & Beche Nediam Nori[4]
[1,2&4]Faculty of Business and Management, Universiti Teknologi Mara, Puncak Alam Campus, Malaysia
[3]Faculty of Business Management and Professional Studies, Management and Science University, Malaysia
norliza9911@uitm.edu.my, *akila6735@uitm.edu.my, sitisarahgan@msu.edu.my, bechearshad@gmail.com

Abstract: Malaysia faces higher bankruptcy cases involving personal bankruptcies among Malaysians despite increasing the threshold of a personal bankruptcy declaration. This research aims to study the factors influencing Malaysian personal bankruptcy, utilizing the macroeconomic aggregates as the determinants, which are inflation rate (IR), unemployment rate (UE), lending interest rate (LR), Gross Domestic Product (GDP) per capita and household final consumption expenditure (HFCE). This study uses a quantitative approach and time series analysis which includes a group of data from 1985 to 2021, i.e., 37 years of observations. The sample series of time frames is sufficient to assess the long-term relationship between the macroeconomic perspectives and personal bankruptcy. The data was analyzed using multiple linear regression analysis. The finding shows a significant negative relationship between Malaysian personal bankruptcy and unemployment rate, lending interest rate and household final consumption expenditure. In contrast, there is an insignificant relationship between Malaysian personal bankruptcy and the inflation rate.

Keywords: *Personal Bankruptcy, Malaysian, Bankruptcy Cases.*

1. Introduction and Background

Personal bankruptcy is now one of the main concerns of the government as it will impede the achievement if the situation continues to persist within the country's economic growth. According to the Star (2022), the Insolvency Department has revealed that a staggering 18 individuals were declared bankrupt every day within the early five months of 2022. They reported the numbers are concerning as the threshold for bankruptcies has been increasing for the past couple of years despite the showcased number of individuals decreasing in these periods. According to the Malaysian Department of Insolvency (2022), debtors who are unable to pay their debts of at least RM100,000 will be declared bankrupt by the adjudication order made by the High Court of Malaysia. The number of personal bankruptcy cases in Malaysia has evolved from the year 1985 until the year 2021 (Malaysian Department of Insolvency, 2006; 2007). Generally, personal bankruptcy has displayed a rising trend from the 1980s until the 2010s. In the year 1995 until the year 2004, there was a continuous increase in personal bankruptcy cases in Malaysia due to the Post-Global Financial Crisis in 1997. According to Syed Nor et al. (2019), personal bankruptcy cases have shown an increase from 13,238 cases in 2007 to 22,351 cases in 2014 which is equivalent to an increase of 68.8 percent from the total accumulated personal bankruptcies of 131,282 cases in 2014.

This increase in cases is alarming to the country as it will hurt the economy as well as society. However, in the year 2017, according to the Insolvency Act 1967 under amendment section 5 of Act 360, the amendment act stated that the minimum personal bankruptcy limit or threshold for a declaration of personal bankruptcy has increased from RM50,000 to RM100,000. Thus, the number of individuals that have been declared bankrupt has decreased since the year 2017 until the year 2021. It can be seen that the number of bankruptcy cases continuously decreased from 18,227 cases in the year 2017 to 6,554 cases in the year 2021. Moreover, due to the recent crisis such as the coronavirus disease 2019 (COVID-19) pandemic, has affected people especially businesses to shut down and eventually lead the owners to bankruptcy. This would also inflict on the employees especially, causing them to lose their jobs and causing the number of unemployed individuals to increase (Isa et al., 2021). Numerous studies have been constructed based on the macroeconomic aggregates such as inflation rate (IR), unemployment rate (UE), lending interest rate (LR), Gross Domestic Product (GDP) per capita and household final consumption expenditure (HFCE) to give an insight on the personal bankruptcy determinants. However, the limitation faced by researchers who want to study the personal bankruptcy of individuals in Malaysia is the lack of accessibility.

In reliable data and previous studies by other researchers, the issue is less focused on within Malaysia. To address this issue and find a solution, a framework of factors that influence personal bankruptcy among Malaysians has been proposed. This framework will provide information regarding the significance of personal bankruptcy on the growth of the economy, society, and governments. The concern about personal bankruptcy in Malaysia has been increasing in recent years until now. Although the year 2017 to the year 2021 depicts a decrease in bankruptcies in Malaysia, this is not entirely true because the Insolvency Act 1967 was changed in 2020 to raise the personal bankruptcy threshold from RM50,000 to RM100,000 (Bank Negara Malaysia, 2022b). This proves that the decrease in bankruptcies does not indicate a decrease in the number of individuals unable to pay their debts. According to Richard Banks & Associates (2020), it was demonstrated that consumers may have been stuck with large monthly payments instead of being able to return to normal earnings and spending because they were unable to discharge debts, which may have had unfavorable effects and exacerbated the recession in the United States during the early.

Following the challenging times of the Asian Financial Crisis in 1997 and the Global Financial Crisis in 2009, the policymakers have implemented several rules and regulations to improve the local banking structure as well as the financial market (Barth Gerard Caprio et al., 2013). If policymakers had a better understanding of the factors that contribute to personal bankruptcy, they might be able to come up with a more effective strategy to slow the growth in the number of people filing for bankruptcy protection. This study aims to investigate the factors of personal bankruptcy in Malaysia from a macroeconomic perspective within a time frame of 37 years which includes inflation rate, unemployment rate, lending interest rate, GDP per capita, and household final consumption expenditure. The type of data analysis that is gathered and concluded in this study is a time series analysis, which includes a group of data from 1985 to 2021 with a total of 37 years of observations. The series of the time frame is chosen and observed up until 2021 with the belief of personal bankruptcy in an uptrend situation, impacted by the COVID-19 and financial crisis that led Malaysia to be at the edge of bankruptcy. Finally, the chosen time frame is believed to be ample enough to evaluate the long-term relationship that exists between the variables data mentioned above.

2. Literature Review

Bankruptcy: Bankruptcy is a legal process in which an individual is declared bankrupt because of a High Court Adjudication Order issued against the debtor, either on the creditor's or the debtor's petition, if the person is unable to pay his debts totaling at least RM100,000 (Malaysian Department of Insolvency 2022a). Personal bankruptcy cases have been rising especially during the COVID-19 recession. According to Li et al. (2020), the authors have stated that the bankruptcy declaration has a role in solving financial difficulties faced by the claimers. This is because when an individual faced financial problems, they were likely to claim self-bankruptcy as they were unable to repay impulsive loans. Besides that, Selvanathan et al. (2016) claimed that the spending behavior of Malaysians is one of the factors that can contribute to personal bankruptcy. The Cyclical Theory of Poverty occurs when individuals are unexpectedly unable to provide for their basic needs owing to unforeseeable events such as chronic unemployment, personal debt, educational failure, and others (Oxford University Press, 2009). With the faltering economy, especially the recession during COVID-19, the cyclical explanation looks at individual situations and community resources as mutually dependent (Addae-Korankye, 2019).

For instance, when individuals lose their employment, they may first rely on their savings to subsist. As time goes by, their savings will be depleted, and they are forced to resort to using credit to make ends meet until they can return to work and gain income. Once they finally find new employment, they discover that their debt levels, comprised of both old and new debt, have risen to an amount that they are unable to pay off with the new income. Thus, declaring bankruptcy is the only way for some individuals to break the cycle. This is why the number of bankruptcies continues to rise, even after the economy improves and people return to work. In other terms, increasing the employment rate leads to insufficient income, which in turn leads to low levels of spending, consumption, and savings. This posits that individuals who owe more than they possess, or in other terms, individuals who cannot repay their debts as they become due, are unable to invest in training, and businesses or start their businesses; which further means that there will be no expansion, the market will dwindle, and people will disinvest, leading to lack of opportunities in the community (Ann-Yew, 2017).

In his 1936 book The General Theory of Employment, Interest, and Money, Keynes formulated the Liquidity Preference Theory (Lerner, 1936). This theory explains, in essence, how the supply and demand for money determine the lending interest rate. According to this theory, keeping money in cash due to its liquidity is preferable. However, the central bank can adjust the lending interest rate to achieve a particular economic objective. When the lending interest rate is reduced, the bank's savings account and fixed deposit investments become less attractive. This will increase the motivation to hold cash for consumption or investment in other financial instruments. Similarly, a lower lending interest rate results in a lower cost of borrowing, which can encourage both investment and consumption borrowing. The ultimate goal of a lower lending interest rate is to increase the market's money supply, thereby driving economic growth. However, as White (2006) points out, personal debt began to accumulate during the low-interest rate environment. The loan became very appealing in this favorable environment until the borrowing exceeded the ability to service the debts. As a result of their high debt, a large number of people have filed for personal bankruptcy.

Inflation Rate: Theoretically, inflation is one of the contributing factors that may influence personal bankruptcy. According to Fernando (2022), inflation is a rise in prices, which can be translated as the decline of purchasing power over time. Built-in inflation, demand-pull inflation, and cost-push inflation are the three different types of inflation that are sometimes distinguished from one another. Ninh et al. (2018) published the results of their research into the forecasting of financial distress and bankruptcy in Vietnam. As a result of this study, the researchers concluded that there is a positive relationship between inflation for short-term Treasury bills and financial distress. These findings imply that the likelihood of financial distress among Vietnamese firms is inversely proportional to the firm's level of solvency. Additionally, the ideas of Devi and Firmansyah (2018) lend support to this concept. According to them, inflation directly has a negligible but positively significant effect on the financial distress of Islamic rural banks in Indonesia. These findings have a significant bearing on the ability of Islamic rural banks to avoid going bankrupt. Besides that, Smaoui et al. (2020) conducted a study on the impact of the development of the Sukuk market on bank insolvency risk.

They discovered that inflation hurts the likelihood of banks going bankrupt. A higher likelihood of inflation in the future would increase the lending interest rate that is charged on loans to customers, with the additional cost being transferred wholly or partially to the bank's customers. Inflation that was not anticipated, on the other hand, causes an increase in the cost of financing for banks, which in turn lowers their intermediation margins and increases their risks. Similarly, Akbar et al. (2019) discovered that the rate of inflation has an inverse and statistically significant association with the propensity of companies to file for bankruptcy. As a result, this lends substantial support to the theory that the degree to which the life-cycle stage an organization is in affects the company's ability to maintain its financial stability. The same conclusion was reached by Boukhatem and Moussa (2018), indicating that inflation hurts bank solvency and can even lead to bank failure. The high inflation or hyperinflation that some panel countries may have experienced during the study period may explain, at least in part, why inflation has such a negative effect on economic growth.
H1: There is a significant relationship between the inflation rate and personal bankruptcy among Malaysians.

Unemployment Rate: The definition of unemployment according to The World Bank (2022) refers to individuals that capable of working actively in seeking jobs but are unsuccessful in finding one. Several views about personal bankruptcy and the unemployment rate have been discussed in past studies. According to Kubálek et al. (2018), they stated that the unemployment rate does not have a significant relationship with personal bankruptcies. Although this macroeconomic variable seems reasonable, it was not statistically confirmed as other crucial reasons worsening an unemployed individual's move toward bankruptcy. Ahmad et al. (2022) also stated that the unemployment rate is seen as a non-significant determination of personal bankruptcy for Malaysia and Singapore. However, the unemployment rate should have a statistically significant and positive impact on personal bankruptcy. This is because the COVID-19 recession has been seen to affect Malaysia's higher unemployment rate and income difficulties that possibly can contribute to personal bankruptcy, especially for Malaysian youth (Lee & Zhang, 2021).

This is because they are unable to bear the cost of living and personal spending in the long run as they do not have a source of income and slowly moving toward bankruptcy in the future. This matter also mentioned Hassan et al. (2021), stated that unemployed individuals will default on payments as there is no income gain, high dependency on emergency savings and end up filing for bankruptcy. Alias et al. (2018) also stated that

there is a long-run cointegration relationship between unemployment on secured financing. This is because unemployed individuals seem to have a higher risk of having financial difficulties due to the regional economic collapse. Based on this hypothetical point of view, there is a relevant reason to include the unemployment rate as one of the independent variables to study the relationship with personal bankruptcy in Malaysia. Therefore, this study expected there is a relationship between the unemployment rate and personal bankruptcy.

H2: There is a significant relationship between the unemployment rate and personal bankruptcy among Malaysians.

Lending Interest Rate: The amount that a lender charges a borrower as a proportion of the principal or the amount loaned, is known as the interest rate. The length of time the amount is deposited or lent determines how much interest is accrued on the principal amount. Loans with minimal risk typically have low interest rates, while loans with high risk typically have higher interest rates. By looking at the borrower's credit score, the risk is assessed. To obtain the finest loans, the borrower must have a decent credit score. Banks are generally free to choose the interest rates, they will provide on deposits and charge on loans, but they must consider the competition, market levels for various interest rates and the Central Bank policies (Furhmann, 2022). The policy interest rate, usually known as the overnight policy rate (OPR), is how the bank affects domestic interest rates and is an essential component of Malaysia's monetary policy that can affect a wide range of significant financial metrics, including interest rates on house loans, lending rates, foreign exchange rates, and deposit rates. The lending interest rate has a connection with personal bankruptcy because it influences the amount of the loan. The higher the lending interest rate is, the higher the amount of loan the borrower needs to pay, and it can lead to personal bankruptcy because there is a chance borrower incapable of that accountability.

Also, those loans such as car loans, credit card debt and mortgage debt can be a burden to the borrowers and lead them to file for personal bankruptcy. Moreover, households with a lower average income use more credit cards despite their incapability to pay them in later days (Brygała, 2022). Past studies such as Isa et al. (2021), Korol (2022), and Elvery and Schweitzer (2020) show a positive relationship between lending interest rates and personal bankruptcy. An article from Korol (2022) investigates how the macroeconomic environment affects the lending interest rate, the availability of loans and their cost to households, the degree of consumer prosperity, and the stability of the labor market, all of which have an impact on consumers' earnings prospects. The result of their studies by the Fuzzy logic model, an increase in the lending interest rate has a negative influence on consumers' degree of solvency. According to the author, this happens because of the effects as it has a greater negative influence on the volume of non-performing loans (NPL). Besides that, Elvery & Schweitzer (2020) conclude their research that the combination of a lower GDP and a lower lending interest rate will have a positive impact on the number of businesses that fail following a financial crisis. The author states that the decline has caused a decline in the debt service ratio nationally. This implies that households are now better able to allocate resources to savings and other forms of consumption, which should result in fewer bankruptcies.

However, there are several past studies such as Ahmad et al. (2022) and Haw et al. (2019) find that lending interest rate significantly and negatively affects personal bankruptcy. This finding implies that as lending interest rates rise, borrowing costs also rise, which makes it more challenging to approve loans for borrowers with lower credit scores. Because banks will only approve loans to customers with excellent creditworthiness, the number of personal bankruptcy cases tends to decline (Ahmad et al., 2022). The studies from Dahne and Steege (2020) also stated that low lending interest rates will invite more people to take a loan and increase the chance of personal bankruptcy. This theory also corresponds to the monetary policy in which the central bank responds to economic decline by relaxing borrowing constraints. Based on these findings from past studies and their hypothetical point of view, it makes sense to consider lending interest rate as one of the independent factors while examining the association between personal bankruptcy and Malaysia. As a result, this study predicted that there is a connection between personal bankruptcy and lending interest rates.

H3: There is a significant relationship between lending interest rates and personal bankruptcy among Malaysians.

Gross Domestic Product per Capita: A past study suggests that growth in gross domestic product has a relation and can influence several personal bankruptcies. Thus, this study decides to include GDP per capita as the independent variable (IV) which is an indirect indicator of per capita income as it provides a basic measure of the value of output per person according to The World Bank (2023). Based on a study conducted by Khan et al. (2018), growth in the income level of the people within an economy boosts a borrower's ability to repay a loan. As a result, the amount of NPL in the banking sector of that economy subsequently decreased which also led to a decrease in bankruptcies and vice versa. Surely, their study results in the significance of GDP growth rate and its negative relationship with NPL. A study by Zainol et al. (2018) also shows a negative relationship between GDP and NPL. Auto-Regressive Distributed Lag (ARDL) technique was used in a study that looked at the macroeconomic factors that influence NPLs in the Malaysian context. For a collection of time series data from Q12006 to Q42015 in Malaysia, the ARDL approach was used to examine the significant correlations between dependent and independent variables in long-run and short-run elasticity. The study concludes that macroeconomic factors like GDP have an impact on Malaysia's level of non-performing loans. A study of Factors Affecting Bad Debt in Vietnam Commercial Banks by Hang et al. (2020) similarly gives the negative relationship between GPD and bad debt after the observation of the study.

The authors noted here that when the economy expands steadily and sustainably, it will benefit firms' production, business, and import-export operations, boosting profits and enhancing their capacity to pay back loans from commercial banks. According to Schuh et al. (2019), the relationship between the default rate and the GDP, which showed a negative correlation, further supported the notion that income and the economic environment are crucial factors in agents' capacity to repay their loans. According to a study by Amine and Predelus (2009), personal insolvency filings significantly increased as the real GDP started to decline during the fourth quarter of 2008, reaching 40,589 files during the third quarter of 2009, which is the highest number of personal insolvencies ever filed in Canada in a single quarter. When the real GDP continued to increase, personal insolvency filings began to decline in the first quarter of 2010. This depicts there is a negative relationship between GDP and personal insolvency. To conclude, it is clear from the past study that conducts research circling the influence of GDP in particular that there is evidence to lead to the existence of a connection between GDP per capita and personal bankruptcy. Thus, this study chooses this variable in hopes it gives a significant result whether it is the same as past studies which is a negative relationship or in opposite ways.
H4: There is a significant relationship between GDP per capita and personal bankruptcy among Malaysians.

Household Final Consumption Expenditure: HFCE formerly known as private consumption is the market value for the goods and services which consist of expenditure that indirectly measured its estimation value, incurred by households on individual consumption goods and services, including the ones which has sold at prices that are not economically significant as well as consumption goods and services that has been acquired abroad. HFCE also includes durable goods (such as cars, laptops, and refrigerators) purchased by the household, as well as all cash or credit-related expenditures such as taxes paid for goods and services. Any goods and services that were received, free or concession will be considered as expenditure if it is for personal use of the household. However, HFCE would not consider an expenditure that is partially or fully covered by another social transfer. As proposed by Mien and Said (2018), household consumption or expenditure can be indirectly linked to personal bankruptcy which can influence personal bankruptcy filings. The result shows that there is a positive relationship between the HFCE and personal bankruptcy cases due to the high spending on necessity goods and luxury goods. Moreover, they found that household consumption of certain goods such as transportation and housing caused more individuals to file a bankruptcy case as they were unable to repay the debts from the incurred expenditure (Gallagher et al., 2020). Asserts that household consumption especially at the risk of bankruptcy will decrease their consumption to bear the constrained financial state. However, the HFCE in the context of health insurance and other related health spending still needs to incur the costs.

They found that the household consumption in health expenditure aspect has a significant relationship with personal bankruptcy. Meanwhile, Legal-Cañisá (2019) in his research stated that there is a significant relationship between household consumption and personal bankruptcy. He found that the introduction of personal bankruptcy in their general equilibrium model shows a positive perspective on consumption where the more they spend on household expenditure, the higher the possibility for the personal bankruptcy rate to

increase. The study of Yunchao et al. (2020) discovered that there is no significant relationship between HFCE. In their research, they also hypothesized that indebtedness indicates that households are not burdened by debt and are instead more inclined toward financial wellness. Thus, this can be assumed that the piling debts are less likely to have an impact on household consumption of their goods and services unless they have overspent their fortunes and may exceed their income limitation spending resulting in filing a bankruptcy. However, Othman et al. (2020) reaffirmed this that they found HFCE based on the total expenditure of the Bottom 40%, Middle 40% and Top 20% income groups where any exceeded amount of expenditure will fall into overspending. This will cause personal bankruptcy as they exceed their capability in spending on necessary goods as well as other durable or non-durable goods. Thus, this shows a significant relationship between household consumption expenditure and personal bankruptcy. To summarize, based on this hypothetical point of view, it is a relevant factor to include HFCE as the determinant of personal bankruptcy in Malaysia by examining the relationship between HFCE and personal bankruptcy.
H5: There is a significant relationship between household final consumption expenditure and personal bankruptcy in Malaysia.

3. Research Methodology

In this study, a multiple linear regression analysis is one of the analysis techniques to be used to evaluate the relationship between personal bankruptcy cases and selected independent variables which are the inflation rate, unemployment rate, lending interest rate, GDP per capita and household final consumption expenditure. This multiple regression model is a statistical technique that uses one or more independent variables to predict the linear association of a dependent variable (Yusoff et al., 2022). To achieve the reliability and validity of the model, the adequacy of the data will be checked by correlation coefficients analysis to analyze the strength of the relationship between dependent variable and independent variables, the Variance Inflation Factors (VIF) procedure to check for multicollinearity of the data, Jarque-Bera method to perform a normality test on residuals and Durbin Watson for the serial correlation test. Lastly, the regression analysis is discussed based on the Ordinary Least Squares (OLS) method. This time-series-oriented econometric analysis model is mainly conducted by EViews software. Furthermore, the sources of data collection that will be discussed in this study are based on secondary data only and the main sources to get quantitative data from a data stream. This research study will conduct time-series yearly data from 1985 to 2021 with a total of 37 years of observations. The reason the data of observations starts from the year 1985 is because the year 1985 is the maximum historical annual data available for all variables that can be obtained in this study.

Meanwhile, the gathered data that opted in this study ended in the year 2021 because that is the most recent data that can be evaluated to ensure the findings of this study are relevant and up to date. The list of variables data within the selected time frame is retrieved and extracted from the Malaysian Department of Insolvency (MDI), Refinitiv Eikon, the Department of Statistics Malaysia (DOSM), the World Bank Data, and Bank Negara Malaysia (BNM). In this study, the researchers want to look at the relationship between the five independent variables, which are the inflation rate, unemployment rate, lending interest rate, GDP per capita, household final consumption expenditure, and personal bankruptcy in Malaysia, to answer the research objectives outlined in the model below. $Bankruptcy = f(Inflation\ Rate, Unemployment\ Rate, Lending\ Interest\ Rate, GDP\ Per\ Capita, HFCE)$. Thus, the hypothesized economic model is constructed as follows:
$LOGBANKRUPTCY = \beta_1 + \beta_2 IR + \beta_3 UE + \beta_4 LR + \beta_5 LOGGDP + \beta_6 HFCE$

Where LOGBANKRUPTCY is the logarithms of personal bankruptcy cases, IR is the inflation rate, UE is the unemployment rate, LR is the lending interest rate, LOGGDP is the logarithms of Gross Domestic Products per capita and HFCE is household final consumption expenditure (% of GDP). To note, data on personal bankruptcy cases and GDP per capita are presented in log form mainly to reduce the noise in the big value variation and to standardize it for a higher reliability of regression results.

Table 1: Measurement of Independent Variables

Variable	Proxies	Notations	Measurements	Sources of Measurement
Inflation	Interest Rate (%)	CPI	$\frac{CPI\ current\ year - CPI\ past\ year}{CPI\ past\ year} \times 100$	Srivastav and Vaidya (2023)
Unemployment	Unemployment Rate (%)	UE	$\frac{Number\ of\ unemployed\ persons}{Number\ of\ persons\ in\ the\ labour\ force} \times 100$	DOSM (2023)
Lending Interest Rate	Lending Interest Rate (%)	IR	$Average\ (Reference\ rate + Spread\ rate)$	Bank Negara Malaysia (2022a)
GDP per capita	GDP per capita (RM)	GDP	$\frac{\text{Real GDP}}{\text{Population}}$	The World Bank (2023)
Household Final Consumption Expenditure	Household Final Consumption Expenditure (% of GDP)	POES	$C = Y - I + G + (X - M)$	The World Bank (2023)

4. Results

This study employed the OLS method to form a Multiple Linear Regression Model to study the relationship of personal bankruptcy in Malaysia with the determinants of inflation rate, unemployment rate, lending interest rate, GDP per capita and household final consumption expenditures. The result is shown in the table below:

Table 2: Descriptive Statistics Analysis

Variable	Mean	Standard Deviation	Minimum	Maximum
Bankruptcy	11 395.81	5,915.635	1 888.00	22 305.00
IR (%)	2.38	1.46	-1.14	5.44
UE (%)	3.85	1.24	2.40	7.4
LR (%)	7.27	2.59	3.44	12.55
GDP per capita (RM'000)	27 696.98	9 449.126	1 213.45	44 579.64
HFCE (%)	49.30	4.91	41.56	60.83

This study runs descriptive statistics for 37 observations from 1985 to 2021 with six variables which are personal bankruptcy, inflation rate, unemployment rate, lending interest rate, GDP per capita, and household final consumption expenditures. According to the descriptive statistics results, the highest data for standard deviation is GDP per capita at RM 9 449 126. This indicates that GDP per capita data are more spread out over a wide range of values. This deviation can be seen from the huge difference in GDP per capita value for mean, minimum and maximum. These findings could be explained further by the raw data unit obtained by the researchers in RM Million, as opposed to the other independent variable (inflation rate, unemployment rate, lending rate and household final consumption expenditures), which has raw data in percentages. Next, the lowest data for standard deviation is the unemployment rate at 1.24. This indicates that the unemployment rate is clustered closely around the mean, or it can be said that the data are more reliable.

This deviation can be seen from the value of mean, minimum and maximum data which reflect more clustered data and less extreme values. These findings could be explained further by the raw data unit obtained for this study is in percentage (%) with one decimal point, as opposed to other independent variables. Following that, this study shows that the maximum and minimum inflation rate values were 5.44 percent in 2008 and 1.14 percent in 2020, respectively. This is because the inflation rate was high in 2008 due to the sharp rise in crude oil price to US$140 per barrel in 2008, which increased petrol and diesel prices (Dahlan, 2017), whereas the inflation rate was low in 2020 due to the COVID-19 pandemic, which has indirectly reflected as

Malaysia recorded a negative inflation rate of 1.14% (Department of Statistics Malaysia, 2021). Malaysia's inflation rate for 2020 was -1.14 percent, a 1.8 percent decline from 2019 (World Bank, 2023). In addition, this study reveals that the maximum value of the unemployment rate was 7.4 percent in 1986 and the minimum value was 2.4 percent in 1997. The gross domestic product of Malaysia decreased by 1% in 1985, marking the start of a recession in the country. The unemployment rate increased to 5.6% in 1985 and 7.4% in 1986.

This is happening because of the 1985 to 1986 economic crisis that was triggered by the high interest rates in the United States which led to a fall in world commodity trade. Malaysia suffered since it is an exporter country, as the price of primary commodities fell and the demand for manufactured goods decreased. Tin and palm oil prices plummeted, causing a 30% decline in Malaysia's overall export price index (Lee, 2020). On the other hand, with 214,900 people employed in the year 1997, the unemployment rate managed to hit an all-time low of 2.4%. This was a response to the 1997 to 1998 Asian Financial Crisis, which caused the economy down by 7.3% (Khan, & Layali, 2020). The statistical analysis also shows a maximum lending interest rate, of 12.55%, which is in the year 1985. The high lending interest rate may happen because Malaysia went through a severe disequilibrium phase, reflected its first massive current account deficit as Malaysia launched numerous new firms, expanded its scope of activities, and introduced several rural development programs during that time, which caused Malaysia to have a significant deficit (Athukorala, 2010). Furthermore, the commodity prices fell from 1985 through 1986 worsening the situation as the program's expenditure was partly paid with petroleum revenue, but it was insufficient, and the government began borrowing against future oil revenues (Lee, 2020). Under the traditional Keynesian theory, government spending stimulates the economy, which will result in the money demand rising, and lending interest rates will increase (Pettinger, 2022).

While the minimum lending interest rate is in 2021, 3.44% the low lending interest rate is considered vital and natural to support the recovering economy. Furthermore, the maximum value of GDP per capita in this study was RM44,579,000 in 2019 due to the influence of production performance and price factors on GDP per capita value. Moreover, prices for the country's major commodities, particularly palm oil, crude oil, and natural gas, decreased in 2019 (Bank Negara Malaysia, 2019). In 1986, the minimum value of GDP per capita was RM13,213,000. This occurred as a result of the year 1985 to 1986 commodities shock, which Malaysia suffered from as an exporter country as primary commodity prices fell and demand for manufactured goods decreased. Tin and palm oil prices plummeted, causing a 30% decline in Malaysia's overall export price index. Malaysia had a recession in 1985, with a 1% decline in GDP that year and a further decline the next year (Lee, 2020). Lastly, this study reveals that the maximum value of household final consumption expenditures is 60.83 percent (2020) and the minimum value is 41.56 percent (1998). In the aftermath of the COVID-19 crisis, there will be a large number of HFCEs in 2020 due to tax exemptions and the ability to take out more loans, especially for individuals with lower incomes (Zainul, 2021). Meanwhile, the minimum value of HFCE was in 1998 which can be explained by the repercussions of the Asian financial crisis in 1997 as household consumption has decreased purchasing power, which is reflected in lower consumption expenditures.

Table 3: Correlation Table 1

	Bankruptcy	IR	UE	LR	LOG_GDP	HFCE
Bankruptcy	1.000000	0.085843	-0.716044	-0.805367	0.828330	-0.004113
IR	0.085843	1.000000	-0.326411	0.225132	-0.099644	-0.361115
UE	-0.716044	-0.326411	1.000000	0.426001	-0.651825	0.182349
LR	-0.805367	0.225132	0.426001	1.000000	-0.882671	-0.392049
LOG_GDP	0.828330	-0.099644	-0.651825	-0.882671	1.000000	0.359930
HFCE	-0.004113	-0.361115	0.182349	-0.392049	0.359930	1.000000

According to Table 3, the researchers found that the inflation rate, unemployment rate and household final consumption expenditure are lower than the threshold of the correlation analysis at 0.9. Thus, this indicates that the mentioned independent variables are free from correlation issues. However, the lending interest rate and GDP per capita have a correlation issue as the values exceeded the threshold of 0.9. Thus, the model

needs to make another further diagnostic check regarding the exceeded values for additional confirmation, so the researchers decided to run the VIF.

Table 4: VIF Result

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
IR	0.000216	5.226033	1.403132
UE	0.000764	39.25755	3.619158
LR	0.000274	51.01418	5.615538
LOG_GDP	0.127495	7815.255	9.785286
HFCE	2.43E-05	187.5960	1.790177
C	2.780141	8729.118	NA

Based on the VIF result, inflation rate, unemployment rate and household final consumption expenditure VIF scores below 5. Since the VIF for both lending interest rate and GDP per capita exceed 5 (Rogerson, 2001), the researchers suspected it would have a problem of severe multicollinearity. Hence one of these IVs must be withdrawn from the model due to the high correlation among them. Therefore, the researchers decided to withdraw GDP per capita from the model because the VIF score was 9.785286, which is higher as compared to lending interest rate (5.615538).

Table 5: Correlation

	Bankruptcy	IR	UE	LR	HFCE
Bankruptcy	1.000000	0.085843	-0.716044	-0.805367	-0.004113
IR	0.085843	1.000000	-0.326411	0.225132	-0.361115
UE	-0.716044	-0.326411	1.000000	0.426001	0.182349
LR	-0.805367	0.225132	0.426001	1.000000	-0.392049
HFCE	-0.004113	-0.361115	0.182349	-0.392049	1.000000

After dropping the logarithms of GDP per capita, there are no variables that have an issue in this study.

Table 6: The Results of Rerun VIF

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
IR	0.000216	5.179302	1.390585
UE	0.000379	19.26799	1.776318
LR	9.26E-05	17.10723	1.883130
HFCE	2.00E-05	152.8781	1.458874
C	0.060179	187.2023	NA

After dropping the GDP, the researchers rerun VIF and get the above result. Now the UE, IR, LR, and HFCE all score below 6. Since the Centered VIF for all four independent variables is less than 5, it is evidence of no severe multicollinearity, and they are valid to remain in the time series model and the researchers can proceed with the serial correlation test.

Table 7: Normality test (Jarques Bera)

Jarque – Bera	6.713977
Probability	0.034840

From this normality test, there is enough evidence to reject H_0 as the probability value (0.0348) is below 5% (0.05). Thus, the residuals are not normally distributed for the sample of the time-series model. Although the residuals are not normally distributed, the violation can be tolerated. This is because the use of financial data

often comprises outliers that deviate significantly from other residuals. Hence, it is a normal situation in research that uses financial data to be non-normal distributed.

Table 8: Durbin Watson test (LM test)

Prob. F (2,30)	**0.0249**
Prob. Chi-square (2)	0.0177

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

Based on the result of the Durbin-Watson test, the F. probability (0.0249) indicates a high correlation issue where it is below the threshold at 0.05. Thus, the data needed to be independent and the regression result needed to be corrected by using the Newey-West test to make sure the model is significant and fit for the multiple regression analysis. Therefore, the diagnostic check has been done and is ready to be analyzed by using the OLS regression method. Hence, the results were estimated as provided in the table below.

Table 9: Multiple Linear Regression Model

Dependent Variables	**Log Bankruptcy**		
Independent Variables	**Coefficient**	**t-statistics**	**Prob.**
Inflation Rate (IR) (%)	0.013957	1.049028	0.3020
Unemployment (UE) (%)	-0.071213	-3.030305	0.0048
Lending Interest Rate (LR) (%)	-0.081602	-7.440379	0.0000
Household Final Consumption Expenditure (HFCE) (%)	-0.012337	-2.766906	0.0093
R-squared	*0.859544*		
Adjusted R-squared	*0.841986*		
F-statistics	*48.95716*		
Prob (F-statistic)	*0.000000*		
Number of observations	*37*		
Durbin-Watson Statistics	*1.053756*		

Based on the result above, the F-statistic shows 48.96 with a probability lower than 0.05 (0.0000) indicating that the model is significant and fit. This model is good for interpretation and free from autocorrelation issues which have been corrected by the Newey-West test. The model is mainly to analyze whether the relationship between the dependent variable and independent variables is significant or insignificant. Thus, the researchers applied hypothesis statements where the null hypothesis indicates that there is no relationship between the independent variable and dependent variables, meaning that if the value is lower than 0.05, the probability value is significant, thus the null hypothesis (H_0) is rejected and accept the alternative hypothesis (H_1) instead which there is a relationship between independent variables and dependent variable. Based on the R-squared in the table above, there is approximately 85.95% variation in the personal bankruptcy cases among individuals in Malaysia which could be explained by the variation in independent variables. Which are the inflation rate, unemployment rate, lending interest rate and household final consumption expenditure?

Meanwhile, the adjusted R-squared has shown an approximately 84.20% variation in the personal bankruptcy cases that can be interpreted by the variation in independent variables which are inflation rate, unemployment rate, lending interest rate and household final consumption expenditure after taking these measurements into account. The remaining 16% in the model is yet to be explained and the researchers may

suggest further research regarding personal bankruptcy that possibly affects the individuals to be declared as bankrupt. The dependent variable for this study is personal bankruptcy where the researchers have regressed the result by computing log data for any RM sign while the percentages are kept as it is within the independent variables and dependent variable which has been gathered by the researchers beforehand. The independent variables that have been accepted and had no correlation issues for this analysis are inflation rate, unemployment rate, lending interest rate and household final consumption expenditure.

The researchers applied the ordinary least squares method with the 37 observations within the analysis. Based on the results presented in Table 7, it shows that the independent variable for IR or inflation rate has 1.049028 t-statistic which indicates a less significant as the probability is more than 0.05 at 0.3020 with a significantly lower than 99% confidence level from the threshold value at 0.1. Therefore, IR has a positive relation with personal bankruptcy with an effect of 0.013957 for each unit of change on IR. This value can be seen from the coefficient section. Hence, the null hypothesis (H0) is accepted and rejected by the alternative hypothesis (H1). Unlike the previous studies, this study focused on a lower significance level for its p-value which is at a 1% significance level compared to the study by Ahmad et al. (2022) that used a 5% significance level resulting in a significantly positive relationship between the consumer price index or inflation rate and personal bankruptcy which the researchers acknowledged the result as significantly related between these two variables. However, the result of this study is aligned with the study from Ninh et al. (2018) where they concluded that there is a positively insignificant relationship exists between the inflation rate and personal bankruptcy as well as the findings by Devi and Firmansyah (2018) that has supported to this hypothesis.

Based on these past studies, an increase in the inflation rate would cause an increment in OPR which then leads to unmanageable debt. So, it indirectly influences personal bankruptcy cases as an individual cannot settle their debt payment. Thus, in this study, the null hypothesis is supported. UE or unemployment rate has shown an indication of -3.030305 for its t-statistic with a probability value that is lower than 0.05 (0.0048) which means that the confidence level is at 99% where it indicates that there is a significant influence on personal bankruptcy where each one unit of change on unemployment rate, personal bankruptcy will have an inverse effect at -0.07113 based on the correlation section. Therefore, there is a significant relationship between the unemployment rate and personal bankruptcy the study rejected the null hypothesis (H0) and the alternative hypothesis (H_1) is accepted. The negative sign indicates that there is an inverse relationship between UE and personal bankruptcy if the unemployment rate increases, possibly due to the forced to quit their jobs position as most business operations are on hold, thus the personal bankruptcy is decreased. However, the unemployment rate should supposedly have a statistically positive correlation impact on bankruptcy amongst individuals.

According to Lee and Zhang (2021), the reason why the unemployment rate reacts in this way is due to the recent recession caused by the COVID-19 pandemic where people faced difficulties in their sources of income to the point of dismissing job positions to cut down the overbearing cost in business with low labor productivity as people are lockdown in their home. This can also be supported by Lloyd (2021) where the author determined the cause of the fallen bankruptcies despite the high unemployment that rose after the COVID-19-related recession. There were few new adopted policies in the sake of pandemic situation in which the creditors loosened the payment period for the debtors and bankruptcy relief was provided for the debtors to support those who are unemployed. Therefore, the alternative hypothesis is supported by this analysis. Furthermore, the result of the independent variable for LR or lending interest rate is highly significant where the t-statistic is at -7.440379 with a probability value lower than 0.05 (0.0000) which indicates there is a 99% confidence level and thus it is a significant relationship as the coefficient is in an inverse relationship for personal bankruptcy at 0.081602 for each one unit change on lending rate, where if the lending rate is drop, the borrowing rate will decrease as well, causing the individuals to make the loan easier and produce a higher number of borrowers.

Thus, personal bankruptcy cases tend to increase as banks will put a lower rating of creditworthiness for their borrowers. This also proves the negative sign shown in the model for the negative relationship between lending rate and personal bankruptcy. Hence, the researchers rejected the null hypothesis (H0) and the alternative hypothesis (H_1) was accepted. According to past studies such as Korol (2022), the result shows that an increase in the lending interest rate has a negative influence on consumers' degree of solvency. The

author suggested that the volume of non-performing loans (NPL) causes a negative effect. The study by Elvery and Schweitzer (2020) also drew a similar conclusion from their research where a lower lending interest rate will have a significant impact on the number of personal bankruptcy cases. The inverse relationship can be further supported by the study from Dahne and Steege (2020) where the researchers concluded that the low lending interest rate will invite more people to take a loan which later increases the chance of declaring bankruptcy.

This also corresponds to the monetary policy in which the central bank responds to economic decline by relaxing borrowing constraints. Therefore, the alternative hypothesis where there is a significant relationship between the lending interest rate and personal bankruptcy is now supported. HFCE or household final consumption expenditure indicates the t-statistic (-2.766906) slightly lower with a probability value that is lower than 0.05 (0.0093) at a 99% confidence level which means there is a significant influence on personal bankruptcy where each unit of change on household final consumption expenditure, personal bankruptcy will have an inverse effect at 0.012337 based on the correlation section. The negative sign indicates there is a negative relationship between HFCE and personal bankruptcy in which if household final consumption expenditure increases, the households may be less dependent on making loans and go for their savings to bear the expenditure despite the increase of household consumption, therefore the personal bankruptcy cases will decrease.

Thus, the null hypothesis (H0) is rejected and the alternative hypothesis (H_1) can be supported. Gallagher et al. (2020) found that consumption expenditure has a significant negative relationship with personal bankruptcy in which households will decrease their expenditure to bear the financial constraint, especially for those at high risk of filing a bankruptcy. The findings by Othman et al. (2020) also hypothesized that households that overspent on consumption expenditure may be less likely to file a personal bankruptcy unless they exceed their income limitation however, the households can't cut down their consumption expenditure as they need to buy the necessities and other relevant spending. Moreover, households may have withdrawn their savings for their consumption expenditure to be able to financially survive especially during the Covid-19 situation, which results in a lower risk of becoming bankrupt (Editor, 2021). Therefore, there is a significant relationship between HFCE and personal bankruptcy in which the alternative hypothesis is supported.

5. Managerial Implications and Recommendations

When conducting research in the future, researchers should try to find data covering a longer period, preferably from a database with a higher credibility rating, such as the ones maintained by Thomson Reuters, the International Monetary Fund (IMF), and other organizations. In addition, future research may try using different types of data, such as panel data or cross-sectional data, rather than the same data categories as this study did, to generate a greater number of potential outcomes. Next, it is recommended that future researchers use different data frequencies, such as annually, weekly, and daily, because the changes in each data set will vary depending on the frequency. For example, annual data changes will be different from weekly data changes from daily data changes. For instance, the exchange rate, which might be used in further research, is more susceptible to change and shifts more frequently than other variables. To ensure that the reliability of the test is maintained, it is necessary to take into consideration additional factors whenever there are multiple types of variables present.

Lastly, some more variables can be included in future studies such as card credit usage, income per capita, household debt and divorce cases. Card credit usage or credit utilization ratio refers to the proportion of the available credit that is used. Past studies from the United States have done research on divorce cases about personal bankruptcy cases. Also, the income per capita may produce further explanation on how a person can file bankruptcy as there may be a potential link between an individual income and personal bankruptcy as well as the burden of household debt which could cause a higher potential in declaring the personal bankruptcy amongst the households in Malaysia. Thus, it is interesting for future studies to try further research on this to know whether this variable is rational or not in Malaysia. Future researchers should also try to investigate the implications of changes in rules and regulations in the countries. For example, the outcomes of bankruptcy cases are due to the changes in the personal bankruptcy threshold.

Conclusion: In summarizing the researcher's empirical results, they firstly note that the inflation rate produces an insignificant coefficient hence indicating the irrelevance of these macroeconomic variables in influencing personal bankruptcy cases. On the other hand, they also observe the rest of the variables are negative and significant in influencing personal bankruptcy. The government policy in promoting economic growth may be the reason why the unemployment rate has a negative relationship with personal bankruptcy cases. A high lending interest rate can reduce people's desire to apply for a loan which explains the decrease in personal bankruptcy cases. Last but not least, household final consumption expenditure has a negative relationship with personal bankruptcy because the higher the household spends on their expenses, the lower the loan they will make which results the lower personal bankruptcy. In conclusion, this study ran into the problem of having limited accessibility to data. As a result of the fact that the majority of the most recent journals require a subscription to access, this study encountered the challenge of acquiring the most recent journals to provide support for the findings. In addition, as a result of financial constraints, this investigation was only able to collect data up until the year 2021 because the majority of the most recent data can only be obtained by subscribing to a variety of data sources.

References

Addae-Korankye, A. (2019). Theories of Poverty: A Critical Review. *Journal of Poverty, Investment and Development* (2012), 55–62. doi: 10.7176/jpid/48-08.

Ahmad, N. H., Isa, A. M. & Zainol, Z. (2022). Personal Bankruptcy in Malaysia and Singapore: An Empirical Analysis. *Journal of Economics and Sustainability,* 4(1), 33–47. doi: 10.32890/jes2022.4.1.3.

Akbar, A, Akbar, M., Tang, W. & Qureshi, M. A. (2019). Is Bankruptcy Risk Tied to Corporate Life-Cycle? Evidence from Pakistan. *Sustainability (Switzerland),* 11(3), 1–22. doi: 10.3390/su11030678.

Alias, Z., Azmi, R. & Yusof, R. M. (2018). The Effects of Macroeconomics Determinants and Secured Financing of Islamic Banks on Personal Insolvency: An Empirical Investigation on Malaysia. *International Journal of Economics, Management and Accounting,* 26(2), 475–97.

Amine, S. & Predelus, W. (2009). The Persistence of the 2008-2009 Recession and Insolvency Filings in Canada. *Economics Bulletin, AccessEcon,* 39(1), 84–93.

Athukorala, P. (2010). Malaysian Economy in Three Crises. *Working Papers in Trade and Development,* (17), 1–26.

Bank Negara Malaysia. (2022a). Consumer Guide on the Revised Reference Rate Framework, 1–6. https://www.bnm.gov.my/documents/20124/938039/Consumer+Guide_RRF_EN.pdf

Bank Negara Malaysia. (2022b). Surat Kepada Pengarang: Trend Kes Muflis Menurun; Tindakan Kebankrapan Adalah Jalan Terakhir Bagi Institusi Kewangan - Bank Negara Malaysia. https://www.bnm.gov.my/-/surat-kpd-pengarang20220714.

Bank Negara Malaysia. (2022c). Surat Kepada Pengarang: Trend Kes Muflis Menurun; Tindakan Kebankrapan Adalah Jalan Terakhir Bagi Institusi Kewangan - Bank Negara Malaysia. https://www.bnm.gov.my/-/surat-kpd-pengarang-20220714.

Bank Negara Malaysia. (2019). Economic & Monetary Review 2019: Executive Summary. https://www.bnm.gov.my/o/annual-report/emr-summary.html.

Barth, J. R., Caprio Jr., G., James R. & Levine, R. (2013). Bank Regulation and Supervision in 180 Countries from 1999 to 2011. *Journal of Financial Economic Policy*, 5(2), 1– 110. doi: 10.3386/W18733.

Boukhatem, J. & Moussa, F. B. (2018). The Effect of Islamic Banks on GDP Growth: Some Evidence from Selected MENA Countries. *Borsa Istanbul Review,* 18(3), 231–47. doi: 10.1016/j.bir.2017.11.004.

Brygała, M. (2022). Consumer Bankruptcy Prediction Using Balanced and Imbalanced Data. *Risks,* 10(2), 24. doi: 10.3390/risks10020024.

Dahlan, A. R. (2017, April 22). Please Learn Some Economics, Guan Eng. *Malaysiakini.* https://www.malaysiakini.com/news/380010.

Department of Statistics Malaysia. (2023). Department of Statistics Malaysia Official Portal. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=490&bul_id=ZWE0MEZ4MzNZS2xlcm4zdGNWbEJtZz09&menu_id=bThzTHQxN1ZqMVF6a2I4RkZoND FkQT09.

Devi, A. & Firmansyah, I. (2018). Solution to Overcome the Bankruptcy Potential of Islamic Rural Bank in Indonesia. *Journal of Islamic Monetary Economics and Finance,* 3, 33–58. doi: 10.21098/jimf.v3i0.750.

Editor. (2021). Low EPF Savings If Not Addressed Could Lead To Mass Bankruptcy. Business Today. https://www.businesstoday.com.my/2021/11/27/low-epf-savings-if-not-addressed-couldlead-to-mass-bankruptcy/.

Elvery, J. A. & Schweitzer, M. E. (2020). Partially Disaggregated Household-Level Debt Service Ratios: Construction, Validation, and Relationship to Bankruptcy Rates. *Contemporary Economic Policy,* 38(1), 166–87. doi: 10.1111/coep.12434.

Fernando, J. (2022). Inflation: What It Is, How It Can Be Controlled, and Extreme Examples. Investopedia. https://www.investopedia.com/terms/i/inflation.asp.

Furhmann, R. (2022). How Banks Set Interest Rates on Your Loans. Investopedia. https://www.investopedia.com/articles/investing/080713/how-banks-set-interest-ratesyour-loans.asp.

Gallagher, E. A., Gopalan, R., Grinstein-Weiss, M. & Sabat, J. (2020). Medicaid and Household Savings Behavior: New Evidence from Tax Refunds. *Journal of Financial Economics,* 136(2), 523–46. doi: 10.1016/j.jfineco.2019.10.008.

Hang, H. T. T., Ha, D. T. & Thanh, B. D. (2020). Factors Affecting Bad Debt in the Vietnam Commercial Banks. *Journal of Economics and Business,* 3(2), 651–60. doi: 10.31014/aior.1992.03.02.228.

Hassan, S., Jati, M. K. K., Yatim, N. H. M. & Majid, M. A. A. (2021). Factors Influencing Personal Bankruptcy Among Youth in Malaysia. *Advanced International Journal of Banking, Accounting and Finance,* 3(7), 85–91. doi: 10.35631/aijbaf.37007.

Haw, C. M., Ying, L. W., Xuan, L. J., Cindy, O. & Qian T. Y. (2019). The Effect of Macroeconomics and Social Element toward Personal Bankruptcy in Malaysia. Doctoral Dissertation, Universiti Tunku Abdul Rahman.

IndexMundi. (2019). Households and NPISHs Final Consumption Expenditure (% of GDP) by Country. IndexMundi. https://www.indexmundi.com/facts/indicators/NE.CON.PRVT.ZS.

Isa, A. M., Ahmad, N. H. & Zainol, Z. (2021). DETERMINANTS OF PERSONAL BANKRUPTCY DISCHARGE IN MALAYSIA: A SOCIAL CAPITAL APPROACH OF AL-NAHD AND TA'AWUN *International Journal of Islamic Business*, *6*(2), 25–36. doi: 10.32890/IJIB2021.6.2.3.

Khan, I, Ahmad, A., Khan, M. T. & Ilyas, M. (2018). The Impact of GDP, Inflation, Exchange Rate, Unemployment and Tax Rate on the Non-Performing Loans of Banks: Evidence from Pakistani Commercial Banks. *Journal of Social Sciences and Humanities*, 26(1), 141–64.

Korol, T. (2022). Challenge and Research Trends of Forecasting Financial Energy. Energies. https://doi.org/10.3390/books978-3-0365-3668-2.

Kubálek, J., Čámská, D. & Strouhal, J. (2018). Personal Bankruptcies from Macroeconomic Perspective. *International Journal of Entrepreneurial Knowledge,* 5(2), 78–88. doi: 10.1515/ijek-2017-0013.

Lee, Esther. (2020). Cover Story: Lessons from the Last Three Major Economic Crises, The Edge Markets. https://www.theedgemarkets.com/article/cover-story-lessons-last-three-major-economiccrises.

Lee, H. A. & Zhang, K. (2021). The Covid-19 Recession: Rough Times for Young Malaysians Malaysia Now. https://www.malaysianow.com/opinion/2021/09/09/the-covid-19-recession-rough-timesfor-young-malaysians.

Legal-Cañisá, D. (2019). Unemployment Insurance with Consumer Bankruptcy. Job Market Paper, 1–56.

Lerner, A. P. (1936). Keynes' Theory of Employment, Interest and Money. *The Economic Journal* 46(182), 435–54.

Dahne, L. & Steege, L. (2020, May 27). Destabilizing Effects of Consumer Bankruptcy. (724204), 43.

Lloyd, C. (2021). Unemployment and Bankruptcies – Is This Time Different? American Institute for Economic Research. https://www.aier.org/article/unemployment-and-bankruptcies-is-this-time-different/.

Malaysian Department of Insolvency. (2006). VI.18 Selected Statistics on Cheque Offenders, Cheques Cleared and Bankruptcies.

Malaysian Department of Insolvency. (2007). 5.18 Statistik Terpilih Atas Cek Rosak, Cek Jelas Dan Bankrupt. https://www.bnm.gov.my/documents/20124/482708/5.18.pdf.

Malaysian Department of Insolvency. (2022). Personal Bankruptcy. https://www.mdi.gov.my/index.php/home/about-us/core-business/corebusiness/personal-bankruptcy?highlight=WyJiYW5rcnVwdGN5Il0=.

Malaysian Department of Insolvency. (2022a). 1. What Is Bankruptcy? https://www.mdi.gov.my/index.php/home/faqs/103-bankruptcy-faq/1640-1-what-isbankruptcy.

Malaysian Department of Insolvency. (2022b). Bankruptcy. https://www.mdi.gov.my/index.php/home/faqs/bankruptcy.

Mien, T. S. & Said, R. (2018). A Cross-Sectional Household Analysis of Household Consumption Patterns: An Indirect Approach to Identify the Possible Factors of Personal Bankruptcy. *Jurnal Ekonomi Malaysia,* 52(3), 245–61. doi: 10.17576/JEM-20185203-18.

Khan, M. A. & Layali, N. (2020). The Evolution of Unemployment in Malaysia. 1–5.

Yusoff, Z. Z. M., Bahrudin, N. Z., Ismail, I., Bujang, I., Che Yahya, N. & Sundram, V. P. K. (2022). Quantitative Research Methods. (3rd ed). MLSCA ASIAN ACADEMY.

Othman, Z. A., Bakar, A. A., Sani, N. S. & Sallim, J. (2020). Household Overspending Model amongst B40, M40 and T20 Using Classification Algorithm. *International Journal of Advanced Computer Science and Applications,* 11(7), 392–99. doi: 10.14569/IJACSA.2020.0110751.

Oxford University Press. (2009). Cycle of Poverty. A Dictionary of Geography (4th ed.)- Oxford University Press.

Pettinger, T. (2022). Does a Lower Budget Deficit Lead to Lower Interest Rates? Economics Help. https://www.economicshelp.org/blog/148235/debt/does-a-lower-budget-deficit-lead-tolower-interest-rates/).

Ninh, P. V., Thanh, T. D. & Hong, D. V. (2018). Financial Distress and Bankruptcy Prediction: An Appropriate Model for Listed Firms in Vietnam. *Economic Systems,* 42(4), 616–24. doi 10.1016/j.ecosys.2018.05.002.

Richard Banks & Associates. (2020). Does Bankruptcy Hurt the Economy or Help It? *Tennessee Bankruptcy Law*. https://www.rbankslawfirm.com/blog/2020/10/does-bankruptcy-hurt-the-economy-or-helpit/.

Rogerson P. A. (2001). A Statistical Method for the Detection of Geographic Clustering. *John Wiley & Sons, Inc*. 33(3). https://doi.org/10.1111/j.1538-4632.2001.tb00445.x

Schuh, A. B., Filho, P. J. M. & Coronel, D. A. (2019). Determinants of the Default Rate of Individual Clients in Brazil and the Role of Payroll Loans. *Economics Bulletin,* 39(1), 395–408.

Selvanathan, M., Krisnan, U. D. & Wen, W. C. (2016). Factors Affecting Towards Personal Bankruptcy among Residents: Case Study in Klang Valley, Malaysia. *International Journal of Human Resource Studies,* 6(3), 98. doi: 10.5296/ijhrs.v6i3.10092.

Smaoui, H., Mimouni, K. & Temimi, A. (2020). The Impact of Sukuk on the Insolvency Risk of Conventional and Islamic Banks. *Applied Economics,* 52(8), 806–24. doi: 10.1080/00036846.2019.1646406.

Srivastav, A. K. & Vaidya, D. (2023). Rate of Inflation Formula - Calculator, Examples, Uses. WallStreetMojo. https://www.wallstreetmojo.com/rate-ofinflation-formula/.

Nor, S. H. S., Ismail, S. & Yap, B. W. (2019). Personal Bankruptcy Prediction Using Decision Tree Model. *Journal of Economics, Finance and Administrative Science,* 24(47), 157–70. doi: 10.1108/JEFAS-08-2018-0076/FULL/PDF.

Ann-Yew, T. (2017). Factors of Personal Bankruptcy: A Case Study of Malaysia. (*Unpublished Thesis).* Universiti Tunku Abdul Rahman.

The World Bank. (2023, August 3). Households and NPISHs Final Consumption Expenditure (% of GDP) Malaysia. The World Bank. https://data.worldbank.org/indicator/NE.CON.PRVT.ZS?locations=MY.

The Star. (2022). 18 People Declared Bankrupt Daily. Nation. https://www.thestar.com.my/news/nation/2022/06/23/18-people-declaredbankrupt-on-a-daily-basis.

White, M. J. (2006). Bankruptcy and Consumer Behavior: Theory and Evidence From the US. The Economics of Consumer Credit, 1–39. doi: 10.7551/mitpress/2607/001/0001.

Yunchao, C., Yusof, S. A., Amin, R. M. & Arshad, M. N. M. (2020). Household Debt and Household Spending Behavior: Evidence from Malaysia. *Jurnal Ekonomi Malaysia,* 54(1), 111–20. doi: 10.17576/JEM-2020-5401-8.

Zach. (2020). How to Read a Correlation Matrix, Statology. https://www.statology.org/how-to-read-a-correlation-matrix/.

Zainol, J. M., Nor, A. M., Ibrahim, S. N. & Daud, S. (2018). Macroeconomics Determinants of Non-Performing Loans in Malaysia: An ARDL Approach. *International Journal of Academic Research in Business and Social Sciences,* 8(10), 692–706. doi: 10.6007/ijarbss/v8-i10/4773.

Zainul, E. (2021). Malaysia's Household Debt-to-GDP Ratio Surges to New Peak of 93.3%, The Edge Markets. https://www.theedgemarkets.com/article/malaysias-household-debttogdp-ratio-surges-newpeak-933.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Digital Banking Adoption Intention Model in Malaysia: A Pilot Study

Siti Norbaya Mohd Rashid*, Shereen Noranee & Azlin Zanariah Bahtar
Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Selangor, Selangor, Malaysia
norbaya@uitm.edu.my*, shereen@uitm.edu.my, azlin_bahtar@uitm.edu.my

Abstract: Digital banking is a form of self-service for consumers to obtain information and complete banking transactions via electronic banking. The transactions that are carried out will be conducted independently, eliminating the need to visit bank locations physically. Therefore, the objective of this study is to investigate the reflective measurement model of the adoption intention model for digital banking among individuals who already have bank accounts. In the course of this research, a pilot study was carried out in the Klang Valley, and it involved 55 people who had bank accounts. The data collected were then analyzed using Structural Equation Modelling with Partial Least Square (PLS) for the reflective measurement model. A total of 34 items are used to measure the six different dimensions, which are referred to as performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, and price value, respectively. The measurement of adoption intention then consists of 6 items. The finding showed that an assessment of factor loading, composite reliability, average variance extracted, and discriminant validity was carried out to validate the reliability and validity of the measuring items. This study is one of many that have been done to determine the factors that influence a person's desire to embrace a new technology or practice; however, this study looks at the topic from the user's point of view.

Keywords: *Adoption Intention, Digital Banking, Performance Expectancy, Effort Expectancy, Facilitating Condition, Hedonic Motivation, Price Value, Social Influence.*

1. Introduction and Background

Digital banking refers to the use of banking applications that may be accessed online or through mobile phones (Anggraeni et al., 2021). These applications give customers the ability to handle all of their transactions by themselves. The vast majority of banks nowadays let their customers access their money wherever they have an internet connection (Manoharan et al., 2022). Digital banking provides account holders with several useful variety of financial services that the customer can get if they go to the physical bank branch (Egala et al., 2021; Jolly, 2016).

According to Kaur (2021), almost 50% of the population in Malaysia prefer to do financial activities using online banking as it shows there is an acceptance of online banking. In addition, some customers have a negative experience when they are in a physical bank branch which makes them prefer to do the financial transaction through online banking (PwC, 2019). Digital banks, however, even though many customers prefer to use online banking there is still a challenge to attract more customers to adopt digital banking (Peng, 2022). Since most people still don't fully grasp the notion, many people still confuse the difference between digital banking with traditional banking which provides online banking. There are still customers out there who would rather deal with a physical branch of a bank, and digital banks need to find ways to attract more people to adopt digital banking (Peng, 2022). The banking industry in Malaysia is not capitalizing on the need for digital banking services (Barquin et al., 2021). People who are not up-to-date on new technology in the banking industry can assume that the industry does not need any innovations (Abrahão et al., 2016). It is important to identify and analyze the factors that may influence consumers' decisions to make the transition to digital banking.

For Malaysia's digital banks to achieve financial success, they must first demonstrate an awareness of the requirements posed by the customer demographics they cater to. The future of digital banking in Malaysia may improve if the variables that have led to its success thus far in its innovation process are better understood (Tiong, 2020). Malaysian customers are enthusiastic about the potential advantages of digital banking as more people have shown a willingness to adopt digital banking services (Kaur, 2021). Consumer adoption intentions are a representation of the possibility or probability that an individual will make use of a particular kind of technology (Khan, 2022). This study may help to attract more people to use the digital

banking platform as best as possible (Yan et al., 2021). Therefore, this study aims to determine factors that influence the consumer to adopt digital banking among existing bank account holders in Malaysia. This study employs the Extended Unified Theory of Acceptance and Use of Technology (UTAUT2) to study the factors that may influence the adoption of digital banking.

2. Literature Review

Digital Banking in Malaysia: In digital banking, customers can directly access without the help of a bank staff member while using the banking services through online banking platforms (Filotto et al., 2021). As a result, there is no longer a need for the physical appearance of the customer in the physical bank (Windasari et al., 2022). Customers in Malaysia are optimistic about the future of digital banking (Kaur, 2021) as they expect to maintain or increase their use of online banking channels. Despite this, many customers still have questions or do not have a complete understanding of the notion of digital banking. If a customer plans to start using digital banking, it is critical to have a solid understanding of the elements that are most important to them.

The Extended Unified Theory of Acceptance and Use of Technology (UTAUT2): The UTAUT2 was developed by Venkatesh et al. (2012) and it is only centered on the consumer perspective besides possessing a much greater aptitude for prediction. Digital banking is still relatively new in Malaysia, therefore it is quite important to study from the consumer's perspective what factors are taken into consideration by consumers to use the digital banking platform (Jin et al., 2019). According to Vairetti et al. (2019), the intention of a person is the most crucial factor in anticipating whether they would adopt new technology. It plays a crucial role in the adoption of new technology since it reflects actual user conduct (Irani et al., 2009). In recent years, research on the dissemination of cutting-edge technologies has started putting a greater focus on performance expectancy. In line with the findings of a study conducted by Saif Almuraqab (2020), which found that customers will interact with new technology if they are certain it will be to their advantage.
H1: Performance expectancy has a positive significant relationship with adoption intention.

The ease with which a system can be utilized by its end-users is just as important as the system's functional value in determining the user's intent behavior (Davis, 1989). Individual consumers will be more likely to adopt and embrace this technology if digital banking is simple to use with less effort (Venkatesh et al., 2012). In addition, they anticipate that the increased availability of this service will improve the possibility that customers will make use of the service.
H2: Effort expectancy has a positive significant relationship with adoption intention.

According to Adapa et al. (2018), the impact of social influence is highly crucial, particularly for new technologies that are still in the initial phases of the development process. According to Alalwan et al. (2015), consumers' understanding of technology and their intention to use it may be driven by the insights and inspiration offered to them by individuals who are close to them. Social impact is one of the potential factors that leads to the adoption of new technologies (Farah et al., 2018).
H3: Social influence has a positive significant relationship with adoption intention.

For individuals to effectively adopt new technology, facilitating conditions must be in place where there is enough guidance to use that particular new technology (Chatterjee et al., 2020). Internet connection, devices that can connect to the internet (such as tablets or laptops), the appropriate software, and the expertise to use the system effectively are all prerequisites for digital banking (Sharma et al., 2020).
H4: Facilitating condition has a positive significant relationship with adoption intention.

Hedonic motivation refers to the positive emotions one experiences when considering adopting new technologies (Khan, 2022). Developers of digital banking platforms are under pressure to incorporate elements that are user-friendly to the customers (Dwivedi et al., 2016). It will motivate more people to adopt digital banking if the platform is easy to use and provides a positive ambiance while using it.
H5: Hedonic motivation has a positive significant relationship with adoption intention.

If customers perceive digital banking as more valuable than the time and money spent traveling to a physical branch, they are more likely to adopt the technology (Merhi et al., 2019). Digital banking still has costs, but if they are lower than the costs associated with visiting a physical bank office, more consumers may switch to digital banking (Thaker et al., 2022).
H6: Price value has a positive significant relationship with adoption intention.

3. Research Methodology

The pilot test was carried out on 55 existing bank account holders of commercial banks and Islamic banks in Klang Valley using a convenience sample method. The participation was voluntary and the respondents were required to complete the survey via Google Form. The survey was designed in the form of self-administrated close-ended questions that comprise Section A which comprised of questions on the perception of respondents on performance expectancy, effort expectancy, facilitating condition, hedonic motivation, social influence, and price value. Next, Section B asked the respondents about adoption intention while Section C on the demographics of the respondents. There are a total of 34 items that are used to measure the six different dimensions, which are performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, and price value. The adoption intention item measurement then consists of 6 items. The item measurements for UTAUT2's dimensions were adapted from Duarte and Pinho (2019). Likert scales from 1 (strongly disagree) to 7 (strongly agree) were utilized for all questions. Only participants over the age of 18 were included in the analysis. Structural Equation Modelling with Partial Least Square (PLS) was then used to analyze the gathered data on the reflective measurement model. Results demonstrated evaluation of the reflective measurement model's factor loading, composite reliability, average variance extracted, and discriminant validity.

4. Results

In this section, sets of results relevant to the reflective measurement model are presented to analyze the model's convergent validity as well as its discriminant validity. Before any further analysis, measurement errors must be minimized to the greatest extent possible.

Convergent Validity: According to Hair et al. (2017), the concept of convergent validity refers to the extent to which one measure correlates favorably with multiple measures of a particular construct. To evaluate the convergent validity of the reflective measurement model, this pilot study utilized factor loadings, composite reliability (CR), and average variance extracted (AVE) (Hair & Anderson, 2010). It is recommended that the values of the loadings be larger than 0.5, the CR be greater than 0.7, and the AVE more than 0.5. As illustrated in Table 1, 38 items represented adoption intention, effort expectancy, facilitating condition, hedonic motivation, performance expectancy, price value and social influence. The items EE2 and PV1 were deleted due to lower factor loading of less than 0.5, while the rest of the items have greater than 0.5 factor loadings.

Table 1: Convergent Validity Result

Construct	Item Loading	Factor Loading	Construct	Item Loading	Factor Loading
Adoption Intention	CAI1	0.964	**Performance Expectancy**	PE1	0.830
	CAI2	0.966		PE2	0.886
	CAI3	0.971		PE3	0.939
	CAI4	0.947		PE4	0.910
	CAI5	0.966		PE5	0.913
	CAI6	0.904		PE6	0.926
Effort Expectancy	EE1	0.923	**Price Value**	PV2	0.786
	EE3	0.936		PV3	0.912
	EE4	0.957		PV4	0.911
	EE5	0.717		PV5	0.914

Facilitating Condition	FC1	0.919	**Social Influence**	SI1	0.901
	FC2	0.842		SI2	0.886
	FC3	0.790		SI3	0.936
	FC4	0.588		SI4	0.916
	FC5	0.822		SI5	0.882
	FC6	0.738			
Hedonic Motivation	HM1	0.898			
	HM2	0.933			
	HM3	0.920			
	HM4	0.910			
	HM5	0.954			
	HM6	0.933			
	HM7	0.960			

Composite Reliability and Average Variance Extracted Analysis: After deleted items with low factor loading, the reliability was assessed using composite reliability (CR). As suggested by Hair et al. (2017), the recommended value of CR is greater than 0.7 while the average variance extracted (AVE) is more than 0.5 (Bagozzi & Yi, 1988). An appropriate level of convergence or internal consistency is indicated by CR values of 0.7 or higher (Gefen et al., 2000). As depicted in Table 2, the reflective constructs show their value of composite reliability above 0.7 as adoption intention (CR = 0.983), effort expectancy (CR = 0.937), facilitating condition (CR = 0.907), hedonic motivation (CR = 0.978), performance expectancy (CR = 0.963), price value (CR = 0.933) and social influence (CR = 0.957). The results are consistent with the previous study by Kwateng et al. (2019) and Hassan et al. (2022) who also used UTAUT2's constructs. It can be concluded that all the items for each UTAUT2's construct were reliable to the model as the values were greater than 0.7 and above. Furthermore, the values of AVE were greater than 0.5 for all the constructs as adoption intention (AVE = 0.908), effort expectancy (AVE = 0.790), facilitating condition (AVE = 0.624), hedonic motivation (AVE = 0.864), performance expectancy (AVE = 0.812), price value (CR = 0.779) and social influence (AVE = 0.818). The convergent validity of this study was upheld by these findings which are also consistent with the study done by Henrico et al. (2021).

Table 2: Composite Reliability and Average Variance Extracted Analysis

Constructs	Composite Reliability	Average Variance Extracted (AVE)
Adoption Intention	0.983	0.908
Effort Expectancy	0.937	0.790
Facilitating Condition	0.907	0.624
Hedonic Motivation	0.978	0.864
Performance Expectancy	0.963	0.812
Price Value	0.933	0.779
Social Influence	0.957	0.818

Discriminant Validity: The between-trait correlations were divided by the within-trait correlations to generate the Heterotrait-Monotrait Ratio (HTMT) of the correlations (Hair et al., 2017). HTMT criteria were used to assess discriminant validity. This study used 0.90 as the threshold value (Franke & Sarstedt, 2019; Henseler et al., 2015) for the HTMT criterion. The result of the discriminant validity in Table 3 speaks in favor of the discriminant validity of the constructs. It is also possible to draw the conclusion which is consistent with Thaker et al. (2022) that the respondents were aware of the uniqueness of each of the seven constructs, as well as the fact that each measurement item is valid and reliable.

Table 3: Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations (HTMT)

Constructs	AI	EE	FC	HM	PE	PV	SI
Adoption Intention (AI)							
Effort Expectancy (EE)	0.798						
Facilitating Condition (FC)	0.809	0.847					
Hedonic Motivation (HM)	0.803	0.878	0.744				
Performance Expectancy (PE)	0.887	0.840	0.793	0.847			
Price Value (PV)	0.615	0.717	0.818	0.764	0.635		
Social Influence (SI)	0.727	0.879	0.759	0.787	0.770	0.660	

Discussion: The purpose of this research is to investigate the reflective measurement model of adoption intention for digital banking. A reflective measurement model is one in which the factor loadings of the items can be deleted if they do not satisfy the cut-off values of 0.5. In this model, the factor loadings are evaluated. The deleted items will remain to describe the underlying concept of the construct and will not affect its meaning. The study that demonstrates the causal relationship between the construct and the indicators comprises the composite reliability, average variance extracted, and discriminant validity measures.

The overall composite reliability value was greater than 0.7, ranging from 0.907 to 0.983. These findings therefore suggest that the reliability of the measurement model was adequate. Except for two items (EE2 and PV1), 38 items have loadings greater than 0.5, with values ranging from 0.588 to 0.971. Items with a reliability indication loading more than 0.5 have not been dropped, while items with a loading less than 0.5 have been. For all constructs, the average variance extracted (AVE) value is between 0.624 and 0.908. The AVE for every construct is more than 0.50. The Facilitating Condition had the lowest reported AVE (0.624), followed by the Price Value (0.779), the Effort Expectancy (0.790), the Performance Expectancy (0.812), the Social Influence (0.818), the Hedonic Motivation (0.864), and the Adoption Intention (0.908). This evidence has sufficient convergent validity.

Although the conservative HTMT threshold of 0.90 already lends support to discriminant validity, the results of the bootstrap confidence interval for the HTMT add weight to the idea that discriminant validity has been established. The findings demonstrated the reliability and validity of the measures to be acceptable. The results from the statistical measurement are sufficient to proceed to the structural measurement.

5. Managerial Implications and Recommendations

In summary, digital banking is a new technology in Malaysia's banking industry that is still not fully understood and used by bank account holders. It is very important to understand what factors are prioritized by potential users to be more confident and confident in using digital banking to the fullest. When digital bank providers know which factors are prioritized by potential users, it will be very helpful to get more digital banking users. Many studies have been conducted to identify factors that influence adoption intention, but this study looks at it from the user's perspective. The findings can be applied to other countries as well.

Conclusion: The objective of this paper was to examine the reliability of the items in the reflective measurement model. There are six constructs which are performance expectancy, effort expectancy, facilitating condition, hedonic motivation, price value and social influence were used to study the relationship towards adoption intention. To proceed with the structural model assessment, it is important to test the reliability and validity of the measurement model first. Composite reliability, factor loadings, average variance extracted, and discriminant validity are the analyses done to establish the reliability and validity of the items.

References

Abrahão, R. de S., Moriguchi, S. N. & Andrade, D. F. (2016). The intention of adoption of mobile payment: An analysis in the light of the Unified Theory of Acceptance and Use of Technology (UTAUT). *RAI Revista de Administração e Inovação,* 13(3), 221–230. https://doi.org/10.1016/j.rai.2016.06.003

Adapa, A., Nah, F. F. H., Hall, R. H., Siau, K. & Smith, S. N. (2018). Factors Influencing the Adoption of Smart Wearable Devices. *International Journal of Human-Computer Interaction*, 34(5), 399–409. https://doi.org/10.1080/10447318.2017.1357902

Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., Lal, B. & Williams, M. D. (2015). Consumer adoption of Internet banking in Jordan: Examining the role of hedonic motivation, habit, self-efficacy and trust. *Journal of Financial Services Marketing*, 20(2), 145–157. https://doi.org/10.1057/fsm.2015.5

Anggraeni, R., Hapsari, R. & Muslim, N. A. (2021). Examining Factors Influencing Consumers Intention and Usage of Digital Banking: Evidence from Indonesian Digital Banking Customers. *Asia Pacific Management and Business Application*, 009(03), 193–210. https://doi.org/10.21776/ub.apmba.2021.009.03.1

Bagozzi, R. P. & Yi, Y. (1988). On the evaluation of structural equation models. Journal of the Academy of Marketing Science, 16.

Bankuoru Egala, S., Boateng, D. & Aboagye Mensah, S. (2021). To leave or retain? An interplay between quality digital banking services and customer satisfaction. *International Journal of Bank Marketing*, 39(7), 1420–1445. https://doi.org/10.1108/IJBM-02-2021-0072

Barquin, S., Buntoro, E., HV, V. & Pricillia, I. (2021). Emerging markets leap forward in digital banking innovation and adoption. McKinsey & Company. https://www.mckinsey.com/industries/financial-services/our-insights/emerging-markets-leap-forward-in-digital-banking-innovation-and-adoption

Chatterjee, S., Dutta Gupta, S. & Upadhyay, P. (2020). Technology adoption and entrepreneurial orientation for rural women: Evidence from India. *Technological Forecasting and Social Change*, 160, 1–8. https://doi.org/10.1016/j.techfore.2020.120236

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, 13(3), 319–339. https://doi.org/10.2307/249008

Duarte, P. & Pinho, J. C. (2019). A mixed methods UTAUT2-based approach to assess mobile health adoption. *Journal of Business Research*, 102(May), 140–150. https://doi.org/10.1016/j.jbusres.2019.05.022

Dwivedi, Y. K., Shareef, M., Simintiras, A., Lal, B. & Weerakkody, V. J. (2016). A generalized adoption model for services : A cross-country comparison of mobile health (m-health) The University of Bradford Institutional Repository. *Government Information Quarterly*, 33(1), 174–187. http://doi.org/10.1016/j.giq.2015.06.003

Farah, M. F., Hasni, M. J. S. & Abbas, A. K. (2018). Mobile-banking adoption: empirical evidence from the banking sector in Pakistan. *International Journal of Bank Marketing*, 36(7), 1386–1413. https://doi.org/10.1108/IJBM-10-2017-0215

Filotto, U., Caratelli, M. & Fornezza, F. (2021). Shaping the digital transformation of the retail banking industry. Empirical evidence from Italy. *European Management Journal*, 39(3), 366–375. https://doi.org/10.1016/j.emj.2020.08.004

Franke, G. & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: a comparison of four procedures. *Internet Research*, 29(3), 430–447. https://doi.org/10.1108/IntR-12-2017-0515

Gefen, D., Straub, D. & Boudreau, M. C. (2000). Structural Equation Modeling and Regression: Guidelines for Research Practice. Communications of the Association for Information Systems, 4(August). https://doi.org/10.17705/1cais.00407

Hair, J. F. & Anderson, R. E. (2010). Multivariate data analysis. Prentice Hall.

Hair, J. F., Babin, B. J. & Krey, N. (2017). Covariance-Based Structural Equation Modeling in the Journal of Advertising: Review and Recommendations. *Journal of Advertising*, 46(1), 163–177. https://doi.org/10.1080/00913367.2017.1281777

Hassan, I. B., Murad, M. A. A., El-Shekell, I. & Liu, J. (2022). Extending the UTAUT2 Model with a Privacy Calculus Model to Enhance the Adoption of a Health Information Application in Malaysia. *Informatics*, 9(2), 1–27. https://doi.org/10.3390/informatics9020031

Henrico, S., Coetzee, S., Cooper, A. & Rautenbach, V. (2021). Acceptance of open source geospatial software: Assessing QGIS in South Africa with the UTAUT2 model. *Transactions in GIS*, 25(1), 468–490. https://doi.org/10.1111/tgis.12697

Henseler, J., Ringle, C. M. & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Irani, Z., Dwivedi, Y. K. & Williams, M. D. (2009). Understanding consumer adoption of broadband: An extension of the technology acceptance model. *Journal of the Operational Research Society*, 60(10), 1322–1334. https://doi.org/10.1057/jors.2008.100

Jin, C. C., Seong, L. C. & Khin, A. A. (2019). Factors Affecting the Consumer Acceptance of Fintech Products and Services in Malaysia. *International Journal of Asian Social Science*, 9(1), 59–65. https://doi.org/10.18488/journal.1.2019.91.59.65

Jolly, V. (2016). The Influence of Internet Banking on the Efficiency and Cost Savings for Banks' Customers. *International Journal of Social Sciences and Management*, 3(3), 163–170. https://doi.org/10.3126/ijssm.v3i3.15257

Kaur, D. (2021). The majority of consumers are eager to use digital banking in Malaysia. Techwire Asia.

Khan, I. U. (2022). How does culture influence digital banking? A comparative study based on the unified model. *Technology in Society*, 68, 101822. https://doi.org/10.1016/j.techsoc.2021.101822

Kwateng, K. O., Atiemo, K. A. O. & Appiah, C. (2019). Acceptance and use of mobile banking: An application of UTAUT2. Journal of Enterprise Information Management, 32.

Manoharan, S., Katuk, N., Hassan, S. & Ahmad, R. (2022). To click or not to click the link: the factors influencing Internet banking users' intention in responding to phishing emails. *Information and Computer Security*, 30(1), 37–62. https://doi.org/10.1108/ICS-04-2021-0046

Merhi, M., Hone, K. & Tarhini, A. (2019). A cross-cultural study of the intention to use mobile banking between Lebanese and British consumers: Extending UTAUT2 with security, privacy and trust. Technology in Society, 59.

Mohd Thas Thaker, H., Mohd Thas Thaker, M. A., Khaliq, A., Allah Pitchay, A. & Iqbal Hussain, H. (2022). Behavioral intention and adoption of Internet banking among clients' of Islamic banks in Malaysia: an analysis using UTAUT2. *Journal of Islamic Marketing*, 13(5), 1171–1197. https://doi.org/10.1108/JIMA-11-2019-0228

Peng, C. Y. (2022). Digital banks in Malaysia: Prospects and lessons from China. TheStar.

PwC. (2019). How to Balance a Digital Strategy with the Branch. June.

Saif Almuraqab, N. A. (2020). Predicting determinants of the intention to use digital currency in the UAE: An empirical study. *Electronic Journal of Information Systems in Developing Countries*, 86(3). https://doi.org/10.1002/isd2.12125

Sharma, R., Singh, G. & Sharma, S. (2020). Modeling Internet banking adoption in Fiji: A developing country perspective. *International Journal of Information Management*, 53, 102116. https://doi.org/10.1016/j.ijinfomgt.2020.102116

Tiong, W. ni. (2020). Factors Influencing Behavioural Intention Towards Adoption of Digital Banking Services in Malaysia. *International Journal of Asian Social Science*, 10(8), 450–457. https://doi.org/10.18488/journal.1.2020.108.450.457

Vairetti, C., González-Ramírez, R. G., Maldonado, S., Álvarez, C. & Voβ, S. (2019). Facilitating conditions for successful adoption of inter-organizational information systems in seaports. *Transportation Research Part A: Policy and Practice*, 130, 333–350. https://doi.org/10.1016/j.tra.2019.09.017

Venkatesh, V., Thong, J. Y. L. & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly: Management Information Systems*, 36(1), 157–178. https://doi.org/10.2307/41410412

Windasari, N. A., Kusumawati, N., Larasati, N. & Amelia, R. P. (2022). Digital-only banking experience: Insights from Gen Y and Gen Z. *Journal of Innovation and Knowledge*, 7(2), 100170. https://doi.org/10.1016/j.jik.2022.100170

Yan, M., Filieri, R. & Gorton, M. (2021). Continuance intention of online technologies: A systematic literature review. *International Journal of Information Management*, 58, 102315. https://doi.org/10.1016/j.ijinfomgt.2021.102315

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Impact of Internet Access and Accessibility Initiatives in Facilitating Students' M40 and B40 Groups' Needs during COVID-19 Prevention Measure Period

Abdul Kadir Othman[1], Nur Najjah Abd Rahim[2*], Norzawani Ibrahim[3], Nik Zirwatul Fatihah Ismail[4], Nur Amalina Abd Rahim[5], Tasnimul Islam[6]
[1]Institute of Business Excellence, Universiti Teknologi Mara Shah Alam, Malaysia
[2]Faculty of Business and Management, Universiti Teknologi Mara Puncak Alam, Malaysia
[3]Faculty of Business and Management, Universiti Teknologi Mara Puncak Alam, Malaysia
[4]Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Malaysia
[5]Compliance Division, Menara Bank Islam Kuala Lumpur, Malaysia
[6]Gee Business School, London Graduate College Holborn Hill, UK
abdkadir@uitm.edu.my, najjahabdrahim@uitm.edu.my*, nzawani@uitm.edu.my, nikzirwatulfatihah@gmail.com, nuramalinaa@bankislam.com.my, tasnim@lgc.ac

Abstract: Malaysia was badly hit by the COVID-19 pandemic starting in February 2020 and the first Movement Control Order (MCO) was announced a month later. Since then, almost all social and economic sectors have been affected including the education sector. Universities and schools have been closed and the process of teaching and learning has been conducted via online platforms. The problem emerged when not all students could afford to buy the equipment and subscription to the Internet, especially those who come from B40 and M40 groups. Realizing the urgent need to address the problem, the government agencies and a few corporate bodies including the Selangor State Government, TM, and Digi have come out with immediate solutions by providing special packages for the Internet data plans to B40, and M40 groups and students to ease their financial burden and more importantly to ensure that they are not left behind with regards to education. Nevertheless, the effectiveness of the initiatives has never been assessed. The purpose of this proposal is to review the impact of Internet Access and Accessibility Initiatives in Facilitating Students' M40 and B40 groups' needs during the COVID-19 Prevention Measure Period. By exploring the existing scholars from UTAUT model components and the effect of demographic profile towards behavioral intention, this research pursues to fill up the gap in the literature to review the impact of internet access among M40 and B40 groups of students. The proposed research design for this study is a quantitative approach, whereby this research will be conducted by distributing a survey questionnaire to those who have received the special packages for the Internet data plans. It is expected that the input from the respondents can be used to improve the effectiveness of these initiatives and to heighten the awareness among students on the importance of education for their future success.

Keywords: *B40 group, M40 group, students, online learning, Internet mobile data.*

1. Introduction and Background

Since the first Movement Control Order (MCO) was announced by the government on 16 March 2020, a lot of drastic changes have taken place in various social, economic, and political activities. Some businesses were permanently closed, some other businesses can operate within certain hours, most offices must reduce their manpower and run at half capacity, and universities and schools have to conduct teaching and learning activities via online means. All these have affected the lives of all Malaysians especially those in the category of B40 and M40. They are in the lower income groups who have less savings and rely heavily on their monthly salary to survive.

The Department of Statistics Malaysia (DOSM, 2016) defines an M40 household as one that has a median monthly household income of RM6,275, while the Bottom 40% (B40) households have a low monthly household income of RM3,000 and the Top 20% (T20) households have a median monthly household income of RM13,148. Surely, the impact of the COVID-19 pandemic has immensely been felt by certain groups of the community, which are B40 and M40 groups. Realizing the need to help these groups, the government has provided Bantuan Sara Hidup (BSH), which is a cash aid for households with a monthly income of RM4,000 or less.

Malaysian banks have also come out with special packages to support the government's initiative to further ease the burden of those who have been adversely affected by the Covid-19 pandemic, by giving Targeted Repayment Assistance (TRA) to borrowers under the B40, M40 income group and micro enterprises. Under the Budget 2021, the B40 individuals who are the recipients of *Bantuan Sara Hidup* (BSH) can obtain a three-month deferment of monthly payments or a 50 percent reduction in monthly payments for six months. In the meantime, the M40 individuals who are registered under *Bantuan Prihatin Nasional* (BPN) can opt for a 50 percent reduction in monthly repayments for six months upon approval (Budget, 2021).

In the Industrial Revolution 4.0 (IR4.0), the Internet is a must. Known as the Internet of Things (IOT) phenomenon, all information, transactions, meetings and discussion, seminars and conferences and other activities can be done using the Internet. Without an Internet connection, all activities will be halted. Realizing the importance of the Internet, the Selangor state government has come out with the initiatives by offering two Internet subsidy schemes as part of its *Kita Selangor 2.0* stimulus package, targeting to help the B40 and M40 income groups. Dubbed *Data Internet Selangor* and *Skim Internet Selangor Kategori M40*, the schemes are part of 25 initiatives that will be rolled out under the new stimulus package (ringgitplus.com, 2021).

Specifically, Data Internet Selangor is expected to benefit 70,000 people from the B40 income group, together with other entities in need, comprising senior citizens, single mothers, students, gig workers, taxi drivers, and small businesses (The Rakyat Post, 2021). The scheme provides an RM20 monthly subsidy for a SIM pack that comes with an unlimited data quota, worth RM35 per month. With the scheme, eligible subscribers will only need to pay RM15 per month to enjoy the perks provided by the mobile internet plan available. The *Skim Internet Selangor Kategori M40* (SISM40) initiative, on the other hand, will target the M40 group, offering eight internet packages. The packages will allow eligible households to enjoy monthly subsidies of between RM10 to RM30 for a year, starting from 1 July 2021. The SISM40 initiative is offered as a collaborative initiative with Telekom Malaysia ™ (ringgitplus.com, 2021).

In Johor, similar initiatives have been offered to students in the B40 and M40 groups who are going to sit for *Sijil Pelajaran Malaysia (SPM)*. These students will be provided with teaching and learning devices, which include laptop computers and internet data. A total of 8,000 home-based teachings and learning (PdPR) gadgets and devices totaling RM25mil will be distributed. The program was part of the RM 126.86 mil provided by the state government through the Ihsan Johor Economic Stimulus Package (PRE 3.0), especially for people affected by COVID-19 including the M40 group (The Star, 2021). Similar initiatives have also been reported to take place in other states in Malaysia including Sabah and Sarawak.

Alongside the state government's initiatives, giant telecommunication corporations such as Telekom Malaysia Berhad (TM) through its foundation, Yayasan TM (YTM) recently offered free internet access to school students from B40 families nationwide to facilitate their home-based teaching and learning (PdPR) during this Movement Control Order (MCO) period. The unifi Mobile #BEBAS 15 GB LTE SIM cards which come with 1-year FREE internet access worth RM250 were distributed to a total of 2,000 students, bringing the total contribution value to RM500,000. These qualified students were chosen by their respective schools with priorities given to B40 students who will sit for main examinations in 2021. Students from 11 schools nationwide will benefit from the initiatives (tm.com.my, 2021).

Additionally, YTM also contributed another 800 SIM cards worth RM200,000 to low-income groups through TM's Corporate Social Responsibility (CSR) programs in support of Government initiatives such as *Tabung CERDIK* and #MYBAIKHATI. Tabung CERDIK is an initiative among the Government-Linked Companies (GLC) and the Government-Linked Investment Companies (GLIC) to assist B40 students with PdPR during the pandemic. On the other hand, #MYBAIKHATI is an initiative under the People and Economic Strategic Empowerment Programme (PEMERKASA) with a similar objective that reaches out to students from underprivileged families through PINTAR Foundation and *Pusat Internet Komuniti (PIK)* (tm.com.my, 2021).

Digi Telecommunications Sdn Bhd (Digi) is not left behind in helping those affected by the pandemic. Digi introduced a special internet pass, *Pakej Data Khas SPM dan STPM* 2021 specifically meant for students who are sitting for their *Sijil Pelajaran Malaysia (SPM)* and *Sijil Tinggi Pelajaran Malaysia (STPM)* this year. This internet pass enables these students to have the best connectivity experience as they prepare for the

upcoming examinations. The *Pakej Data Khas SPM dan STPM 2021* offers 15GB high-speed internet with a 30-day validity period, affordably priced at RM20. The pass also allows the students to keep their prepaid lines active for 30 days, without the need to make any additional reloads (trendgrnd.com, 2021).

Besides offering special affordable data plans, Digi is also offering other initiatives including providing free online learning via *Jom Tuisyen*, free WiFi service at selected Public Housing Projects (PPR), as well as extending operation hours at *Pusat Internet* nationwide. Digi has powered up free 4G WiFi at 12 People's Housing Programme (PPR) in Perlis, Perak, Terengganu, Melaka, and Johor in its effort to help facilitate online learning for students among the B40 communities. Digi has had wireless routers installed at common facilities within the PPR vicinity, such as in the community library, office rooms, and even prayer rooms, ensuring the B40 students have access to quality high-speed internet on Digi's 4G network for uninterrupted online classroom sessions (digi.com.my, 2021).

Additionally, 11 Community Internet Centres (PIK) managed by Digi in Selangor, Terengganu, Negeri Sembilan and Johor have also prolonged their operating hours from 9 am to 9 pm daily, allowing students to utilize the facilities and devices available in the PIK to facilitate their online learning requirements, of course, with stringent compliance to the safety standard operating procedures (SOP). The PIK also offers students access to additional learning resources such as *Jom Tuisyen*, the leading e-learning platform in Malaysia that contains learning materials covering almost all subjects approved by the Ministry of Education (MOE). Since earlier this year, over 150 *Jom Tuisyen* sessions have been conducted at the PIK, benefiting close to 3,000 students preparing for SPM exams (digi.com.my, 2021).

With all the initiatives, offers and assistance provided by various parties including the State Governments, banks, giant telecommunication corporations and others, it is expected that the recipients of these Internet packages will benefit the most. However, the effectiveness of these packages to meet their objectives has never been formally assessed. Therefore, this study is proposed to evaluate the impact of Internet Access and Accessibility Initiatives in Facilitating Students' M40 and B40 groups' Needs during the COVID-19 Prevention Measure Period.

Research Objectives

- To review the previous studies on UTAUT model components and the effect of demographic profile on behavioral intention.
- To profile the recipients of the Internet Access and Accessibility Initiatives - based on respondents' age, family background (number of siblings), number of siblings attending using the Internet for education purposes, parent's age, household income and their behavioral patterns – frequency using the internet, average time spent using the internet, etc.

2. Literature Review

The impact of Internet access and accessibility initiatives offered by various agencies and corporations is the main concern of this study. The initiatives have never been appropriately assessed by any parties so far and it is timely to evaluate the effectiveness of these initiatives so that improvement actions can be taken, if there is any, based on the hard evidence from the proposed study. The section is meant to suggest the best model to be used in the study and to highlight the variables that should be considered.

Based on the review of the existing literature, the Unified Technology Acceptance and Use of Technology (UTAUT) model is the most appropriate model that can be used as the underlying model for the study. The UTAUT model is proposed by Venkatesh, Morris, Davis and Davis (2003) based on the systematic review of existing work on the Theory of Reasoned Action (Davis, 1989), Technology Acceptance Model (Davis, 1989), Theory of Planned Behavior (Ajzen, 1991), Diffusion of Innovation (Rogers, 2003), and Social Cognitive Theory (Bandura, 1986). The proposed model comprises six main constructs, namely performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention to use the system, and usage behavior.

Usage behavior reflects the actual use of the technology by students (Venkatesh, et al., 2003). It serves as the dependent variable of the outcome variable in the study. In the present study, the dependent variable is the Internet usage/subscription. Behavioral intention, on the other hand, has been defined as the degree to which a person has formulated conscious plans regarding whether to perform a specified future behavior (Venkatesh, et al., 2003). It serves as the mediating variable that strengthens the relationship between the independent variables (i.e., performance expectancy, effort expectancy, social influence and facilitating conditions) and the dependent variable (usage behavior). The mediating variable used in the proposed study is students' intention to subscribe to the Internet package.

One of the independent variables in the study is performance expectancy which denotes students' beliefs regarding whether the use of the technology will enhance their learning performance (Venkatesh, et al., 2003). Park, Nam and Cha (2012) found that performance expectancy together with other variables is significant to describe Korean students' behavioral intention to engage in mobile learning. Hassan, Rashid, and Li (2015) in studying online shopping behavior among Malaysian polytechnic students discovered that performance expectancy is one of the determinants of students' behavior intention in participating in online shopping.

Altalhi (2021) in identifying the major factors determining learners' acceptance of MOOCs in higher education in Saudi Arabia found that performance expectancy via attitude is one of the factors that affect students' behavioral intention to use MOOCs. Nur, Faslih and Nur (2017) using UTAUT to explain e-learning among students of vocational education at, the University of Halu Oleo found that e-learning is affected by performance expectancy and other predictors used in their studies. In the proposed study, it is expected that if students expect that their academic performance will improve using the Internet package, they will have higher behavioral intention to subscribe to the Internet package.

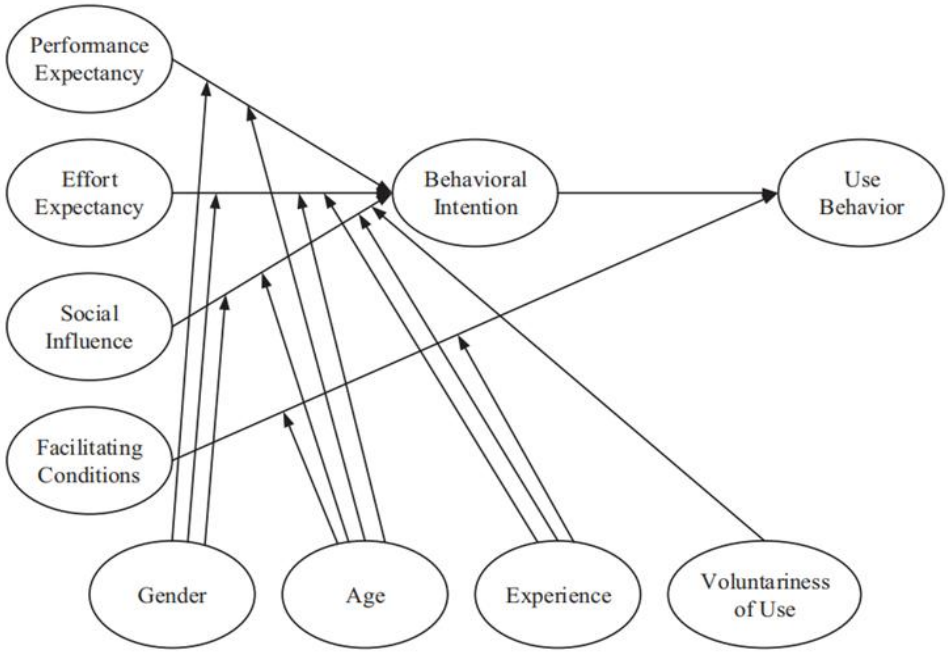
The second independent variable is effort expectancy which refers to the degree of ease associated with the use of the technology (Venkatesh, et al., 2003). Hassan et al. (2015) found that effort expectancy is one of the significant factors that lead to students' behavioral intention, particularly in engaging in online shopping. Park et al. (2012) also established the same findings where effort expectancy is one of the significant variables that describe Korean students' behavioral intention in engaging in mobile learning. Similarly, Nur et al. (2017) also discovered that effort expectancy influences students to engage in e-learning at an Indonesian University. Regarding the present study, effort expectancy is expected to influence students' behavioral intention to subscribe to the Internet package since subscribing to the Internet does not require much effort from them.

Social influence reflects the students' perception that important others believe that they should use the technology (Venkatesh, et al., 2003). Altalhi (2021) found that social influence as one of the attitude determinants significantly affects students' behavioral intention to use MOOCs in Saudi Arabia. Hassan et al. (2015) also found that social influence is one of the significant factors that lead to students' online shopping intentions. In Indonesia, Nur et al. (2017) provided supporting evidence that social influence is among the significant predictors of e-learning as students depend on their significant others' views and opinions to engage in certain behavioral intentions. Therefore, in the proposed study, social influence is expected to influence students' behavioral intention to use the Internet package offered by telecommunication service providers in Malaysia.

Facilitating conditions concern the students' beliefs that the organizational and technical infrastructure exists to support the use of the technology (Venkatesh, et al., 2003). Sobti (2019) in studying the antecedents of the behavioral intention and adoption of mobile payment services like m-wallets and m-banking by users in India found that facilitating conditions play a significant role in affecting the behavioral intention of users. Altalhi (2021) discovered that students' actual usage of MOOCs in Saudi Arabia is directly influenced by facilitating conditions. Nur et al. (2017) provided additional support that e-learning is influenced by facilitating conditions; among others. About the proposed study, facilitating conditions that relate to the telecommunication infrastructure provided at students' specific locations will influence their behavioral intention in subscribing to the Internet package.

Essentially, this study consists of four (4) independent variables which are performance expectance, effort expectancy, social influence, and facilitating conditions. Based on the previous scholars, these four variables are expected to be a determinant factor of student behavioral intention on internet access. This study also utilized four (4) demographic profiles such as gender, age, experience and voluntariness of use as a moderating variable towards the relationship of performance expectance, effort expectancy, social influence, and facilitating conditions on behavioral intention. Drawing upon the theory of acceptance and use of technology (UTAUT) model, the dependent variable of this study is using behavior, where behavioral intention has a direct effect on use behavior. The novelty of this study is it examines the direct effect of facilitating conditions toward use behavior, something that has been unnoticed by previous scholars (Altalhi, 2021). Hence, Figure 1 illustrates the conceptual framework of the study.

Figure 1: Conceptual Framework of the Study



3. Proposed Research Methodology

The proposed research will utilize a correlational research design, using a quantitative research approach. Correlational research design is meant to test the relationship between the variables using the data that are collected from the respondents at the same period. This design is the middle approach standing in between descriptive design and cause and effect arrangement. Using a quantitative research approach via the distribution of the survey instrument (questionnaire) to the targeted respondents, it is expected that the research will reap the utmost benefits from the project.

The population of the study comprises students and their parents from the B40 and M40 household income groups and has received the benefits from the varying initiatives offered by various parties. Since the population for the study is difficult to determine, the information about the amount of SIM cards offered under various initiatives is found to be useful for this purpose. Approximately 30,000 students have benefited from the initiatives. The sampling technique proposed for this study is purposive sampling. Those students who have experienced the subscription of the Internet data package will be considered as the potential respondents for this study.

To achieve a high confidence level; the 99% level ($p < .01$) with a 5% margin of error, the sample size for the study should be big enough to represent the population. Based on the recommendation given by calculator.net (https://www.calculator.net), with an estimated population of 30,000, 99% confidence level

and 5% margin of error, the suggested sample size is 652 students. This number is higher than the suggested sample size by Salkind (2010) and the sample should be between 1 and 500 for better representativeness.

The research instrument that will be used is a survey questionnaire. This instrument will be properly developed following these five steps: a focus group study comprising 10 students and their parents who have subscribed to the Internet packages will be identified and interviewed. The questions about the advantages and disadvantages (including the features), the issues and concerns, and the outcomes of using the Internet data packages will be asked. The feedback from these students will be used to develop the questionnaire. The questionnaire will be validated by the experts and tested via a pilot run to identify its limitations. Once validated, the questionnaire is ready to be used in the data collection process.

The data collection process is critical where the right respondents will be selected. A filtered question will be asked to the respondents before they can continue answering the questionnaire. The question requires the respondents to choose from the list of the special Internet data packages offered by various telecommunication service providers. The data collection process will be done using an online method for safety and coverage reasons. It is meant to reduce the risks of getting infected by the COVID-19 pandemic and also to increase the geographical coverage of questionnaire distribution and data collection.

When enough data have been collected, data analysis techniques involved include descriptive and inferential statistics. Under the descriptive statistics, means and standard deviations of the variables, factor analysis, reliability analysis and other assumptions will be performed to ensure the reliability and validity of the data collected. For inferential statistics, correlation analysis and multiple regression analysis will be performed to determine the associations between the variables involved in the study. By using these analyses, it is expected that the research objectives of the study can be met and appropriate suggestions and recommendations for improvement regarding the initiatives can be made.

4. Discussion

Valuing the study by Rahi et al. (2019) on performance expectancy in the context of Internet banking found a positive influence on user intention to adopt Internet banking. Performance expectancy within the context of Internet services pertains to the extent to which an individual holds the belief that utilizing Internet services will be advantageous in accomplishing various banking tasks. Correspondingly, Alalwan et al. (2014) proposed services. Numerous researchers have presented corroborating evidence demonstrating the notable impact of performance expectancy on the user's inclination to adopt Internet services. Hence, based on the previous scholars, the performance expectancy will significantly affect behavioral intention on internet access among students' B40 and M40 groups.

Regarding effort expectancy, it pertains to the user's anticipation of convenience. As exemplified by Zhou et al. (2010), individuals are more likely to embrace Internet services when they perceive them as user-friendly and requiring minimal exertion. Rahi et al. (2019) emphasized that the perception of online banking's simplicity enhances the likelihood of adoption. Prior investigations have consistently affirmed a substantial correlation between effort expectancy and the user's intention to adopt Internet services. Therefore, previous scholars show that effort expectancy will have a significant effect on behavioral intention on internet access among students' B40 and M40 groups.

Furthermore, social influence is one of the determinant factors affecting student's behavioral intention. The relationship between social influence and behavioral intention has sparked extensive discussions. Social influence is characterized as the degree of societal pressure placed upon an individual to embrace novel technology (Chaouali et al., 2016). A study by Rahi et al. (2019) contends that social influence holds a favorable impact on the user's intent to use internet services. Previous investigations have consistently demonstrated the noteworthy role of social influence in shaping the decisions of internet users. Due to that, social influence expectancy will significantly affect behavioral intention on internet access among students' B40 and M40 groups.

The concept of a facilitating condition is derived from perceived behavioral control. This concept highlights the necessity for users to have access to the system while at their workplaces, such as in banks and markets. The argument put forth is that the lack of proper technological infrastructure might discourage users from embracing new technologies. Rahi et al. (2019) further elaborate those individuals lacking the required operational skills are more likely to have a reduced intention to adopt information technology. Previous studies show that facilitating conditions will significantly affect towards use of behavior on internet access among students' B40 and M40 groups.

On the other hand, the other factors proposed by Venkatesh et al. (2003) are gender, age, experience and voluntariness of use. These factors serve as the moderating variables that further clarify the relationship between the independent variables and the behavioral intention of students in using the Internet packages. These factors will be included in the study's framework to examine their moderating roles in affecting the main relationships between the independent variables (i.e., performance expectancy, effort expectancy, social influence and facilitating conditions) and the mediating variable (behavioral intention).

5. Conclusion

In conclusion, this study focuses on evaluating the impact of Internet access and accessibility initiatives, which have yet to be adequately assessed, thereby providing a timely opportunity to gauge their effectiveness and potentially enhance them based on empirical evidence. The chosen model for the study, the Unified Technology Acceptance and Use of Technology (UTAUT) model, offers a comprehensive framework. Proposed by Venkatesh, Morris, Davis, and Davis (2003), the UTAUT model integrates elements from various established theories, including the Theory of Reasoned Action, the Technology Acceptance Model, the Theory of Planned Behavior, the Diffusion of Innovation, and Social Cognitive Theory. The model encompasses six essential constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention to use the system, and usage behavior. Usage behavior is the actual utilization of technology, while behavioral intention mediates the relationship between the independent variables (performance expectancy, effort expectancy, social influence, and facilitating conditions) and the dependent variable (usage behavior). In this context, students' intention to subscribe to Internet packages serves as the mediating variable. The study's proposed model takes into account demographic factors such as gender, age, experience, and voluntariness of use as moderating variables. The analysis will shed light on the direct effect of facilitating conditions on usage behavior, a novel aspect in the research landscape. Overall, this study aims to establish a comprehensive understanding of the factors influencing students' behavioral intention and use behavior regarding Internet access, contributing valuable insights to the existing body of knowledge.

References

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes,* 50(2), 179-211.

Altalhi, M. (2021). Toward a model for acceptance of MOOCs in higher education: the modified UTAUT model for Saudi Arabia. *Education and Information Technologies,* 26(2), 1589-1605.

Alalwan, A., Dwivedi, Y. & Williams, M. (2014). Examining factors affecting customer intention and adoption of internet banking in Jordan, Paper presented at the Proceedings of United Kingdom Academy of Information Systems UKAIS Conference.

Bandura, A. (1986). Social foundations of thought and action: A Social Cognitive Theory. Englewood Cliffs, NJ: Prentice-Hall.

Chaouali, W., Yahia, I. B. & Souiden, N. (2016). The interplay of counter-conformity motivation, social influence, and trust in customers' intention to adopt Internet banking services: the case of an emerging country, *Journal of Retailing and Consumer Services,* 28, 209-218.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13, 319. doi: 10.2307/249008

Hassan, S., Rashid, R. & Li, F. (2015). Utilizing modified UTAUT to understand students' online shopping behavior: A case of e-retail co-operative website in Malaysia. *Journal of Electronic Commerce in Organizations (JECO),* 13(4), 74-90.

Report of Household Income and Basic Amenities Survey 2016. (24th July 2023). https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=120&bul_id=RUZ5REwveU1ra1hGL21JWVlPRmU2Zz09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09

Loan repayment assistance. (24th July 2023). https://belanjawan2021.treasury.gov.my/manfaat/index.php/en/tra-en

Selangor offers subsidized internet to the B40 and M40. (June, 2021), (24th July 2023). https://www.therakyatpost.com/2021/06/10/selangor-offering-subsidised-internet-to-the-b40-m40/

Selangor Govt unveils internet subsidy program For B40 and M40 groups. (August, 2021) (24th July 2023) https://ringgitplus.com/en/blog/personal-finance-news/selangor-govt-unveils-internet-subsidy-programme-for-b40-and-m40-groups.html

8,000 PdPR devices to be distributed to students in Johor from September. (September, 2021) (24th July 2023) https://www.thestar.com.my/news/nation/2021/08/23/8000-pdpr-devices-to-be-distributed-to-students-in-johor-from-september

Yayasan TM provides B40 students greater access to online learning with free SIM cards. (24th July 2023) https://www.tm.com.my/Newsroom/Pages/YAYASAN-TM-PROVIDES-B40-STUDENTS-GREATER-ACCESS-TO-ONLINE-LEARNING-WITH-FREE-SIM-CARDS.aspx

Digi Pakej Data Khas SPM dan STPM 2021 offers high-speed internet passes exclusively for SPM and STPM students. (January, 2021) (24th July 2023) https://trendgrnd.com/digi-pakej-data-khas-spm-dan-stpm-2021-offers-high-speed-internet-pass-exclusively-for-spm-and-stpm-students/

Media & Press Releases. (24th July 2023). https://www.digi.com.my/about-us/media/press-releases/en/digi-introduces-high-speed-internet-pass-exclusively-spm-and-stpm

Sample Size Calculator. (24th July 2023). https://goodcalculators.com/sample-size-calculator/

Nur, M. N. A., Faslih, A. & Nur, M. N. A. (2017). Analysis of behavior of e-learning users by Unified Theory of Acceptance and Use of Technology (UTAUT) Model: A case study of vocational education in Halu Oleo University. *Jurnal Vokasi Indonesia,* 5(2), 1-5.

Park, S. Y., Nam, M. W. & Cha, S. B. (2012). University students' behavioral intention to use mobile learning: Evaluating the technology acceptance model. *British Journal of Educational Technology,* 43(4), 592-605.

Rahi, S., Mansour, M. M. O., Alghizzawi, M. & Alnaser, F. M. (2019). Integration of UTAUT model in Internet banking adoption context: The mediating role of performance expectancy and effort expectancy. *Journal of Research in Interactive Marketing*, 13(3), 411-435.

Rogers, E. M. (2003). Diffusion of innovations, 5th Edn. New York, NY: Simon and Schuster.

Salkind, N. J. T. (2010). Exploring research. Prentice Hall Upper Saddle, River, NJ.

Sobti, N. (2019). Impact of demonetization on the diffusion of mobile payment service in India: Antecedents of behavioral intention and adoption using extended UTAUT model. *Journal of Advances in Management Research,* 16(4), 472-497.

Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 425-478.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Integration of Knowledge and Theory of Planned Behavior towards Purchase Intention among Consumers

Mohd Redhuan Dzulkipli*, Siti Noorsuriani Maon & Annurizal Anuar
Universiti Teknologi MARA, Malaysia
*redhuan49@uitm.edu.my

Abstract: Considering the rising cost of medicine in Malaysia, it is crucial to investigate the behavioral factors that influence the intent of consumers when selecting medicines. Thus, the main objective of this paper is to examine the influence of the Theory of Planned Behavior (TPB) and respondents' knowledge on their intentions to purchase either generic or brand-name medicines. A cross-sectional survey research design was used in this study, involving consumers in various community areas in Selangor. Using a convenience sampling approach, a total of 444 respondents participated in this study. More than half of the respondents were female (63%) and Malay (73%). In regression analysis, the results showed that knowledge ($p < 0.001$) and perceived behavioral control ($p < 0.001$) were statistically significant for purchase intention toward generic and brand medicine. Though statistically significant, only 19% and 29% (knowledge and perceived behavioral control) of the respondents showed intention to purchase the generic medicine while a higher percentage of the respondents showed agreement to their purchase intention with 27% and 45% of the same variables for the purchase intention to the brand medicine. Knowledge and perceived behavioral control were found to be predictors of respondents' intentions to purchase either generic or brand-name medicines. Apart from that, the perceived capacity to purchase is one of the factors that determine consumers' purchase intent. The people's awareness of the similarity between brand-name medicines needs to be increased, as well an individual's ability to pay for the medicine should be explored in future research.

Keywords: *Purchase Intention, Knowledge, Attitude, Subjective Norm, Perceived Behavioral Control, Generic and Brand-name Medicine.*

1. Introduction and Background

Malaysia has spent more than MYR2 billion to cover the cost of medicines supplied through the free-to-all policy of drug distribution in the public healthcare sector, and this is increasing every year (Ministry of Health Malaysia, 2022). There are two types of drugs available, which are brand-name medicine which is the drug that is first produced by the pharmaceutical company and is also called an innovator's brand medicine generic medicine is produced by other pharmaceutical companies after the patent of the drug has ended. Normally the price of the innovator's brand-name medicine tends to be higher than the generic medicine. As for the ratio between generic and brand medicine available in Malaysia, more generic medicine could be found in the public healthcare sector (74.8%) as compared to the private healthcare facility that preferred to offer branded drugs (52.2%) rather than generic medicine (Ministry of Health Malaysia, 2018, 2022).

Furthermore, the unregulated price of medicine in the private sector has created a huge gap in price differences between generic and branded drugs in Malaysia (Ibrahim & Bahri, 2022). As a result, the price of medicine in the private healthcare sector tends to be higher than the public procurement price which further burdens the patient seeking healthcare services in the private healthcare setting (Hassali et al., 2015). To further describe the situation, in a study among community pharmacies, there was a variation of pricing between innovator's brand medicine and generic medicine with differences of more than 90% (Shafie & Hassali, 2008). To this extent, the price of more generic medicine produced in Malaysia was found to be higher than the foreign product. Due to this, the price of drugs offered in the private healthcare setting tends to be higher than the normal price, which indirectly causes the price to spike due to excessive profit-making activity in the private healthcare sector (Zin et al., 2020).

Next, from a bioequivalence and safety perspective, there were no differences between generic and brand-name medicines. A meta-analysis study of cardiovascular disease drugs found that both generic and branded drugs were clinically equivalent and effective in managing cardiovascular diseases (Manzoli et al., 2016). Another study using United States Insurance Data Claim concurred with earlier findings, which suggested equivalence in clinical outcomes between generic medicine and branded medicine (Desai et al., 2019).

To counter the escalating price of medicine in Malaysia, it is vital to examine the behavioral factors influencing the consumer's decision of the type of medicine of their choice. There were few kinds of literature covering various applications of TPB towards behavioral intention such as complementary and alternative medicine, health insurance counter drugs (Dzulkipli et al., 2019; Dzulkipli et al., 2017; Jinnah et al., 2020), only A few of them utilize TPB and knowledge factor towards generic and brand-name medicine purchase intention, especially in Malaysia. Therefore, this study intends to examine the influence of the Theory of Planned Behavior and respondents' knowledge of generic and brand-name medicine purchase intention.

2. Literature Review

Ajzen's Theory of Planned Behavior (TPB) is a widely recognized framework for predicting deliberate human behavior, with success in various domains, such as medical practitioners promoting healthier behaviors (Ajzen, 1991; Montano & Kasprzyk, 2008). It posits that intentions shape an individual's behavioral outcomes, with attitudes, subjective norms, and perceived behavioral control playing crucial roles.

It is widely recognized as a highly influential framework for predicting intentional human behavior. According to Godin, Bélanger-Gravel, Eccles, and Grimshaw (2008), the utilization of this approach has been extensively employed and proven effective in forecasting significant clinical behaviors, specifically the actions taken by medical practitioners to modify the health behaviors of their patients. Though been reviewed and criticized by many, TPB continues to provide a whole framework for research understanding, especially in the social science area (Bosnjak et al., 2020).

Attitudes affect an individual's evaluative stance towards a behavior, while subjective norms evaluate its acceptability or unacceptability by social sphere members. Perceived behavioral control assesses an individual's ability to engage in a specific behavior, and self-efficacy plays a crucial role in this process (Montano & Kasprzyk, 2008; Siuki et al., 2019). In essence, the TPB offers a conceptual framework that facilitates comprehension of the cognitive processes involved in decision-making about behavior engagement. Consequently, it serves as a valuable instrument for predicting and fostering deliberate human behavior.

The implementation of generic medicines has shown variations between countries, with the United States adopting them in 1984 and Italy in 1996 as well as Malaysia where, generic medicines are approximately 20-90% cheaper than brand-name innovator products (Wong et al., 2014). The global generic medicine market witnessed substantial growth, registering a compound annual growth rate (CAGR) of 8.7% from 2016 to 2020. Prominent players in this market, such as Mylan, Teva, Novartis, and Sun Pharmaceutical, collectively hold a 35% market share. Ascertaining consumer attitudes and intentions is of utmost importance for companies and public health policies and strategies (Arcaro et al., 2021).

A study by Straka, Keohane, & Liu, (2017) found that perceptions of risk associated with generic medicines among physicians and patients, wherein they often perceive generic alternatives as potentially less safe or effective than brand name options. They revealed reservations about generic medicines in both groups, primarily stemming from concerns regarding safety and efficacy, leading to hesitancy in opting for generic medications over brand-name ones.

Given that patients are the ultimate end-users of these medications, the acceptance of generic medicines holds critical significance. To promote patients' acceptance and effective utilization of generic medicines, it becomes imperative to equip them with adequate knowledge about these medications and cultivate positive perceptions towards them. Thus, findings based on research carried out in Malaysia revealed that a mere 50% of the patients demonstrated familiarity with the concept of "generic medicine," while approximately 50% of them harbored unfavorable perceptions towards generic medicines. Furthermore, a considerable proportion of patients exhibited a lack of knowledge about the similarities and distinctions between generic and branded pharmaceuticals (Wong et al., 2014). In addition, another study found that patients attending the outpatient pharmacy had mixed beliefs about the efficacy of generic medicines and were relatively neutral about the similarities of generic drugs compared to branded products (Hong et al., 2018). Age, gender, ethnicity, and education level were shown to be affecting respondent's perception of generic medicines. Apart

from the demographic influence on the purchase intention, it was stated that the role of the pharmacist is also important in determining the consumer intention to the types of medicine (Hajleh et al., 2021).

In Saudi Arabia, a separate investigation showed that a significant majority of physicians (71.9%) considered the perceived clinical effectiveness of medications as the primary factor influencing their inclination to prescribe brand-name medicines (Salhia et al., 2015). This indicates their belief that brand-name medicines are more effective for patient treatment compared to locally available generic alternatives. The study emphasized the substantial impact of safety and efficacy perceptions on the decision-making process when choosing between generic and brand-name medications, revealing variations in these perceptions among both physicians and patients.

Nevertheless, the discussion of this study revolved around the consumer's purchase intention for generic and brand-name medicine. It was stated that the consumer's purchase intention was influenced by attitude and the individual's behavior (Arcaro et al., 2021). In a study on generic drug purchase intention in Malaysia, it was found that perceived risk influences consumer intention (Sin & Ismail, 2021). In another study at a pharmacy in Thailand, it was found that, apart from the price of the medicine, recommendations from next of kin and closest friends contribute to the consumer's purchase intention (Bootsumran et al., 2021). A full-fledged application of the TPB towards purchase intention study found that all three elements of the theory namely attitude, subjective norm and perceived behavioral control, significantly correlate with the consumer's purchase intention of generic drugs (Malathi & Mohamed Jasim). Further on, knowledge is also one of the important components that trigger the purchase intention. A study in a Southern Brazilian city found that knowledge is associated with the consumer's purchase intention for generic drugs (Guttier et al., 2017). However, it is worth noting that trust is essential in determining consumer purchase intention regardless of the type of the drugs whether it is generic or brand-name medicine. The view is supported by research findings among Lebanese adults, which, among others, cite the effectiveness, quality, and side effects of generic medicine as compared to branded medicine (Hatem et al., 2023).

Given this context, it becomes crucial to comprehend individuals' behavioral factors and purchase intentions toward generic medicines and brand-name medicines. Acquiring valuable insights in these areas can effectively shape future public policies, education, and practical interventions to maximize the use of generic medicines. By using these insights, strategies can be developed to encourage widespread acceptance and usage of generic medications, while also addressing concerns related to safety and efficacy perceptions.

3. Research Methodology

A cross-sectional survey research design was used in this study, involving consumers in various community areas in Selangor. About 384 sample size was determined using prevalence sample size calculation as suggested (Naing et al., 2006; Naing, 2003). Nevertheless, as many as 500 questionnaires were distributed to the potential respondents with a return rate of 88% (444 samples). Using the TPB and knowledge constructs, the questionnaire is primarily designed to predict intention to purchase brand-name and generic medicines to evaluate the research objective. The questionnaire was comprised of four sections: (a) the demographic characteristics of consumers; (b) accessing their knowledge of generic and brand-name medicines; (c) their influence on the Theory of Planned Behavior; and (d) the purchasing intention of generic and brand-name medicines. A five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used. A total of 444 respondents took part in completing the survey using a convenience sampling approach. Participation was voluntary and anonymous.

A STATA statistical software version 14.2 was used to test the association between the independent and dependent variables. Both descriptive and inferential statistics were applied. Simple frequencies and cross-tabulation were carried out to study the characteristics of the respondents. Multivariate regression analyses were performed to examine which constructs predicted the intentions of respondents to purchase generic and brand-name medicines.

4. Results

Table 1 depicts the demographic profile of the respondents. Most of the respondents were aged 29 years old and below (70%), remaining 12.5% of the respondents were aged 41 years old and above. Female respondents dominated the survey at 63% leaving the male respondents at only 37% of the total participants. Malay were the most respondents who participated in the study (73%), followed by Chinese and Indian ethnicity at 13% and 14% respectively.

Table 1: Demographic Profiles of the Respondents (N=444)

Characteristics	
Age, n (%)	
Below 29 years old	310(70)
30 – 40 years old	78(17.6)
41 – 50 years old	50 (11.3)
51 years old and above	6 (1.4)
Gender, n (%)	
Male	164 (37)
Female	280(63)
Ethnicity	
Malay	324 (73)
Chinese	58 (13)
Indian	62 (14)
Marital status, n (%)	
Single	306 (69)
Married	130 (29)
Divorced	8 (2)
Education, n (%)	
Certificate	76 (17)
Diploma	158 (36)
Undergraduate	172 (39)
Postgraduate	38 (8)
Household Size, n (%)	
1 people	132 (30)
2 people	68 (15.3)
3 people	92 (20.7)
4 people	58 (13)
More than 5 people	94 (21.2)
Monthly Income, n (%)	
Below MYR2,500	276 (62)
MYR2,501 – MYR3,500	100 (23)
MYR3,501 – MYR4,500	42 (9)
MYR4,501 – MYR5,500	16 (4)
More than MYR5,501	10 (2)

Since the majority of the respondents were aged below 29 years old and above, we can see that, the majority of the respondents were single (69%) leaving the remaining 29% and 2% of the respondents were married and divorced. For the education level of the respondents, most of them reported of having at least an Undergraduate Degree (39%) in their life followed by a Diploma (36%). Only 17% and 8% of the respondents reported having a Certificate and Postgraduate degree. In addition to that, about 21.2% of the respondents reported having more than 5 people in their household size, followed by 20.7% of the respondents who reported having 3 people in the household. Lastly, most of the respondent reported having less than MYR2,500 per month as their monthly household income.

Table 2: Descriptive Analysis

Variables	Mean	SD	Cronbach Alpha	Skewness	Kurtosis
Knowledge	3.4042	0.4790	0.8124	0.2135	0.0564
Attitude	3.1903	0.5682	0.8132	0.2076	0.8539
Subjective Norm	3.2873	0.6947	0.8180	0.0008	0.0251
Perceived Behavioral Control	3.4000	0.6075	0.7700	0.2883	0.0069
Intention to Purchase Generic Medicine	3.4489	0.5138	0.8053	0.2464	0.0003
Intention to Purchase Brand-name Medicine	3.4729	0.5891	0.7951	0.0043	0.0013

To examine the reliability of the test items, a reliability analysis was conducted to examine the intercorrelation of the items tested in the survey. The results shown in Table 2 were within the acceptable range suggested by literature reviews (Heo et al., 2015; Tavakol & Dennick, 2011). Furthermore, for the normality distribution of the data, a simple normality test of skewness and kurtosis was performed on the data. The findings were normal data as suggested by Hair et Al. which is within +2 and -2 (Hair et al., 2010).

Table 3: Association of TPB and Intention to Purchase Generic Medicine

Variables	Coefficient	Standard Error	t	P value	95% CI
Knowledge	0.1912	0.0516	3.70	<0.001*	0.0896 - 0.2928
Attitude	0.0125	0.0472	0.27	0.790	-0.0802 - 0.1054
Subjective Norm	0.0649	0.0362	1.79	0.073	-0.0061 - 0.1361
Perceived Behavioral Control	0.2960	0.1674	5.99	<0.001*	0.1989 - 0.3932

*(*P < 0.001, Adjusted R2 = 0.2732)*

Tables 3 and 4 represent the relationship between the theory of planned behavior and the intention to purchase generic and brand-name medicine among respondents. Table 3 shows that knowledge (coef. 0.1912, p = <0.001) and perceived behavioral control (coef. 0.2960, p = <0.001) and Table 4 shows that knowledge (coef. 0.2752, p = <0.001) and perceived behavioral control (coef. 0.4531, p = <0.001), which are statistically significant for purchase intention towards generic and brand-name medicine respectively.

Table 4: Association of TPB and Intention to Purchase Brand-Name Medicine

Variables	Coefficient	Standard Error	t	P value	95% CI
Knowledge	0.2752	0.0550	4.99	<0.001*	0.1669 - 0.3835
Attitude	0.4020	0.0503	0.80	0.425	-0.0587 - 0.1391
Subjective Norm	-0.0383	0.3860	-0.99	0.321	-0.1142 - 0.0375
Perceived Behavioral Control	0.4531	0.5270	8.6	<0.001*	0.3495 - 0.5567

*(*P < 0.001, Adjusted R2 = 0.3717)*

Though statistically significant, only 19% and 29% (knowledge and perceived behavioral control) of the respondents show intention to purchase the generic medicine while a higher percentage of the respondents show agreement to their purchase intention with 27% and 45% of the same variables for the purchase intention to the brand-name medicine.

Discussion: For the demographic distribution of the respondents, the result showed a balanced and to the current statistics of Malaysia's population census especially ethnicity, gender and education (Department of Statistics Malaysia, 2022). However, it is worth noting that, the majority of the respondents reported having a monthly income of less than MYR5,000 which may indicate lower socioeconomic status especially if they reside in the urban areas (Munisamy et al., 2022). This is worrying if the spending in the household is meant

to exceed 10% of the monthly household income, It is said that the particular individual or household is experiencing a financial catastrophe which may deprive them of having proper access to the medication required for the treatment of their disease (Wagstaff et al., 2007).

For the association of the TPB and purchase intention, only knowledge and perceived behavioral control were found to correlate with the consumer purchase intention towards both generic and brand-name medicine. The findings were contradicted by the previous study which found that all three variables of TPB correlated with the consumer purchase intention (Malathi & Mohamed Jasim). As the perceived behavioral control is interpreted as an individual perceived view of their ability in terms of money, determination, and motivation (Dzulkipli et al., 2019; Dzulkipli et al., 2017), it is worth noting that consumer is making a fair judgment of their ability to pay for the type of medicine that they will purchase. Since the price of the brand-name medicine is commonly known as higher than the generic medicine, the consumer tends to purchase the cheaper option (Shafie & Hassali, 2008; Wong et al., 2014). The finding is supported by past findings which noted price plays a major role in determining consumer purchase intention (Bootsumran et al., 2021; Hatem et al., 2023). Last but not least for the knowledge about the medicine itself, the finding is consistent with the past study which supported it as part of the vital component contributing to the consumer purchase intention (Guttier et al., 2017). This warrants more effort to educate consumers about generic and brand-name medicine thus providing indirect regulation through informed purchase by the consumer in the market thus lowering the price gap between generic and branded medicine in Malaysia.

5. Managerial Implications and Recommendations

The present study provides hindsight of what attracts the consumer to generic medicine. As most consumers tend to have original brand drugs for their prescription, the quality and effectiveness of the generic medicines are on par and bio-equivalent to the brand-name medicine. What differentiates the two types of drugs is price. Generic medicines can be found at cheaper prices as compared to the original brand drugs. Over time, this will educate the consumer to prefer the generic over the brand-name medicine and put pressure on the market to lower the price of the brand-name medicine. Therefore, it provides consumers with a healthy, better selection and fair prices of medicine selection nationwide.

Conclusion: The study identified knowledge and perceived behavioral control as predictors of the purchase intention of both generic and brand medicine among respondents. The findings provide hindsight as to how an individual's knowledge of the medicine's details is important to make the purchase intention. Increased awareness and knowledge among consumers may result in better and more informed consumers in medical decision-making that is effective and fair price which resulted in cost savings in managing consumer health (Kohli & Buller, 2013). In addition, the perceived ability to purchase is one of the criteria in determining the purchase intention among consumers. Awareness of the true information about generic and brand-name medicine should also be promoted to increase consumer knowledge. Apart from that, an individual's ability to pay from a monetary perspective should also be explored to gauge their financial ability to pay to fund their medical needs. Future research shall explore the generic medicine's prescribing pattern by healthcare professionals as well as the pharmacist's readiness to suggest the availability of generic medicine to the consumer. This effort is expected to increase the use and prescription of generic medicine in both public and private healthcare facilities in Malaysia.

References

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Arcaro, R., da Veiga, C. R. P., da Silva, W. V. & Pereira da Veiga, C. (2021). Attitude and Purchase Intention to Generic Drugs. *International Journal of Environmental Research and Public Health*, 18(9), 4579. https://www.mdpi.com/1660-4601/18/9/4579

Bootsumran, L., Siripipatthanakul, S. & Phayaphrom, B. (2021). Factors Influencing Consumers' Purchase Intention at Pharmacies in Thailand. *Journal of Management in Business, Healthcare and Education*, 1(1), 1-16.

Bosnjak, M., Ajzen, I. & Schmidt, P. (2020). The Theory of Planned Behavior: Selected Recent Advances and Applications. *Eur J Psychol*, 16(3), 352-356. https://doi.org/10.5964/ejop.v16i3.3107

Department of Statistics Malaysia. (2022). Key Findings Population and Housing Census of Malaysia 2020. https://cloud.stats.gov.my/index.php/s/BG11nZfaBh09RaX#pdfviewer

Desai, R. J., Sarpatwari, A., Dejene, S., Khan, N. F., Lii, J., Rogers, J. R., Dutcher, S. K., Raofi, S., Bohn, J., Connolly, J. G., Fischer, M. A., Kesselheim, A. S. & Gagne, J. J. (2019). Comparative effectiveness of generic and brand-name medication use: A database study of US health insurance claims. *PLOS Medicine*, 16(3), e1002763. https://doi.org/10.1371/journal.pmed.1002763

Dzulkipli, M. R., Azizam, N. A., Maon, S. N., Aziz, N. I. S. A., Azlan, N. M., Razak, N. S., Azmi, N. H. M. N. & Roslan, N. S. (2019). Application of the Theory of Planned Behavior to Predict the Intention to Purchase Complementary and Alternative Medicine. *International Tourism and Hospitality Journal*, 2(3), 1-7.

Dzulkipli, M. R., Zainuddin, N. N. N., Maon, S. N., Jamal, A. & Omar, M. K. (2017). Intention to Purchase Medical and Health Insurance: Application of Theory of Planned Behavior. *Advanced Science Letters*, 23(11), 10515-10518 (10514). https://doi.org/doi.org/10.1166/asl.2017.10092

Godin, G., Belanger-Gravel, A., Eccles, M. & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviors: a systematic review of studies based on social cognitive theories. *Implement Sci*, 3, 36. https://doi.org/10.1186/1748-5908-3-36

Guttier, M. C., Silveira, M. P. T., Luiza, V. L. & Bertoldi, A. D. (2017). Factors influencing the preference for purchasing generic drugs in a Southern Brazilian city. *Rev Saude Publica*, 51, 59. https://doi.org/10.1590/s1518-8787.2017051006786

Hair, J., Black, W., Babin, B. & Anderson, R. (2010). Multivariate Data Analysis. Pearson.

Hajleh, M. N. A., AL-Samydai, A., Aloosi, Z., Abuhamdan, R., Al.Naimat, S., Abdelfattah, L. & Al-Halaseh, L. (2021). Factors affecting *purchasing behaviors of generic drugs versus originator counterparts in Jordan*, 11(9). https://japsonline.com/bib_files/abstract.php?article_id=japs3429

Hassali, M. A., Tan, C. S., Wong, Z. Y., Saleem, F. & Alrasheedy, A. A. (2015). Pharmaceutical Pricing in Malaysia. In Z.-U.-D. Babar (Ed.), Pharmaceutical Prices in the 21st Century (pp. 171-188). Springer International Publishing. https://doi.org/10.1007/978-3-319-12169-7_10

Hatem, G., Itani, R., Ajrouche, R., Abbas, N., Farah, R., Goossens, M. & Awada, S. (2023). Knowledge, perception and acceptance of generic drugs in the general Lebanese populat*ion: A cross-sectional survey among adults. The Journal of Medicine Access,* 7, 27550834221147789. https://doi.org/10.1177/27550834221147789

Heo, M., Kim, N. & Faith, M. S. (2015). Statistical power as a function of Cronbach alpha of instrument questionnaire items. *BMC Medical Research Methodology*, 15(1), 1-9.

Hong, C. S., Jia, C. W. J., Siew, L. M., Lin, S. K. & Hwa, T. C. (2018). Patients' Beliefs about Generic Medicines in the Outpatient Setting, Sibu Hospital. Pharmacy Research Reports, 1. https://research.pharmacy.gov.my/issue/pharmacy-research-reports-volume-1-2018

Ibrahim, M. I. M. & Bahri, S. (2022). Drug policies and pricing mechanism: The Malaysian perspective. In *International Drug Regulatory Mechanisms* (pp. 77-94). CRC Press.

Jinnah, S. B. A., Haque, A. & Jamaludin, M. A. (2020). Consumer Behavior Towards Over-The-Counter Medicine Purchase: The Extended Theory Of Planned Behaviour.

Kohli, E. & Buller, A. (2013). Factors influencing consumer purchasing patterns of generic versus brand name over-the-counter drugs. *South Med J*, 106(2), 155-160.

Malathi, A. & Mohamed Jasim, K. Why purchase generic medicine? A theory of planned behavior perspective. *Global Business and Organizational Excellence*, n/a(n/a). https://doi.org/https://doi.org/10.1002/joe.22227

Manzoli, L., Flacco, M. E., Boccia, S., D'Andrea, E., Panic, N., Marzuillo, C., Siliquini, R., Ricciardi, W., Villari, P. & Ioannidis, J. P. A. (2016). Generic versus brand-name drugs used in cardiovascular diseases. *European Journal of Epidemiology*, 31(4), 351-368. https://doi.org/10.1007/s10654-015-0104-8

Ministry of Health Malaysia. (2018). Medicine Prices Monitoring in Malaysia, 2017. https://www.pharmacy.gov.my

Ministry of Health Malaysia. (2022). Medicine Prices Monitoring in Malaysia, 2020. https://www.pharmacy.gov.my

Montano, D. E. & Kasprzyk, D. (2008). Theory of Reasoned Action, Theory of Planned Behavior, and the Integrated Behavioral Model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), Health Behavior and Health Education Theory, Research, and Practice (4th ed., pp. 516). Jossey-Bass.

Munisamy, A., Sahid, S. & Hussin, M. (2022). A financial literacy model of Malaysian B40 households: The case of financial well-being, *education level and socioeconomic status. Proceedings,* 82, 64. International Academic Symposium of Social Science 2022,

Naing, L., Winn, T. & Nordin, R. (2006). Practical Issues in Calculating the Sample Size for Prevalence Studies. *Archives of Orofacial Sciences,* 1, 9-14.

Naing, N. N. (2003). Determination of Sample Size. *Malaysian Journal of Medical Sciences*, 10(2), 84-86.

Salhia, H. O., Ali, A., Rezk, N. L. & El Metwally, A. (2015). Perception and attitude of physicians toward local generic medicines in Saudi Arabia: A questionnaire-based study. *Saudi Pharm J*, 23(4), 397-404. https://doi.org/10.1016/j.jsps.2015.01.014

Shafie, A. A. & Hassali, M. A. (2008). Price Comparison between Innovator and Generic Medicines Sold by Community Pharmacies in the State of Penang, Malaysia. *Journal of Generic Medicines*, 6(1), 35-42. https://doi.org/10.1057/jgm.2008.25

Sin, H. K. & Ismail, K. (2021). Perceived risk and trust in purchase intention towards generic drugs in Malaysia. *Jurnal Pengurusan*, 61, 17-30.

Siuki, H. A., Peyman, N., Vahedian-Shahroodi, M., Gholian-Aval, M. & Tehrani, H. (2019). Health Education Intervention on HIV/AIDS Prevention Behaviors among Health Volunteers in Healthcare Centers: An Applying the Theory of Planned Behavior. *Journal of Social Service Research*, 45(4), 582-588. https://doi.org/https://doi.org/10.1080/01488376.2018.1481177

Straka, R. J., Keohane, D. J. & Liu, L. Z. (2017). Potential Clinical and Economic Impact of Switching Branded Medications to Generics. *Am J Ther*, 24(3), e278-e289. https://doi.org/10.1097/mjt.0000000000000282

Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach's alpha. *Int J Med Educ*, 2, 53-55. https://doi.org/10.5116/ijme.4dfb.8dfd

Wagstaff, A., O'Donnell, O., Van Doorslaer, E. & Lindelow, M. (2007). Analyzing health equity using household survey data: a guide to techniques and their implementation. World Bank Publications.

Wong, Z. Y., Hassali, M. A., Alrasheedy, A. A., Saleem, F., Yahaya, A. H. & Aljadhey, H. (2014). Patients' beliefs about generic medicines in Malaysia. *Pharm Pract (Granada)*, 12(4), 474. https://doi.org/10.4321/s1886-36552014000400006

Zin, C. S., Taufek, N. H. & Bux, S. H. (2020). Drug Utilization and Drug Pricing in the Private Primary Healthcare System in Malaysia: An Employer Price Control Mechanism [Original Research]. Frontiers in Public Health, 8. https://doi.org/10.3389/fpubh.2020.551328

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

A Conceptual Model for Sustainable Green Port Practices: A Case Study of Northport (Malaysia) Berhad

Iznoorhakmal bin Ibrahim[1], Siti Ayu Jalil[1,2] & Siti Salwa Salleh[1,3]
[1]Malaysia Institute of Transport, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia
[2]Faculty Business and Management, Cawangan Selangor, Kampus Puncak Alam, Selangor, Malaysia
[3]College of Computing, Informatics and Mathematics, University Technology MARA Negeri Sembilan, Malaysia
akmalbeseri@yahoo.com, *ayu090@uitm.edu.my, ssalwa@uitm.edu.my

Abstract: This paper aims to propose a conceptual model for sustainable green port practices. The port industry is the main gateway of trade around the world. Nowadays, ports do not only focus on business purposes but also non-business purposes specifically environmental concerns surrounding the ports. As the public becomes more engaged with the risks of climate change and the composition of port shareholders changes, the philosophy towards port business has evolved too. The environment has become an in-thing for ports to emphasize the sustainability of their business. It is also the regulation that is implemented by the International Maritime Organization (IMO) to protect the environment and community because ports are also the source contributing to pollution. Thus, the introduction of Green Port Initiatives (GPIs) is the best way and resolution to highlight the importance of keeping a safe environment for the future. The study presents the conceptual framework portraying the elements concerning the sustainability of GPIs from the Northport perspective. Firstly, examining the level of awareness of GPIs among the port community; secondly mapping the port GPIs to the six key areas of Green Port Concepts; thirdly, understanding the initial key areas of initiatives which port community is interested in practicing; and fourthly, comparison GPIs at Northport with other port for benchmarking. The findings will provide ideas on the best strategies to implement and sustain the GPIs at Northport (Malaysia) Berhad towards their operation and more significantly meeting the United Nation's 17 SDGs.

Keywords: *GPIs, Sustainability, Green Port Practices Awareness, Green Port Concepts, Conceptual model, Northport (M) Berhad.*

1. Introduction and Background

Trading and port operations began via sea and ocean a very long time ago, mostly for economic reasons. A new age of trading patterns has been created by globalization and the shifting structure of the global economy. Ports become crucial links in the supply chain and logistic process, serving as transport hubs with intermodal networks such as sea, road, rail, and inland shipping. According to the Review of Maritime Transport 2021, the total number of commercial vessels in the world in 2020 is 2,134640 vessels. It is shown that the seaport industry is the main key to economic contribution. Therefore, the success of seaports around the world no longer stands on their exclusive performance. The achievement of success is not measured on their own core competencies, qualifications and performance but also depends on their external factors such as the networking surrounding the port. Environmental issues are mostly highlighted in each community of the shipping industry and become worse if no action is taken to prevent them. The port and shipping industries are also the factors that contribute the environmental pollution.

Due to the port's basic resources, particularly the lack of land, limited increase space and water surfaces have become an asset. All these issues create continual social and environmental pressure, posing a challenge to the seaport's economic activities. As a result, seaport competitiveness is impacted not by business growth but by non-business conditions, which are influenced by good human interrelationships and surroundings. Almost every seaport in the world is expanding with new development by expanding their shore or coastal region. Managing and maintaining a high level of safety, health, and the environment has become a greater task for all those involved in port operations as a result of these developments. Due to global issues such as climate change, pollution, and energy consumption, there has been an increasing interest in the environmental impact of port operations and expansion in recent years. The issue arises when a seaport expands its port area, resulting in increased pollution discharge. The seaport is also known to be the primary source of pollution in the environment due to maritime industry activities. The port's wastewater, noise

pollution, dust, and other pollution all came from the coast. Since the early 1980s, the environment has been a hot topic of conversation among port officials.

Sustainable development is described by the Brundtland Report (1986) of the World Commission on Environment and Development as balancing human needs without jeopardizing future generations' ability to meet their own needs. There has been a change of emphasis over time in the focus of international enforcement with the current issue of environmental sustainability management. For example, MARPOL now started to introduce the regulation for prevention of pollution from oil chemicals and other hazardous substances, ballast water, treatment, reduction in the use of harmful paints, reduction in emission from ships and port operations according to (Saeyeon et al., 2016). Regarding (Ricked et al., 2019) mention in their research on green ports in theory and practice mention in April 2018, the IMO announced a commitment of the shipping sector to reduce emissions by 50% by 2050. Establishing a target for the first time is certainly a positive step but history shows that such ambitions do not always translate into action. The long timeframe allows the possibility of delay and further modification of the deadline. Therefore, without clear and strong global regulations, the sustainability of GPIs cannot meet the main objective.

Accidents, oil spills, and water contamination from ballast water are among the main environmental concerns at sea. According to Europe Maritime Shipping Agency EMSA (2016), there were 3,296 occurrences involving 3,669 ships in just one year, with 36 ships lost and 115 people killed. 278 of these occurrences resulted in water pollution due to the leakage of bunker fuel and other residual oils and lubricants, which was attributed to human error in 62% of the cases. Another crucial issue that has taken decades to resolve is ballast water. Microorganisms can be transported around the world in ballast water, resulting in massive damage to local species. Based on (David et al., 2015), the IMO ballast water management convention, which came into force 13 years after its ratification and reflects the challenges of global environmental governance, took decades of labor by many organizations Finally, the concept emphasizes that human greed in mining scarce environmental resources must be controlled. The difficult issue for seaports is to execute business plans that address not only current but also future port needs. Seaports must also maintain a balance of corporate expansion while minimizing environmental effects. The strategic plan should be created in such a way that the environmental impact is minimized. A new fight will erupt between seaports, stakeholders, and ship owners. They need to come up with a fresh approach to develop a long-term port business.

So, the introduction of a Green Port Policy will help to ensure a long-term port operation while also decreasing environmental impact. Green Port is a sustainable and environmentally friendly port that meets all environmental requirements (Satir et al., 2018). Green Port Policy is being implemented to protect marine life, minimize air pollution, and keep the port clean and safe for port users. For example, the Port of Long Beach has implemented the Green Port Policy since 2005, which monitors all aspects of the environment. One key environmental issue addressed by the port is the reduction of air pollution within its premises. The port has funded technologies that enable large cargo ships to switch off their diesel engines while berthed, and it has introduced hybrid diesel-electric tugboats in the harbor to reduce emissions. These initiatives serve as an example to other ports worldwide and contribute to cleaner air in the Long Beach area. Additionally, the Port is now focusing on reducing greenhouse gas emissions over the next 60 years as part of its efforts to mitigate climate change. As a result, at the 32nd Asian Freight and Supply Chain Awards held in Shanghai in 2018, the Long Beach Port was recognized as the "Best Green Seaport" in the world for its GPIs. This prestigious award was the result of an annual survey involving thousands of professionals in the freight transportation industry who acknowledged the port's exceptional Green Port Policy (Lam et al., 2019).

Although the Green Port Idea has been introduced for decades in Western developing countries, it was only recently, brought to the Malaysian Port community around 10 years ago. In research by (Hairul et al., 2020), most of the Malaysian Port community is still unfamiliar with the concept of Green Port and its benefits for their daily lifestyle and environment several challenges would be faced when undertaking the initiative to become a green port. The environmental, economic, and social challenges that ports encounter include the increase in maritime traffic volumes, the increasing size of ships, and the cost of upgrading port capacity, the volatile energy prices, the transition to alternative fuels and stricter limits on Sulphur emissions principally. The latter is stimulated strongly and even imposed by the IMO regulations. In addition, the impact on maritime operators also needs to be considered. Indeed, in parallel to the heavy challenges, there is even

increasing pressure from shippers, who demand green supply chains, over and above any international regulations. There is also port state control and local port fines given in case of non-compliance with local regulations.

In 2021, Northport (Malaysia) Berhad was awarded the APEC Port Services Network (APSN) GREEN PORT 2020. The mission of the APSN is to strengthen economic cooperation, capacity building, and information and personnel exchange among port and port-related industries and services in the Asia-Pacific region to achieve the common prosperity of the APEC member economies. This is done by promoting the liberalization and facilitation of trade and investment as well as improving supply chain security. This achievement was made possible through the efforts of Northport (Malaysia) Berhad whereby various green initiative programs were implemented related to alternate energy viz solar energy, conservation, including replacement of conventional lighting with LED lighting, investment in more energy-efficient and environmentally friendly cargo handling fleets, monitoring carbon emissions from port equipment and vehicles, marine water quality monitoring and treatment before being released into port waters, paperless transaction, establishing waste management standard operating procedures and other ongoing green initiatives.

Although GPIs have been used for years in Western developing countries, they were just recently introduced to Malaysia's port sector, roughly ten years ago. Therefore, most of Malaysia's port industry is still concerned about how to adapt to the concepts of Green Ports and its advantages for their daily lifestyle and environment and not focusing more on sustaining the GPIs. While some studies have looked at the initial implementation of GPIs, there is limited information on how to sustain and make these initiatives effective over the long term. The lack of established practices and comprehensive data on sustaining GPIs makes it challenging to identify the best strategies for sustainable green port practices in ports (Lim et al., 2019). However, the critical issue of concern is how the port can sustain its green initiative programs. Moreover, all the ports must face three main challenges to implement green port initiatives including Northport. Northport needs to sustain its recognition for its award of Green Port 2017 and 2020.

Firstly, the effectiveness of the GPIs implementation at Northport. Northport needs to trace the effectiveness of GPIs since their location and infrastructure are different as they have two terminals which are Northport and South Point. They also must ensure that GPIs should be fully implemented in both terminals. So, it will become a major issue on how they could the GPIs to ensure sustainability and effectiveness. According to research (Notteboom, 2020) in his research on the role of seaports in green supply chain management: initiatives, attitudes, and perspectives in Rotterdam, Antwerp, North Sea Port, And Zeebrugge, the author mentions that implementation of initiatives was easier to monitor if the target location was centralized. A part from that, the different facilities and services among the two terminals also should be the focus for the sustainability of GPIs because The Northport provides the services of container and conventional services while the South point provides only the conventional services. Both terminals serve as important hubs that facilitate goods movements. The distribution of freight such as raw materials, parts and finished consumer products by water transportation mode has created rampant economic activities for local communities and the worldwide market.

Secondly, awareness among the port community in the implementation of GPIs. Although GPIs have already been implemented for a certain period, there a less study about awareness for GPIs whether the level of awareness is low or high among the port community. It is important because the researcher wants to know that the port community already adopted the implementation of initiatives. The GPIs maker should ensure that the port community is aware of the GPIs and should have a model of facilities for information between the GPIs maker and the port community that affects sustainability (Simoni et al., 2020). Every individual in the port industry has their role to live and work more to sustainability, but when it comes to improving sustainability in green port initiatives, some people are in a unique position that will affect the changes according to the awareness. The current issue is that not enough companies have yet figured out how to link their employees' awareness of green port initiatives sustainability with employees' daily work and companies' operations.

Thirdly, the investment cost for implementing GPIs. Although in particular data centers can have a tremendous positive effect by implementing GPIs and going green makes good financial sense for the future

the hidden cost of implementing the initiatives cannot be avoided. The cost of every GPIs implementation will rise for training for the port community. The training aims to make the port community understand what are the GPIs and how to ensure they support and practice the initiatives that will be implemented in the future. Some of the investment cannot be avoided and actually, it is worth the initial expense. For example, Northport already implemented initiatives by replacing light bulbs for using energy efficiency with LED bulbs. Apart from that, new technology for example Electric Rubber Tyre Granty (ERTG) for container operation also raises the cost because they need to replace the new equipment and vehicles to support the green port initiatives. Ports have been trying to become "greener" by introducing new technology, upgrading their infrastructure, and decreasing their energy use. According to the research by (Beleya et al., 2020), the authors mention that, from financial institutions and investors' view in providing financing services, they normally assess the revenue projections and major risks of a business.

The quantity, timing, cost, and availability of financing will all be directly impacted by how well this risk-return analysis is done. The cost of implementation of GPIs also directly drives toward sustainability. Good GPIs practices can improve business performance and reduce business costs by cutting the use of raw materials, energy, water and resources. Saving energy is the easiest way for the port to save money in daily operations. In doing so, ports can reduce the carbon footprint of their business. Changing employee behaviors, using more efficient equipment and designing more efficient processes are the best ways port can lower their cost for operation in the long term (Iris et al., 2019). Investments not only need to be shown to be reliable; they must also be flexible and scalable to produce predicted profits if Malaysian ports are to get specific grants from financial organizations. Port also needs to conduct training for their employee on how to handle the new equipment and vehicle. As a result, the effectiveness of GPIs, awareness among the port community in the implementation of green port practices and the investment cost for implementing GPIs need to be considered for long-term sustainability.

2. Literature Review

Concept of Green Port: The concept of "Green Port" development is the integration of the environmentally-friendly method of port activities, operation, and management. There are several ways to define measures for the sustainability of "Green Port" implementation such as the implementation of relevant policies for the reduction of emissions into the atmosphere, the use of renewable energy port operations and activities, recycling and reuse of materials. According to (Badurina et al., 2017), one of the main measures for the application of the concept of "Green Port "development is the enhancement of the term "Green" growth in the further development of the port systems and establishment of environmental planning within the mentioned areas.

The environmental concern regarding the port systems is very diverse. They can arise from maritime activities such as internal port operations, transshipments of transport activities within the port area, and warehousing activities. Therefore, the impact of the increase in transport activities also CO2 emissions and produces potential threats to serious environmental pollution. In recent years, the priority has been to minimize the harmful impact of port operations on the environment. Seaports are trying to achieve a" green" title by introducing new technologies and renewal systems for energy production in the port infrastructure (Othman et al., 2022). Therefore, the model of "Green Port" development is an important concept for the development and operation of the port companies to prevent environmental destruction, loss of biodiversity life and sustainable use of natural resources. Apart from that, the port and port authorities will benefit greatly from adopting a green operation because green is typically connected with energy efficiency. The advantage can further enhance all operational and economic aspects while also reducing operating costs over the long run for the participating port (Nazry, 2019). The earlier concern and awareness about the environment arose in 1972 at the Stockholm Conference on the Human Environment when the community of the conference acknowledged the conflict between environment and development. The starting turnaround in using sustainable development is when the World Commission on Environmental and Development was initiated by the General Assembly of the United Nations in 1982 1987 in its report "Our Common Future' chaired by former Prime Minister of Norway, Gro Harlem Brundtland defining the sustainable development that was acceptable by all. In the "Brundtland Commission" Report, a brief of sustainable development can be defined

as the ability to make the development sustainable to ensure that it meets the requirements of the present without compromising the ability of future generations to meet their own need.

Sustainable Green operation refers to the business strategies and activities that meet the current and future needs of the port and its stakeholders while protecting and sustaining human and natural resources. According to research by (Ashok, 2019) stated that sustainable development is not a new idea It simply means living safely with nature in full recognition of the needs of all other species. This is not just 'survival of the fittest', humans must protect even the weakest of the species to survive because each species has a role to play in ability that is ultimately beneficial to the earth and all its human population. Apart from that, Sustainable development should be seen as a subset of green growth rather than as a replacement for it, and revealed by (Moon et al., 2018). It is more focused and involves an operational policy agenda that can assist in making real, observable advancements where the economy and the environment converge. It focuses on creating a clean environment, investment, and innovation that can result in fresh avenues for economic growth that are compatible with a robust ecosystem. Ports around the world have begun to run the new idea of sustainable "Green Growth". The green growth operation focuses on innovations to decrease airborne emissions that are harmful to all business locations inside the port. Embracing the green operation will bring a lot of advantages to the port and port authorities as green is normally associated with the efficiency of using energy. The benefit can further improve all economics and operational activities, as well as reduce operating costs in the long-term period for the participating port research (Nazri, 2019). The sustainability of GPIs depends on the various green port policies and tools adopted by port or public authorities. Different ports may adopt different policies considering the local regulatory, geographical, economic and political background. Various policies and tools are classified into three main categories for example costing, monitoring and measuring environmental standard regulation (Ren et al., 2018).

Various multinational initiatives are paving the way to a greener future. In 2008, the International Association of Ports and Harbours (IAPH) asked its Port Environment Committee to develop a framework to help ports in combating climate change in partnership with regional port organizations. As a result, the C40 World Ports Climate Declaration was adopted in 2008, resulting in the World Port Climate Initiative (WPCI), which now includes 55 ports around the world that pursue various green initiatives such as offering discounts to vessels that score above a certain threshold on the Environmental Ship Index (ESI). With the advent of the World Ports Sustainability Program in 2018, this effort has grown (WPSP). The International Association of Ports and Harbors (IAPH), the American Association of Port Authorities (AAPA), the European Sea Ports Organization (ESPO), the Worldwide Network of Port Cities (AIVP), and the World Association for Waterborne Transport Infrastructure (WAWI) are working together on this initiative (PIANC). The program is designed to adhere to the United Nations' 17 Sustainable Development Goals. Resistant infrastructure, climate and energy, community outreach and port-city communication, safety and security, governance, and ethics are the five core themes. While initiatives like this that focus emphasis on better environmental practices at ports through sharing best practices and emission reduction commitments are good, the voluntary nature of such schemes means that major emission reductions are still delayed.

Awareness and Port Community's Engagement towards Sustainable Green Port Practices: The introduction of GPIs will protect the port community and environment as this policy will also have an impact on the community. Community engagement is essential for the GPIs to run smoothly. Apart from that, GPIs are very important to ensure the sustainability of port community safety. According to (Roh, 2016), the implementation of employee safety, development of working conditions, and support for community projects may increase the social performance and reputation of the company. According to the Corporate Social Responsibility (CSR) report, connections with the local community to promote a positive image and build trust should be implemented. After the implementation of GPIs, it should have a monitoring action by the initiative's maker for the long-term period. They should educate and make the port community understand the impact of the initiatives. It will increase their performance at work and become more productive. According to research about the environment (Imtiaz et al., 2020) the owner's awareness should be considered on how to promote initiatives with relevant stakeholders to increase proactiveness. The level of concern and awareness for the initiatives will increase from the education and knowledge. Numerous studies have demonstrated that education and training may improve people's awareness of sustainable green technology awareness. According to the research (Fadhlur Rahim, 2018), organizations should raise

employee awareness of green port practises and ensure they have a basic knowledge about that. However, implementing green practices become more expensive due to the number of learning and training to ensure the initiatives can be implemented smoothly. As a result, the success of the organization's training courses will enhance the sustainability of green port practices by employees, contractors, and port users.

GPIs by International and Local Port: The example country that is interested in implementing the "Green Port" is Turkey due to the establishment of a sustainable environmental policy at the port and the application of this implementation to all operations of the port facilities on the grounds of adoption by all business owners and stakeholders voluntarily. In the "Green Port" implementation, they have seven strategies which are the preservation of natural life, air policy, water policy, land and sediment policy, education policy and energy policy. To show that they are interested in implementing this concept, the Turkish Transportation, Communication and Maritime Ministry and Turkish Standard Institution initiated the "Green Port Project in December 2014. This idea encourages Turkey's Ports to be environmentally friendly ports or Green Ports. To achieve this accreditation, the port must fulfill some responsibilities before requesting a Green Port Certificate. These are to improve the seven strategies in Green Port and improve the working conditions. After the port had implemented the all strategies and policies, the Turkish Standard Institution awarded a certificate to the port. Now, three ports (Asyaport, Marport and Port Akdeniz) are Green Ports in Turkey. In this manuscript, Marport and Asyaport were selected and assessed.

Meanwhile, the Port of Long Beach also known as Long Beach's Harbor Department, is the second busiest container port in the United States, after the Port of Los Angeles. This port established a reduced speed zone in 2006, which rewarded vessel operators for slowing vessels within 20 nautical miles (nm) of the port, the zone was extended to 40nm in 2010. This program cut the CO_2 pollution from ships by an estimated 26,700 tons in 2007. The Port's annual Air Emissions Inventory confirms its ongoing progress. The study, which isn't released until it's reviewed by regional, state, and federal regulatory agencies, shows in its most recent update that, years ahead of schedule, the Port reached and surpassed its third and final 2023 target for slashing ground-level air pollution from port-related operations. To do its part, the Port is moving forward with measures to transition off-road cargo handling equipment to zero-emissions vehicles by 2030 and the truck fleet to zero-emissions vehicles by 2035. The challenge involves accelerating the development, deployment, and commercialization of machines powered by clean energy.

To minimize the environmental impact and maintain sustainable operation in the long period, several initiatives regarding the port operators have been introduced in a very timely manner at both national and international levels. In Malaysia, for example, the Green Port Policy was introduced by Lembaga Pelabuhan Johor (LPJ) in 2010. This policy, incorporated environmental issues into the port core strategies for port development and operations to be both environmentally friendly and commercially profitable. The implementation of this policy indicates recognition of port sustainability development as a key driver in port development in the future. As the regulatory authority, PA has oversight over all development within the waters of Pasir Gudang Port (PGP) and the Port of Tanjong Pelepas (PTP). This includes ensuring the safety of port development and operation as well as ensuring any port development has minimal impact on the environment. Their Green Port policy guideline also mentions encouraging positive impacts beyond economic benefits to the surrounding community and maintaining a balance between the environment, society and economy in any port planning, development, and operation. The JPA Green Port Policy will drive port operation and development in Johor that is based on the ethics of sustainability and greater responsibility towards the environment and the community.

Port Klang is currently being developed as the National Load Centre with several load centering and hubbing strategies pursued since 1993, the facilities and services in Port Klang are now synonymous to those of World class ports and monitored by Lembaga Pelabuhan Klang as the port authority. The port has trade connections with over 120 countries and dealings with more than 500 ports around the world. It is ideal geographical location makes it the first port of call for ships on the eastbound leg and the last port of call on the westbound leg of the Far East-Europe trade route. Port Klang aims to be Malaysia's premier maritime hub leveraging sustainable port development in line with the National Transport Policy. The Port Authority will continue to work closely with Northport, Westport, and other stakeholders to ensure that the environment surrounding their ports is protected and preserved for future generations to come.

Westport is committed to running its business in a responsible, environmentally sound, and sustainable manner. They recognize that the services offered to their clients have both direct and indirect environmental impacts. Efficient ports are important for the economic development of their surrounding areas. However, the related ship traffic, the handling of cargo in ports, and hinterland distribution can result in several negative environmental impacts on operations and the impact on the sea and land. In 2020, Westport its commitment by introducing a Green Port Policy and complementing the existing Environmental and Sustainability Policy, Their Green Port Policy covers all aspects of port operations including energy management, wastewater management and reduction best practices, scheduled waste, water consumption, noise pollution, and climate change. This policy is to reduce the impact group operation has on the environment through green initiatives. The main goal is to promote sustainability and environmental awareness at all levels of their staff.

Northport (Malaysia) Bhd awarded APEC Port Services Network (APSN) GREEN PORT 2020 unification for the second time since 2017. The port took the initiative in 2013 by buying 13 units of Electric Rubber Tyre Gantry Cranes (E-RTG) for energy saving and reducing emissions. Apart from that, this type of crane a good environmentally friendly because it uses electric supply power. Based on their Chief Executive Officer, Dato Hj Rubani Dikon at that time said using this E-RTG can save the cost of operation due to using only 35% more electric energy than diesel. This is a part of their concern to implement the Green Port policy toward the port sustainability.

Green port concepts, in the port business, can be a comprehensive attempt to handle environmental issues from a port operation, considering all factors given in the green port concept. To become the port of the future, Malaysia's ports must undergo a transformation that is well-planned and coordinated, as well as great in terms of operational efficiency, environmental protection, green economic growth, and societal endeavors. This transformation concept can begin with regulatory compliance, followed by aggressive action to address all environmental issues, optimization on a proactive strategy to accomplish sustainable goals, and finally transformation into a fully Green Port.

Now, it is already over three decades since the term sustainable development approach to the world in 1987. Port communities, governments, policymakers, and even societies have gained a lot of knowledge throughout the years as researchers continuously review sustainable development. In term of achieving sustainable development, (Patel, 2012) highlighted that stakeholder and market orientation is the key players in developing sustainable competitive advantage and creating long-term value that can improve firm performance.

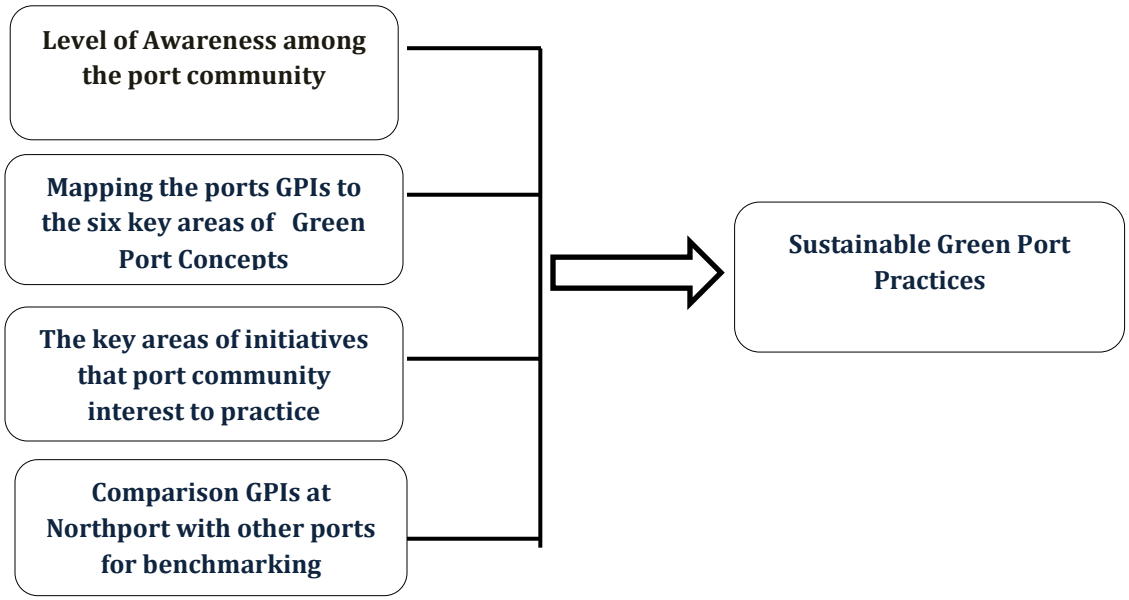
The Importance of Benchmarking for Sustainable Green Port Practices: The objective of sustainable green port practices is to find benchmarking for the sustainability performance of ports and identify the chances for improvement based on research (Adegoke, 2018). Sustainability focuses on the long-term preventing the destruction of environments and saving energy. In the business sector, sustainability is linked to an organization's all-encompassing strategy that considers everything from internal and external factors. Sustainability benchmarks are a method of systematically determining the success of standards, certifications, organizations, businesses and factors that have a beneficial effect. By identifying a sustainability standard, they can adopt the other company policies or initiatives that already bring benefit for their company too. In research (Ferrari, 2019), the author summarizes that benchmarking is a continuous learning process that compares an organization's operational practices to other organizations in the same or related industry. By applying a variety of indicators, benchmarking is a great way to enhance performance that makes the organization successful in that field. Benchmarking provides concepts on how to improve performance. As a result, the main goals of benchmarking are to identify areas for improvement and encourage change for good. Therefore, benchmarking is a useful technique for finding a solution by discovering other initiatives and policies. It also serves as a basis of comparison for analysis and develops something entirely new. Therefore, the objective of benchmarking is to implement changes and create continuous improvements to business operations, goods, and services. Therefore, benchmarking procedures aid in understanding the person who created the program. When an organization benchmarks, it has accessibility to external references and practice guidelines on which to construct its analyses and construct its operating procedures.

3. Conceptual Model of Sustainable Green Port Practices

According to the literature review, some factors influence the conceptual model of sustainable green port practices such as the level of awareness among the port community, mapping the ports' GPIs to the six key areas of Green Port Concepts, the key areas of initiatives which port community interest to practice and comparison GPIs at Northport with other port for benchmarking. The concept of Green Port development focuses on integrating environmentally friendly methods into port activities, operations, and management. This involves implementing policies for emissions reduction, utilizing renewable energy sources, promoting recycling and reuse, and preserving natural resources. Ports are increasingly aware of the environmental impact of their operations and are striving to achieve "Green" status by adopting new technologies and sustainable practices.

Initiatives such as the C40 World Ports Climate Declaration and the World Ports Sustainability Program demonstrate multinational efforts to combat climate change and promote environmental stewardship in the port industry. Local port authorities in countries like Turkey and Malaysia have taken proactive steps to implement Green Port policies, leading to the development of environmentally friendly port systems. By embracing sustainability, ports can safeguard the environment, support economic growth, and create a greener future for generations to come. Achieving sustainable development requires the active involvement of stakeholders, market orientation, and a commitment to continuous improvement in all aspects of port operations. With the knowledge and experience gained over the years, the port community is moving towards a fully Green Port transformation to ensure long-term value and success. These factors need to be considered to make sure that sustainable green port practices will be achieved and discussed in the following sections. The figure below shows the conceptual model for sustainability practices of GPIs and this conceptual model the outcome from the literature review.

Figure 1: Conceptual Model of Sustainable Green Port Practices



Level of Awareness among the Port Community: The first factor is to examine the level of awareness among the port community who are from Northport employees, contractors, and port users about GPIs. Northport already implemented the GPI starting from the year 2017 until now and has already been awarded APEC Port Services Network (APSN) GREEN PORT 2020. So, the first action is to analyze the level of awareness because can be used as a tool measurement to see if it can be sustained for a long-term period. Aside from that, information about their understanding of GPIs can be detected, and how they practice the GPIs that are implemented by Northport. The different backgrounds of the port community such as culture and education also influence the level of awareness. Awareness of any program or initiative should be considered as a parameter to ensure the program's objective can be achieved. Awareness not only comes

from the target community but also the initiative's marker. After the implementation of green port initiatives, it should have a monitoring plan by the initiative's maker for the long-term period. They should educate and make the port community understand the initiatives' impact. It will increase their performance at work and become more productive. According to research by (Imtiaz et al**.,** 2020) about the environment, the owner's awareness should be considered in how to promote initiatives with relevant stakeholders to increase proactiveness. Another author also mentioned that the focus of employee awareness is to ensure the alignment of the employee with the organizational goals or mission and to go beyond what is expected **(**Osborne et al**.,** 2017). All organization in the world already set their goal to achieve. To ensure their employee, follow their goal, the organization conducted many pieces of training and advertisement about their goal. So, the role of an employee is very important in each organization to ensure the goal can be achieved. Education and understanding will develop the level of awareness and concern toward the initiatives Nevertheless, it is not easy to achieve the sustainability practices of GPIs but it is not impossible if can raise awareness. The high level of awareness toward sustainable green port practices can be attributed to global environmental concerns, stakeholder expectations, government policies, and knowledge-sharing platforms. These factors combined create a conducive environment for raising awareness and promoting sustainable practices in the maritime industry and objective no one is achieved.

Mapping the Ports GPIs to the Six Key Areas of Green Port Concepts: Hairul et al. (2020) mentioned that the implementation of the Green Port Concept covers six key areas in ports, to achieve the environmental sustainability goals that will benefit the port for their initiatives. Table 1 is derived from a study conducted by (Hairul et al., 2020) and has been customized to suit the requirements of this study. To understand the GPIs in the key area of the Green Port Concept, all the GPIs implemented by Northport have been categorized into six key areas of green port concepts as portrayed in Table 1. Mapping these GPIs to the six key areas of the Green Port Concept is crucial for ensuring the relevance of the initiatives compared to those of other ports. This approach also facilitates the identification of implemented initiatives and those that are still ongoing. It reflects Northport's commitment to sustainable and environmentally responsible practices within the port industry.

Table 1: Mapping the GPIs to the key Area of Green Port Concept

Key Area	Initiatives
Energy Consumption	-Implementing solar panel system -Utilization of Northport's 13 units of Electrified Rubber Tyred Gantry -Cold ironing (shore power)
Sustainable Social and Environment Development	- Launched a Landscape Competition between divisions - Conservation of mangroves surrounding the port - Promotion campaign twice yearly through the 3R (reduce, reuse and recycle) - initiated energy saving awareness to encourage staff to turn off lights when not in use and fix air conditioning temperature to 25°C
Water Quality	- Marine water quality monitoring and treatment before being released into port waters - Effluent waste water monitoring which also includes vessel-generated pre-wash/waste water.
Waste Management	-Integrated Waste Management Centre - Recollection of spilled cargo by consignee.
Air Quality	-monitoring carbon emissions from port equipment and vehicles, - Air pollution prevention
Sustainable Business Practices	-Conducted Sustainable Port Development which includes ensuring sustainable design in new projects and developments as well as building

	climate resilience into terminal developments and redesign. -Explore opportunities with suppliers for environmental-friendly equipment and bio-degradable products

Generally, major ports in the world starting to introduce and implement the GPIs in their ports. The GPIs provide benefits that could further improve all economics and operational activities, including reducing operating costs in the long-term period via their participation in port research (Nazri, 2019). The efforts of Northport (Malaysia) Berhad can be seen whereby various green initiative programs implemented related to alternate energy viz solar energy, conservation, including replacement of conventional lighting with LED lighting, investing in more energy-efficient and environmentally friendly cargo handling fleets, monitoring carbon emissions from port equipment and vehicles, marine water quality monitoring and treatment before being released into port waters, paperless transaction, establishing waste management standard operating procedures and other ongoing green initiatives.

The Green Port Concept is a holistic and sustainable approach to port operations that revolves around six fundamental areas. The first area, energy consumption, aims to minimize the environmental impact of ports by reducing overall energy use. Ports are energy-intensive facilities, and by adopting energy-efficient technologies, embracing renewable energy sources, and implementing conservation measures, they can significantly decrease their carbon emissions and contribute to a greener future. Since air quality is a major concern, the Green Port Concept emphasizes measures to reduce air pollutants, such as adopting cleaner fuels, using electric-powered equipment, and implementing emission reduction strategies to improve air quality and public health in the port vicinity. Waste management is another critical pillar of sustainable port operations since ports generate a significant amount of waste, including solid waste from cargo handling and hazardous waste from various industrial processes. By implementing effective waste management practices, including recycling and proper disposal, ports can minimize their environmental impact and reduce the strain on local waste management systems.

The second area, sustainable development, underscores the importance of balancing economic growth with environmental and social responsibilities. Ports play a vital role in trade and commerce, but sustainable development ensures that their expansion and activities are carried out in harmony with the environment and local communities. This approach encourages the preservation of natural habitats, biodiversity, and cultural heritage while fostering economic growth. Water quality is another crucial aspect of the Green Port Concept. Ports are often located near sensitive marine ecosystems, making water quality preservation essential. By implementing stringent pollution control measures, treating wastewater, and mitigating runoff, ports can help maintain the health and cleanliness of surrounding water bodies, benefiting both marine life and nearby communities.

4. The Key Areas of Initiatives That Port Community Interests in Practice

The information on key areas of initiatives that the port community is interested in practicing can be gained after the process of analyzing the level of awareness among the port community about GPIs. The port community that is concerned and understands the concept of GPIs will practice the initiatives because they realize the outcomes from GPIs have a positive impact on them. Employee performance toward the GPIs is an action or behavior of employees at work to produce an output of goods or services. Moreover, attitudes are formed from the process of understanding (cognition) to stimuli such as organizational policy, then born affection feelings like or dislike, continued intention to do, and end the process in the form of action or behaviors. This shows that if employees understand or perceive work or policy, they will be satisfied and increase their performance of employees by research (Ariffin et al., 2019). Green port initiatives gave a lot of benefits not only for the short term but also for the long-term period. In this case, making the port community a part of the GPIs team also will drive them directly to the objective of the sustainability of GPIs. In addition, the implementation of new environmentally friendly technology should be introduced to the port community in the port operation.

So, Northport needs to invest more cost for new technology and training for the port community to conduct the new technology. Based on (Prashanth et al., 2020), mention that all new implementation needs to consider the costs and financial management. The cost of implementation of GPIs also directly drives toward sustainability. Good GPIs practices can improve business performance and reduce business costs by cutting the use of raw materials, energy, water and resources. Saving energy is the easiest way for the port to save money in daily operations. In doing so, ports can reduce the carbon footprint of their business. Any action to make or buy new pricing policies has to be considered to encourage sustainable and environmentally friendly practices. Hence, we need to identify the initiatives that port community interest to practice and contribute their support for GPIs. So, Northport should give more attention to those initiatives and monitor them all the time for the sustainability of GPIs. In addition, when they identified the key area that the port community is interested more in practices, they adopted a culture of continuous improvement and innovation within the port. Encourage employees, stakeholders, and port users to propose and implement new ideas, technologies, and practices that can further enhance sustainability. Embrace emerging technologies and trends in the field of sustainability to stay at the forefront of green port initiatives.

Comparison of GPIs at Northport with other Ports for Benchmarking: Comparison of GPIs at Northport with other ports that already implemented the full GPIs is very important as a benchmarking. For example, Long Beach Port was awarded the "Best Green Seaport" in the world at the 32nd annual Asian Freight and Supply Chain Award, which was held in Shanghai in 2018. The award reflects the annual polling of thousands of freight transportation professionals who recognized the port's Green Port Policy which has led to major improvements in air and water quality through initiatives within the Clean Air Action Plan and the Technology Advancement Program. This study also will identify the other port initiatives and make a comparison with Northport initiatives. As a result, the comparison of the Northport GPIs with other ports will assist Northport in implementing the new initiatives that other ports already implemented to bring new benefits to Northport. There are several benefits of benchmarking with other ports. Performing the regular benchmarks contributes to a company's overall effectiveness and efficiency by allowing it to identify potential areas of improvement for GPIs by looking at the most effective and efficient ports within Northport. By exchanging knowledge and experiences with other ports, Northport can learn from successful practices adopted elsewhere and adapt them at their port.

To benchmark their GPIs, Northport has established the ESG (Environmental, Social, and Governance) committee to review and monitor their GPIs. Another reason benchmarking for GPIs is important is because it gives a way to discover opportunities for increased growth and success. According to (Lee et al., 2017), performing benchmarks allows for identifying areas for improvement to get the company on par with the growth and success of other GPIs in the port industry. Assessing what other companies are doing successfully is an opportunity that develop a plan to boost performance and take advantage of opportunities. As a benchmark, Northport has successfully implemented all the GPIs associated with the Green Port Concept. Some of the initiatives implemented by Northport, such as solar energy utilization, wastewater management, shore supply current, and energy-saving practices, have also been adopted by other ports. This demonstrates that Northport has established itself as a benchmark for sustainability and has been recognized with two GPAS awards. Northport can serve as a model for other ports in terms of benchmarking and maintaining sustainable green port practices.

5. Conclusion

In conclusion, the biggest challenge in embarking on any green initiatives and practices is that creating and sustaining them is more significant than having to bear the higher cost of investing in sustainable solutions like renewable energy. Additionally, the initiators need to focus on their initiatives to ensure that the impact of GPIs will lower the operation cost and bring profit in the future. An important aspect to consider, terminating activities that pollute or are not sufficiently energy-efficient does not imply green practices, more essential is that the initiators must focus on continuous monitoring of GPIs' progress for sustainability. A good suggestion provided by (Latip et al., 2022) is to introduce CO2 absorption ability by the local authority as one of the policies to improve the air quality level in the surroundings. To ensure the conceptual model of sustainable green port practices can be implemented, the effort from all parties should be engaged to enhance the quality of life, safeguard ecology, and protect natural resources for future generations. The high level of

awareness towards the sustainability of green port initiatives can be attributed to global environmental concerns, stakeholder expectations, government policies, and knowledge-sharing platforms. These factors combined would create a conducive environment for raising awareness and promoting sustainable practices in the maritime industry an objective no one has achieved. In the business world, sustainability is linked to an organization's all-encompassing strategy from manufacturing to logistics to customer service.

Northport's decision on new projects, operations at the wharf, and cargo handling services should consider the GPIs sustainability goals to ensure any new unfriendly environmental activities from taking place and replace older unfriendly environmental activities with sustainable ones to balance business growth and environmental sustainability. The study by (Siron et al., 2023) in their findings confirms that employee participation in environmental management and environmental practices is essential in an organization or facility. Although Northport demonstrates a strong commitment to sustainable practices through the implementation of GPIs, further details regarding the specific key areas and their impact on its port sustainability would provide a more comprehensive understanding.

Northport has achieved commendable success in its sustainability practices for Green Port Initiatives. The port's commitment to environmental responsibility, resource conservation, community engagement, and continuous improvement has positioned it as a leader in sustainable port operations. The successful sustainability of GPIs requires adherence to guidelines and best practices, effective monitoring systems, top management commitment, continuous training, benchmarking, and financial assistance. Ports and the shipping industry must overcome organizational and economic barriers to achieve sustainable GPIs. The findings of this research contribute valuable insights and serve as a benchmark for other ports seeking to enhance their sustainability practices and contribute to a greener maritime industry.

Acknowledgment: We would like to extend our greatest appreciation to the Malaysian Institute of Transport (MITRANS) for sponsoring the payment of this article through its Vanguard 3.0 research grant.

References

Adegoke, A. (2018). Benchmarking sustainability performance of ports (Doctoral dissertation, Concordia University).

Arifin, Z., Nirwanto, N. & Manan, A. (2019). Research Gate. Improving the Effect of Work Satisfaction on Job Performance through Employee Engagement. *International Journal of Multi-Discipline Science (IJ-MDS),* 2(1), 1-9.

Verma, A. K. (2019). Sustainable development and environmental ethics. International Journal on Environmental Sciences, 10(1), 1-5.

Badurina, P., Cukrov, M. & Dundovic, C. (2017). Contributions to the implementation of the "*Green Port" concept in Croatian seaports,* 31, 10.31217/p.31.1.

Beleya, P., Veerappan, G., Ding, W. J., & Tan, J. (2020). Challenges in attaining sustainable development goals in Port Klang: Port management perspective. International Journal of Supply Chain Management, 9(1), 349-355.

Bin Yahya, N. (2019). Adopting a Green Port Standard for World's Sustainability. *Journal of Arts & Social Sciences,* 2(2), 1-11.

Brundtland Report. (1986). Report of the World Commission on Environment and Development: Our Common Future. Chapter 2: Towards Sustainable Development. 41p

David, M. & Gollasch, S. (2015). Global Maritime Transport and Ballast Water Management – Issues and Solutions. Springer Science and Business Media. https://doi.org/10.1007/978-94-017-9367

Europe Maritime Safety Agency. (2016). EMSA Facts and Figures 2016. Chapter 3 Providing Technical and Scientific Assistance and Facilitating Technical Cooperation. 21

Fadhlur, R. & Haslinda, M. (2018). Green technology awareness: A case of Malaysia. Open Journal Systems, 1(2)

Ferrari, A. M., Volpi, L., Pini, M., Siligardi, C., García-Muiña, F. E. & Settembre-Blundo, D. (2019). Building a sustainability benchmarking framework of ceramic tiles based on life cycle sustainability assessment (LCSA). *Resources,* 8(1), 11.

Hairul, M., Farah, U., Abd Rahman, A. & Shathees, B. (2020). Investigating Implementation of Green Port Initiative at Johor Port Berhad. International Journal of Advanced Trends in Computer Science and Engineering, 9. https://doi.org/10.30534/ijatcse/2020/1591.12020

Hossain, M. I., San, O. T., Ling, S. M., & Said, R. M. (2020). The role of environmental awareness and green technological usage to foster sustainable green practices in Bangladeshi manufacturing SMEs. International Journal of Advanced Science and Technology, 29(7s), 3115-3124.International Chamber of Shipping (ICS). (n.d.). Shipping Facts. Environmental Initiatives. Retrieved from http://www.ics-shipping.org

International Maritime Organization (IMO). (2018). Initial IMO GHG Strategy. IMO's work to cut GHG emissions from ships. Retrieved from http://www.imo.org

Iris, Ç. & Lam, J. S. L. (2019). A review of energy efficiency in ports: Operational strategies, technologies and energy management systems. *Renewable and Sustainable Energy Reviews*, 112, 170-182.

Lam, J. S. L. & Li, K. X. (2019). Green port marketing for sustainable growth and development. *Transport Policy*, *84,* 73-81.

Latip, N. & Umar, M. U. (2022). A Sustainable Carbon Footprint Analysis for the City of Kuantan, Pahang Malaysia. *Planning Malaysian Journal*, 20(4), 1-7.

Lee, T. & Nam, H. (2017). A study on green shipping in major countries: in the view of shipyards, shipping companies, ports, and policies. *The Asian Journal of Shipping and Logistics,* 33(4), 253-262.

Lembaga Pelabuhan Johor. (2014). A green port policy. Corporate Information. Retrieved from http://lpj.gov.my

Lim, S., Pettit, S., Abouarghoub, W. & Beresford, A. (2019). Port sustainability and performance: A systematic literature review. *Transportation Research Part D: Transport and Environment*, 72, 47-64.

Moon, D., Woo, J. & Kim, T. (2018). Green Ports and Economic Opportunities. In L. Froholdt (Ed.), Corporate Social Responsibility in the Maritime Industry, 5-19. Springer.

Nazri, Y. (2019). Adopting a Green Port standard for world's sustainability. *Journal of Arts & Social Sciences,* 2(2), 1-11.

Northport, (M) Berhad. (2020). MMC Corporation Berhad. Port and Logistics. Retrieved from http://www.mmc.my/page31

Osbourne, S. & Hammoud, M. (2017). Effective Employee Engagement in the Workplace. International Journal of Applied Management and Technology, 16. https://doi.org/10.5590/IJAMT.2017.16.1.04

Othman, A., El-gazzar, S. & Knez, M. (2022). A framework for adopting a sustainable smart sea port index. *Sustainability*, 14(8), 4551.

Patel, K. (2012). Extended stakeholder orientation: Influence on innovation orientation and firm performance. Kennesaw State University.

Prashanth, B., Geetha, V., Jian, W. & Jason, T. (2020). Challenges in Attaining Sustainable Development Goals in Port Klang: *Port Management Perspective,* 9(1), 349.

Ren, S., Li, X., Yuan, B., Li, D., & Chen, X. (2018). The effects of three types of environmental regulation on eco-efficiency: A cross-region analysis in China. Journal of Cleaner Production, 173, 245-255.

Rickard, B. & Jason, M. (2019). Green Ports in Theory and Practice. In B. Jason & M. Jason (Eds.), Green Ports in Theory and Practice (pp. 1-15). Elsevier.

Saeyeon, R., Vinh, V. & Yiik, W. (2016). Toward Sustainable ASEAN Port Development: Challenges and Opportunities for Vietnamese Ports. *The Asian Journal of Shipping and Logistics*, 32(2), 107-118.

Roh, S., Thai, V. V., & Wong, Y. D. (2016). Towards sustainable ASEAN port development: challenges and opportunities for Vietnamese ports. *The Asian Journal of Shipping and Logistics*, *32*(2), 107-118.

Simoni, M. D., Marcucci, E., Gatta, V., & Claudel, C. G. (2020). Potential last-mile impacts of crowdshipping services: A simulation-based evaluation. Transportation, 47, 1933-1954.

Satir, T. & Dogan, S. (2018). The Protection of Marine Aquatic Life: Green Port (EcoPort) Model inspired by Green Port Concept in Selected Ports from Turkey, *Europe, and the USA. Research Gate*, 6(1), 120-129.

Siron, R. & Kasavan, S. (2023). The Perceptions of Employees on Environmental Management Dimensions: A Study at Two States in the Southern Zone of Malaysia. *Planning Malaysian Journal*, 21(1), 427-443.

UNCTAD. (2021). Review of Maritime Transport. Maritime transport and infrastructure, 34p.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Organizational Justice and Employee Retention: A Theoretical Framework for Malaysian and Indonesian Higher Learning Institutions

Shariff Harun[1*], Septi Fahmi Choirisa[2] & Nosica Rizkalla[3]
[1]Faculty of Business and Management, Universiti Teknologi MARA, Cawangan Selangor, Kampus Puncak Alam, Selangor, Malaysia
[2,3]Faculty of Business, Universitas Multimedia Nusantara, Tangerang, Indonesia,
*shariffharun@uitm.edu.my

Abstract: Employee retention has emerged as a pressing concern within knowledge-based organizations due to the non-substitutability of individual abilities and their substantial influence on organizational achievements. Therefore, the retention of proficient staff is a crucial strategic approach, particularly for Malaysian and Indonesian Higher Learning Institutions (HLIs). In mitigating this issue, fairness in organizational practices was reported by several scholars as an important element that can integrate individual and corporate needs and has proven to be a practical approach to enhancing the employees' organizational commitment, motivation and retention. Thus, this study seeks to understand the antecedents that could influence HLIs' workforce retention. To achieve the objective, a content analysis approach is used to discover potential antecedents of fairness that affect HLIs' workforce retention. The Organizational Justice Theory is then employed as the theoretical foundation to examine and synthesize the antecedents. Three antecedents are addressed during the examination and discussion: distributive justice, procedural justice, and interactional justice. Through this, three organizational justice propositions are offered, and the framework developed in this conceptual study highlights the retention practices and instigators. This study's conceptual nature provides preliminary insights into the employees' retention experience in the Malaysian and Indonesian HLI context. This study contributes to the body of knowledge by illuminating the antecedents that promote employee retention, resulting in a practical framework that can be used by the HLIs to formulate strategies and policies to reduce the financial and business risk due to the high employee attrition rate. Subsequently, achieving the United Nations Sustainable Development Goals of good health and well-being (Goal 3) and quality education (Goal 4).

Keywords: *Organisational Justice, Higher Learning Institutions, Workforce Retention, Distributive Justice, Procedural Justice, Interactional Justice.*

1. Introduction and Background

In the current volatile economic climate and amidst the transformative shifts occurring in the workforce landscape, organizations must adopt a strategic approach, exhibit adaptability, and demonstrate a keen awareness of their workforce's needs (LinkedIn, 2023). This is because, besides technology, talent management is one of the primary drivers of change in the twenty-first century. The shift in emphasis from manufacturing to the service or knowledge-based economy has now become the core of the economic base. This entails comprehending the desires of employees, assessing their skill sets, and fostering opportunities for career advancement within the organizational framework (LinkedIn, 2023). Hence, employee retention is becoming a critical agenda among knowledge organizations because the skills belonging to individuals are not substitutable, and they have a significant impact on organizational success. This situation creates a shortage and increased competition for competent workers. As such, retaining competent employees is a fundamental strategy, especially in the education sector, particularly for Malaysian and Indonesian Higher Learning Institutions (HLIs).

This worrying scenario is reflected in the Robert Walters Salary Survey Report 2023, whereby 60 percent of Malaysian employers are expected to face hardship in retaining their employees. The report further highlighted that to retain employees, companies must recognize and prioritize the significance of employees' mental and physical well-being, while concurrently maintaining a culture of open and proactive communication throughout the entirety of the year. In the case of Indonesia, the Price Waterhouse Coopers (PWC) in their Asia Pacific Workforce Hopes and Fears Survey 2023 indicated that 20 percent of Indonesian employees are thinking of changing employment once the opportunity is available. The report further

indicated that among the reasons highlighted was the unfair and inequitable treatment by their superior. Intrinsically, implementing appropriate organizational practices can integrate individual and corporate needs well and has proven to be a practical approach to enhancing the employees' organizational commitment, motivation and retention (Shahid et al., 2018). However, for organizations to gain a competitive advantage through the support of their committed employees, studies recommended that the practices be implemented fairly so that organizational prosperity could be achieved (Shahid et al., 2020). Fairness issues deal with employees' perceptions of the fair treatment of each exercise and process conducted by the organization, and the organizations' fairness in distributing related organizational outcomes to employees (Adams, 1963, 1965; Greenberg, 1987a, 1987b, 1990).

Seyrek and Ekici (2017) reported that employees develop their justice perceptions towards the organization by observing the behavior of the management. If employees perceive that the organization's practices are fair, they will feel valued and respected. Therefore, it will encourage them to work productively and harmoniously. Otherwise, conflict among the employees may occur, and they will react aggressively and negatively to restore justice. Concerning this, Abbasi et al. (2022) revealed that organizational justice serves as a noteworthy mediator in the context of workplace deviant behavior among employees in the higher education sector. The injustice perceptions will subsequently affect the employees' performance and reduce their mental and physical health (Herr et al., 2018). According to Miles (2012), organizational justice is undeniably an essential element to employees, through which indirectly the organization is fulfilling the four aspects of employees' individual needs, namely the need for a sense of belonging, the need for meaning, the need for positive self-regard, and the need for control. Coherently, organizational Justice has been widely acknowledged as a significant predictor of employees' work attitudes and behavior, fostering overall job satisfaction, and influencing their intention to stay Shahid et al. (2020).

Unfortunately, despite its wide acceptance as a theoretically important element in an organization, organizational justice is a neglected research area, especially within the Malaysian and Indonesian HLI contexts. The limited literature has restricted the Malaysian and Indonesian HLIs' understanding of the importance of organizational justice and has created a gap that needs to be addressed objectively. Therefore, this study intends to add to the works of literature by adding organizational justice as the study variable to understand its impact on Malaysian and Indonesian HLI employees' retention. In understanding the impact of organizational justice, various scholarly findings about Organisational Justice and Employees' Retention were reviewed and the findings obtained became the basis for structuring the conceptual framework of the study.

Through the framework developed, this study hopes that the findings will assist the Malaysian and Indonesian HLIs management in managing their diverse workforce towards achieving the aspirations of both nations in developing highly skilled talent to support the demands of a growing economy. Subsequently, reaching the United Nations Sustainable Development Goals of good health and well-being (Goal 3) and quality education (Goal 4).

2. Overview and Conceptualisation of Organisational Justice

According to Ibrahim and Perez (2014), organizational justice was coined by Greenberg (1987a, 1987b) to describe how a company's management treats its employees and how those employees react to those treatments. Following this line of thought, John Stacey Adams presented the Equity Theory (1963, 1965), which postulates that workers determine whether or not they are being treated fairly by comparing their contributions (knowledge and effort) to those of others and to the outcomes that have been achieved. This move will have an impact on the response of organizational members to the organization's processes of hiring new employees, rejecting other candidates, promoting specific employees, and demoting others. The attitudes of employees will then depend entirely on their impressions of how fairly the processes are carried out and it affects the way employee thinks about their job, the company, and their superiors, and this will be reflected through their actions (Abbasi et al., 2022).

The act of comparing can take place within the confines of the organization, which is known as internal equity, or with an outside organization, which is known as external equity, and determining these comparisons and variations among employees will pose challenges to the organization (McShane & Von

Glinow, 2020). Employees' discontent and tension levels will grow if they perceive they are the victims of injustice and this might lead to negative consequences (Colquitt et al., 2005) and they may respond by decreasing or raising their output (Colquitt, 2001). On the contrary, employees will experience a positive sense of employee embeddedness if they believe they are being treated fairly (Mehmood et al., 2023). This is because the perception of fairness in both the allocation decisions (distributive justice) and the method of making these decisions (procedural justice) might result in heightened employee commitment and a decreased inclination to quit the business (Hassan, 2002). Therefore, when workers have a strong sense of organizational justice in the workplace, they are more engaged in their work, more satisfied with their jobs, more loyal to the company, less likely to quit, and more committed to staying put (Colquitt, 2001).

To comprehend the employees' perceptions of fair assessment, Choi (2008) highlighted that it is necessary to consider two distinct paradigm perspectives: the event paradigm and the social entity paradigm. The event paradigm is employed by employees to evaluate fairness by assessing individual events that occur to them, such as receiving a pay rise, undergoing a performance review, or experiencing any other unique event. They make judgments regarding the expected, potential, or perceived benefits that should, would, or may result from these events. When employing the social entity paradigm, employees assess the overall fairness of the organization. The individuals under consideration evaluate the overall fairness orientation, encompassing equitable treatment by management, the organization, and supervisors. The beliefs of individuals will have an impact on their future behaviors and attitudes. Subsequently, these perceptions will be transformed into fundamental principles of equity that the employee anticipates an organization or individual to adhere to. Consequently, individuals will adjust their perceptions of fairness based on the results of the events. The variability of fair assessment paradigms is contingent upon the individual perspective of each employee (Miles, 2012).

In tackling the issue, McShane and Von Glinow (2020) proposed that organizations should employ three principles of equitable treatment while addressing the matter. One prominent ethical framework is utilitarianism, also referred to as the consequential principle, which centres on evaluating the consequences of employees' actions as a kind of feedback. To elicit a positive outcome, businesses should opt for the choice that will yield the greatest degree of satisfaction for the persons involved. The second principle pertains to the individual rights of employees. This concept is founded upon the principle that all individuals possess equitable entitlements, encompassing not alone legal prerogatives, but also fundamental human rights that necessitate the fair treatment of individuals in conformity with prevailing societal moral standards. The ultimate principle is that of distributive justice, which posits that individuals ought to be granted equal advantages and responsibilities as their peers. In contrast, employees who possess lesser abilities should be allocated rewards and responsibilities that are commensurate with their inequalities. This holds significance due to Heider (1958) Balance Theory, commonly referred to as the Consistency Theory, which posits that the primary objective in human interactions is to maintain a state of emotional equilibrium. In the absence of taking action, employees may engage in efforts to regulate their emotions, reconfigure the structure of the partnership, or ultimately disengage from the relationship (Miles, 2012).

3. Antecedents of Organizational Justice

This research aims to fill the significant gap in knowledge within the Malaysian and Indonesian Higher Learning Institutions (HLIs) landscape by examining the impact of organizational justice on workforce retention. In defining and understanding the bearing of organizational justice, this study came across numerous kinds of literature that highlighted the sorts of justice that are crucial in creating employees' views of fairness while identifying the appropriate organizational justice constructs for this research. The initial framework of organizational justice focuses solely on one sort of justice, namely the organization's overall conceptions of fairness (Adams, 1963, 1965; Hausknecht et al., 2009; Miles, 2012). The second construct is concerned with two sorts of justice: distributive and procedural justice (Gary, 2011; Greenberg, 1987a, 1987b, 1990; Miles, 2012). The third construct is concerned with three types of justice: distributive justice, procedural justice, and interactional justice (Bies, 1987, 2001, 2005; Bies & Shapiro, 1987; Cohen-Charash & Spector, 2001). The fourth component is made up of four different sorts of justice: distributive justice, procedural justice, interpersonal justice, and informational justice (Colquitt, 2001; Miles, 2012).

Nonetheless, the most common types of organizational justice that are acknowledged and researched in the vast majority of organizational justice works of literature are interactional justice, procedural justice, and distributive justice (Ye et al., 2023). Subsequently, these three types of justice were validated by most researchers as the most valid constructs in measuring the employees' perceptions of fairness towards organizational justice at the workplace (Park & Kim, 2023; Ye et al., 2023). As a result, in the context of this study and in accordance with the findings of previous researchers, the organizational justice constructs proposed for this study are interactional justice, distributive justice, and procedural justice.

Distributive Justice: According to Ibrahim and Perez (2014), the concept of distributive justice may be traced back to the discipline of political philosophy and ethics, which studied the idea of distributive justice about social contracts and economies. Homans (1961) first presented the idea of fairness as a notion that was founded on justice and fairness, which were the primary issues during that era. Subsequently, Adams (1963, 1965) presented the Equity Theory which stands on its foundation idea that an individual's perceptions towards fairness are based on the outcome they received. Therefore, according to the Equity Theory, fairness can only be achieved when rewards are distributed to employees in a manner that is proportional to the value of the contributions they make to the organization(Adams, 1963, 1965). As a consequence of this, research on distributive justice began to concentrate on the fairness of organizations when it came to doling out organizational results or rewards to their workers (Wang et al., 2010). Examples of such outcomes and rewards include salaries, promotions, increments, bonuses, and pay raises. This is because an employee's opinions of the organization's fairness in terms of the distribution of work-related outcomes influence both the employee's level of happiness and the decision they make regarding whether or not to leave their current position (Abou-Shouk et al., 2023).

Adams (1963, 1965) argues that workers' perceptions of fairness are formed through comparisons of their own and other workers' input, utilization, and production, as well as their respective outcomes within the organization. Work experience, skills, level of responsibility, status, performance, personal reputation, and time spent on the job are all examples of inputs that could be used to complete the assignment (McShane & Von Glinow, 2020). When workers believe that their incentives have been distributed unfairly, they may experience negative feelings and will start to act out (Wee et al., 2014). According to McShane and Von Glinow (2020), workers will take action to rectify their unfair beliefs in several ways. As a first step, they could decide to put in less work and produce worse results. Second, they could improve their output and negotiate a raise with management. Third, they may delegate tasks to coworkers for whom they know they will be paid more per hour. As a fourth option, they might complain to upper management about favoring certain employees over others. Fifth, they may work fewer hours to bring their wage more in line with their value. Sixth, they might take more time off from work or cut back on their workload. At some point, they may decide to switch departments or even leave the company altogether.

On the other hand, when workers believe their company is fair in how it distributes its resources, they are more likely to stay (Shahid et al., 2020). This is in tandem with the reported findings of Abou-Shouk et al. (2023) that distributive justice has a direct and substantial impact on employee satisfaction and retention.

Procedural Justice: Employees are assumed to be driven primarily by their self-interest to maximize personal outcomes, so before the introduction of procedural justice, the majority of researchers believed that distributive justice is the most important element in explaining the motivation, attitudes, and behaviors of employees. Thibaut and Walker (1975, 1978) and Greenberg (1987a, 1987b), among others, later discovered that these two notions of justice are diverse in their underlying structures. This is because, in contrast to the concept of distributive justice, procedural justice is concerned with the employees' observations and the fairness perceptions of the organization's methods, rules, and regulations utilized to determine various results (Greenberg, 1987b). Procedural justice, according to Piotrowska (2022), is concerned primarily with the fairness of the decision-making process in the distribution of organizational outcomes to employees.

According to Miles (2012), the concept of procedural justice may be traced back to the work that Thibaut and Walker (1975, 1978) did in the course of their investigation of the processes of conflict resolution. Whereby, despite the adverse outcomes, employees are nevertheless able to accept the choice, provided that the employees believe that the procedures that were utilized in the distribution of the outcomes were fair.

According to Blader and Tyler (2003), there are four distinct types of worries that workers have to consider while evaluating the fairness of the procedures that their company has in place. The first issue that has to be addressed is whether or not the guidelines and regulations that were used by the members of the group in the formal decision-making process are legitimate. The second issue that needs to be addressed is the effect that the guidelines and regulations have on how the members of the group are treated (the formal quality of treatment). The third issue of concern is how specific individuals holding higher ranks in the group make decisions (informal decision-making). The final issue that needs to be addressed is the informal quality of treatment that higher-ranking members of the group provide to lower-ranking members of the team.

As a consequence of this, Tyler and Blader (2003) proposed that structural rules and social rules are the two elements that affect procedural fairness. Employees think that they should be allowed to shout out their ideas during the decision-making process, which is why structural rules are related to the policies and procedures that the management should follow. Employees will have a more positive attitude when they are allowed to voice their criticisms of management and when they are informed that the company will not make decisions until after those criticisms have been given the consideration they deserve. The second component, known as social rules, is connected to the employees' judgments of how well the management treats them throughout the process of decision-making. Respect and accountability are crucial components of social norms. Therefore, when a company treats its people with respect, such employees will feel greater value in procedural justice. If the management takes the time to explain the decisions they make, then the employees will have a reduced sense of injustice.

This suggests that employees will be more encouraged to participate in organizational activities, follow the rules, and accept the final results as being fair if they think that their organization is exercising procedural fairness Piotrowska (2022). To raise the degree of confidence that employees have in their company, the business must practice a transparent decision-making process that allows employees to express their opinions, views, and recommendations. In general, on the employee's end, the fairness of organizational procedures is all about consistency, suppression of prejudice, correctness, ethical behavior, and an open feedback system.

Interactional Justice: Interactional justice is considered to be the most important component of the workplace environment because of the correlation between interactional justice and unfair and fair treatment (Almost & Mildon, 2022). In contrast to the concepts of distributive justice and procedural justice, the concept of interactional justice focuses on how management treats its employees and the adequacy with which the formal decision-making processes of the organization are communicated to those employees (Bies, 1987, 2005; Bies & Shapiro, 1987). Interactional justice focuses primarily on the fairness of the interpersonal treatment that employees receive from their management, as well as the employees' comprehension of whether or not the decision-making processes are effectively described to them (Almost & Mildon, 2022).

According to Bies and Moag (1986), interactional justice is also concerned with the quality of interpersonal treatment, which focuses on social sensitivity and informational reasons that employees receive from their management. This is one of the aspects of interactional justice that is stated to be concerned with the quality of interpersonal treatment. According to Froman and Cochran (2022), it has a general bearing on the degree of justice that people see in how they are treated by others within their organization. Colquitt (2001) split interactional justice into two independent components, namely interpersonal justice and informational justice.

Interpersonal justice is the degree to which management treats employees with civility, dignity, and respect (Colquitt, 2001; Colquitt et al., 2005). The concept of interpersonal justice is closely connected to the employees' impressions of how they are treated in the business. Employees expect that they will be treated in the same manner as others in the company (Mehmood et al., 2023). Whereas, informational justice refers to how management justifies and explains to employees why and how specific decisions relating to them are taken by the organization (Colquitt, 2001; Colquitt et al., 2005). To be more specific, informational justice has a direct bearing on employees' perceptions of fairness; particularly, that the decision maker is a trustworthy official, makes use of the appropriate information when making the decision, and will adequately justify to employees the reasons behind the decisions (Miles, 2012).

However, as instituted in the earlier parts of this study, the main focus of this study is on the concept of interactional justice as one unified construct. This phenomenon persists, notwithstanding the presence of multiple discrete elements within the interactive aspects of interactional justice. This aligns with the conclusions drawn by other scholars who have conducted research on organizational justice and have examined interactional justice as a cohesive construct (Park & Kim, 2023; Piotrowska, 2022; Ye et al., 2023). Hence, the present study will employ the idea of interactional justice, aligning with the conclusions made by prior scholars. This is because employees were reported to have a positive perception of fairness when they feel that they are being treated with dignity and respect by the management and when information regarding a choice made is given and conveyed to them adequately (Park & Kim, 2023).

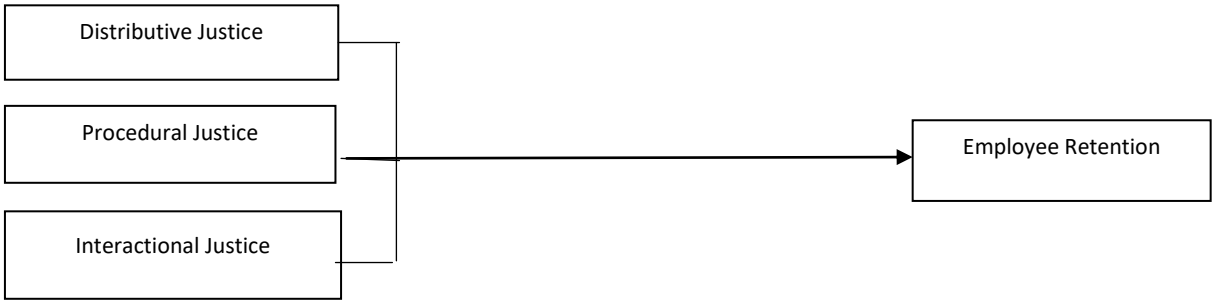
Consequently, the perception of interactional justice will alter the individual sentiment of employees toward people with whom they are speaking and interacting. Employees will have the impression that they are contributing significantly to the success of the company if management takes the initiative to explain the rationale behind the decisions made by management to those employees to whom management has delegated decision-making authority (Miles, 2012). The foundation of interactional justice is the belief that every worker should be accorded the same degree of respect and dignity regardless of their position. The circumstance will provoke interactional injustice if employees believe they are not being treated properly by the company, and this might lead to employees intending to behave unfavorably (Park & Kim, 2023).

4. Theoretical Framework and Propositions

The literature review serves as a valuable resource for establishing the theoretical framework of this study, offering guidance and insights into its development. The aforementioned constructs of organizational justice were determined to be pertinent in achieving the aims of this study, which focused on investigating the correlation between organizational justice and employee retention, particularly within the context of Malaysian and Indonesian Higher Learning Institutions. The Organizational Justice Theory posits that three primary factors play a significant role in encouraging employee retention within an organization.

The framework below illustrates the dimensions that are deemed significant in augmenting employee retention, namely distributive justice, procedural justice, and interactional justice.

Figure 1: Proposed Theoretical Framework



Given the implications of Organizational Justice Theory and the traits that have been observed, further research is needed to analyze and understand the impact of organizational justice and employee retention, particularly within the context of Malaysian and Indonesian Higher Learning Institutions. Figure 1 illustrates the theoretical framework developed to have a better understanding of the relationship between organizational justice and employee retention. Tentatively, the following three propositions are proposed based on the theoretical framework:

- Distributive Justice has a significant positive effect on employee retention.
- Procedural Justice has a significant positive effect on employee retention.
- Interactional Justice has a significant positive effect on employee retention.

5. Conclusion

The primary objective of the present study is to construct a theoretical framework that can be utilized to identify the factors that precede and influence the concept of organizational justice. Despite the existence of several prior studies that have examined the concept of organizational justice, there has been a relative lack of emphasis given to its influence on the workforce of Higher Learning Institutions. However, it is worth noting that organizational justice plays a crucial role in the aspects that contribute to employee retention. This study aims to address the theoretical gap and mitigate the unevenness in existing research by examining the factors that influence employee retention using the framework of Organizational Justice. The utilization of the Organizational Justice Theory served as the basis for establishing the proposed theoretical framework.

The present study contributes to the existing scholarly literature on organizational fairness and workforce retention in Higher Learning Institutions by building upon prior research findings. The importance of Organizational Justice in the realm of employee retention research is emphasized. This study also functions as a basis for subsequent research and stimulates more scholarly discussions to refine and scrutinize the suggested hypotheses. As a result of employing a theoretical framework in this study, the subsequent phase entails conducting comprehensive literature reviews and substantiating the hypothesis through the use of case studies or practical research. Additional research is required to authenticate and enhance the proposed theoretical framework. Consequently, it is recommended that forthcoming investigations prioritize the use of both qualitative and quantitative research methodologies to explore the intricate connection between the factors that influence the retention of the workforce inside Higher Learning Institutions. To validate the proposed theoretical framework, it is highly recommended to incorporate viewpoints from both practitioners and academia.

Acknowledgment: Financial support provided by the Faculty of Business and Management, Universiti Teknologi MARA (UiTM), Malaysia under the publication incentive for publication in journals indexed in Excellence in Research for Australia (ERA) is gratefully acknowledged.

References

Abbasi, A., Ismail, W. K. W., Baradari, F., Zureigat, Q. & Abdullah, F. Z. (2022). Can organizational justice and organizational citizenship behavior reduce workplace deviance? *Intangible Capital,* 18(1), 78-95.

Abou-Shouk, M., Hamad, H. & Muhammad, S. (2023). The Impact of Organizational Justice and Job Autonomy on Employee Retention: The Mediation of Psychological Ownership.

Adams, J. S. (1963). Towards an understanding of inequity. *The Journal of Abnormal and Social Psychology,* 67(5), 422.

Adams, J. S. (1965). Inequity in social exchange *Advances in experimental social psychology*, 2, 267-299: Elsevier.

Almost, J. & Mildon, B. (2022). RESPECT: A Key to Nurse Retention. Nursing Leadership (1910-622X), 35(2).

Bies, R. J. (1987). Interactional justice The Oxford Handbook of Justice in the Workplace.

Bies, R. J. (2001). Interactional (in) justice: The sacred and the profane. *Advances in organizational justice, 85*, 108.

Bies, R. J. (2005). Are procedural justice and interactional justice conceptually distinct?

Bies, R. J. & Moag, J. F. (1986). Interactional Justice: Communication Criteria of Fairness. In R. J. Lewicki, B. H. Sheppard, & M. H. Bazerman (Eds.), *Research on Negotiations in Organizations*, 1, 43-55. Greenwich: JAI Press.

Bies, R. J. & Shapiro, D. L. (1987). Interactional fairness judgments: The influence of causal accounts. *Social Justice Research,* 1(2), 199-218.

Blader, S. L. & Tyler, T. R. (2003). A four-component model of procedural justice: Defining the meaning of a "fair" process. *Personality and Social Psychology Bulletin,* 29(6), 747-758.

Choi, J. (2008). Event justice perceptions and employees' reactions: Perceptions of social entity justice as a moderator. *Journal of Applied Psychology,* 93(3), 513.

Cohen-Charash, Y. & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes,* 86(2), 278-321.

Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology,* 86(3), 386-400.

Colquitt, J. A., Greenberg, J. & Zapata-Phelan, C. P. (2005). What is organizational justice? A historical overview. *Handbook of organizational justice*, 1, 3-58.

Froman, E. C. & Cochran, K. A. (2022). The Role of Interactional Justice in Academic Advising. *The Mentor: Innovative Scholarship on Academic Advising,* 24, 38-71.

Gary, D. (2011). Human resource management. Upper Saddle River, NJ: Pearson Education.

Greenberg, J. (1987a). Reactions to procedural injustice in payment distributions: Do the means justify the ends? *Journal of Applied Psychology*, 72(1), 55.

Greenberg, J. (1987b). A taxonomy of organizational justice theories. *Academy of Management Review,* 12(1), 9-22.

Greenberg, J. (1990). Organizational justice: Yesterday, today, and tomorrow. *Journal of Management,* 16(2), 399-432.

Hassan, A. (2002). Organizational justice as a determinant of organizational commitment and intention to leave. *Asian Academy of Management Journal,* 7(2), 55-66.

Hausknecht, J. P., Rodda, J. & Howard, M. J. (2009). Targeted employee retention: Performance-based and job-related differences in reported reasons for staying. *Human Resource Management,* 48(2), 269-288.

Heider, F. (1958). The psychology of interpersonal behavior. New York: WHey. Google Scholar.

Herr, R. M., Bosch, J. A., Loerbroks, A., Genser, B., Almer, C., van Vianen, A. E. & Fischer, J. E. (2018). Organizational justice, justice climate, and somatic complaints: A multilevel investigation. *Journal of psychosomatic research,* 111, 15-21.

Homans, G. C. (1961). Human behavior: Its elementary forms. New York, NY: Harcourt, Brace.

Ibrahim, M. E. & Perez, A. O. (2014). Effects of organizational justice, employee satisfaction, and gender on employees' commitment: Evidence from the UAE. *International Journal of Business and Management,* 9(2), 45-59.

LinkedIn. (2023). The Future of Recruiting 2023. Retrieved from https://business.linkedin.com/content/dam/me/business/en-us/talent-solutions/resources/pdfs/future-of-recruiting-2023.pdf

McShane, S. & Von Glinow, M. (2020). Organizational behavior (5th ed.). New York, NY: McGraw-Hill Education.

Mehmood, S. A., Malik, A. R., Nadarajah, D. & Saood Akhtar, M. (2023). A moderated mediation model of counterproductive work behavior, organizational justice, organizational embeddedness and psychological ownership. *Personnel Review,* 52(1), 183-199.

Miles, J. A. (2012). Management and organization theory: A Jossey-Bass reader (Vol. 9). New York, NY: John Wiley.

Park, J. Y. & Kim, C. (2023). The role of organizational justice and social interaction in mitigating the negative effects of high-performance member retailers on strategic integration. *Journal of Retailing and Consumer Services,* 72, 103238.

Piotrowska, M. (2022). Job attributes affect the relationship between perceived overqualification and retention. *Future Business Journal,* 8(1), 38.

Pricewaterhouse Coopers. (2023). Asia Pacific Workforce Hopes and Fears Survey 2023. Retrieved from https://www.pwc.com/gx/en/asia-pacific/hope-and-fears/2023/asia-pacific-hopes-and-fears-indonesia.pdf

Robert Walters. (2023). Salary survey 2023. Retrieved from

Seyrek, H. & Ekici, D. (2017). Nurses' perception of organizational justice and its effect on bullying behavior in the hospitals of Turkey. *Hospital Practices and Research,* 2(3), 72-78.

Shahid, S. A. M., Harun, S., Othman, A. K., Jani, S. H. M., Rahman, M. K. B. A. & Mohamed, R. N. (2020). Organizational Justice and Its Implications on Non-Academic Staff Intention to Stay: Evidence from Private Higher Learning Institutions in Malaysia. *Malaysian Journal of Consumer and Family Economics,* 24(S1), 153-168.

Shahid, S. A. M., Rahman, M. K. B. A., Harun, S., Othman, A. K. & Naina, R. (2018). Assessing the influence of HRM practices in improving employees' intention to stay in one Malaysian medical college: A pilot study. *International Journal of Multidisciplinary Thought,* 07(03), 449-462.

Thibaut, J. & Walker, L. (1975). Procedural justice: A psychological analysis: L. Erlbaum Associates.

Thibaut, J. & Walker, L. (1978). A theory of procedure. *Cal. L. Rev., 66*, 541.

Tyler, T. R. & Blader, S. L. (2003). The group engagement model: Procedural justice, social identity, and cooperative behavior. *Personality and social psychology review,* 7(4), 349-361.

Wang, X., Liao, J., Xia, D. & Chang, T. (2010). The impact of organizational justice on work performance. Mediating effects of organizational commitment and leader-member exchange. *International Journal of Manpower,* 31(6), 660-677.

Wee, Y. G., Ahmad, K. Z. & Fen, Y. S. (2014). Organizational justice and its role in promoting citizenship behavior among hotel employees in Malaysia. *Institutions and Economies,* 6(2), 79-104.

Ye, P., Liu, L. & Tan, J. (2023). The influence of Organizational Justice and ethical leadership on employees' innovation behavior. *European Journal of Innovation Management,* 26(4), 1129-1149.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Exploring Antecedents of Destination Loyalty: A Comprehensive Analysis of Island Destination Image, Brand Awareness and Satisfaction

Ayu Rohaidah Ghazali[1*] Norol Hamiza Zamzuri[2], Mohd Hafiz Hanafiah[3] Atikah Wijaya[4] Suwito Eko Pramono[5]
[1,2]Faculty of Business & Management, Universiti Teknologi MARA, Malaysia
[3]Faculty of Tourism & Management, Universiti Teknologi MARA, Malaysia
[4,5]Faculty of Social Sciences, Univesitas Negeri Semarang, Indonesia
*ayuroh2956@uitm.edu.my, norol@uitm.edu.my, hafizhanafiah@uitm.edu.my, atika.wijaya@mail.unnes.ac.id

Abstract: This study examines the antecedents of destination loyalty and its relation to destination image (cultural image, environmental image, and socio-economic image), brand image and awareness and destination satisfaction in island destinations. This study raises important questions concerning how cultural image, environmental image, socioeconomic image, destination brand image, destination brand awareness and destination satisfaction affect destination loyalty. This research attempts to identify (1) the effect of Destination Image on Tourist Satisfaction and (2) To examine the effect of Destination Image towards Destination Loyalty. The study empirically tests the predicted relationship by using a survey of 147 local tourists after the moving control order ended in Malaysia. Data were collected by a physical survey of 147 local tourists. The data were modeled with partial least squares structural equation modeling. Based on 147 valid responses processed with Smart PLS software, the results confirm most of the research hypotheses. The study reveals that destination brand awareness, environmental image, and environmental knowledge affect tourists at Tuba Island. However, the socioeconomic image doesn't significantly impact tourism satisfaction. Additionally, destination brand, destination image, and environmental image contribute to tourist loyalty at Tuba Island, with loyalty not being the main factor driving satisfaction or loyalty to the island. The findings are useful for all stakeholders of tourism development in Langkawi and Tuba Island, Malaysia.

Keywords: *Tourism, Community-Based Tourism, Destination Loyalty, Tourism Satisfaction, Destination Loyalty*

1. Introduction and Background

The abundance of natural assets and aesthetic appeal forms the foundation for tourism development. However, these natural environments are susceptible to environmental degradation, which can threaten the sustainability of tourist sites (Kocabulut et al., 2019; Lee & Jan, 2019). There is often a disparity between the increase in community wealth associated with tourism and a corresponding level of environmental awareness and self-sufficiency among community members. Notably, most island destinations are widely recognized tourist hotspots, yet there is still concern among policymakers on the need for responsible development within the framework of sustainable tourism. As such, the idea of sustainable tourism is postulated, to promote tourism development in a region (Asmelash & Kumar, 2019; Erol et al., 2022) by harmonizing three main pillars: the economy, the environment, and social considerations.

It is undeniable that the island tourism development can attract visitors, generate employment, and enhance local economies (Grilli et al., 2021; Deery et al., 2012). Notably, tourism contributes to job creation, enhances locals' income, improves their quality of life, and even invigorates other economic sectors (Han et al., 2023**;** Alamineh et al., 2023). Subsequently, island tourism is also a catalyst for societal and cultural shifts, leading to favorable and unfavorable impacts (Grilli et al., 2021; Day, 2022). One such negative consequence is environmental degradation. For instance, diving activities have been linked to coral reef destruction (Firth et al., 2023; Huang & Coelho, 2017), while hotel construction in tourist spots often overlooks environmental conservation. Additionally, pollution from tourist activities further contributes to environmental harm to the marine and coastal areas (Huang & Coelho, 2017; Yıldırım et al., 2023).

Governments across the globe have long been leveraging tourism as a powerful engine for destination development. Of late, the focus has broadened to transform rural regions and tiny islands into coveted tourist destinations (Croes, 2016). These small islands are nature's treasure troves, replete with an abundance of marine resources and diverse biodiversity. They serve as irresistible magnets to tourists who are eager to delve into and explore these natural wonders (Day, 2022). However, these areas are often plagued by issues such as pervasive poverty, underdevelopment, and poor quality of human resources, creating a unique set of

challenges that require careful management and sustainable solutions(Grilli et al., 2021). In addition to their environmental attractiveness, these tiny islands also provide a vibrant backdrop of rich culture and intricate social interactions that are deeply ingrained within their local communities (Zhang et al., 2020).

This study is focused on identifying the environmental, economic, and social consequences of the booming tourism development on the Tuba Islands. The study assumes that the local community's socio-cultural values could potentially shield them from the negative repercussions of tourism. Hence, the newly evolving notion of sustainable tourism needs to be introduced in the tourism sector of smaller islands to preserve biodiversity and safeguard the traditional lifestyles of the locals. Furthermore, the engagement of the local community is crucial in the establishment of a sustainable tourism framework (Alamineh et al., 2023), considering they are the direct recipients of tourism's impact. As such, this research delves into the local wisdom of the Tuba Islands' communities regarding environmental conservation. This study is projected to design a model of community-oriented sustainable marine tourism that can be implemented in similar small island contexts.

This research specifically delves into the precursors of destination loyalty and explores its connection with various aspects of destination image - including cultural, environmental, and socioeconomic dimensions. In addition, the study also investigates how brand image, awareness, and satisfaction with the destination factor into destination loyalty, particularly in the context of island tourism. The study aims to make a valuable contribution by shaping a model for community-based sustainable tourism, specifically designed for small islands in Malaysia. This model leverages local community involvement, promotes environmental preservation, and harnesses cultural and socioeconomic factors to enhance the overall tourist experience and destination loyalty.

The objectives of this study align with the United Nations World Tourism Organization (UNWTO)'s reference to three specific SDGs set for 2030: the 8th goal (decent work and economic development), the 12th goal (responsible consumption and production), and the 14th goal (life below water). This alignment is of particular significance considering that marine tourism constitutes the largest segment within the tourism sector. Consequently, efforts geared towards the conservation and preservation of marine resources become a crucial agenda in realizing sustainable tourism. In essence, a holistic approach to tourism—incorporating economic prosperity, environmental preservation, and social well-being—stands as the key to building a sustainable future for the sector.

The structure of this paper is as follows. In the subsequent section, a detailed review of existing literature on community-based tourism is presented, offering a comprehensive context for the study. This is followed by an in-depth description of the research methodology, with a particular focus on the data collection process and the measurement of variables. In the findings section, the research results are presented. Here, we employ descriptive statistics to articulate our results, complemented by discussions on qualitative questionnaire responses to provide nuanced insights into the data. Finally, the concluding section of the paper encapsulates the main findings, discussing their implications and drawing conclusions based on the research objectives and results.

Study Setting: Tuba Island in Malaysia has garnered significant attention as a well-known travel spot among both local and international visitors. As such, the government has been constantly investing in the improvement of amenities and infrastructure on these islands to cater to tourism demands. Located five kilometers southwest of Kuah Jetty, Langkawi, Tuba Island is a secluded place, boasting a traditional fishing community, unique fauna and flora, and various homestays for visitors. The inhabitants lead a predominantly conventional way of life on the island, regularly heading into the forest-covered hills to collect medicinal herbs, fruits, and honey, besides their routine fishing and farming activities (Ariffin et al., 2022). However, the exponential rise in the construction of hotels and resorts to meet the demands of tourists is also leading to environmental degradation on this Island of Tourism (Limbong & Soetomo, 2014).

Tuba Island is renowned for its rich biodiversity, offering a wealth of natural attractions such as expansive marine ecosystems and untouched rainforest habitats. Historically, it served as a crucial navigation point, providing water and supplies to fishermen and travelers. One key consequence of being a popular mass tourism destination is the resulting human-induced marine and coastal pollution, mainly due to wastewater discharge from human settlements and ineffective waste disposal methods. The increase in recreational activities,

primarily due to the tourism boom on nearby Langkawi Island, which exposes Tuba's ecosystem to escalating human-induced impacts (Chemli, 2018). The local community grapples with numerous developmental challenges related to tourism, spanning ecological, sociocultural, and economic aspects. These range from natural degradation, pollution, and overextension of coastal areas, to improper waste management (Kocabulut et al., 2019; Matias et al., 2022). Unregulated visitation and overuse of beaches are also contributing to deteriorating beach conditions and loss of biodiversity (Kocabulut et al., 2019; Lucrezi et al., 2015; Williams et al., 2016)

As Langkawi's population grows, the repercussions extend to Tuba Island, necessitating thorough studies to support marine conservation efforts. Tuba Island's escalating population makes it a critical subject for further research and in-depth feasibility studies. Promoting sustainable use of Tuba Island's coastal resources entails community involvement in conserving these natural resources and their environment. Many past researchers called for local authorities to prioritize residents' quality of life, as their perception greatly influences their willingness to support sustainable tourism initiatives (Alamineh et al., 2023). This situation raises critical questions about mitigating tourism's impact on Tuba Island and how it affects locals' quality of life. Understanding the residents' perceptions of these developments is key, and responsible tourism might be a viable solution to enhance their quality of life. Therefore, an empirical investigation is necessary, particularly examining responsible tourism from the residents' perspective, an area currently underexplored.

2. Literature Review

Sustainable Community-Based Tourism: It's crucial to note that the impact of tourism isn't confined to positive aspects alone. In numerous instances, it can result in the marginalization of local communities and generate other adverse societal consequences. The global trend in tourism has evolved significantly; economic growth isn't the sole focus anymore (Kocabulut et al., 2019; Yıldırım et al., 2023). Factors such as environmental degradation and social deterioration caused by tourism activities have necessitated a shift in the paradigm of tourism management (Athula Gnanapala & Sandaruwani, 2016; Matias et al., 2022).

Policymakers and the community need to grasp the dual nature of tourism. On one hand, it can be individualistic, hedonistic, and even exploitative, yet on the other hand, it serves as a conduit for education, cross-cultural interaction, ecological appreciation, and even spiritual growth (Higgins-Desbiolles, 2018). Hence, a balanced view of these dual aspects should guide the tourism paradigm. The concept of sustainable development gained prominence and subsequently became the dominant paradigm in tourism development and management (Ruhanen et al., 2015). This shift was reinforced by the United Nations' formulation of Sustainable Development Goals (SDGs), giving rise to measurable indicators for sustainable tourism that emphasize a balance between environmental, economic, and social dimensions (Boluk & Rasoolimanesh, 2022; Pan et al., 2018).

Tourist Satisfaction and Destination Loyalty: Understanding and measuring tourist satisfaction hinges significantly on various influential elements, including cultural and demographic factors, tourist behavioral traits, destination qualities, and travel information, among others (Shahrivar, 2012; Prasad et al., 2019). The importance of satisfaction in forecasting future tourist needs and desires has been underscored by several studies (Balderas-Cejudo & Patterson, 2023; Gibson & Yiannakis, 2002; Jani & Han, 2014; Tran & Ralston, 2006). In addition, Ramesh and Jaunky (2020) posit that tourist satisfaction plays a pivotal role in assessing the effectiveness of marketing strategies as it influences choice, consumption of products and services, and the decision to revisit. However, defining tourist satisfaction within the tourism sector continues to be a subject of extensive debate (Prasad et al., 2019). Tourist satisfaction at a specific destination can be

influenced by a myriad of factors, including pre-existing and in-trip expectations and the perceived service quality experienced by the tourist (Xingjun, 2022).

Past research has established a strong link between tourist satisfaction and their loyalty towards a destination (Gaikwad et al., 2020). Essentially, when the expectations of tourists are met or exceeded, it engenders a sense of loyalty towards the visited destination. This relationship is fundamentally reciprocal - the higher the level of satisfaction, the stronger the loyalty (Ekanayake & Gnanapala, 2016; Hikmah et al., 2018). In addition, Melo et al. (2017) corroborate this finding, highlighting those tourists who leave a destination with high satisfaction levels are significantly more likely to revisit compared to those with lower satisfaction levels. This observation emphasizes the crucial role satisfaction plays in fostering repeat visits to a destination.

The significance of tourist satisfaction transcends repeat visits. Numerous studies within the tourism industry suggest that the degree of a tourist's satisfaction serves as a reliable predictor of their likelihood to recommend the destination to others (Hultman et al., 2015). Ragab et al. (2019) support this view, stating that tourist satisfaction positively and significantly influences both positive word-of-mouth and the intention to return. According to (Liu et al., 2017), high customer satisfaction levels and a favorable image of the destination greatly impact the behavioral intentions of tourists during their stay. Simply put, tourists are more inclined to revisit a destination that brought them joy and share their positive experiences with others (Lai, 2018).

This relationship between tourist satisfaction and destination loyalty was further examined by Mohamad and Izzati (2014) in a survey involving 261 European tourists. Their findings reinforced that tourist satisfaction directly influences loyalty towards a destination. In essence, highly satisfied tourists were not only likely to return but also willing to positively endorse the destination to others, further boosting its reputation (Wasaya et al., 2022; Zou et al., 2022). This conclusion underlines the key role of satisfaction in fostering destination loyalty, generating positive word-of-mouth, and ultimately, ensuring sustainable success in the tourism sector.

Hypotheses Development: Research such as (Hashemi et al., 2019) highlights a positive correlation between cultural image and both tourist satisfaction and their propensity to revisit. Rahim et al. (2022) further substantiate this by stating that the cultural image encompassing heritage and social lifestyles can entice tourists to experience a country's cultural and historical richness. Cultural image, as noted by Chieng (2019) and Wells and McFadden (2006), forms impressions and experiences, shaping tourists' interpretation of a place's culture, ethics, fashion, language, architecture, food, arts, and music. In addition, Huete-Alcocer & Hernandez-Rojas, (2022) research found that local cuisine contributed to an image that enhances tourists' desire to revisit a destination. Similarly, Hidayat et al. (2020) express that local festivals also influence tourist satisfaction. Additionally, Kladou and Kehagias (2014) emphasized that cultural brand assets, including events, arts, historical sites, and traditions, significantly impact the destination's brand image. According to Lee and Xue, (2020), preserving cultural image is crucial for sustaining a community's identity and attracting tourists, particularly those seeking self-enhancement and self-awareness. Therefore, the cultural image remains a key player in ensuring satisfaction and loyalty among tourists.

On the other hand, environmental image quality is linked to tourist loyalty and satisfaction (Lai, 2018). According to McKercher et al. (2015), tourists spend more time in areas with better environmental conditions and less in those with high air pollution levels. Meng and Cui's (2020) studies indicate that an excellent environmental tourism experience fosters a desire for revisits and is linked to tourists' willingness to recommend that destination. Wong et al. (2021) suggested that maintaining a positive environment and upholding sustainable tourism standards can significantly enhance visitor satisfaction and loyalty. Chen and Phou (2013), Rajesh (2013) and Rosli et al. (2023) note that a destination's environmental image greatly influences tourist satisfaction. For example, Qu et al. (2019) found that environmental factors like air pollution can negatively impact tourism, limiting tourist activities, and leading to unsatisfying experiences, thereby compromising satisfaction (Nawijn & Peeters, 2010; Grilli et al., 2021)). Hence, the preservation of the destination's natural environment is critical. Moreover, a better environment will not only contribute to

tourist satisfaction but also improve local support for tourism activities (Han et al., 2023). This shows the profound influence of environmental image on tourist satisfaction and loyalty.

Meanwhile, in terms of socioeconomic image, sustainable tourism often equates to increased employment opportunities and business ventures (Almeida-García et al., 2016; Ribeiro et al., 2017; Woo et al., 2015). Lee and Xue (2020) mention that it also aids in building local facilities and infrastructure, elevating community living standards, and promoting local products and services. However, tourism's impact is not exclusively positive. It may result in an increased cost of living (Vargas-Sanchez et al., 2011), traffic issues, criminal activity, environmental pollution, biodiversity damage, and landscape changes (Andereck et al., 2005; Bujosa & Roselló, 2007; Razali et al., 2016). Despite these challenges, well-managed tourism can bring about positive socioeconomic effects, such as enhancing cleanliness, protecting marine life, improving community income, creating job opportunities, and upgrading basic facilities (Syaripudin, 2016; Salleh et al., 2017). However, it can also cause dissatisfaction due to negative socioeconomic factors such as inflated prices (Gnanapala & Sandaruwani, 2016; Kidane & Berhe, 2017). This underscores the need for effective management to balance the socioeconomic image's influence on tourist satisfaction and loyalty. Therefore, the hypotheses are formulated as follows:

H_{1a}: *Cultural Image has a positive effect on Tourist Satisfaction.*
H_{1b}: *Cultural Image has a positive effect on Destination Loyalty.*
H_{2a}: *Environmental Image has a positive effect on Tourist Satisfaction.*
H_{2b}: *Environmental Image has a positive effect on Destination Loyalty.*
H_{3a}: *Socioeconomic Image has a positive effect on Tourist Satisfaction.*
H_{3b}: *Socioeconomic Image has a positive effect on Destination Loyalty.*

Recent researchers highlight the role of brands as pivotal elements in facilitating interaction between a company and its consumers (Intan et al., 2022; Matiza, 2022). The brand image holds significance for both the business and the tourist, as per Malik, Ghafoor and Iqbal (2012), suggesting that a robust brand image can enhance customer satisfaction. Supporting this, Su and Kerdpitak (2023) highlighted that brand image positively influences customer satisfaction. Similarly, Pratama et al. (2023) emphasize the importance of brand image in shaping customer satisfaction. In addition, Allameh et al. (2015) and Stylos et al. (2016) propose that a positive destination image elevates tourists' satisfaction and thus heightens the likelihood of their return. Aksoy and Kiychi (2011) break down destination image into two components: cognitive image, representing the mental perception based on information received about the destination, and affective image, representing the tourist's emotional response towards the visited destination. The fusion of these elements forms the overall image of a destination. According to Hasan et al. (2017), visitors who are satisfied with the quality of services and their overall experience develop positive attitudes and show a higher propensity to return. Such attitudes, driven by satisfaction, augment customer loyalty and behavioral intent (Choi & Choo, 2016).

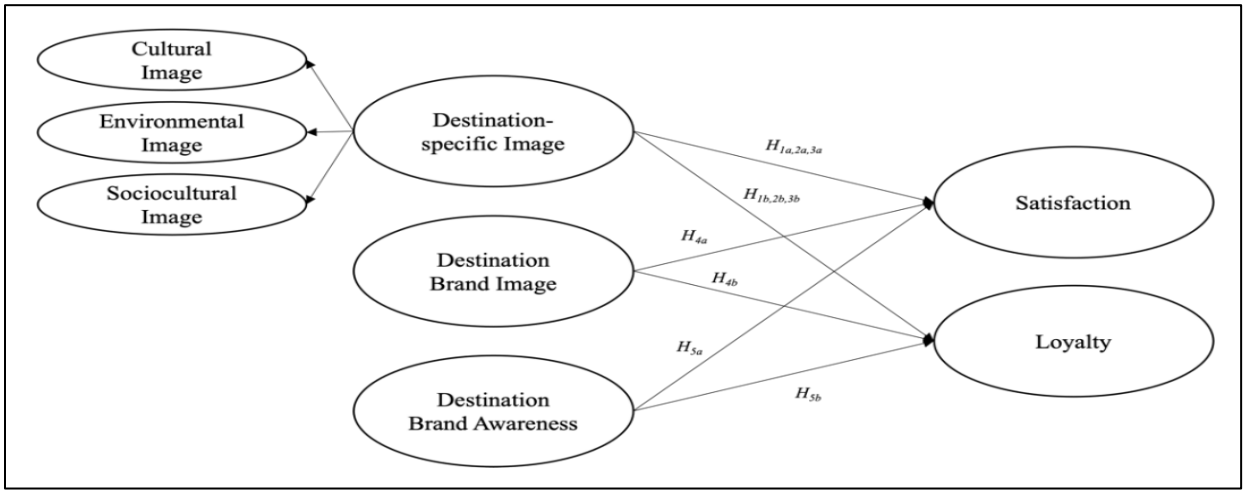
Meanwhile, brand awareness has been a recurrent theme in studies on tourists' behavior. Barreda et al. (2016) underscore that brand awareness, indicating the degree to which tourists can recall and recognize a destination's brand, initiates the process of gathering information about a brand. This process necessitates recall and recognition of the brand (Konecnik & Gartner, 2007; Almeida-Santana & Moreno-Gil, 2018; Intan Nurhayati et al., 2022; Qu, Dang & Gao., 2022). The strength of brand awareness is closely tied to the brand's memory strength and the customers' ability to recall various aspects of the brand in different contexts, such as the brand name, logo, symbol, character, packaging, and slogan (Keller & Brexendorf, 2019). Notably, research indicates that a customer's knowledge of a brand significantly affects their satisfaction levels and empirical studies suggest that brand awareness profoundly influences brand loyalty (Kim, 2018) and brand image (Barreda et al., 2016). Notably, Barreda et al. (2016) found that brand awareness affects customer preferences, purchase decision-making processes, brand commitment, and the ability to predict consumer behavior in the marketplace. Therefore, a high degree of brand awareness might lead to increased customer loyalty and purchase intent; Wasaya et al., 2022).

Therefore, the hypotheses are formulated as follows:

H_{4a}: *Destination Brand Image has a positive effect on Tourist Satisfaction.*
H_{4b}: *Destination Brand Image has a positive effect on Destination Loyalty.*

H_{5a}: *Destination Brand Awareness has a positive effect on Tourist Satisfaction.*
H_{5b}: *Destination Brand Awareness has a positive effect on Destination Loyalty.*

Figure 1: Research Framework



Source: Lee and Xue (2020).

3. Research Methodology

The research methodology employed in this study aims to examine the factors influencing destination loyalty in an island destination context, specifically focusing on the roles of destination image components (cultural image, environmental image, socioeconomic image), brand image, brand awareness, and destination satisfaction. The study's objectives revolve around investigating the effects of destination image on both tourist satisfaction and destination loyalty. The study adopts a survey-based approach and utilizes partial least squares structural equation modeling (PLS-SEM) for data analysis. The study collected data through a survey administered to 147 local tourists. The data collection took place after the lifting of the Movement Control Order (MCO) in Malaysia, allowing the researchers to gather insights from actual visitors. The survey was conducted physically, which implies face-to-face interactions with respondents, ensuring a direct and personal data collection process. The collected data were analyzed using partial least squares structural equation modeling (PLS-SEM). PLS-SEM is a statistical method used to analyze complex relationships in models with multiple latent variables. This technique is particularly suitable for exploratory research and for assessing relationships within smaller sample sizes.

4. Results

Demographic Factors: The study surveyed 147 tourists who visited Tuba Island, Malaysia. Of the total, there is 73 (49.5%) of males and 74 (51.4%) of females. It showed that the balance of females and males were responses for this study. In the next analysis, it was found that most of the visitors who responded were aged from 41 years old and above (n=53, 32%) followed by the respondents who aged from 31- to 40 years old (n= 47, 36.1%). There were also respondents aged from 21 to 30 years old (n- 26, 17.5%) and only 21 of the respondents were aged less than 20 years old (n= 21, 13.3%). Moreover, the analysis indicated the majority of the respondents were from Malaysia (n=142, 92%) followed by China (n =50, 3.4%) and only 1 from Europe (n= 1, 0.7%). Finally, the marital status indicates that all of the respondents were married (n = 94, 63.9%), single 51 (34.7%) and only 2 (1.4%) were divorced.

Table 1: Demographic Analysis

Demographic Factors		Frequency	Percent
Gender	Male	73	49.5
	Female	74	51.4
Age	Less than 20 years	21	13.3
	21-30 years old	26	17.7
	31-40 years old	47	32.0
	41 Years Old and above	53	36.1
Nationality	Malaysia	142	92.0
	China	5	3.4
	Europe	1	.7
Marital Status	Single	51	34.7
	Married	94	63.9
	Divorce	2	1.4

Measurement Model: In assessing the measurement of the model, the data analysis was conducted on the reliability, convergent validity and discriminant validity of the scales. Table 2 illustrated that all the item loadings were greater than 0.5. as they indicate that the construct explains more than 50 percent of the indicator's variance, thus providing acceptable item reliability (Hair et al., 2019). In most common reliability analyses, Cronbach's Alpha values are used to determine internal consistency, however, the result has been argued as Cronbach's alpha is another measure of reliability that assumes similar thresholds of 0.6 (Nunnally & Bernstein, 1994). The threshold values for composite reliability (CR) should exceed 0.5 (Hair et al., 2019). The Average Variance Extracted (AVE) also recommends exceeding 0.5, which explains at least 50 percent of the variance of its items.

Table 2: Convergent Validity

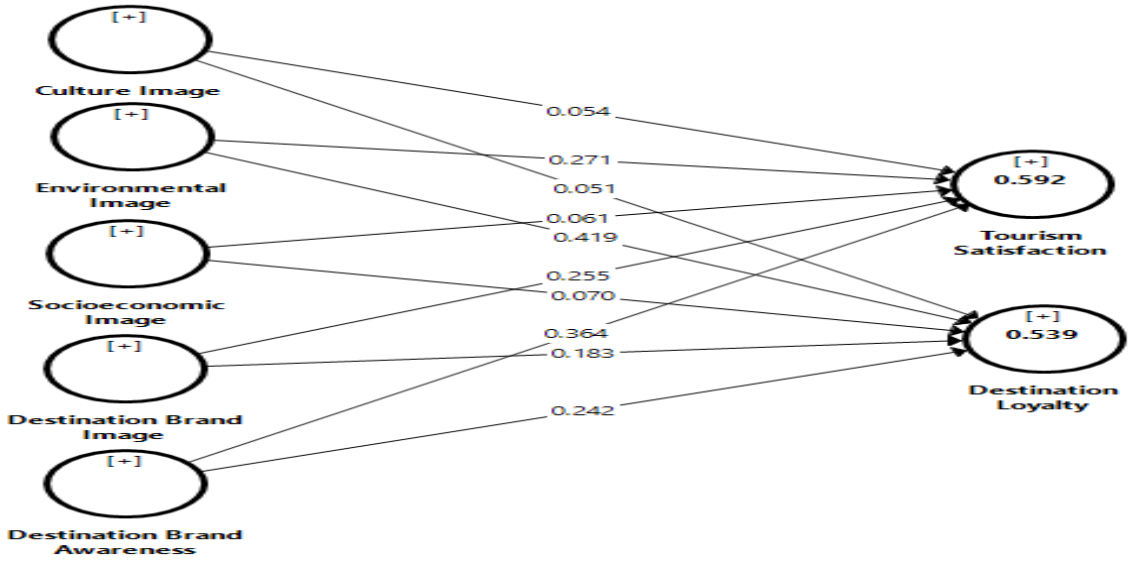
(i) Convergent Validity **(ii) Discriminant Validity- Fornell Lacker**

Construct	1	2	3	4	5	6	7
1. Culture Image	0.902						
2. Destination Brand Awareness	0.568	0.814					
3. Destination Brand Image	0.493	0.652	0.827				
4. Destination Loyalty	0.368	0.508	0.579	0.941			
5. Environmental Image	0.209	0.263	0.445	0.621	0.783		
6. Socioeconomic Image	0.012	0.109	0.384	0.444	0.659	0.724	
7. Tourism Satisfaction	0.444	0.638	0.663	0.852	0.532	0.378	0.896

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Culture Image	0.955	0.966	0.963	0.814
Destination Brand Awareness	0.758	0.847	0.854	0.662
Destination Brand Image	0.768	0.785	0.866	0.683
Destination Loyalty	0.957	0.957	0.969	0.885
Environmental Image	0.918	0.933	0.933	0.613
Socioeconomic Image	0.791	0.876	0.84	0.524
Tourism Satisfaction	0.877	0.884	0.924	0.803

The respective measurement items are illustrated in Table 2 (i) as the result revealed a test on discriminant validity of the constructs where AVE was squarely rooted to testify against the inter-correlations of the construct together with some other constructs in the model to ensure discriminant validity (Chin, 2010; Fornell and Larcker, 1981). This approach found that all the square roots of the AVE exceeded the correlations with other variables. Therefore, the discriminant validity of the data is accepted.

Figure 2: Measurement Model



Structural Model: A bootstrapping analysis was conducted to assess the structural model which analyzed the R Square, and determine the t-values to identify the predict the factors of culture image, environmental image, socioeconomic image, destination brand image, destination brand awareness towards tourism satisfaction and destination loyalty. The R Square values of tourism satisfaction and destination loyalty were 0.592 and 0.539 respectively. The adjusted R Square was 0.523 which explained that 52.3 percent of the destination loyalty is explained by the factors.

Table 3: R Square

Constructs	R Square	R Square Adjusted
Destination Loyalty	0.539	0.523
Tourism Satisfaction	0.592	0.578

As shown in Table 3a, the result from structural model analysis found destination brand awareness (β=0.230, t-value= 2.704, p<0.05), destination brand image (β=0.215, t-value= 2.056, p<0.05) and environmental image (β=0.478, t-value= 5.977, p<0.05) were predictor of destination loyalty. The result was contradicted by the culture image (β=0.040, t-value= 0.547, p>0.05) and socioeconomic (β=-0.036, t-value= 0.441, p>0.05) were not predictors of destination loyalty.

Table 3a: Structural Model for Destination Loyalty

Path Coefficient	Beta Value	STDEV	T Value	P Value	LL (2.5%)	UL (97.5%)	Result
Culture Image -> Destination Loyalty	0.040	0.073	0.547	0.585	-0.094	0.195	Not Supported
Destination Brand Awareness -> Destination Loyalty	0.230	0.085	2.704	0.007	0.095	0.430	Supported
Destination Brand Image -> Destination Loyalty	0.215	0.105	2.056	0.040	-0.029	0.385	Supported

Environmental Image -> Destination Loyalty	0.478	0.080	5.977	0.000	0.315	0.627	Supported
Socioeconomic Image -> Destination Loyalty	-0.036	0.081	0.441	0.660	-0.161	0.145	Not Supported

As shown in Table 3b, the result from structural model analysis found destination brand awareness (β=0.357, t-value= 3.921, p<0.05), destination brand image (β=0.262, t-value= 2.978, p<0.05) and environmental image (β=0.291, t-value= 5.087, p<0.05) were predictors of tourism satisfaction. The result was contradicted by the culture image (β=0.041, t-value= 0.555, p>0.05) and socioeconomic (β=-0.036, t-value= 0.553, p>0.05) were not predictors of tourism satisfaction.

Table 3b: Structural Model for Tourism Satisfaction

Path Coefficient	Beta Value	STDEV	T Value	P Value	LL (2.5%)	UL (97.5%)	Result
Culture Image -> Tourism Satisfaction	0.041	0.074	0.555	0.579	-0.103	0.188	Not Supported
Destination Brand Awareness -> Tourism Satisfaction	0.357	0.091	3.921	0.000	0.205	0.542	Supported
Destination Brand Image -> Tourism Satisfaction	0.262	0.088	2.978	0.003	0.082	0.431	Supported
Environmental Image -> Tourism Satisfaction	0.291	0.057	5.087	0.000	0.166	0.395	Supported
Socioeconomic Image -> Tourism Satisfaction	0.036	0.066	0.553	0.580	-0.082	0.177	Not Supported

Discussion: Based on the results, it shows that there is an effect of destination brand awareness, environmental image and environmental knowledge among tourists at Tuba Island. However, the socioeconomic image has not contributed to tourism satisfaction at Tuba Island. It also shows that destination brand, destination image and environmental image contributed to destination loyalty among tourists at Tuba Island. Loyalty is not the main contributor to satisfaction and tourist loyalty to visit Tuba Island.

Destination loyalty is deemed important for long-term success in achieving sustainable tourism. Sustainable tourism relates to socio and economic development that creates an impact as a result of the growth of destination loyalty in a destination. Yet, ensuring the image created for a destination is seen as an important factor for the growth of a tourism destination as this reflects the number of visitors and readiness for a destination to be a tourism destination. Image in terms of destination and environmental image are two factors that trigger several tourists to a destination.

Since the data collection was conducted after Moving Order Control (MCO) ended, and the border is yet to open to foreign tourists, this research is limited to local tourists only. It is suggested that future research can include foreign tourists to get different perspectives on destination loyalty in Tuba Island, Malaysia. Other than that, in-depth interview approaches can be applied to future research. Therefore, future researchers should focus more on foreign tourist perspectives.

This study contributes to the body of knowledge by creating new empirical evidence, especially in the context of Tuba Island, in Malaysia. Furthermore, this study assists the government or tourism agencies in strategizing the tourism agenda for the country. Further study is in demand for enhancing the existing study as empirical studies related to destination loyalty often use a mix of quantitative and qualitative methods to identify the key drivers that affect tourist loyalty to a destination.

5. Managerial Implications and Recommendations

The study's findings carry significant implications for a diverse array of stakeholders deeply involved in the tourism, development in Langkawi and Tuba Island, Malaysia. These stakeholders encompass government bodies, tourism agencies, local communities, and businesses, each playing a pivotal role in shaping the

destination's appeal, sustainability, and overall success as a tourist hotspot. The study underscores the significance of understanding destination loyalty for sustainable tourism growth. Armed with insights into the factors driving loyalty, stakeholders can engage in informed and strategic planning. This involves investing resources in initiatives that cultivate a positive destination image, enhance visitor satisfaction, and foster long-term loyalty. By avoiding overdevelopment and maintaining a balance between economic progress and environmental preservation, stakeholders can ensure that the islands continue to thrive as attractive and sustainable destinations.

These research findings also contribute to expanding the existing literature on sustainable tourism and destination loyalty. The findings can also be used as a key explanation apart from adding to the existing literature in the field of tourism sustainability and tourist satisfaction. Other than that, future research should encompass foreign tourists' perspectives to obtain a comprehensive understanding of destination loyalty. This broader perspective can provide insights into how cultural and experiential factors impact loyalty, thereby enriching the understanding of visitor preferences and contributing to more effective strategies.

Conclusion: In conclusion, this study comprehensively explored factors influencing tourism satisfaction and destination loyalty in Tuba Island, Malaysia. Findings highlighted the positive impact of destination brand awareness, brand image, and environmental image on both satisfaction and loyalty. Cultural and socioeconomic dimensions had less significant effects on this study. Implications for policymakers, tourism agencies, and communities involve leveraging brand awareness and environmental image to attract and retain tourists while emphasizing environmental preservation. The limitation of the study, focusing only on local tourists post-MCO, opens the gateway for future research directions. The inclusion of foreign tourists promises to develop a better understanding by offering diverse perspectives and uncovering potential differences between local and international perceptions of destination loyalty. This research enhances understanding of tourists' perceptions, and guiding strategies for sustainable tourism in Tuba Island and beyond. Integrating these insights into decision-making can enhance the resilience and prosperity of the evolving tourism sector.

Acknowledgments: This research is funded by the Strategic Research Partnership (SRP) - UNNES. The authors would like to extend appreciation to Universiti Teknologi MARA (UiTM) and the Research Management Institute (RMI) of UiTM for their assistance in this research project.

References

Aksoy, R. & Kiyci, S. (2011). A Destination Image as a Type of Image and Measuring Destination Image in Tourism (Amasra Case). *European Journal of Social Sciences*, 20(3), 478.

Allameh, S.M., Khazaei Pool, J., Jaberi, A., Salehzadeh, R. & Asadi, H. (2015), Factors influencing sport tourists' revisit intentions: the role and effect of destination image, perceived quality, perceived value and satisfaction, *Asia Pacific Journal of Marketing and Logistics*, 27(2), 191-207.

Alamineh, G. A., Hussein, J. W., Endaweke, Y. & Taddesse, B. (2023). The local communities' perceptions on the social impact of tourism and its implication for sustainable development in Amhara regional state. *Heliyon*, 9(6), 1–17. https://doi.org/10.1016/j.heliyon.2023.e17088

Almeida-Santana, A. & Moreno-Gil, S. (2018). Understanding tourism loyalty: Horizontal vs. destination loyalty. *Tourism Management*, *65*, 245–255. https://doi.org/10.1016/j.tourman.2017.10.011

Almeida-García, F., Pelaez-Fernandez, M. A., Balbuena-Vazquez, A. & Cortés-Macias, R. (2016). Residents' perceptions of tourism development in Benalmádena (Spain). *Tourism management*, 54, 259-274.

Anand, M., Sahay, B. S. & Saha, S. (2005). Balanced Scorecard in Indian Companies. Vikalpa: *The Journal for Decision Makers*, 30(2), 11-25. Doi: 10.1177/0256090920050202.

Andereck, K. L., Valentine, K. M., Knopf, R. C. & Vogt, C. A. (2005). Residents' perceptions of community tourism impacts. *Annals of Tourism Research,* 32(4), 1056–1076.

Ariffin, M. A. M., Darus, M. Y. & Khor, M. A. A. A. A. (2022). Mobile Application for Products Commercialization in Pulau Tuba, Langkawi Using Agile Development. *Journal of Theoretical and Applied Information Technology*, 100(12), 3935–3944.

Asmelash, A. G. & Kumar, S. (2019). Assessing the progress of tourism sustainability: Developing and validating sustainability indicators. *Tourism Management*, 71(April 2018), 67–83.

Athula Gnanapala, W. K. & Sandaruwani, J. A. R. C. (2016). Socio-economic Impacts of Tourism Development and Their Implications on Local Communities. *International Journal of Economics and Business Administration*, 2(5), 59–67.

Assaker, G. & Hallak, R. (2013). Moderating effects of tourists' novelty-seeking tendencies on destination image, visitor satisfaction, and short-and long-term revisit intentions. *Journal of Travel Research*, 52(5), 600-613.

Balderas-Cejudo, A. & Patterson, I. (2023). Volunteer tourism: The future of baby boomer tourists in a post-pandemic world. *Journal of Hospitality and Tourism Management*, 55, 139–142. https://doi.org/10.1016/j.jhtm.2023.03.012

Barreda, A. A., Bilgihan, A., Nusair, K. & Okumus, F. (2016). Online branding: Development of hotel branding through interactivity theory. *Tourism Management,* 57, 180–192. https://doi.org/10.1016/j.tourman.2016.06.007

Boluk, K. A. & Rasoolimanesh, S. M. (2022). Introduction to the special issue on "Deepening our understandings of the roles and responsibilities of the tourism industry towards the United Nations Sustainable Development Goals (SDGs). Tourism Management Perspectives, 41(December 2021). https://doi.org/10.1016/j.tmp.2022.100944

Bujosa, A. & Roselló, J. (2007). Modeling environmental attitudes toward tourism. *Tourism Management,* 28(3), 688–695. https://doi.org/10.1016/j.tourman.2006.04.004

Chemli, S. (2018). Human-induced crisis - impacts on tourism and recovery progress. *International Journal of Tourism Management and Sciences*, 33(4), 113–134. https://doi.org/10.21719/ijtms.33.4.7

Chen, C. & Phou, S. (2013). A closer look at destination: Image, personality, relationship and loyalty. *Tourism Management,* 36, 269–278.

Chieng, J. (2019). Sound properties, festival experience and soundscape perception of the Rainforest World Music Festival in Sarawak Cultural Village, Malaysia. (Doctoral thesis, University of Sheffield).

Chin, W. W. (2010). How to write up and report PLS analyses. In V.Esposito Vinzi, W.W.Chin, J.Henseler, & H.Wang (Eds.), Handbook of partial least squares: Concepts, methods and application. New York: Springer, 645-689.

Choi, Y. H. & Choo, H. J. (2016), Effects of Chinese consumers' relationship benefits and satisfaction on attitudes toward foreign fashion brands: the moderating role of country of salesperson, *Journal of Retailing and Consumer Services,* 28, 99-106.

Croes, R. (2016). Connecting tourism development with small island destinations and with the well-being of the island residents. *Journal of Destination Marketing and Management*, 5(1), 1–4. https://doi.org/10.1016/j.jdmm.2016.01.007

Day, J. (2022). Tourism, hospitality, and environmental sustainability on the Small Island Developing States. Current Opinion in Environmental Sustainability, 59. https://doi.org/10.1016/j.cosust.2022.101233

Deery, M., Jago, L. & Fredline, L. (2012). Rethinking social impacts of tourism research: A new research agenda. *Tourism Management*, 33(1), 64–73. https://doi.org/10.1016/j.tourman.2011.01.026

Ekanayake, I. A. & Gnanapala, A. C. (2016). Travel Experiences And Behavioral Intentions of the Tourists: A Study Eastern Province of Sri Lanka. *Tourism, Leisure and Global Change*, 3(2016), 29–31.

Erol, I., Neuhofer, I. O., Dogru (Dr. True), T., Oztel, A., Searcy, C. & Yorulmaz, A. C. (2022). Improving sustainability in the tourism industry through blockchain technology: Challenges and opportunities. Tourism Management, 93(July). https://doi.org/10.1016/j.tourman.2022.104628

Firth, L. B., Farnworth, M., Fraser, K. P. P. & Mcquatters-gollop, A. (2023). Science of the Total Environment Make a difference : Choose artificial reefs over natural reefs to compensate for the

Fornell, C. & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. Journal of marketing research, 382-388.

Gaikwad, Sonali & Ragde, Rajesh & Sawant, Madhuri. (2020). Tourist Satisfaction and Destination Loyalty: A Case Study of the World Heritage Site of Ellora Caves. *Atna Journal of Tourism Studies,* 15, 17-31.

Gibson, H. & Yiannakis, A. (2002). Needs and the Life course. Annals of Tourism Research, 29(2), 358–383.

Gnanapala, W. A. & Sandaruwani, J. A. R. C. (2016). Socio-economic impacts of tourism development and their implications on local communities. *International journal of economics and business administration*, 2(5), 59-67.

Grilli, G., Tyllianakis, E., Luisetti, T., Ferrini, S. & Turner, R. K. (2021). Prospective tourist preferences for sustainable tourism development in Small Island Developing States. Tourism Management, 82. https://doi.org/10.1016/j.tourman.2020.104178

Han, S., Ramkissoon, H. & Kim, M. J. (2023). Support of residents for sustainable tourism development in nature-based destinations: Applying theories of social exchange and bottom-up spillover. *Journal of Outdoor Recreation and Tourism*, 43(July), 100643.

Hair, J. F., Risher, J. J., Sarstedt, M. & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24.

Hasan, M. K., Ismail, A. R. & Islam, M. F. (2017). Tourist risk perceptions and revisit intention: a critical review of literature, *Cogent Business & Management*, 4(1), 1-21.

Hashemi, S., Kiumarsi, S., Marzuki, A. & Anarestani, B. B. (2019). Tourist Satisfaction and Destination Loyalty in Heritage Sites of Shiraz, Iran. *Bridging Tourism Theory and Practice*, 10, 243–255. https://doi.org/10.1108/S2042-144320190000010015

Hultman, M., Skarmeas, D., Oghazi, P. & Beheshti, H. M. (2015). Achieving tourist loyalty through destination personality, satisfaction, and identification. *Journal of Business Research*, 68(11), 2227–2231. https://doi.org/10.1016/j.jbusres.2015.06.002

Hidayat, T., Hu, C. P., Chang, Y. Y. & Tsai, Y. H. (2020). Tourist satisfaction on culture event: the case of Pacu Jawi (cow racing) in West Sumatra, Indonesia. *International Journal of Organizational Innovation,* 12(4), 150

Higgins-Desbiolles, F. (2018). Sustainable tourism: Sustaining tourism or something more? *Tourism Management Perspectives*, 25(October 2017), 157–160. https://doi.org/10.1016/j.tmp.2017.11.017

Hikmah, Payangan, O. R., Munir, A. R. & Jusni. (2018). The Effects of Tourism Products, Service Quality and Destination Uniqueness to the Satisfaction and Loyalty of Tourists in South Sulawesi. *Scientific Research Journal*, 6(1), 91–100

Huang, Y. & Coelho, V. R. (2017). Sustainability performance assessment focusing on coral reef protection by the tourism industry in the Coral Triangle region*. Tourism Management,* 59, 510–527. https://doi.org/10.1016/j.tourman.2016.09.008

Huete-Alcocer, N. & Hernandez-Rojas, R. D. (2022). Does local cuisine influence the image of a World Heritage destination and subsequent loyalty to that destination? International Journal of Gastronomy and Food Science, 27(January). https://doi.org/10.1016/j.ijgfs.2022.100470

Intan. N., Herlan, S., & Tatan, S. (2022). Effect of Destination Brand Experience on Behavioral Intention Through Tourist Satisfaction As a Mediation. In *International Journal of Sustainable Competitiveness on Tourism,* 1(1), 1–11). https://doi.org/10.34013/ijscot.v1i01.771

Jani, D. & Han, H. (2014b). Testing the moderation effect of hotel ambiance on the relationships among social comparison, effect, satisfaction, and behavioral intentions. *J. Travel Tourism Market,* 31, 731–746

Keller, K. L. & Brexendorf, T. O. (2019). Measuring Brand Equity. In: Esch, FR. (eds) Hand Buch Markenführung. Springer Reference Wirtschaft. Springer Gabler, Wiesbaden. https://doi.org/10.1007/978-3-658-13342-9_72.

Kim, J. H. (2018). The impact of memorable tourism experiences on loyalty behaviors: The mediating effects of destination image and satisfaction. *Journal of Travel Research*, 57(7), 856-870.

Kidane, G. G. & Berhe, M. H. (2017). Socio-economic impacts of tourism in Axum town, Tigray regional state, Ethiopia. *Journal of Tourism and Hospitality Management*, 5(1), 1-24.

Kladou, S. & Kehagias, J. (2014). Assessing destination brand equity: An integrated approach. *Journal of Destination Marketing and Management*, 3(1), 2–10. https://doi.org/10.1016/j.jdmm.2013.11.002

Kocabulut, Ö., Yozukmaz, N. & Bertan, S. (2019). Environmental impacts of tourism. *The Routledge Handbook of Tourism Impacts: Theoretical and Applied Perspectives*, 270, 281–297. https://doi.org/10.4324/9781351025102-22

Konecnik, M. & Gartner, W. (2007). Customer-based brand equity for a destination. *Annals of tourism research,* 34(2), 400-421

Lai, K. (2018). Influence of event image on destination image: The case of the 2008 Beijing Olympic Games. *Journal of Destination Marketing & Management,* 7, 153-163. https://doi.org/10.1016/j.jdmm.2016.09.007

Lee, H. T. & Jan, F. H. (2019). Can Community-based tourism contribute to sustainable development? Evidence from residents' perceptions of sustainability. Tourism Management, 368-380

Lee, S. W. & Xue, K. (2020). A model of destination loyalty: integrating destination image and sustainable tourism. *Asia Pacific Journal of Tourism Research*, 25(4), 393–408. https://doi.org/10.1080/10941665.2020.1713185

Liu, X., Li, J. J. & Kim, W. G. (2017). The role of travel experience in the structural relationships among tourists' perceived image, satisfaction, and behavioral intentions. *Tourism and Hospitality Research*, 17(2), 135–146. https://doi.org/10.1177/1467358415610371

Lee, S. W. & Xue, K. (2020). A model of destination loyalty: Integrating destination image and sustainable tourism. *Asia Pacific Journal of Tourism Research*, 25(4), 393-408.

Limbong F. & Soetomo S. (2014). Impact of tourism development on the environment of Karimunjawa National Park. *Jurnal Ruang,* 2(1), 351-360.

Lucrezi, S., Saayman, M. & Van der Merwe, P. (2015). Managing beaches and beachgoers: Lessons from and for the Blue Flag award. *Tourism Management*, 48, 211–230. https://doi.org/10.1016/j.tourman.2014.11.010

Malik, M. E., Ghafoor, M. M. & Iqbal, H. K. (2012). Impact of Brand Image, Service Quality and price on customer satisfaction in Pakistan Telecommunication sector. *International journal of business and social science*, 3(23), 123-129.

Matias, T. P., Leonel, J. & Imperador, A. M. (2022). A systemic environmental impact assessment on tourism in the island and coastal ecosystems. Environmental Development, 44(September). https://doi.org/10.1016/j.envdev.2022.100765

Matiza, T. (2022). Country Image and Recreational Tourism Travel Motivation: the Mediating Effect of South Africa's Place Brand Dimensions. *Tourism and Hospitality Management*, 28(3), 519–539. https://doi.org/10.20867/thm.28.3.2

McKercher, B., Shoval, N., Park, E. & Kahani, A. (2015). The [limited] impact of weather on tourist behavior in an urban destination. *Journal of Travel Research,* 54, 442-455.

Melo, H. M. P., Moniz, A. I, Silva, F. J. F. & Batista, M. D. G. (2017). Tourist destination image and consumer behavior: the case of the Azores. J. *Spatial Org. Dyn*. 5, 73–82

Meng, B. & Cui, M. (2020). The role of co-creation experience in forming tourists' revisit intention to home-based accommodation: extending the theory of planned behavior. *Tourism Management Perspectives,* 33, 100581. https://doi.org/10.1016/j.tmp.2019.100581

Mohamad, M. & Izzati, G. N. A. (2014). The impact of tourist satisfaction on destination loyalty among European tourists visiting Malaysia. *International Journal of Management Science,* 2(8), 362–371

Nawijn, J. & Peeters, P. M. (2010). Traveling 'green': Is tourists' happiness at stake? *Current Issues in 630 Tourism*, 13, 381-392.

Nunally, J. C. & Bernstein, I. H. (1994). Psychology theory. New York: McGrew-Hill.

Pan, S. Y., Gao, M., Kim, H., Shah, K. J., Pei, S. L. & Chiang, P. C. (2018). Advances and challenges in sustainable tourism toward a green economy. *Science of the Total Environment*, 635, 452–469. https://doi.org/10.1016/j.scitotenv.2018.04.134

Prasad, S., Nair, G. K. & Purohit, H. (2019). Tourist Satisfaction: an Analysis of Push and Pull Factors - a Case of Qatar Tourism. *Journal of Management*, 6(2), 187–199. https://doi.org/10.34218/jom.6.2.2019.022

Pratama, A. P., Sirait, A., Fahriansyah, R., Syafitra, S. & Nasution, M. I. (2023, February). Mediated Customer Satisfaction: the Brand Image and Product Quality on Purchasing Decisions. In *Proceeding Medan International Conference on Economic and Business*, 1, 1814-1822.

Qu, Y., Dong, Y. & Gao, J. (2022). A customized method to compare the projected and perceived destination images of repeat tourists. Journal of Destination Marketing and Management, 25(July). https://doi.org/10.1016/j.jdmm.2022.100727

Qu, Y., Xu, F. & Lyu, X. (2019). Motivational place attachment dimensions and the pro-environmental behavior intention of mass tourists: a moderated mediation model. *Current Issues in Tourism*, 22(2), 197–217. https://doi.org/10.1080/13683500.2017.1399988

Ragab, H., Mahrous, A. A. & Ghoneim, A. (2019). Egypt's perceived destination image and its impact on tourist's future behavioral intentions. *Int. J. Tour. Cities,* 6, 449–466. doi: 10.1108/IJTC-12-2018-0105

Rahim, M. A., Bakar, N. A., Hashim, N. A. A. N., Nawi, N. M. M. & Wee, H. (2022). Empirical Evidence From the Tourism Industry on the Factors That Affect Tourist Destination Satisfaction. *Geo Journal of Tourism and Geosites,* 44(4), 1209–1215. https://doi.org/10.30892/gtg.44404-936

Ramesh, V. & Jaunky, V. C. (2020). The tourist experience: Modelling the relationship between tourist satisfaction and destination loyalty. *Materials Today: Proceedings*, 37(Part 2), 2284–2289. https://doi.org/10.1016/j.matpr.2020.07.723

Razali, M. K., Mohamad, N. H., Johari, N. & Yaakub, R. (2016). Persepsi Komuniti Terhadap Pembangunan Pelancongan di Manjung, Perak. International Language and Tourism Conference 2016

Ribeiro, M. A., Pinto, P., Silva, J. A. & Woosnam, K. M. (2017). Residents' attitudes and the adoption of pro-tourism behaviors: The case of developing island countries. *Tourism Management,* 61, 523– 537. https://doi.org/10.1016/j.tourman.2017.03.004

Rajesh, R. (2013). Impact of Tourist Perceptions, Destination Image and Tourist Satisfaction on Destination Loyalty: A Conceptual Model. *PASOS. Revista de Turismo y Patrimonio Cultural*, 11(3), 67–78. https://doi.org/10.25145/j.pasos.2013.11.039

Rosli, N. A., Zainuddin, Z., Yusliza, M. Y., Muhammad, Z. & Saputra, J. (2023). Investigating the effect of destination image on revisit intention through tourist satisfaction in Laguna Redang Island Resort, Terengganu. *International Journal of Advanced and Applied Sciences*, 10(6), 17–27. https://doi.org/10.21833/ijaas.2023.06.003

Ruhanen, L., Weiler, B., Moyle, B. D. & McLennan, C. lee J. (2015). Trends and patterns in sustainable tourism research: a 25-year bibliometric analysis. *Journal of Sustainable Tourism*, 23(4), 517–535. https://doi.org/10.1080/09669582.2014.978790

Salleh, N. H. M., Shukor, M. S. & Idris, S. H. M. (2017). Impak Pembangunan Pelancongan ke atas Persekitaran Manusia dan Fizikal Komuniti Pulau Tioman (The Impact of Tourism Development on Humanity and Physical Environment of Pulau Tioman Community). *Akademika*, 87(3)

Shahrivar, R. B. (2012). Factors that influence tourist satisfaction. Journal of Travel and Tourism

Stylos, N., Vassiliadis, C. A., Bellou, V. & Andronikidis, A. (2016). Destination images, holistic images and personal normative beliefs: predictors of intention to revisit a destination*, Tourism Management,* 52, 40-60.

Su, J. & Kerdpitak, C. (2023, March). The influence of brand image and service quality toward customer satisfaction in the hotel industry in thailand. In international academic multidisciplinary research conference in zurich 2023 (pp. 353-362).

Syaripudin, N. (2016). Persepsi penduduk tempatan terhadap impak pembangunan eko-pelancongan di Semporna, Sabah. Presiding Symposium on Technology Management & Logistics. (STML-Go Green).

Tran, X. & Ralston, L. (2006). Tourist preferences: Influence of unconscious needs. *Annals of Tourism Research,* 33(2), 424–441. https://doi.org/10.1016/j.annals.2005.10.014

Vargas-Sanchez, A., Porras-Bueno, N. & de los Ángeles Plaza-Mejía, M. (2011). Explaining residents' attitudes to tourism: Is a universal model possible? *Annals of Tourism Research*, 38(2), 460–480. https://doi.org/10.1016/j.annals.2010.10.004

Wasaya, A., Prentice, C. & Hsiao, A. (2022). The influence of norms on tourist behavioral intentions. *Journal of Hospitality and Tourism Management*, 50(July 2021), 277–287. https://doi.org/10.1016/j.jhtm.2022.02.023

Wells, R. H. & McFadden, J. (2006). Human nature: act and fiction: literature, science and human nature. UK: A&C BlackLing, L. Q., Karim, M. S. A., Othman, M., Adzahan, N. M. & Ramachandran, S. (2010). Relationships between Malaysian food image, tourist satisfaction and behavioral intention*. World Applied Sciences Journal*, 10(10), 164-171. http://psasir.upm.edu.my/id/eprint/16500

Williams, A. T., Rangel-Buitrago, N. G., Anfuso, G., Cervantes, O. & Botero, C. M. (2016). Litter impacts on scenery and tourism on the Colombian north Caribbean coast. *Tourism Management*, 55, 209–224. https://doi.org/10.1016/j.tourman.2016.02.008

Wong, I. K. A., Ruan, W. J., Cai, X. & Huang, G. Q. I. (2021). Green-induced tourist equity: The cross-level effect of regional environmental performance. *Journal of Sustainable Tourism*, 29(7), 1043–1062. https://doi.org/10.1080/09669582.2020.1851700

Woo, E., Kim, H. & Uysal, M. (2015). Life satisfaction and support for tourism development. *Annals of Tourism Research,* 50, 84–97. https://doi.org/10.1016/j.annals.2014.11.001

Xingjun, Z. (2022). An Empirical Study on the Tourist Satisfaction. *Journal of Digitainability, Realism & Mastery (DREAM),* 1(07), 47–56. https://doi.org/10.56982/dream.v1i07.66

Yıldırım, D. Ç., Ektiren, B. & Erdoğan, F. (2023). The threshold effect of tourism, growth, and population interactions on environmental pollution in Mediterranean countries. Tourism Management Perspectives, 47(February). https://doi.org/10.1016/j.tmp.2023.101118

Zhang, Z., Plathong, S., Sun, Y., Guo, Z., Munnoy, T., Ma, L., Jantharakhantee, C. & Tanboot, L. (2020). Analysis of the island tourism environment based on tourists' perception—A case study of Koh Lan, Thailand. Ocean and Coastal Management, 197(February). https://doi.org/10.1016/j.ocecoaman.2020.105326

Zou, W., Wei, W., Ding, S. & Xue, J. (2022). The relationship between place attachment and tourist loyalty: A meta-analysis. Tourism Management Perspectives, 43(August 2021). https://doi.org/10.1016/j.tmp.2022.100983.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Unraveling the Impact of Job Stress, Work-Life Balance and Work Environment on Job Satisfaction: A Study on Malaysian Anti-Corruption Commission Investigation Officers

Abdul Faeez Izdihar[1] Dilla Syadia Ab Latiff[2*] & Noor'ain Mohamad Yunus[3]
[1]Prime Minister's Department, Malaysian Anti-Corruption Commission, Malaysia
[2*&3]Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
2023755415@student.uitm.edu.my, *dillasyadia@uitm.edu.my, noorainyunus@uitm.edu.my

Abstract: The study examines the challenges faced by Investigation Officers (IOs) at the Malaysian Anti-Corruption Commission, with an increasing number of cases impacting their job satisfaction. Despite this, there have been limited studies looking into how job stress, work-life balance, and work environment impact IOs' job satisfaction. Thus, a study takes place to investigate the impact of job stress, work-life balance, and work environment on their satisfaction. Questionnaires were distributed to 164 respondents from MACC Headquarters in Putrajaya and MACC's states' offices and analyzed using SPSS V23. Multiple regression analyses were conducted and results showed a positive relationship between work-life balance and job satisfaction, and negative relationships between job stress and job satisfaction, as well as work environment and job satisfaction. The study recommends the MACC's management team consider improvements in career paths, fair compensation, and rewards to enhance job satisfaction among IOs. It also suggests promoting better communication between IOs and the agency to address their needs and maintain a healthy work-life balance.

Keywords: *Job Satisfaction, job stress, work-life balance, work environment, Investigation Officer.*

1. Introduction and Background

Investigation Officers (IOs) at the Malaysian Anti-Corruption Commission face numerous challenges in their work, to combat corruption cases in Malaysia. The significant volume of investigation papers opened for pertinent inquiries raises concerns about their level of job satisfaction. Surprisingly, there are a minimum number of studies investigating how factors like job stress, work-life balance, and work environment impact the job satisfaction of IOs. Although some research has been conducted on the antecedents of job satisfaction (Qian, Song & Wang, 2018), there are still clear gaps that require further exploration, considering the crucial role of job satisfaction in daily working life.

One way to measure job satisfaction is through the Organizational Happiness Index (OHI), which revealed that nearly 60% of Malaysian workers were content with their jobs (Bernama, 2018). Malaysia ranked fourth among seven countries in the region concerning workplace happiness, with civil service employees voicing higher levels of contentment. However, studies like the one conducted by Omar et al. (2018) in the same area indicated that employers should focus on improving employees' pay and benefits, as these factors contributed the least to the OHI score.

Despite the rather small number of public-interest cases assigned to each IO annually (MACC Webmaster, 2022), the stress experienced by IOs is profound and unique to their role. Unfortunately, little research has explored how variations in workplace happiness may be influenced by other factors such as employment status, income, social support, and work conditions. Consequently, there remains a gap between IOs and government servants in general, with regards to achieving job satisfaction in their respective careers. To address these issues, further investigation is necessary to better comprehend the complex connection between job satisfaction and the various factors that impact the well-being of IOs.

2. Literature Review

Job Satisfaction: Job satisfaction is an individual subjective psychological state that reflects on a person's total positive or negative evaluation of their job and work experience. The definitions of job satisfaction have varied across different research studies and it draws upon various conceptualizations provided in numerous research articles. It comprises an individual's feelings, attitudes, and perceptions towards various factors of their job, such as the tasks they perform, their work environment, relationships with colleagues and

superiors, opportunities for growth and development, and overall fulfillment and happiness resulting from the work (Locke, 1969; Spector, 1997; Judge and Church, 2000). Job satisfaction is important as it is linked to employee motivation, engagement, productivity, and overall well-being. One common factor towards job satisfaction and dissatisfaction is the bond with superiors and colleagues. Many studies have shown the importance of having supportive and positive interactions in the workplace. An old and important study in the area of job satisfaction by Wright and Cropanzano (1998) highlighted the impact of colleague support on job satisfaction. Another study by Judge, Thoresen, Bono, and Patton (2001) found that the quality of the relationship with one's supervisor significantly influences job satisfaction. Thus, positive social interactions, communication, and collaboration with supervisors and colleagues contribute to a sense of belonging, psychological well-being, and building trust which leads to overall job satisfaction. Inversely, negative interactions, conflicts, and lack of cooperation are the root causes of stress, frustration, and job dissatisfaction. Therefore, the quality of relationships with supervisors and colleagues plays a crucial role in determining job satisfaction and dissatisfaction.

Many modern empirical researches support the impact of a relationship with one's supervisor on job satisfaction. Qian, Song & Wang's (2017) research shed light on abusive supervision as a significant antecedent of job dissatisfaction, particularly in northern China. Sharp (2016) presented a different view on the antecedents of job satisfaction, focusing on the generational cohort factor as an important factor. The study revealed that law enforcement officers from the Millennial cohort exhibited lower organizational commitment due to dissatisfaction but those from the Generation X cohort have better commitment although they work in the same environment and context. This gap in findings suggested that in future research, investigating this distinctive independent variable could provide valuable insights for understanding job satisfaction among IOs and other law enforcement officers.

Job Stress: Queiró et al. (2020) examined burnout and stress management as variables of the study, focusing on the stress and mental health issues prevalent among dissatisfied police officers. In the same study, it was found that suicidal rates among police officers are high and this is alarming. Another study by Stogner, Miller & McLean (2020) explored officer stress, mental health, resiliency, and misconduct, with COVID-19's impact as the independent variable. Their research revealed how the pandemic affected police officers' overall health, including both mental and physical aspects. Supporting evidence from Hartley et al. (2011) underscored the stressful nature of policing as an occupation, citing long and rotating shifts, exposure to threats and violence, heightened need for hypervigilance, and a lack of public support. El Sayed, Sanford & Kerley (2018) conducted a study on unique and high-volume stressors as independent variables, and workplace stress as the dependent variable, further highlighting the ongoing concern about stress in the policing profession in the United States. However, Chikwem (2017) offered an opposing view, arguing that stress may not be a direct antecedent to job satisfaction among police officers in the United States. His research emphasized the significance of physical exercises and positive leadership within police departments to improve job satisfaction and public safety outcomes. Promoting positivity to police officers can enhance their performance and contribute to the well-being of the community. Considering the insights from these studies, the hypothesis can be formulated as follows:
H1: There is a relationship between job stress and job satisfaction among Investigation Officers at the Malaysian Anti-Corruption Commission.

Further research in this area is essential to understand the complex dynamics between job stress and job satisfaction among the targeted audience.

Work-Life Balance: Kumarasamy, Pangil & Mohd Isa (2018) conducted a study focusing on work-life balance among police officers and emphasized the importance of enhancing emotional intelligence and implementing organizational support policies to achieve this balance. Their research also highlighted the potential conflicts that work-life imbalance may cause in the policing field in Malaysia. Similarly, Omar, Mohd & Ariffin (2015) explored the impact of workload and role conflict on work-life balance among employees of an enforcement agency in Malaysia. They found that higher workload and role conflict were associated with reduced work-life balance and led to job dissatisfaction, providing valuable insights applicable to the current study's setting.

In the context of the COVID-19 pandemic, Gigauri (2020) brought attention to the effects on human resource management worldwide. This article's significance lies in its focus on how the pandemic impacted work-life balance trends, particularly with the increased adoption of remote work or working from home. It shed light on the challenges employees faced in maintaining work-life balance during these unprecedented times and how it impacted job satisfaction. Employees who can maintain a balance between work and personal life tend to be satisfied with work. Drawing from the insights of these studies, the formulated hypothesis is as follows:
H2: There is a relationship between work-life balance and job satisfaction among Investigation Officers at the Malaysian Anti-Corruption Commission.

To better understand and address work-life balance issues among the targeted audience, further exploration and research are essential.

Work Environment: Barasa (2017) conducted a study to examine the influence of the work environment on police performance in Nairobi, Kenya. The author noted a decline in performance and an increase in criminal activities among police officers which portrays an unhealthy work environment. The study aimed to explore if there was a relationship between the work environment and performance, proposing that a conducive work environment could mitigate the negative influences on the Nairobi Kenya police force and then increase job performance.

Zakarani & Mohd Noor (2021) explored the work environment and job performance of Malaysian police officers during the COVID-19 pandemic. Unlike other reference articles, this study delved into the variations in the work environment during the pandemic and its impact on job performance. The research revealed that the physical environment, supervisory-related matters, and performance feedback significantly influenced job performance among police officers during the pandemic, with supervisory roles playing a crucial contributing factor.

Another study by Donley (2021) focused on nurses during the COVID-19 pandemic. The research investigated antecedents such as burnout, disengagement, and extreme career climates, which affected nurses' job satisfaction. The article discussed both healthy and unhealthy working environments and highlighted ways to improve the work environment for nurses. It was found that a poor work environment led to dissatisfaction.

Given the similarities in work responsibilities of uniform bodies such as police officers, nurses and Investigation Officers (IOs) at MACC, it is reasonable to extend the findings to the IOs at MACC. Therefore, the hypothesis formulated is as follows:
H3: There is a relationship between the work environment and job satisfaction among Investigation Officers at the Malaysian Anti-Corruption Commission.

Additional research is necessary to further explore and understand the complexities of the work environment's impact on job satisfaction among the targeted audience.

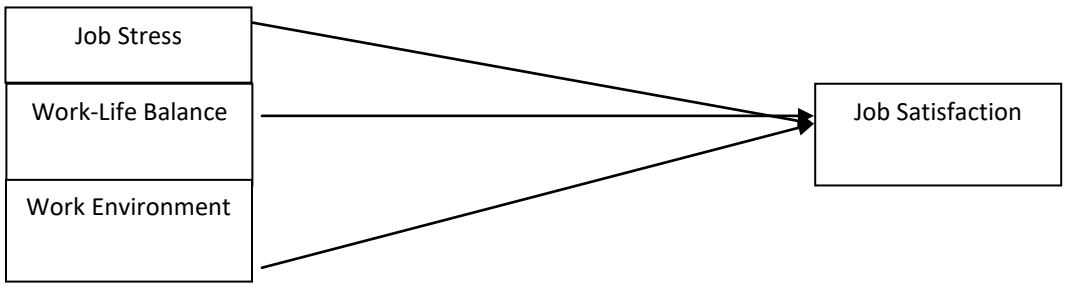
Underpinning Theory: Biopsychosocial Model of Stress: The Biopsychosocial Model of Stress is a comprehensive theoretical framework that considers the interplay of biological, psychological, and social factors in understanding stress and its impact on job satisfaction in various work settings (Taylor, 2017). This model proposes that stress arises from the interaction between physiological responses, psychological perceptions, and social contexts, which collectively influence an individual's well-being and job satisfaction.

Research by Luo, Wang, and Han (2020) examined the applicability of the Biopsychosocial Model in the context of job satisfaction among healthcare professionals. They found that the model provided valuable insights into understanding the complex relationships between stressors, individual coping mechanisms, and workplace support, all of which influenced job satisfaction. In another study by Johnson, Smith, and Brown (2019), the Biopsychosocial Model was explored in the context of job satisfaction among employees in a corporate setting. Their findings highlighted the importance of considering both biological factors (e.g., physical health) and psychosocial factors (e.g., work-related stress, social support) when examining job satisfaction in this environment.

Furthermore, the Biopsychosocial Model was applied to the study of job satisfaction among teachers in an educational setting by Hernandez, Martinez, and Ramirez (2018). Their research revealed the significant role of individual psychological factors (e.g., coping strategies, emotional regulation) and social factors (e.g., teacher-student relationships, support from colleagues) in determining job satisfaction levels. Another relevant study by Devadass, Chan, and Memon (2020) investigated the association between job stress, psychological distress, and job satisfaction among nurses in Malaysia, employing the Biopsychosocial Model as the theoretical foundation. The findings provided valuable insights into how the interactions between biological, psychological, and social factors impact job satisfaction in the nursing profession. These recent studies collectively emphasize the relevance and versatility of the Biopsychosocial Model in understanding the complexities of stress and its impact on job satisfaction across different work settings.

Conceptual Framework: Based on the literature review and understanding of the factors leading towards job satisfaction, the conceptual framework (Figure 1) was developed. The conceptual framework proposed a direct relationship between the independent variable (job stress, work-life balance, and work environment) and the dependent variable (job satisfaction).

Figure 1: The Independent Variables and Dependent Variables of the Conceptual Framework



3. Research Methodology

This study employed a quantitative research approach, utilizing primary data collected through a questionnaire distributed among the Investigation Officers (IOs) at the Malaysian Anti-Corruption Commission (MACC) Headquarters in Putrajaya and MACC's state offices. The research design was cross-sectional, allowing data collection at a specific time to address all research objectives (Sekaran & Bougie, 2020). The unit of analysis focused on individual IOs, and a total of 164 surveys were distributed, surpassing the required sample size. The convenience sampling method was used, ensuring equal chances of selection for each individual in the population (Sekaran & Bougie, 2020). To measure the variables of interest, a Five-Point Likert scale was adapted from previous studies. The job stress scale consisted of nine items, adapted from Adams & Mastracci (2018), including statements like "This department values my contribution" and "I feel 'used up' at the end of the workday."

The work-life balance scale contained eight items, adopted from Omar, Mohd & Ariffin (2015), with sample items such as "I feel there are too many deadlines in my work that are difficult to meet" and "I am having uncertainties on what is expected to be achieved from my work." The work environment scale, comprising eight items, was adapted from Kristensen et al. (2005), with statements like "I am given the chance to learn new things through my work" and "There is a good working atmosphere between my colleagues and me." Lastly, the job satisfaction scale included eight items adopted from Tepper (2007), such as "My superiors (Senior Investigation Officers and above) belittle my ability to work" and "My superiors (Senior Investigation Officers and above) tell me I am incompetent." Data collection took place in January 2023, and the analysis was conducted using the Statistical Package for Social Science (SPSS) Version 26 software program, enabling the performance of multiple regression analysis to examine the relationships between the variables of interest.

4. Results

Table 1 illustrates that the majority of respondents were male, accounting for 66.5% of the total, while female respondents constituted 33.5%. The largest group of respondents was married individuals, comprising 75.6% of the sample, followed by single individuals at 18.9%, and those who were divorced or widowed at 5.5%. The age distribution of respondents showed that the highest number of participants, 64.6%, fell within the age range of 26 to 35 years old, while respondents aged 25 years old and below constituted 1.8%. About the category of profession in the department, 53.7% of respondents were from the Support Group II (Grade P29-P38), and 46.3% were from the Professional and Management Group (Grade P41 and above). Looking into years of service, the largest proportion of respondents, 57.9%, had been in service for 1 to 6 years, while those with 7 to 12 years of service accounted for 18.9%. Respondents with service periods of 13 to 18 years, 19 to 24 years, and more than 25 years constituted 11.6%, 6.1%, and 5.5%, respectively. In terms of academic qualifications, the majority of respondents, 52.4%, possessed a Bachelor's Degree, while those with a Diploma accounted for 36% of the sample. Respondents with a Master's Degree made up 8.5%, and respondents with SPM and STPM qualifications were minimal, at 2.4% and 6%, respectively. Regarding monthly income, the largest group of respondents, 40.2%, had a monthly income ranging from RM2,000.00 to RM3,999.00. Those with a monthly income of RM4,000.00 to RM4,999.00 accounted for 34.1%, while those with a monthly income exceeding RM5,000.00 represented 25.6% of the sample. These findings indicate that the majority of respondents in the study had a monthly income within the range of RM2,000.00 to RM3,999.00.

Table 1: Demographic Information About Investigation Officers (IOs) at Malaysian Anti-Corruption Commission Headquarters and State Offices

Demographic Variable	Category	Frequency (N)	Percent (%)
Gender	Male	109	66.5
	Female	55	33.5
Marital Status	Single	31	18.9
	Married	124	75.6
	Divorced/Widowed	9	5.5
Age	25 years old and under	3	1.8
	26 to 35 years old	106	64.6
	36 to 45 years old	39	23.8
	45 years old and above	16	9.8
Category of Profession in The Department	Support Group II (Grade P29-P38)	88	53.7
	Management & Professional Group (Grade P41 and above)	76	46.3
Years of Service	1 to 6 years	95	57.9
	7 to 12 years	31	18.9
	13 to 18 years	19	11.6
	19 to 24 years	10	6.1
	More than 25 years	9	5.5
Academic Qualification	SPM	4	2.4
	STPM	1	6
	Diploma	59	36.0
	Bachelor's Degree	86	52.4
	Master's Degree	14	8.5
Monthly Income	RM2,000.00 to RM3,999.00	66	40.2
	RM4,000.00 to RM4,999.00	56	34.1
	More than RM5,000.00	42	25.6

According to the findings from Table 2, the dependent variable, job satisfaction, demonstrated excellent internal consistency reliability with a Cronbach's Alpha Value of 0.953. The first independent variable, job

stress, also showed good internal consistency reliability with a Cronbach's Alpha Value of 0.850, based on the seven items in the survey. Similarly, the second independent variable, work-life balance, exhibited good internal consistency reliability with a Cronbach's Alpha Value of 0.863, considering the eight items in the survey. Lastly, the third independent variable, job environment, also displayed good internal consistency reliability with a Cronbach's Alpha Value of 0.898, based on the eight survey items.

Table 2: Descriptive and Reliability Analysis for all Variables

Variables	Mean (M)	Standard Deviation (SD)	Cronbach's Alpha
Dependent Variable			
Job Satisfaction	2.2117	.94780	0.953
Independent Variables			
Job Stress	3.2622	.56554	0.850
Work-Life Balance	3.1448	.83629	0.863
Work Environment	3.9047	.75228	0.898

Table 3 presents the results from the multiple regression analysis, indicating the percentage variance in the dependent variable (job satisfaction) explained by the variation in the independent variables (job stress, work-life balance, and work environment). In this study, there was no collinearity problem due to the values of the variance inflation factor (VIF) that was less than 10 and the tolerance was below 1.0. The R Square value of 0.514 shows that 51.4% of the variance in job satisfaction among IOs at MACC can be attributed to the three independent variables considered in the study. However, 48.6% of the variance in job satisfaction remains unexplained and may be influenced by other factors. As specified in Table 3, the result from multiple regression analysis revealed significant relationships between job stress (β=-0.272, $p<0.05$), work-life balance (β=0.238, $p<0.05$) and work environment (β=-0.398, $p<0.05$). Based on the findings, all three hypotheses were supported.

Table 3: Multiple Regression Analysis

Independent Variables	Standard Coefficients Beta	T	Sig	Collinearity Statistics	
				Tolerance	VIF
Job Stress	-.272	-2.950	.004	.357	2.798
Work-Life Balance	.238	3.161	.002	.686	1.457
Work Environment	-.398	-4.914	.000	.462	2.165
R Square	.514				
Adjusted R Square	.505				
F	56.444				
Sig. of F Value	.000				

Discussion: The primary aim of this study was to fulfill the set objectives established at the beginning of the research. Based on the structured research questions, it was observed that the study's purpose was successfully achieved. The first research objective focused on examining the relationship between job stress and job satisfaction among the Investigation Officers (IOs) at the Malaysian Anti-Corruption Commission (MACC).

H1: There is a relationship between job stress and job satisfaction among Investigation Officers at the Malaysian Anti-Corruption Commission.

The findings revealed a significant negative relationship between job stress and job satisfaction, and this supports the hypothesis. This implies that when the IOs experienced high levels of job stress, their job satisfaction decreased, and vice versa. This finding aligns with previous research by Steiner and Wooldredge (2015), who emphasized that individual factors such as victimization and increased job demands were associated with higher stress levels. Consequently, tasks exceeding the IOs' capabilities and limits could contribute to a decline in their job satisfaction.

H2: There is a relationship between work-life balance and job satisfaction among Investigation Officers at the Malaysian Anti-Corruption Commission.

The second research objective aimed to explore the relationship between work-life balance and job satisfaction among the IOs at MACC. The results also supported the hypothesis, indicating a significant positive relationship between work-life balance and job satisfaction. This indicates that work-life balance had a substantial impact on the IOs' job satisfaction, enabling them to attain higher levels of satisfaction in their career.

This is consistent with the findings of Clark (2000) and Ungerson and Yeandle (2005), who highlighted that achieving work-life balance involves effectively managing various domains, such as family care, personal time, and job, with minimal conflict. A successful work-life balance allowed the IOs to attain job satisfaction, as they could allocate sufficient time for their families and personal matters while fulfilling their professional responsibilities.
H3: There is a relationship between the work environment and job satisfaction among Investigation Officers at the Malaysian Anti-Corruption Commission.

The third research objective investigated the relationship between the working environment and job satisfaction among the IOs at MACC. The findings supported the hypothesis, indicating an inverse relationship between the work environment and job satisfaction. The inverse relationship between these variables indicated that the IOs who had a healthy and harmonious working environment did not positively contribute to an increase in job satisfaction. This contradicts the study by Zakarani & Mohd Noor (2021), which found that a healthy workplace environment, encompassing physical aspects, supervisory matters, and performance feedback, significantly led to job satisfaction.

In this case, one consideration to explain the possible reason for the gap in funding is by looking into the demographic of respondents. More than half of the IOs fall within the 'support group' which means this could contribute to lower job satisfaction although they might have a positive environment as there could be other crucial factors that influence their satisfaction at work. Another justification could be due to their length of service in MACC being less than six years, they are too young in MACC thus their engagement with colleagues and superiors and their ability to adjust to extreme career climates is not in place. In conclusion, this study successfully explored the significant antecedents of job satisfaction among the IOs at MACC. The relationships between job stress, work-life balance, work environment, and job satisfaction were thoroughly examined, demonstrating their significance in influencing the IOs' overall job satisfaction. The findings have implications for management teams at MACC to consider strategies that promote work-life balance and a positive work environment, ultimately enhancing the IOs' job satisfaction and well-being.

5. Managerial Implications and Recommendations

Based on the findings of this study, it is evident that work-life balance plays a critical role in achieving job satisfaction among the IOs at MACC. The significant relationship between work-life balance and job satisfaction, indicated by the highest Beta value, highlights the importance of addressing work-life balance issues within the organization. Therefore, it is recommended that the management team of MACC prioritize work-life balance initiatives to ensure the IOs' well-being and job satisfaction. To enhance job satisfaction among the IOs, the management can consider implementing better career development opportunities, fair compensation, and rewards. Providing clear paths for career advancement and recognizing employees' efforts through fair compensation and rewards can boost their motivation and job satisfaction. This, in turn, will contribute to a more engaged and productive workforce at MACC. Furthermore, effective communication between the IOs and the organization is crucial in maintaining work-life balance and fostering job satisfaction.

The IOs should be encouraged to express their perspectives and needs related to work-life balance openly. To facilitate this, the management can organize town hall sessions or regular feedback mechanisms to ensure a two-way communication flow. Understanding the IOs' concerns and actively addressing them will create a supportive work environment that promotes job satisfaction. In conclusion, prioritizing work-life balance, providing career development opportunities, fair compensation, and rewards, and fostering open communication will contribute to enhancing job satisfaction among the IOs at MACC. By implementing these recommendations, the organization can create a positive and fulfilling work environment that supports the

well-being and job satisfaction of its employees. Additionally, future research can explore other factors that may influence job satisfaction among the IOs and further contribute to improving their overall job satisfaction.

Conclusion: In summary, this study has established the significant influence of job stress, work-life balance, and work environment as antecedents to the job satisfaction of Investigation Officers (IOs) at MACC. The findings emphasize the importance of addressing these factors to ensure that IOs can attain maximum job satisfaction in their roles. To improve job satisfaction levels, the management team of MACC should take a broader view and implement measures such as creating better career paths, offering fair compensation and recognizing exemplary performance with appropriate rewards. Moreover, promoting open communication between IOs and the agency is vital to understanding and addressing their perspectives, particularly concerning work-life balance, creating a conducive work environment. Future studies can explore additional antecedents that may account for the remaining 48.6% of the variance in IOs' job satisfaction. Broadening the research to include other enforcement agencies in Malaysia could yield valuable insights, as these agencies share similarities in their nature of work and organizational culture. By considering multiple enforcement agencies, the scope of the study would be enriched, enhancing its reliability and relevance. A comprehensive investigation of job satisfaction factors across various agencies would contribute to a more inclusive and well-rounded understanding of the factors influencing IOs' job satisfaction in the Malaysian context.

Acknowledgment: The researcher would like to acknowledge that this research was self-funded.

References

Barasa, S. W. (2017). Influence of Work Environment on Performance in the Public Security Sector with a focus on the Police in Nairobi Kenya. College of Economic and Management Sciences, University of South Africa and Jomo Kenyatta University of Agriculture and Technology.

Bernama. (2018, January 11). Almost 60 percent of Malaysian Workers Happy with Their Jobs: Survey. New Straits Time. Retrieved from nst.com.my.

Clark, S. (2000) Work-Family Border Theory: A New Theory of Work-Life Balance. Human Relations. *Journal of Human Resource and Sustainability Studies*, 53, 747-770. http://dx.doi.org/10.1177/0018726700536001

Chikwem, C. (2017). The Relationship of Job Stress to Job Performance in Police Officers. Walden Dissertations and Doctoral Studies Collection, Walden University.

Devadass, C. J. B., Chan, Y. L. & Memon, J. M. A. (2020). Job stress, psychological distress, and job satisfaction among nurses in Malaysia: The mediating role of coping styles. International Journal of Environmental Research and Public

Donley, J. (2021). The Impact of Work Environment on Job Satisfaction: Pre-COVID Research to Inform the Future. National Library of Medicine, National Center for Biotechnology Information. doi: 10.1016/j.mnl.2021.08.009.

El Sayed, S. A., Sanford, S. M. & Kerley, K. R. (2018). Understanding Workplace Stress among Federal Law Enforcement Officers. American Journal of Criminal Justice, 1-21. https://doi.org/10.1007/s12103-019-09474-8.

Gigauri, I. (2020). Effects of COVID-19 on Human Resource Management from the Perspective of Digitalization and Work-Life Balance. International Journal of Innovative Technologies in Economy. DOI: https://doi.org/10.31435/rsglobal_ijite/30092020/7148.

Hernandez, J., Martinez, L. & Ramirez, G. (2018). Exploring the Biopsychosocial Model in Predicting Job Satisfaction Among Teachers. *Educational Psychology*, 38(6), 720-734.

Johnson, R., Smith, A. & Brown, K. (2019). Understanding Job Satisfaction in a Corporate Setting: The Role of Biopsychosocial Factors. *Journal of Occupational Health Psychology*, 24(3), 324-336.

Judge, T. A. & Church, A. H. (2000). Job satisfaction: Research and practice across the globe. *International Journal of Selection and Assessment,* 8(4), 207-216.

Judge, T. A., Thoresen, C. J., Bono, J. E. & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, 127(3), 376-407.

Kumarasamy, M. M., Pangil, F. & Mohd Isa, M. F. (2018). The effect of emotional intelligence on police officers' work-life balance: The moderating role of organizational support. International Journal of Police Science & Management, 1-11. DOI: 10.1177/1461355716647745.

Locke, E. A. (1969). What is job satisfaction? *Organizational Behavior and Human Performance*, 4(4), 309-336.

Luo, M., Wang, Y. & Han, L. (2020). Application of the Biopsychosocial Model of Stress to Predict Job Satisfaction among Healthcare Professionals. *International Journal of Environmental Research and Public Health*, 17(2), 520.

MACC Webmaster. (2022). Malaysian Anti-Corruption Commission Official Website – Corporate Info. https://sprm.gov.my.

Omar, M. K., Mohd, I. H. & Ariffin, M. S. (2015). Workload, Role Conflict and Work-Life Balance among Employees of an Enforcement Agency in Malaysia. *International Journal of Business, Economics and Law*, 8(2), 1-6.

Qian, J., Song, B. & Wang, B. (2017). Abusive Supervision and Job Dissatisfaction: The Moderating Effects of Feedback Avoidance and Critical Thinking. *Business School, Beijing Normal University, Beijing, China*, 8(496), 1-10. doi: 10.3389/fpsyg.2017.00496.

Queiró, C. et al. (2020). Burnout and Stress Measurement in Police Officers: Literature Review and a Study with the Operational Police Stress Questionnaire. *Faculty of Psychology and Education Sciences, University of Porto, Porto, Portugal*, 11(587), 1-23. doi: 10.3389/fpsyg.2020.00587.

RMP Webmaster. (2023). Royal Malaysian Police Official Website – Commercial Crime Investigation Department. https://rmp.gov.my.

Sekaran, U. & Bougie, R. (2020). Research Methods for Business – A Skill Building Approach, 8th Edition. John Wiley & Sons, Limited.

Sharp, J. M. (2016). Job Satisfaction in Law Enforcement Officers According to Generational Cohorts. Walden Dissertations and Doctoral Studies Collection, Walden University.

Spector, P. E. (1997). Job satisfaction: Application, assessment, causes, and consequences. Sage Publications.

Steiner, B. & Wooldredge, J. (2015). Individual and Environmental Sources of Work Stress among Prison Officers. *ResearchGate*. 42(8). DOI:10.1177/0093854814564463

Stogner, J., Miller, B. L. & McLean, K. (2020). Police Stress, Mental Health, and Resiliency during the COVID-19 Pandemic. American Journal of Criminal Justice, 1-13. https://doi.org/10.1007/s12103-020-09548-y.

Taylor, S. E. (2017). Biopsychosocial Model. Encyclopedia of Clinical Neuropsychology, 1-6.

Ungerson, C. & Yeandle, S. (2005). Care Workers and Work life Balance: The Example of Domiciliary Care Workers. In: Work-Life Balance in the 21st Century. The Future of Work Series. Palgrave Macmillan, London. https://doi.org/10.1057/9780230373594_13

Wright, T. A. & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology*, 83(3), 486-493.

Zakarani, M. Z. & Mohd Noor, N. H. (2021). Workplace Environment and Job Performance of Police Officers during the COVID-19 Crisis. *Journal of Administrative Science,* 18(1), 249-267.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Port Competitiveness at Sapangar Bay Container Port from Shipping Lines Perspectives in BIMP EAGA Region

Siti Noraishah Azizan[1,3], Shahrin Nasir[2*] & Hafidzi Zakaria[3]
[1]Malaysia Institute of Transport, University Teknologi MARA, Shah Alam, Selangor Malaysia
[2]Faculty of Business and Management, Universiti Teknologi MARA Kampus Puncak Alam, Selangor, Malaysia
[3]Operation Division, Sabah Ports Sdn. Bhd. Sabah, Malaysia
nafssya44@gmail.com, *shahrin378@uitm.edu.my, hafidzi73@outlook.com

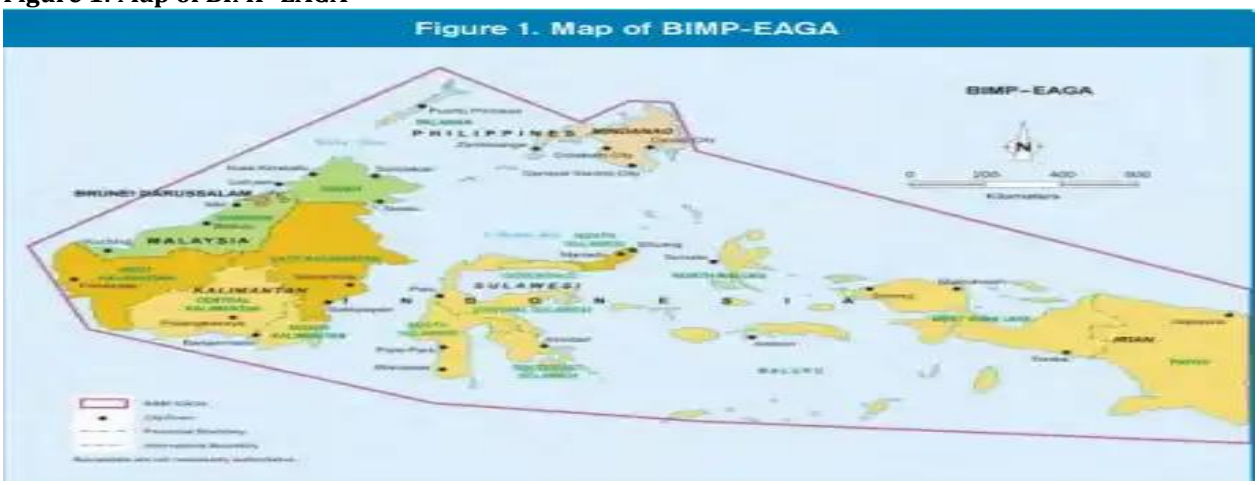
Abstract: Feeder ports in the archipelago of the sub-region of BIMP EAGA often face challenges in terms of connectivity due to the dispersed nature of the islands. Realizing the untapped economic potential in the area and the robust geopolitical landscape that has taken place in the last decades, there is an exigency of the countries in BIMP EAGA to improve their port to be the preferred choice by shipping lines. A port's competitiveness holds a paramount significance for shipping lines to call a certain port. Thus, this study aims to examine the perspective of Main Line Operators (MLO) on the level of importance of the competitiveness of the ports in BIMP EAGA, especially Sapangar Bay Container Port. Ten Main line Operators (MLO) of Intra Asia were selected to respond to the questionnaires using the Analytical Hierarchy Process (AHP). The result revealed that the MLO ranked the most important attributes from top to bottom were port efficiency and facilities (EP), port pricing and support services (PP), Hinterland Characteristics (HC), Maritime Accessibility (MA) and lastly Institutional Regulatory (IR). The specific priorities and preferences of shipping lines in this sub-region may be influenced by factors such as trade patterns, port infrastructure, market demands and overall competitiveness of the ports in the region. The findings of this study contribute to the general understanding of port competitiveness in the BIMP EAGA from the perspective of the MLO and may guide the policymakers, port authorities and industry stakeholders in addressing the specific needs and prioritizing their strategic planning to improve the port.

Keywords: *BIMP EAGA, Port Competitiveness, Main Line Operators (MLO), determinants of competitiveness*

1. Introduction and Background

BIMP EAGA is an archipelago in the subregion of South East Asia which is rich in mineral and natural resources. BIMP EAGA comprises the whole country of Brunei, Kalimantan, East Indonesia, East Malaysia and Southern Philippines. There are many smaller islands remotely situated from their national hub ports and depend very much on sea transportation to distribute the goods needed by the more than 73 million combined population in the region. The transportation of goods to the remote areas depends on a relay transshipment activity where goods are unloaded from a bigger size vessel in a gateway port and loaded onto barges or craft to transport the goods to other smaller ports in the region. Based on a study by BMT AP, (2017) there are approximately 3 million TEUs of containers being distributed in the region. The complexity of the intermodal transportation to distribute the goods and bound by the Cabotage policy of each country makes high logistics costs unavoidable. Realizing the need for a seamless transportation network, especially by sea linkages, the BIMP EAGA road map had drawn up a plan to improve infrastructure at the designated seaports, airports and land routes to connect the rural communities and hinterlands, BIMP EAGA Vision 2025 (retrieved on 25th July 2023). Nevertheless, port development is a capital-intensive program that needs huge investment.

Figure 1: Map of BIMP-EAGA



Source: http://investvine.com/aseans-southern-grouping-gets-active/

In South East Asia, cooperation among the Governments such as ASEAN has established many efforts to address its less developed sub-regions, especially in the aspects of economic growth. Aligned with the purpose of the ASEAN, the Brunei Indonesia Malaysia Philippines East ASEAN Growth Area (BIMP-EAGA) was established in 1994 to address the social and economic development of their less developed and more remote territories. The member countries of the BIMP-EAGA comprise the whole Sultanate of Brunei Darussalam, Sabah, Sarawak and Labuan in Malaysia, North, Central, South and Southeast Sulawesi, Central, East, West and South Kalimantan, Maluku and Irian Jaya in Indonesia; and Mindanao, Palawan of Philippines. The EAGA's biggest challenge is the geographically disjointed area separated by distance and by sea (BIMP EAGA Roadmap to Development, 2006). The areas with vast resources of agri-based and tourism sectors are located on the many smaller islands of Indonesia and the Philippines, thus making the connectivity even more challenging. Most of the Ports in this region depend on the critical mass consolidated at their national hub port where Main Liners Operators (MLO) choose to hub at major ports for more cargo volume to lower their freight cost. The cargo meant for smaller ports around the region will be transported by feeder vessel making the logistic cost higher with double handling and time taken to bring the cargo to its destination.

The implementation of the Cabotage policy by certain regions makes it even more challenging for these smaller ports. For Malaysia, the members of the BIMP-EAGA are Sabah and Sarawak. Located on the Northern side of the Borneo Island, Sabah which shares the border with Sarawak and Northern Kalimantan of Indonesia and with coastlines of 1,387 kilometers long, Sabah is surrounded by the South China Sea in the West, Sulu Sea in the Northeast and Celebes Sea in the Southeast. Due to its long coastline and poor land connectivity, the seaport is the most important mode of transport of goods throughout the State. For a port to meet the challenges of today's demand, the port can be competitively positioned when port users are presented with a competitive offering relative to other connected ports, (Dyk and Ismael, 2015 as cited in Bhatti 2019). With the competing ports along the same geographical areas, it will be a challenge for all the ports to compete due to insufficient cargo volume to achieve economy of scale. It will also depend on the stakeholders to select the port that can best benefit them economically. Yeo, Roe and Dinwoodie (2008) in their study concluded that each group of port stakeholders will tend to evaluate the seaport that is most competitive for them to select and use. This research aims to examine the port competitiveness from the perspective of shipping lines specifically those liners calling to Sapangar Bay Container Port in Sabah.

2. Literature Review

Port competitiveness is defined as a port's capacity to outperform other ports in attracting trade, logistics, transportation, and industrial enterprises (Notteboom et al., (2022). This encompasses the port's aptitude to gain a comparative advantage by enhancing its infrastructure, ensuring top-notch services, and optimizing cost-effectiveness. To bolster port competitiveness, the key strategies involve enhancing operational efficiency, elevating service standards, and implementing cost-reduction measures (Baştuğ et al., 2022). By

pursuing these improvements, a port can position itself as a more attractive and reliable option for businesses and industries seeking to engage in international commerce and logistics activities. According to Prahalad et al. (1990), the competitive edge of a company refers to the core capabilities that enable it to acquire distinct benefits and transform them into lasting advantages, positioning the company competitively within the market.

Porter's, (1990) definition of competitiveness is the ability or expertise that arises from acquiring knowledge, leading to the creation and maintenance of high-performance competition. The competitiveness of a company will position them into unique characteristics that set them favorably by their customers. As stated by Tongzon, (2007), the competition among countries in the area of logistics is growing intense and economic benefits are becoming significant as a result of the increasing trade and investment flows between countries. Hence, in the context of port, port competitiveness is the crucial attribute that enables them to stay competitive in the market. The UNCTAD port competitiveness study focuses on the factors that contribute to the port's ability to attract and retain shipping lines, facilitate trade and improve the global supply chain efficiency. The various factors that mostly influence a port's competitiveness include port infrastructure or port facilities, the efficiency of the port operation, the connectivity to the hinterlands, sustainable practices, institutional and policy frameworks and trade facilitation.

Figure 2: Study by Lin (2008) on the Preference of Port Stakeholders on Port Competitiveness

Decision Maker/ Stakeholders	Criteria
Shippers	Cost, quality of Operations, locations, frequency of shipping services, speed/time, efficiency, facilities, information systems, hinterland connections, congestion
Forwarders	Efficiency, quality of Operations reputation, cost, frequency, location, speed/time, information systems, hinterland connections,
Shipping Companies	Cost, location, facilities, quality of operations, speed/time, efficiency, congestion, frequency of shipping services hinterland links, information systems
Terminal Operators	Facilities, Quality of Operations, cost, location, hinterland connections, information systems, congestion, efficiency connections

Based on the study by Lin (2008) to improve the competitiveness of Keelung Harbor as shown in **Figure 2**, there are similarities in the port competitiveness criteria preferred by port stakeholders, i.e. cost, quality of operations, efficiency, hinterland connections, and location and information systems. Previous research and academia on port selection were studied in detail by Moya et al. (2017) and Steven et al. (2012) as cited in Parola et al. (2017) and concludes that most predominant port selection criteria from the literature in no random order are geographical location, port infrastructure, port efficiency, nautical accessibility, and port efficiency. Osundiran et al. (2001) examine the port choice indicators by stakeholders in Sub-Saharan African countries and conclude that efficiency is one of the critical determinants of port selection. According to Lupi et al. (2019), hinterlands refer to a geographical area where a transportation hub, like a port, provides its services and engages with its users. It represents the portion of the market that a terminal serves within a specific region, compared to other terminals operating in the same area. The hinterland refers to the inland area surrounding a port that serves as the origin or destination of cargo transported through the port. Yuen et al. (2011) mentioned that China and its neighboring countries are striving to position their seaports as a gateway for their respective hinterlands. Port competitiveness is a vital component for them to benchmark and sustain in the market.

Congestion is widely recognized to affect port competitiveness; hence many great efforts have been aimed to improve the efficiency at the operation, policy and research levels (e.g., De Borger, Proost, & van Dender, 2008; Heaver, 2006; Yuen, Basson, & Zhang, 2008; as cited in Yuen et al., 2012). The study by Valls et al. (2020) concludes that the ports in a specific hinterland region that have all the intermodal connectivity will potentially capture more market share. Hence the accessibility of maritime transport to the port and the hinterlands and other modes of transport such as road, and rail connectivity are important to ensure cargo

movement to all these links is efficient. According to Yi and Shu, (2016), a strategically located port can be an intersection of major trunk and feeder systems which provides not only the conventional exports, imports and transit cargo operations but also becomes a logistic hub port for integrated value-added activities. The ultimate goal is to shorten lead time, reduce transportation costs and strengthen international competitiveness. Kim, (2014) reiterated that sustainability practices play a crucial role in moderating the connection between competitiveness, specifically in terms of operational efficiency, service quality and operational performance. This refers basically to ports that prioritize and adopt sustainable practices tend to enhance their overall competitiveness in several ways. Mateus (2019) study on the Port of Lisbon concluded that the divergent interests of land-based and maritime stakeholders stem from their distinct customer expectations. Hence, managing their relationship can be challenging, as disruptions on one side can significantly affect the other, potentially affecting their port competitiveness.

3. Research Methodology

The article forms part of a major study on evaluating the port competitiveness from the industry expert to develop a strategic market positioning of a port in the BIMP EAGA region. The purpose of this study, the Sapangar Bay Container Port in Sabah, Malaysia was chosen to be the case study. The method used for data collection is based on the analytical hierarchy process (AHP). AHP is a multi-criteria decision model that has been used in decision-making, priority rating and performance evaluation (Saaty, 2008). Developed by Professor Thomas L. Saaty in the 1970s, AHP is a structured decision-making method where multiple criteria and alternatives are involved. These comparisons are made using a scale of absolute judgments that represent the dominance of one element over another (Saaty, 2008). The scale is indicated in **Figure 3**.

Figure 3: The Level of Importance and Definition

Level of importance	Definition	Explanation
1	Equal importance	Two elements contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favor one element over another
5	Strong Importance	Experience and judgment strongly favor one element over another
7	Very strong importance	One element is favored very strongly over another, its dominance is demonstrated in practice
9	Extreme importance	The evidence favoring one element over another is of the highest possible order of affirmation

2,4,6,8 can be used to express intermediate values

In AHP, the consistency ratio (CR) is used as a measure to assess the consistency of the pairwise comparisons made by the experts during the decision-making process. The interpretation of the CR is based on a comparison to a threshold value of less than or equal to 0.1. The purpose of the CR is to evaluate the reliability and consistency of the judgment made by experts and a low CR indicates a high level of consistency, meaning that the judgments are reliable and robust. On the other hand, a high CR suggests that the judgments are inconsistent, which may introduce uncertainty and reduce the reliability of the decision-making process, (Saaty, 2008). The main criteria and sub-criteria of the port competitiveness attributes were studied from the literature review. A set of questionnaires based on the AHP method was developed and a pilot test was carried out with industry experts to test the AHP questionnaires. Based on the consultation of industry experts, the researcher has categorized the port competitiveness criteria and sub-criteria shown in **Figure 4**. Sustainability Practices are excluded in this study to focus more on the basic port competitiveness in the region.

Figure 4: The Criteria Evaluated using AHP

Goal indicator	Main Criteria	Sub- Criteria Attributes	
To determine the most important criteria of Port Competitiveness by the Main Line Operator (MLO).	Hinterland Characteristic (HC)	The availability of import and export cargoes within the local hinterland.	HC1
		There must be a sufficient volume of import and export of goods within the regional hinterlands to be transshipped at the port.	HC2
		There must be an efficient intermodal connectivity within the hinterland to the port and vice versa	HC3
	Maritime Accessibility (MA)	The port must be located in a strategic location, e.g., situated near the international trade lane/point of connectivity to a few hinterlands whether by sea or land transport.	MA1
		The depth of the approach channels to enter the port limit must be sufficient to allow for a safe passage for the transshipment vessels	MA2
		The depth of the approach channels to enter the port limit must be sufficient to allow for safe passage for the transshipment vessels.	MA3
		The sailing frequency of MLO and/or feeder vessels to the port should be consistent	MA4
	Efficiency of Port Facilities And Services (EP)	There must be suitable equipment available to maintain the terminal's efficiency for transshipment vessels.	EP1
		There must be consistent operational efficiency on the quayside and yard for a fast turnaround time of vessels at berth	EP2
		There must be consistent operational efficiency in the terminal (yard area) for a fast turnaround time for haulers.	EP3
		There must be a shorter dwell time and faster turnaround time for containers in port.	EP4
	Port Pricing And Support Services (PP)	The port must have a competitive Port Tariff compared to neighboring ports.	PP1
		There must be efficient cargo documentation clearance by the Port and Authorities.	PP2
		The availability of an electronic single-window system for seamless operation	PP3
		The availability of ancillary services such as bunkering and freshwater supply.	PP4
	Institutional Regulatory Framework (IR)	There must be a clear line of jurisdiction and aligned policies in terms of maritime policy among local Authorities.	1R1
		The Authorities need to ensure security policy is in place to provide safe passage within coastal waters.	1R2
		The Government should provide effective trade facilitation to enhance bilateral trade.	1R3
		There must be political stability in the state to give confidence to investors and to provide a conducive environment for economic development.	1R4

Finalization of the questionnaires was developed and distributed to the respondents by email, and by hand with earlier notification and explanation of the purpose of the study. Ten respondents from the shipping lines operating around South East Asia for the Intra-Asia routing have participated in the study. The target population is those shipping lines or shipping agents calling at least one of the ports in BIMP EAGA. The study

focuses on the container vessels and has made the call to ports in BIMP EAGA as the port of call or as a transshipment port. The respondents are deemed industry as port experts with more than twenty years of experience in the maritime industry. Respondent was selected among Senior Management of the top ten shipping lines and main shipping agents which vessel operating around the Intra Asia ports covering ports in Borneo Island except for Kalimantan. This study sample is confined to container vessels carrying between 400 to less than 2000 TEUs per call. The demographic profile of the respondents is shown in **Figure 5**.

Figure 5: Profile of Respondents (Industry Experts)

Profile of Respondent	Shipping Lines /Shipping Agent
Designation or Position in the Company	Chief Executive Officer, Chief Operating Officer, General Managers (Operation), Marketing Executive.
Age Group	35 to 65 years
Working Experience	More than 20 years in the industry
Operating Fleet/ area of coverage	Intra-Asia
Port of call	Hong Kong, Nansha, Port Kelang, Bintulu, Kota Kinabalu, Muara, Singapore, Manila, Vietnam, Thailand.

4. Results

This section presents sets of results relating to the level of importance of the main attributes of the port competitiveness and also the sub-criteria of the main attributes from the perspective of the shipping lines in BIMP EAGA. Based on the outcomes of the pairwise comparison performed by the industry experts mentioned in **Figure 5**, the Calculation of the importance weightings of the five main attributes is shown in **Table 1** and illustrated further in the chart shown in **Table 1a.**

Table 1: Results of the Level of Importance on the Main Criteria Attributes of Port Competitiveness

Main Criteria	Weightage (%)	Consistency Ratio (%)
Hinterland Characteristic	17.9	
Maritime Access	10.4	
Efficiency Of Port Facility and Services	33.5	1.0
Port Pricing & Support Services	29.7	
Institutional Regulatory Framework	8.5	
TOTAL	100	

Table 1a: Result of the Level of Importance of the Main Attributes in Chart Form

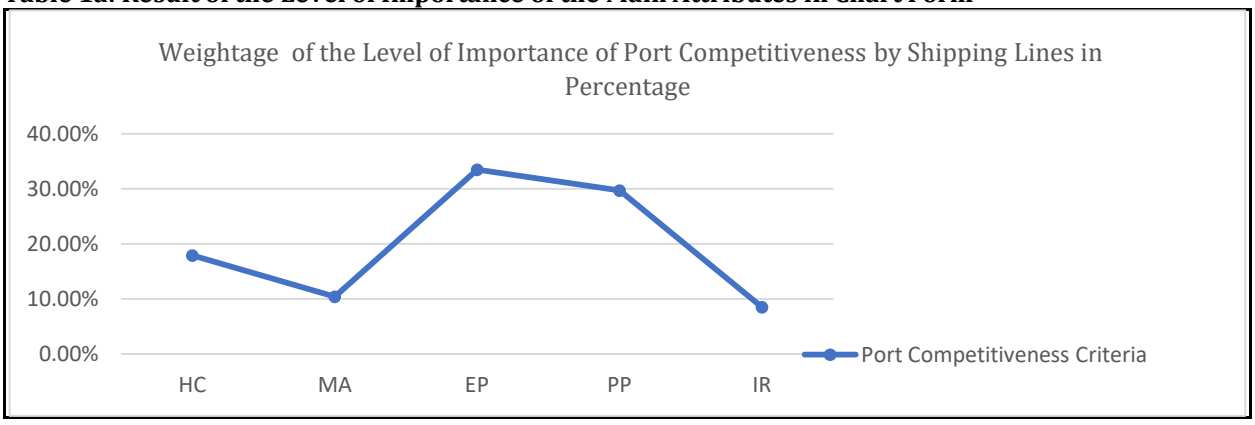
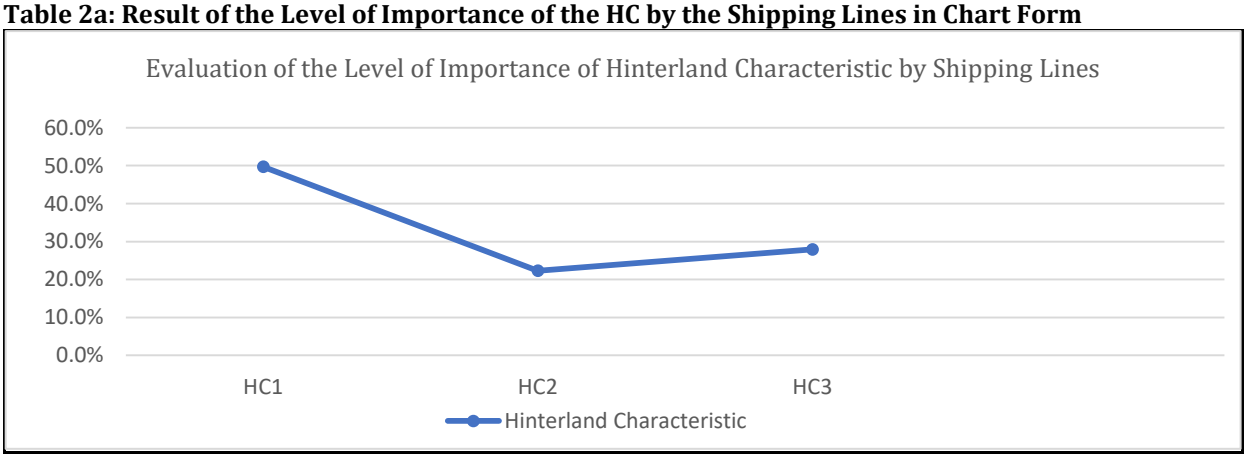


Table 1 and Table 1a show the result of the ranking selected by the shipping lines based on their perspective of the level of importance of the main criteria of the port competitiveness attributes. The shipping lines prioritized the efficiency of the port facilities and services (EP) as the most important, followed by the port pricing and ancillary services (PP), hinterland characteristics (HC), maritime accessibility (MA) and lastly the institutional regulatory framework (IR). The consistency ratio (CR) calculated is 1.0**,** implying that the survey results are consistent and reliable. The following results are the outcome of the pairwise selection performed by the shipping lines on the level of importance of the sub-criteria of the port competitiveness attributes. On the hinterland characteristics as indicated in **Table 2 and Table 2a** below, the shipping lines had ranked the most important attribute as the availability of the import and export cargoes within the local hinterland (HC1), followed by an efficient intermodal connectivity within the hinterland (HC3) to the port and vice versa and lastly the sufficiency of import and export volume within the regional hinterlands to be transship at the port (HC2). The consistency ratio (CR) calculated is 0.6%**,** implying that the survey results are consistent and reliable.

Table 2: Result of the Level of Importance on the Sub-Criteria of Hinterland Characteristics

Variable	Attributes	Weightage (%)	Consistency Ratio (%)
HC1	**The availability of import and export cargoes within the local hinterland.**	49.8	0.6
HC2	There must be a sufficient volume of import and export of goods within the regional hinterlands to be transshipped at the port.	22.3	
HC3	There must be an efficient intermodal connectivity within the hinterland to the port and vice versa	27.9	
TOTAL		100	

Table 2a: Result of the Level of Importance of the HC by the Shipping Lines in Chart Form

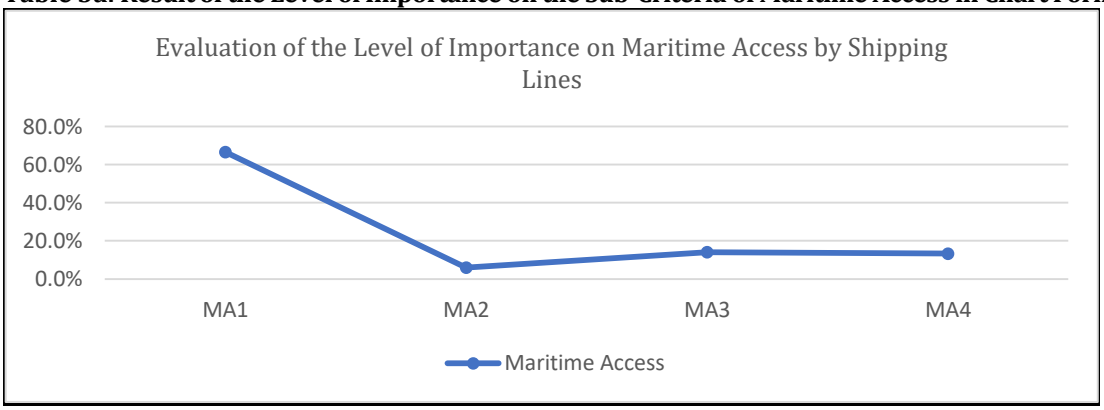


In **Table 3 and Table 3a** shown below, the shipping lines had ranked that the most important attribute in maritime accessibility is the strategic location of the port (MA1), followed by (MA3) sufficient depth at the berthing terminal to cater for minimum size of MLO, third rank is consistent sailing frequency of mainliners and/or feeder vessels (MA4) and lastly the depth of the approach channels to enter the port limit must be sufficient to allow for safe passage for the vessels (MA2). The CR calculated is 0.4% which is high in consistency indicating the results are reliable.

Table 3: Result of the Level of Importance on the Sub-Criteria of Maritime Access

Variable	Attributes	Weightage (%)	Consistency Ratio (%)
MA1	**The port must be located in a strategic location, e.g., situated near the international trade lane/point of connectivity to a few hinterlands whether by sea or land transport.**	66.6	
MA2	The depth of the approach channels to enter the port limit must be sufficient to allow for safe passage for the vessels	6.0	0.4
MA3	The depth at the berthing terminal must be sufficient to cater for a minimum size of Main Liner Operators (MLO)	14.1	
MA4	The sailing frequency of MLO and/or feeder vessels to the port should be consistent	13.3	
TOTAL		100	

Table 3a: Result of the Level of Importance on the Sub-Criteria of Maritime Access in Chart Form

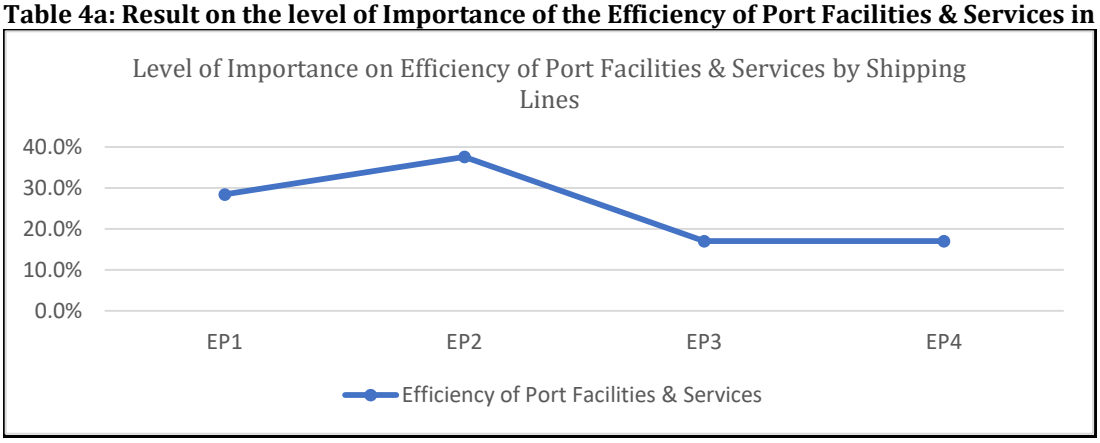


The result shown in **Table 4 and Table 4a**, indicates the most important attributes would be the consistent operational efficiency on the quayside and yard for a fast turnaround time of vessels at berth (EP2), second rank to (EP1) which stated that there must be a suitable equipment available to maintain terminals efficiency for the vessels, followed by the same ranking of both (EP3) and (EP4) where consistent operational efficiency at the yard for fast turnaround time of haulers and short dwell time of container port. The CR calculated is 0.5% indicating the results are consistent and reliable.

Table 4: Result of the Level of Importance on the Sub-Criteria of Efficiency of Port Facility & Services

Variable	Attributes	Weightage (%)	Consistency Ratio (%)
EP1	**There must be suitable equipment available to maintain the terminal's efficiency for the vessels**	28.4	0.5
EP2	There must be consistent operational efficiency on the quayside and yard for a fast turnaround time of vessels at berth	37.6	
EP3	There must be consistent operational efficiency in the terminal (yard area) for a fast turnaround time for haulers.	17.0	
EP4	There must be a shorter dwell time and a faster turnaround time for containers in port.	17.0	
TOTAL		100	

Table 4a: Result on the level of Importance of the Efficiency of Port Facilities & Services in Chart Form



As indicated in **Table 5 and Table 5a,** the shipping lines evaluated port pricing must be competitive compared to neighboring ports (PP1) as the most important, second-ranking is the efficiency of documentation clearance by the Port and Authorities (PP2), followed by the availability of electronic single window system (PP3) and last ranking is the availability of bunkering and fresh water supply (PP4). The CR calculated is 0.1% indicating a high consistency ratio and reliability.

Table 5: Result of the Level of Importance on the Sub-Criteria of Port Pricing & Support Services

Variable	Attributes	Weightage (%)	Consistency Ratio (%)
PP1	The port must have a competitive Port Tariff compared to neighboring ports.	33.2	
PP2	There must be efficient cargo documentation clearance by the Port and Authorities.	27.9	
PP3	The availability of an electronic single-window system for seamless operation	23.9	0.1
PP4	The availability of ancillary services such as bunkering and freshwater supply.	15.0	
TOTAL		100	

Table 5a: Result on the Level of Importance of the Port Pricing & Support Services in Chart Form

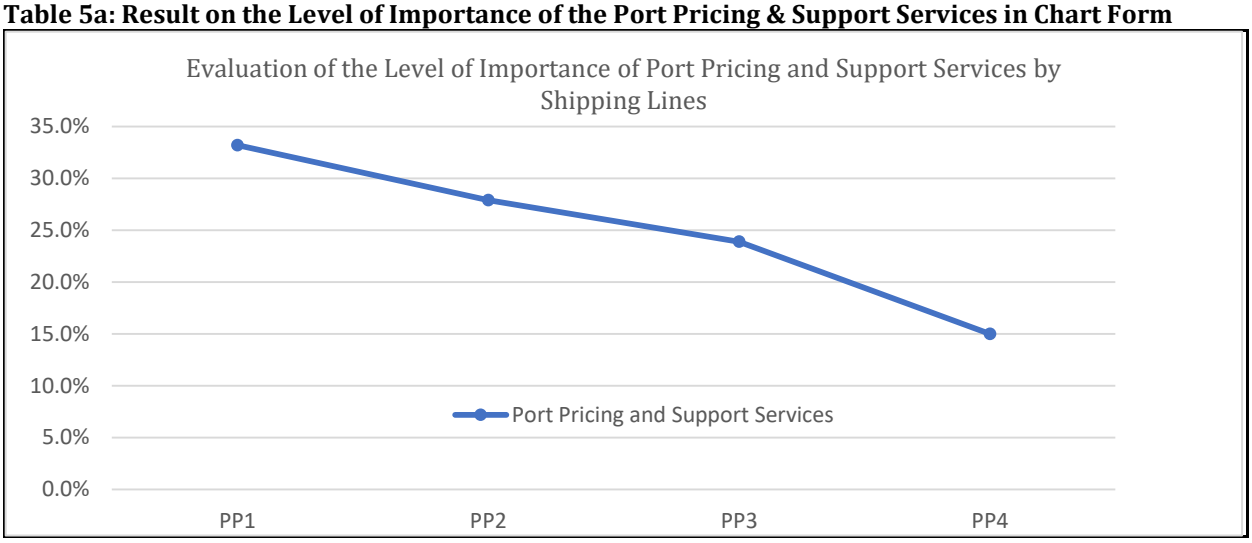
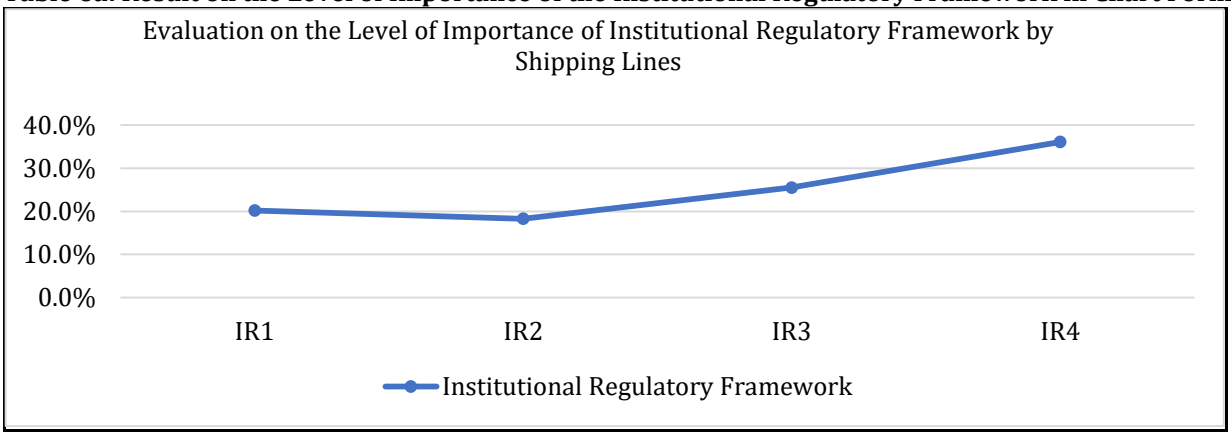


Table 6 and Table 6a show the shipping lines prioritize (IR4) political stability and a conducive environment for economic development, followed by effective trade facilitation to enhance bilateral trade (IR3), on the clear line of jurisdiction among the local authorities (IR1) and lastly for the authorities to ensure security policy to be in place for safe passage within coastal waters (IR2). The CR calculated is 0.1%, implying that the survey results are consistent and reliable.

Table 6: Result of the Level of Importance on the Sub-Criteria of Institutional Regulatory Framework

Variable	Attributes	Weightage (%)	Consistency Ratio (%)
IR1	**There must be a clear line of jurisdiction and aligned policies in terms of maritime policy among local Authorities**	20.2	0.1
IR2	The Authorities need to ensure security policy is in place to provide safe passage within coastal waters.	18.3	
IR3	The Government should provide effective trade facilitation to enhance bilateral trade.	25.5	
IR4	There must be political stability in the state to give confidence to investors and to provide a conducive environment for economic development.	36.0	
TOTAL		100	

Table 6a: Result on the Level of Importance of the Institutional Regulatory Framework in Chart Form



Discussion

Sapangar Bay Container Port: Sapangar Bay Container Port (SBCP) is managed and operated by Sabah Ports Sdn. Bhd. by Port Privatization exercise in 2004 by the Sabah State Government and Sabah Port Authority. SBCP is located in Sapangar Bay, approximately 9 km north of Kota Kinabalu, to the West Coast of Sabah State, East Malaysia. SBCP handles ninety percent of container cargo and ten percent of roll on roll off cargo. SBCP has handled approximately 287,959 TEUs on average per annum for the last 3 years (2022, 2021, 2020). Its terminal facilities comprise four ships to Shore Gantry Crane (STS Crane), Rubber Tyred Gantry Crane (RTG), Reach Stackers and other relevant equipment as described in Figure 6. With 500 meters of quay length of outer berth, SBCP's current capacity is approximately 500,000 TEUs. SBCP's ship productivity recorded an average of 18 GMPH in 2022. The number of vessels calling SBCP is approximately 468 vessels (2022) with Length overall (LOA) ranging from 94 LOA to 220 LOA. Most of the vessels are plying from Port Klang/Johor Port/ PTP or Singapore to SBCP and vice versa and a few Intra Asia vessels call directly to SBCP from Shekou, Hong Kong, Nansha looping to Bintulu, Muara, and Manila.

Figure 6: Port Facility in SBCP

FACILITY	INFRASTRUCTURE	SUPERSTRUCTURE
Quay length	3 Outer berthing 500 meters	
	2 Inner berthing 145 meters	4 units of STS Gantry Cranes
Quay width	respectively	Single lift
	50 meters	(17 meters outreach)
Depth	12 meters	
Maximum vessel size (DWT)	45,000.00	
Yard Area	30,000 ground slot	9 rubber Tyred Gantry Crane
		2 units shuttle carriers
		6 Reach stackers
		9 Empty Handlers
		27 Prime Movers
Reefer Points	280 units	
Container Freight Station	4,500 sq. meters	4 Forklifts

Source: Sabah Port Sdn. Bhd. July 2023.

The objective of this survey is to develop a strategy on how to position a competitive port in the BIMP EAGA region by evaluating its port competitiveness from the perspective of the shipping lines. The researcher will discuss the top three of the main criteria that had been ranked as the most important for the shipping lines to indicate their preference for a port of call. Taking Sapangar Bay Container Port (SBCP) as a reference in this study, below is the summary of the ranking selected by the shipping lines.

Figure 7: Selected Top 3 Port Competitiveness Main Criteria and Most Important Sub-Criteria ranked by Shipping Lines in BIMP EAGA

Goal indicator	Main Criteria	Sub- Criteria Attributes
Port Competitiveness ranked most important in sequence.	Efficiency of Port Facilities And Services (EP)	There must be consistent operational efficiency on the quayside and yard for a fast turnaround time of vessels at berth (EP2)
	Port Pricing And Support Services (PP)	The port must have a competitive Port Tariff compared to neighboring ports. (PP1)
	Hinterland Characteristics (HC)	The availability of import and export cargoes within the local hinterland. (HC1)

The efficiency of Port Facilities and Services: Port facilities encompass a wide range of infrastructure and services, including berths, piers, wharves, terminals, warehouses, container yards and other facilities necessary for the efficient and safe handling of ships, cargo, and passengers. Besides that, port facilities also provide essential services such as customs clearance, immigration control, security, pilotage, tug assistance, bunkering and repairs. Prioritization of the fast turnaround time at the berth is crucial for shipping lines to maximize their vessel utilization and reduce operational costs. The berth or quayside is where the port provides the services to the ship. Efficient quayside and yard operations ensure quick loading and unloading of cargo, minimizing vessel idle time and expediting vessel turnaround time. As reiterated by Wu et al. (2019) a fast turnaround time for vessels can allow shipping lines to maintain reliable schedules and optimize their fleet utilization. This leads to increased productivity and cost savings for shipping lines. Efforts to improve the efficiency of the quayside and berthing area often involve optimizing berth allocation, implementing advanced scheduling algorithms, utilizing automation and technology, and improving coordination between different operations and stakeholders.

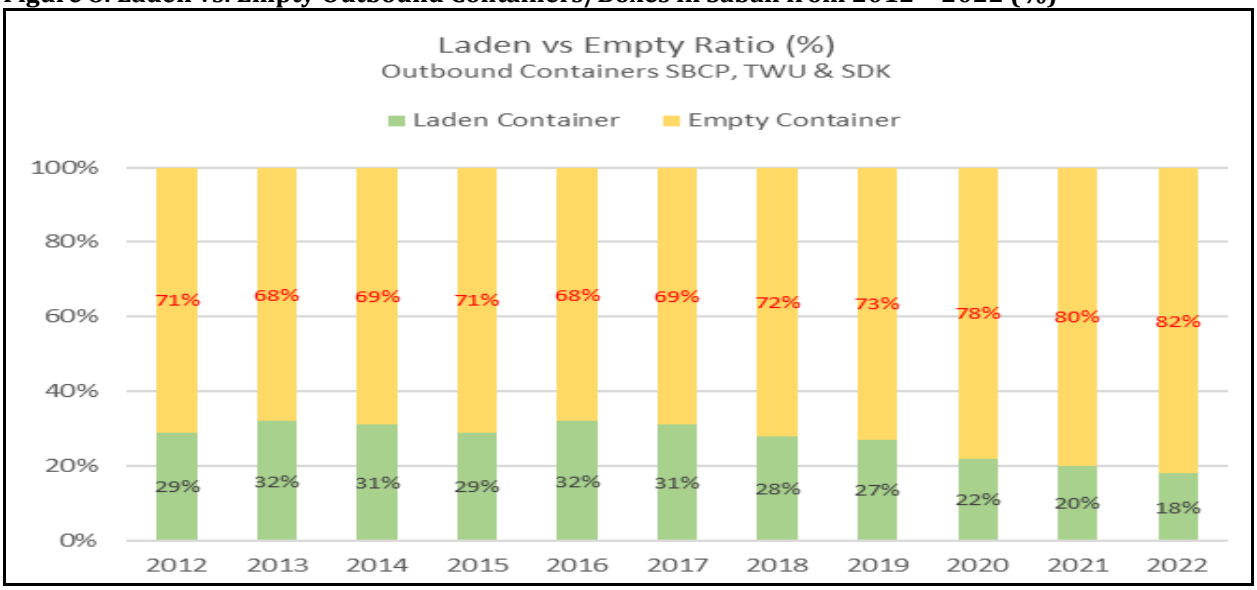
Within the port (Zhang & Zhao, 2018: Luo & Wu, 2013; Chu et al., 2017; Stojakovic & Twrdy, 2019) Nottebom, (2004) stated in his study that larger vessels will have a lower cost per TEU-mile than smaller units with the same load factor. The trend of container shipping in Figure 7 indicated the sizes and their capacity requirement of the depth at her berthing facility. The facility in SBCP as shown in Figure 5 indicates that SBCP

can only handle 45,000 DWT of vessels and with a berth length of 500 meters and a depth of 12 meters, SBCP can handle up to Panamax Class vessel of 250 LOA (Length Overall) and carrying a maximum of 3400 TEUs. SBCP's container handling rate was recorded in average at 18 gross moves per hour (GMPH) in 2022. Wang & Culliane, (2006) found that higher levels of efficiency in container terminals are associated with shorter berth turnaround time and suggest that there is a potential positive correlation between the GMPH and berth turnaround time, as higher efficiency in container terminals allows for faster cargo handling and thus shorter turnaround times. Hence, the selection of shipping lines to rank the efficiency of the ports is the most important criterion for port competitiveness because of the direct impact on the shipping lines that may affect them financially and the possibility of loss of business opportunities.

Port Pricing and Support Services: Competitive port pricing or tariff allows shipping lines to reduce their operational costs and remain competitive in the market. Lower port fees and charges can significantly impact the overall transportation costs for shipping lines. By choosing a port with favorable pricing, shipping lines can offer more competitive rates to their customers, attract more business, and maintain their market share. Transparent and competitive port pricing provides shipping lines with cost predictability. Clear and well-defined pricing structures enable shipping lines to accurately estimate and plan their expenses, allowing for better financial management. This predictability helps shipping lines optimize their pricing strategies and make informed decisions regarding their operational budgets. In the context of SBCP, the tariff and charges are based on the Published Tariff book of Sabah Port Authority (Scale of Deus, and Charges) Regulation 1977. There are only three amendments to the tariff so far being the latest in the year 1985 to only revise Schedule Part III. Compared with the other neighboring ports such as Bintulu Port, SBCP's tariffs are still competitive. The support services encompass other ancillary services such as bunkering, fresh water supply and waste disposal. SBCP provides these services through its subsidiary company SP Marine Sdn. Bhd. SBCP is facing a challenge as most of the vessels calling its port will refuel outside of Sabah in West Malaysia or Singapore due to insufficient infra to provide the mentioned services and not a competitive fuel price. A port that provides support services in a stop center may assist shipping lines to save cost and time. Hence, the challenges by the shipping lines when they call SBCP may be the possibility of the shipping lines ranking the port pricing and support services as the second most important attributes of competitiveness.

Hinterland Characteristics: The availability of a strong local hinterland is important for shipping lines because the shipping lines need a sufficient volume of cargo to justify calling at a port. A robust local hinterland with diverse industries and a strong economy can provide a steady flow of import and export cargo, making the port an attractive destination for shipping lines. The availability of a well-connected and efficient local hinterland is crucial for shipping lines when considering calling at a certain port. SBCP has an extensive hinterland area that covers the immediate hinterland of the State of Sabah, extended hinterland of Northern Borneo Island (East Malaysia and Brunei Darussalam) and a potential Regional hinterland of the rest of BIMP-EAGA Region (the provinces of Kalimantan, Sulawesi, the Malukus, West Papua and Papua in eastern Indonesia and the islands of Mindanao and Palawan in the Philippines). With a combined population of 73 million, SBCP has great potential to position itself as the gateway port in the BIMP EAGA region for the Far East market. **Figure 8** shows the ratio of outbound containers of laden and empty boxes. It shows that only about 18 percent to 22 percent were laden containers and approximately 80 percent were empty containers. This indicates that the State does not produce sufficient export cargo due to the scarcity of downstream activities in Sabah. The imbalance of trade had caused the logistics cost to be expensive and the logistics players including the shipping line will increase freight rates to compensate for the cost of carrying empty containers which cost less value to the transporter.

Figure 8: Laden vs. Empty Outbound Containers/Boxes in Sabah from 2012 – 2022 (%)



Source: Sabah Port Sdn Bhd, July 2023.

The economy of Sabah has always been heavily dependent on the export of its primary and minimally processed commodities. Oil and Gas and palm oil sectors will continue to be the main contributors to Sabah's exports, but further steps are required to plow back into the local economy, such as the development of local downstream activities, including manufacturing and logistics. Nascent sectors such as tourism, agriculture (other than palm oil), aquaculture and fisheries have great export potential. Despite being resource-rich, Sabah has not received enough investments in these sectors and the supporting infrastructure such as the hinterland road systems. Despite the State's wealth of resources and minerals, a significant trade imbalance persists. Its economy is fueled by the export of its primary commodities such as crude petroleum, crude and processed palm oil that are often transported in bulk. Containerized export consists of agricultural products such as timber, plywood, paper, stock feeds and stones. Both forms of outbound cargo are largely exported with little to no processing involved. Import boxes on the other hand consist of consumer goods, construction materials, foodstuff and bagged fertilizers. Nevertheless, studies by Peng et al. (2019) concludes that by maximizing the usage and conversion of containers during transportation, logistics enterprise can increase their profits and reduce cost. In conclusion, SBCP should explore business opportunities for repositioning empty containers to increase its port competitiveness. These are the possible reasons for the ranking given by shipping lines as the third most important criterion. Hence, the availability of import and export cargo within the local hinterland will sustain the competitiveness of a port in this region.

Maritime Accessibility: Strategic maritime access is important for shipping lines to access new markets and expand their customer growth to grow their business. Prioritization of a strategic location near international trade and good connectivity to hinterlands reflects the understanding that these factors have a broader impact on trade efficiency, market access, and operational effectiveness than the consistency of sailing frequency and feeder vessel operations alone. Referring to Figure 9, the state of Sabah which is located on the Northern side of Borneo has the competitive edge in terms of location. Located near the international trade lane and with minimum diversion, the potential for SBCP to be positioned as the gateway of BIMP EAGA is very promising. However, the shipping lines ranked maritime accessibility as the fourth most important because a strategic location alone will not give any value without port efficiency and facility, competitive port pricing and local hinterlands availability.

Figure 9: The Maritime Accessibility of Sapangar Bay Container Port



Source: Sabah Ports Sdn. Bhd, 2023.

Institutional Regulatory Framework: The political stability and a conducive environment for economic development provide a foundation for sustainable business operations. Shipping lines seek stability in the countries where they operate to minimize the risks associated with political instability, policy changes, or social unrest. A stable and predictable environment allows shipping lines to plan their long-term investments, establish strategic partnerships, and develop reliable trade routes. These factors contribute to the overall sustainability and success of shipping lines' operations in a particular country or region. The political situation in the state for the last 5 years has been quite turmoil coupled with the pandemic of COVID-19 that hit the country in the year 2020, 2021. The political situation is much more stable and positive economic recovery.

5. Conclusion

In this study, an approach to studying the perspective of the shipping lines in BIMP EAGA toward the importance of certain criteria was considered. This is part of an effort to explore the views of the shipping lines towards their selection of a port generally. Based on the five main criteria, port efficiency and port facilities gained the most selection as the most important criteria. Results from this study indicate the need for further understanding and perception of the sub-criteria. To have a more detailed affirmation of the selection of the shipping lines, the perspective of other stakeholders is needed to affirm the selection. Hence, further studies should be conducted to be able to assist the port authorities and port operators to focus on improving the dominant criteria selected to meet the expectation of the MLO in choosing the port of call. Port competitiveness is paramount to the growth and success of the seaports in BIMP EAGA. Whilst other attributes are important from the perspective of the shipping lines port operation efficiency and services should be given priority by the port authorities and port operators to focus on the improvement. Further study on the detail of the sub-criteria to improve the port competitiveness as a whole.

References

Baştuğ, S., Haralambides, H., Esmer, S. & Eminoğlu, E. (2022). Port competitiveness: Do container terminal operators and liner shipping companies see eye to eye? *Marine Policy,* 135, 104866, 0308-597X,

Bhatti, O. & Hanjra, A. (2019). Development Prioritization through Analytical Hierarchy Process (AHP) – Decision Making For Port Selection on the One Belt One Road. *JCEFTS*, 3(12), 121-150. https://doi.org/10.1108/jcefts-04-2019-0020

BIMP EAGA: BIMP EAGA VISION 2025. (BEV 2025);https://bimp-eaga.asia Retrieved on the 25th July 2023.

BMT Asia Pacific. (2017). Sapangar Bay Port Master Plan and Business Study, Sabah Ports Sdn. Bhd.

Chu, C., Chen, J. & Chen, Y. (2017). Multiple Quay Cranes Scheduling for Double Cycling in Container Terminals. PLOS ONE, 12.7, e0180370.

De Borger, B., Proost, S., & Van Dender, K. (2008). Private port pricing and public investment in port and hinterland capacity. *Journal of Transport Economics and Policy (JTEP)*, *42*(3), 527-561.

Dyk G., Ismael H.M., (2015). Multi-Criteria Evaluation of Port Competitiveness in West Africa Using Analytic Hierarchy Process (AHP). *American Journal of Industrial and Business Management,* 5(6), Paper ID 57493, 15, DOI: 10.4236/ajibm.2015.56043

Gi-Tae Yeo., Michael Roe. & John Dinwoodie. (2008). Evaluating the competitiveness of container ports in Korea and China: Transportation Research Part A. *Policy and Practice,* 42(6), 910-921.

Heaver, T. (2006). The evolution and challenges of port economics. *Research in Transportation Economics*, *16*, 11-41.

Kim, S. (2014). Megaport Competitiveness and Sustainability Practice in Container Shipping Logistics in Northeast Asia. University of Plymouth (United Kingdom) Pro Quest Dissertations Publishing, 2014. 10049831

Lin, J. (2008). Revitalizing Keelung Harbor: A Study to Improve Competitiveness of An International Port; University of la Verne Pro Quest Dissertation, Publishing 2008.3351130

Luo, J. & Wu, Y. (2013). An Integrated Scheduling Problem of Container Handling Equipment in the Loading Operation at Automated Container Terminals. https://doi.org/10.2316/p.2013.793-047

Lupi, M., Pratelli, A., Canessa, M., Lorenzini, A. & Farina, A. (2019). A Study On Contestable Regions In Europe Through the Use of A New Cost Function: An Application To The Hinterland Of The New Container Terminal Of Leghorn Port. *Journal of Advanced Transportation*, (2019), 1-35. https://doi.org/10.1155/2019/4324605

Mateus, A. T. (2019). The Logistics Contribution to the Port of Lisbon Competitiveness. Instituto Universitas de Lisboa (Portugal) ProQuest Dissertation Publishing 2019, 29030543.

Moya, J. M, & Valero, M. F., (2017) Port choice in container market: a literature review, Transport Reviews, 37:3, 300-321, DOI: 10.1080/01441647.2016.1231233

Notteboom, T. (2004). Container Shipping and Ports: An Overview. *Review of Network Economics,* 3(2) .https://doi.org/10.2202/1446-9022.1045

Notteboom, T., Pallis, A. & Rodrigue, J. P. (2022). Port Economics, Management and Policy, New York: Routledge, 690 pages / 218 illustrations. ISBN 9780367331559.

Osundiran, O. A., Okonta, F. & Quainoo, (2001). An Examination of Port Choice Indicators and Critical Transportation Parameters as a Basis for Port Selection. Faculty of Engineering and Built Environment, University of Johannesburg, Auckland Park, South Africa.

Parola, F., Risitano, M., Ferretti, P., E. (2016). The drivers of port competitiveness: A critical review: 116-138: Published online: 20 Sep 2016: https://doi.org/10.1080/01441647.2016.1231232

Peng, Z., Wang, H., Wang, W. *et al.* Intermodal transportation of full and empty containers in harbor-inland regions based on revenue management. *Eur. Transp. Res. Rev.* 11, 7 (2019). https://doi.org/10.1186/s12544-018-0342-4

Porter, M. E. (1990). New global strategies for competitive advantage. *Planning Review*, 18(3), 4-14. https://doi.org/10.1108/eb054287

Prahalad C.K. & Hamel, G. (2000). The Core Competence of Corporation; Book Strategic Learning in Knowledge Economy; Edition 1st Edition; First Published 2000; Imprint Routledge; 20; eBook ISBN 9780080517889.

Saaty, T. (2008). Decision Making With the Analytic Hierarchy Process. *IJSSCI,* 1(1), 83. https://doi.org/10.1504/ijssci.2008.017590

Steven, A. B & Corsi, T.M. (2012). Choosing a Port: An Analysis of Containerized Imports into the US. *Transportation Research Part E: Logistics and Transportation Review*. 48(4), 881-895. https://doi.org/10.1016/j.tre.2012.02.003

Stojakovic, M. & Twrdy, E. (2019). The Influence of Yard Trucks On Berth Operations *in Smaller Container Terminals Pomorstvo (Online),* 2(33), 171-175. https://doi.org/10.31217/p.33.2.6

Tongzon, J. (2007). Determinants of Competitiveness in Logistics: Implications for the Asian Region. *Maritime Economic & Logistics,* 9(1), 67-83. Doi:10.1057/palgrave.mel.9100172

Valls, J. C., de Langen, P. W., García Alonso, L., & Vallejo Pinto, J. Á. (2020). Understanding Port Choice Determinants and Port Hinterlands: Findings from an Empirical Analysis of Spain. Maritime Economics & Logistics, 22, 53–67.

Wang, T. F & Cullinane, K. B. (2006). The efficiency of European container ports: A cross-sectional data envelopment analysis. *International Journal of Logistics Research and Applications*, 9(1), 19-31, Doi: 10.1080/13675560500322417

Wu, C., Leung, P. H., Dong, N., Ho, G. C., Kwong, C. K. & Ip, W. (2019) .Optimization of Terminal Serviceability Based On Chaotic Ga-Based method. *MJCS,* 1(32), 62-82. Https://doi.org/10.org/10.22452/mjcs.vol32no1.5

Yeo, G. T., Roe, M. & Dinwoodie, J. (2008). Evaluating the competitiveness of Container ports in Korea and China. Transportation Research Part A: *Policy and Practice,* 42(6), 910-921, 2008.

Yi, C.Y, & Shu L. C. (2016). Determinants of Global Logistics Hub Ports: Comparison of the Port Development Policies of Taiwan, Korea, and Japan. *Transport Policy*, 45, 179-189. https://doi.org/10.1016/j.trapol.2015.10.005

Yuen, C. A., Zhang, A. & Cheung, W. (2012). Port Competitiveness from User's Perspective: Analysis of Major Container Ports in China and Its Neighboring Countries. *Research in Transportation Economics*, 1(35), 34-40. https://doi.org/10.1016/j.retrec.2011.11.005

Zhang, Y. & Zhao. G. (2018). Dynamic Distribution of Berth-quay Crane Based on Ships Priority. Https://doi.org/10.2991/icmmct-18.2018.27

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Technostress Creators and Employee's Well-Being at a Telecommunication Company in Sarawak, Malaysia

Viannie Clairie Jimmy, Suhaila Mohamed*, Norashikin Hussein, Nur Aizureen Anwar, Noor Azura Dahalan
Universiti Teknologi MARA Kampus Puncak Alam, Selangor, Malaysia
*suhaila423@uitm.edu.my

Abstract: There are many benefits of technology in the workplace, such as an increase in productivity and knowledge acquisition. However, technological advancement in the workplace may cause technostress. The term technostress refers to the negative psychological relationship between people and adopting new technologies. Technostress occurs when people cannot adequately adapt to or interact with information technologies. The purpose of this study is to determine the relationship between five technostress creators, namely, techno-overload, techno-invasions, techno-complexity, techno-insecurity, and techno-uncertainty towards employee well-being at one Telecommunication Company in Sarawak, Malaysia. The respondents of this cross-sectional quantitative study were 141 individual employees. Data were collected using convenience sampling by utilizing a Google form that was distributed to all populations under the study. The findings of this research indicate a strong relationship between all technostress creators and the well-being of employees. Thus, this research adds to the knowledge of the relationships between technostress creators and employees' well-being in the workplace. Since the research found that the most prevailing independent variable in this research study is techno-invasion, thus, this research recommended that the company provide guidelines on ICTs use outside of work and take action to limit such work-related interruptions.

Keywords: *Technostress creators, Techno-overload, Techno-invasion, Techno-complexity, Techno-insecurity, Techno-uncertainty, Employee's Well-Being.*

1. Introduction and Background

Technostress is a state of psychophysiological activation, negative feelings such as irritability, anxiousness, and fatigue, and cognitive symptoms such as poor concentration, mental fatigue, and memory impairment due to technology usage (Ragu-Nathan et al., 2008). Technostress is a growing concern because of the widespread use of information and communication technologies (ICTs) in the workplace and everyday life (La Torre et al., 2020). Especially in the workplace, technological advancement in ICTs brings about challenges in adjusting worker to their working environment and the technological resources that they use (Marchiori et al., 2018). Previous researchers (Nijp et al., 2016) highlight that these advancements have led to a new method of organizing more adaptable work, namely the establishment of time and location-independent work settings that require creativity and efficiency while also attaining cost savings. Subsequently, the new method of organizing work would lead to a phenomenon called technostress.

According to Islam et al. (2022), among the causes of technostress include a lack of technical support, a lack of professional personnel, insufficient equipment, insufficient involvement in decision-making, a slow network, technological failure, increasing user demand, and information overload as well as inadequate formal training. Ragu-Nathan et al. (2008) describe three features of technostress-inducing technology and workspaces, including advanced ICTs in the workplace, the knowledge gap between workers and an evolved IS as well as changes in the workplace and culture due to technology adoption.

Many studies have found a correlation between technostress and job satisfaction or job performance (Jena, 2015). Previous research on technostress conducted by Lei & Ngai (2014) demonstrates a negative correlation between technostress and the satisfaction and performance of employees. According to Tarafdar et al. (2007), there is a negative relationship between technostress and employee productivity. Moreover, Tarafdar et al. (2011) mentioned that technostress dramatically diminishes job satisfaction, commitment, innovation, and productivity. However, according to Rasool et al. (2022), there is limited research on the relationship between technostress creators and the well-being of employees.

There is no doubt that there are many benefits of adopting and utilizing ICTs in the workplace, such as an increase in productivity and knowledge acquisition, it is also true that adopting and utilizing ICTs in the

workplace have developed challenges that lead to technostress and burnout (Jena, 2015). Alam (2016) stated that regardless of the job description, every workplace involves some form of emerging technology that will bring about work-related technostress. In fact, technostress has significant repercussions for people as well as organizations, including a decline in productivity and discontent in the workplace (Tarafdar et al., 2007). It causes information overload, mental stress, and anxiety (Alam, 2016). Zainun et al. (2019) added that technostress is the strain that is typically felt by those who have negative thoughts, attitudes, behavior, and psychology against rapidly changing and sophisticated technological advancements and lack the ability to cope with that change. Employees may experience anxiety due to technostress, which includes signs including irritation, headaches, nightmares, insomnia, technology rejection, and technological resistance (Ragu-Nathan et al., 2008). Previous researchers (Allen et al., 2015) mention that due to extended working hours, unclear distinction between work and home, and inadequate assistance from organizations, the mental and physical health of a person may be adversely impacted when there is a blurring of the physical and organizational boundaries between work and home.

Since technostress does influence employee's well-being (Ragu-Nathan et al., 2008) but little is known about the relationship between technostress creators and the well-being of employees (Rasool et al., 2022), thus, the objective of this research study is to determine the relationship of five technostress stressors, namely, techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty with employees' well-being.

2. Literature Review

Employee well-being is defined by the World Health Organization (2013) as the capacity of every employee to achieve his or her own potential, deal with the usual pressures of life, work successfully, and make a positive contribution to his or her community. Well-being can be described as the state of feeling good, healthy, and joyful, connected to all parts of life, with a particular emphasis on job activity and occupational functioning (Juchnowicz & Kinowska, 2021).

The idea of well-being has gained considerable attention in occupational research, especially concerning workers' overall experience and performance at work (Islam & Amin, 2022). It conceived affective well-being, which includes the two possible sources of employee well-being: firstly, an individual's general life (life satisfaction, quality of life, anxiety, and depression) constitutes overall well-being (without regard to job-related factors); and secondly, workers' emotional states that are the outcome of their work environment and work duties (Warr, 1994).

According to D'Arcy et al. (2014), employee well-being faces rising obstacles in the increasingly digital workplace. The usage of ICTs and digital workplaces have expanded inevitably as a result of social isolation norms due to health concerns, and also a key role in the modern and digitalized workplace (De' et al., 2020). ICTs are necessary for everyday tasks; nonetheless, they have an impact on the physical and mental health of employees (Houli & Radford, 2020). According to (Guest, 2017), work-related well-being may be negatively affected by changes in the workplace and the surrounding environment, which might have serious implications for both employees and the organization. Utilizing new technology might endanger the well-being of employees and generate psychological problems, such as poor communication and challenges in the development of emotive and cognitive processes within teams (Larson & Dechurch, 2020).

Employees suffer more technologically induced stress at work known as Technostress (D'Arcy et al., 2014), for instance, excessive reliance on technology, greater work volume, expectations for higher efficiency, and the ongoing need to adapt to new apps, functions, and processes (Srivastava et al., 2015; Tarafdar et al., 2010). A lot of employees are migrating to digital work patterns and adopting new digital technology during the COVID-19 era, producing higher technostress than in the past (Chakraborty & Kar, 2021). Therefore, technostress is a major issue in today's workplaces for both employees and management (Wang et al., 2022). According to previous researchers (Lin et al., 2020), employee well-being is related to employees' overall affective experience as well as their functioning in the workplace. Employee well-being can be affected by a wide variety of factors, some of which are on an individual level (such as personal traits, states, and behaviors) (Parker et al., 2020), others on a group level (such as team climate and activities) (Guillaume et al.,

2015), and still others on an organizational level (such as leadership and HR practice) (Parker et al., 2020; Salas-Vallina et al., 2021).

Technostress and its Creators: Technostress is defined as a state of psychophysiological activation, negative feelings such as irritability, anxiousness, and fatigue, and cognitive symptoms such as poor concentration, mental fatigue, and memory impairment (Ragu-Nathan et al., 2008), as well as behavioral strain and sleep problems (Ayyagari et al., 2011). Technostress is a contemporary illness of adaptation resulting from an inability to adjust to new computing technology in a healthy way (Suh & Lee, 2017). Technostress is a sort of anxiety caused by inadequacy in meeting the expectations of corporate computer usage (Tarafdar et al., 2010).

Technostress, according to Brod (1984), is an illness of adaptation in the contemporary period that is caused by the incapacity to adjust to new technology in a constructive and healthy way. According to Molino et al. (2020), ICTs have grown at a remarkable rate over the last several decades, influencing work across all industries and bringing many benefits, such as data processing speed, portability, and data dependability. Previous researchers (Adel-Mehraban et al., 2019) claimed that technostress is one of the contemporary disorders that is mostly caused by an inability to adapt to new technology, which is a mix of anxiety, information overload, role conflict, and organizational issues. This disease may result in a lack of acceptance of information and communication technologies or an excessive identification with the new technology, which can induce anxiety and tension (Brivio et al., 2018).

Thus, researcher has identified that there are five technostress creators, namely, techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty (Tarafdar et al., 2007), who note that techno-overload; techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty compose the categorization of the causes of technostress. Tarafdar et al. (2007) stated that techno-overload can be caused by the ability of ICT to force end users to work faster and longer and to change their behavior. Techno-invasion, on the other hand, is caused by the ability of technologies to invade employees' private lives and make the line between work and private life less clear. Techno-complexity may be characterized as situations in which the qualities and complexity of an information and communications technology (ICT) system cause workers or end users to feel inadequate and insufficient with their existing skills and knowledge (Tarafdar et al., 2007). Techno-uncertainty can be associated with the feeling of being threatened or the fear of losing their jobs due to the increasing use of automation or other employees with better knowledge and skills in the ICT fields, and it can also be associated with the frequent updates and modifications to ICTs that annoy users and force them to learn new aspects of ICTs (Tarafdar et al., 2007). Previous researchers (Ninaus et al., 2015) said that the four stressors that are most often mentioned are constant availability, connectivity pressure, internal responsibility for availability, and extra work. On the other hand, the benefits of using technology include better communication, instant access, and more flexibility. Brown et al. (2014) said that there are two possible creators in the workplace that focus on email stressors: the high number and poor quality of emails in the workplace system. Those who got a lot of low-quality (i.e., confusing) emails and a lot of them reported being overloaded with emails (Brown et al., 2014). The following section will explain the five technostress creators, namely, techno-overload, techno-invasion, techno-complexity, techno-insecurity and techno-uncertainty.

Techno-Overload and Employee Well-Being: Techno-overload is a stressful situation where employees must work longer and faster than usual due to technology (Wang et al., 2022). This is because the usage of ICTs has compelled employees to operate at high rates of speed and for lengthy durations (Tarafdar et al., 2007). Technostress carries the possibility that, over time, an individual may get work overloaded and stressed which could be harmful to his health (Salazar-Concha et al., 2021). Users may encounter various techno-stressors due to a lack of familiarity with the latest technology, the sensation of being under a lot of pressure due to the quantity of information available, as well as uncomfortable strain and outcomes (Tarafdar et al., 2015).

According to Ingusci et al. (2021), two creators are correlated with the use of ICT in the workplace. The first stressor is information overload, which occurs when a worker receives a large amount of information from several sources, which might produce undue pressure. The second concern is the individuals' constant

availability to be connected to their work via ICTs such as mobile phones or personal computers. Both of these stressors can produce undue pressure (Ingusci et al., 2021). In other words, the term techno-overload refers to the feeling that people have when they are pushed to put in more effort within a shorter amount of time as a direct result of the development of new technologies (Abd Aziz et al., 2021). Working extra is related to having to multitask to digest too much information insufficiently in a swift manner and thus people tend to use technology equipment to do the task more efficiently (Abd Aziz et al., 2021). The phrase techno-overload refers to a situation in which the user is required to perform more tasks as a result of the usage of ICTs, resulting in additional time and effort (Harris et al., 2022).

When employees devote time and energy to learning and managing new technology at work, they may become too exhausted and burdened to fully engage in home life and meet family expectations (Harris et al., 2022). Given the wide range of ICTs, it is reasonable to believe that a lack of productivity and job satisfaction among employees is due in part to a problem with mobile technology overload (Yin et al., 2018). Ramesh et al. (2021) highlight that the time, role, and job security pressures generated by techno stressors serve as low-intensity psychological pressures, which are encountered over the course of one's working life, contribute to exhaustion and burnout. Therefore, the researchers proposed the following hypothesis:
H_1: *There is a significant relationship between techno-overload and employees' well-being.*

Techno-Invasion and Employee Well-Being: Techno-invasion occurs when information and communication technologies (ICTs) have an intrusive effect by creating conditions in which users can be contacted at any time, employees feel compelled to remain connected, and the lines between work and personal life become increasingly blurred (Tarafdar et al., 2007). According to Wu et al. (2017), the widespread use of technology among workers indicates that they will devote a considerable portion of their free time and energy to understanding and using IT outside of work hours because of the technological invasion. This not only depletes their present conditions and energy resources, but also makes it difficult for them to acquire new individual resources such as object resources, conditions, and energies, which causes job anxiety (Wu et al., 2017).

Ragu-Nathan et al (2008) mention that, due to the rising use of information technology, an increasing number of workers are reporting higher levels of stress related to their jobs as well as an invasion of their personal lives, which is referred to as Techno-invasion (one of the five techno-stressors). This can be problematic because technology makes it easier for work to intrude on one's personal life (Murray & Rostis, 2007), making it difficult to fulfill one's family obligations (Major et al., 2002; Boswell & Olson-Buchanan, 2007) and limiting individuals' recovery, family, and leisure time (Sonnentag, 2001). Working from home creates special issues for remote employees since their house gets identified with their job position, work physically and psychologically intrudes onto their family, and habits and customs evolve that drive them to be obsessed with work when at home (Eddleston & Mulki, 2017). Virtual work involves physical and cognitive changes in how people perform their job duties and tasks, and these changes may have an impact on people's exhaustion and job engagement (Sardeshmukh et al., 2012).

The merging of work and family life at home can be a source of stress for people who do their jobs remotely since it can lead to uncertainty on which responsibility, work or family, should be prioritized when at home (Eddleston & Mulki, 2017). People who have problems balancing their professional and personal lives are more likely to become exhausted as a result of the stress caused by the competition that exists between their professional and personal lives resulting in the depletion of both the individuals' emotional and physical resources (Golden, 2012). Eddleston & Mulki (2017) mention that additionally, it is essential to consider how the (mis)alignment of a remote worker's boundary preferences and the work–family boundary environment produced at home impacts work–family conflict and stress. Studies have shown that employees may find it difficult to "disconnect" from their jobs since technology has blurred the barrier between where they work and where they live (Harris et al., 2022). Therefore, the researchers proposed the following hypothesis:
***H_2**: There is a significant relationship between techno-invasion and employees' well-being.*

Techno-Complexity and Employee Well-Being: Techno-complexity is a situation in which the complexity of technology forces users to feel inadequate in terms of their computer skills and forces them to spend time and effort learning and comprehending the technologies (Adel-Mehraban et al., 2019). In other words, techno-

complexity makes users feel like they are incapable of using the technology properly. Users who believe certain technological levels to be complex automatically feel incompetent (Nasirpouri & Biro, 2022) and compelled to invest time and energy into learning and mastering the technology (Tarafdar et al., 2007).

Prior research found that techno-complexity is associated with an inability to understand or deal with the complexity of new technology, which supports the hypothesis that technostress has a negative impact on role stress and productivity (Tarafdar et al., 2007). During the COVID-19 period, employees are required to work with complicated software and hardware; as a result, regular instances of technological complexity occur in the workplace (Zhao, 2021). According to (Burke M. , 2009), there is a substantial gap between the skills that instructors already possess and those that are necessary for various activities, causing a medium degree of technological stress among employees. Marchiori et al. (2018) highlight that due to the complication of the technological world, elder workers face greater challenges. Thus, the researchers proposed the following hypothesis:
H_3: *There is a significant relationship between techno-complexity and employees' well-being.*

Techno-Insecurity and Employee Well-Being: Techno-insecurity is a situation in which users fear losing their work due to the automation of ICTs or other persons with an in-depth understanding of ICTs (Ragu-Nathan et al., 2008). It is also referred to the fear that automated technology or more knowledgeable staff might replace a person who has less technological knowledge (Sarabadani et al., 2020). Ahmad et al. (2012) define techno-insecurity as a situation whereby the users feel anxious and nervous about the existence of new ICTs or they feel insecure with other people who are better at ICTs since the new ICTs would replace them or their employment.

Those who suffer from techno-insecurity often have low hopes for their career development and are less eager to study new technology to improve their skills (Sarabadani et al., 2020). According to Adel-Mehraban et al. (2019), they believed that techno-insecurity was associated with the fear of losing their job positions, either due to technological automation or to those who have vast experience and knowledge regarding new technological changes or updates. Employees might, for instance, need to acquire and use new abilities especially in terms of technological advancement since most of the e employees may believe that new technological advancements or co-workers with more advanced technological abilities constitute a threat to their careers if they don't update their ICT knowledge and skills (Chiu et al., 2023). This sense of job uncertainty is a significant source of workplace stress that has detrimental effects on both organizational and personal health (Chirumbolo et al., 2017). Dragano & Lunau (2020) highlight that techno-insecurity refers to the fear among employees of having their position be potentially replaced by digital technologies completely or by more skilled employees, resulting in job loss or a decline in status. Thus, the researchers proposed the following hypothesis:
H_4: *There is a significant relationship between techno-insecurity and employees' well-being.*

Techno-Uncertainty and Employee Well-Being: Techno-uncertainty refers to scenarios when users are confused by ongoing modifications and upgrades of the ICTs and therefore need to learn and educate themselves about these technologies on an ongoing basis (Ragu-Nathan et al., 2008). It is characterized by the rapid obsolescence of ICTs (Kot, 2022). Kot (2022) added that frequent technological changes not only require the introduction of an increasing number of new devices, software applications, and applications, but more importantly, it forces frequent modifications to the typical work patterns, which makes it difficult for employees to gain experience with a particular system or application. Users may be unwilling to learn and utilize new IT due to techno-uncertainty caused by the rapid change and introduction of new IT (Siitonen et al., 2022).

Ahmad et al. (2012) mention that technology and ICT applications are rapidly changing and need to be upgraded, which can cause some ICT users to be hesitant and troubled, resulting in techno-uncertainty. When people are not given enough time to gain solid expertise in technology at work, they develop techno-uncertainty (Sarabadani et al., 2020). Organizations use or develop new technologies to better their work operations, such as making ongoing modifications or amendments to their enterprise systems (Sarabadani et al., 2020). Dragano & Lunau (2020) highlight that techno-uncertainty is a constant sense of ambiguity and uncertainty brought on by extensive digital transformation processes or by characteristics of specific

technologies that encourage constant change. Therefore, the researchers proposed the following hypothesis: **H_5:** *There is a significant relationship between techno-uncertainty and employees' well-being.*

3. Research Methodology

The population of this cross-sectional study is 20,000 individual employees of a telecommunication company in Malaysia. Utilizing a convenience sampling technique, a total of 141 employees of the company voluntarily participated as the respondents of the research. The sample size is acceptable since the recommended sample size by G*Power is 138. The researchers set the effect size at 0.15 (a medium effect), 0.05, and power t at 0.95. An acceptable power setting for social and business science research is indicated by a value of 80 percent or above (Memon et al., 2020).

The researchers obtained permission from the top management of the company to collect data by distributing a link to Google Forms via a formal channel of communication among the employees of the company under study. Clear instructions were provided to the respondents on the procedures to participate in the study. They were given three weeks to complete and submit the questionnaire online.

Research Instruments: Questionnaires used for the data collection consist of 6 sections, namely Section A (Demographic information), Section B (Techno-overload), Section C (Techno-invasion), Section D (Techno-complexity), Section E (Techno-insecurity), Section F (Techno-uncertainty), and Section G (Employee's Well-being). The items, except under Section A, utilized a five-point Likert from 1 = "Strongly Disagree," 2 = "Disagree," 3 = "Neutral," 4 = "Agree" and 5 = "Strongly Agree".

Items to Measure Employee's Well-Being: The dependent variable is employee's well-being was measured by 13 items adopted from Kristensen et al. (2005), as listed in Table 1. The Cronbach's Alpha for all the items indicated that the items are reliable in terms of their internal consistency.

Table 1: Item Measurements for Dependent Variable

Variables	Items	Cronbach's Alpha
Employee's Well-Being	1. I often feel tired. 2. I often feel physically exhausted. 3. I often feel emotionally exhausted. 4. I often think that: "I can't take it anymore". 5. I often feel worn out. 6. I often feel weak and susceptible to illness. 7. I feel worn out at the end of the working day. 8. I feel exhausted in the morning at the thought of another day at work. 9. I feel that every working hour is tiring for me. 10.I think I have enough energy for family and friends during my leisure time. 11. My work makes me feel emotionally exhausted. 12. My work frustrates me. 13. I feel burnt out because of your work.	0.937

Source: Kristensen et al. (2005).

Items to Measure Technostress Creators: Twenty-two items adopted from Ragu-Nathan et al. (2008) and Tarafdar et al. (2007) of technostress creators were used to measure the independent variables of the research, as listed in Table 2. The Cronbach's Alpha for all the items indicated that the items are reliable in terms of their internal consistency.

Table 2: Item Measurement for Five (5) Independent Variables

Variable	Items	Cronbach's Alpha
Techno-overload	1. I am forced by this technology to work much faster. 2. I am forced by this technology to do more work than I can Handle. 3. I am forced by this technology to work with very tight time Schedules. 4. I am forced to change my work habits to adapt to new Technologies. 5. I have a higher workload because of increased technology complexity.	0.923
Techno-invasion	I spend less time with my family due to this technology. I have to be in touch with my work even during my vacation due to this technology. I have to sacrifice my vacation and weekend time to keep current on new technologies. I feel my personal life is being invaded by this technology.	0.860
Techno-complexity	I do not know enough about this technology to handle my job satisfactorily. I need a long time to understand and use new technologies. I do not find enough time to study and upgrade my technology skills. I find new recruits to this organization know more about computer technology than I do. I often find it too complex for me to understand and use new technologies.	0.906
Techno-insecurity	I feel a constant threat to my job security due to new technologies. I have to constantly update my skills to avoid being replaced. I am threatened by co-workers with newer technology skills. I do not share my knowledge with my co-workers for fear of being replaced. I feel there is less sharing of knowledge among co-workers for fear of being replaced.	0.766
Techno-uncertainty	1. There are always new developments in the technologies we use in our organization. 2. There are constant changes in computer software in our organization. 3. There are frequent upgrades in computer networks in our organization.	0.912

Source: Ragu-Nathan et al. (2008) and Tarafdar et al. (2007).

4. Results

Demographic Background of the Respondents: Out of 141 respondents, 71 were male (50.4%) and 70 were female (49.6%). Sixty-one respondents (43.3%) were in non-managerial positions at the operational unit, 35 respondents (24.8%) were in non-managerial positions at the administration unit, and 45 (31.9%) respondents were in managerial positions. Table 3 summarizes the respondents' background.

Table 3: Demographic Background of the Respondents

Demographic Variables	Category	Frequency (N)	Percent (%)
Gender	Male	70	50.4
	Female	71	49.6
Age	18 – 23	21	14.9
	24 – 29	54	38.3
	30 – 39	42	29.8
	40 – 49	16	11.3
	50 and above	8	2.7
Positions	Non-Managerial Operational Unit	61	43.3
	Administration Unit Employee	35	24.8
	Managerial Level Employee	45	31.9

Relationship between Technostress Creators and Employees' Well-Being: Multiple regressions were utilized to determine the relationship between technostress creators (techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty) and well-being among the respondents. The results of the regression analysis undertaken for this investigation are displayed in Table 4. The model was significant in predicting employee well-being: $F(5,135) = 38.603$, $p < 0.000$. The R^2 for the overall model was 0.588 or 58.8% with an adjusted R^2 of 0.573 or 57.3%, a strong size effect is reported by the model, of variations in employee's well-being is accounted for by the linear combination of the predictor variables (techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty).

Table 4: Results of Multiple Regression Analysis

Independent Variables	Unstandardized Coefficients B	Standard Coefficients Beta	t	Sig	Correlation Part sr^2	Collinearity Statistics Tolerance	VIF
Techno-overload	-0.209	-0.297	-3.444	.001	-0.190	0.409	2.447
Techno-invasion	-0.444	-0.493	-4.811	.001	-0.266	0.290	3.445
Techno-complexity	0.358	0.456	4.849	.001	0.268	0.345	2.900
Techno-insecurity	-0.229	-0.319	-3.208	.002	-0.177	0.308	3.244
Techno-uncertainty	-0.220	-0.266	-4.009	.001	-0.221	0.690	1.449
R Square	0.588						
Adjusted R Square	0.573						
F	38.603						
Sig. of F Value	0.000						

Dependent Variable: Employee's Well-Being, $p < 0.05$.

To answer the research question (i.e. is there any relationship between the five technostress creators, namely, techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty and employee well-being?) there were five hypotheses were tested using multiple regression analysis. Unstandardized coefficients reflect the degree to which the dependent variable changes with a particular independent variable while all other independent variables are maintained constant. Table 4 shows a negative association between techno-overload ($\beta = -0.209$, $p = 0.000$, $p < 0.05$) and employees' well-being. In the table, the negative slope for techno-overload (-0.209) as a predictor of employee well-being indicated a 0.209 decrease for each 1-point increase in techno-overload. In other words, employees' well-being tends to increase as techno-overload decreases. The square semi-partial correlation (sr2) estimated how much variance in employee well-being was uniquely predictable from techno-overload (0.109). This indicates that -10% of the variance in the employee's well-being is uniquely accounted for by techno-overload when techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty were controlled. Therefore, the H_1 was accepted for this study.

Table 4 also shows a negative association between techno-invasion ($\beta = -0.444$, $p = 0.001$, $p < 0.05$) and employees' well-being. The negative slope for techno-invasion (-0.444) as a predictor of employee well-being

indicated a 0.444 decrease in employee well-being for each 1-point increase in techno-invasion. In other words, employees' well-being tends to increase as techno-invasion decreases. The square semi-partial correlation (sr^2) of techno-invasion is -0.266, which indicates that -26% of the variance in the employee's well-being is uniquely accounted for by techno-invasion when techno-overload, techno-complexity, techno-insecurity, and techno-uncertainty was controlled. Therefore, H_2 was accepted for this study.

For the third hypothesis, Table 4 shows a positive association between techno-complexity ($\beta = 0.358$, $p = 0.000$, $p < 0.05$) and employees' well-being. The positive slope for techno-complexity (0.358) as a predictor of employee well-being indicated a 0.358 increase in employee well-being for each 1-point increase in techno-invasion. In other words, employees' well-being tends to increase as techno-invasion increases. The square semi-partial correlation (sr^2) of techno-invasion is 0.268, which indicates that 26% of the variance in the employee's well-being is uniquely accounted for by techno-complexity when techno-overload, techno-invasion, techno-insecurity, and techno-uncertainty was controlled. Therefore, H_3 was accepted for this study.

Table 4 above shows a negative association between techno-insecurity ($\beta = -0.229$, $p = 0.000$, $p < 0.05$) and employees' well-being. The negative slope for techno-insecurity (-0.229) as a predictor of employee well-being indicated a 0.229 decrease in employee well-being for each 1-point increase in techno-insecurity. In other words, employees' well-being tends to increase as techno-invasion decreases. The square semi-partial correlation (sr^2) of techno-invasion is -0.177, which indicates that -17% of the variance in the employee's well-being is uniquely accounted for by techno-insecurity when techno-overload, techno-invasion, techno-complexity, and techno-uncertainty was controlled. Therefore, H_4 was accepted for this study.

For the fifth hypothesis, Table 4 shows a negative association between techno-uncertainty ($\beta = -0.220$, $p = 0.002$, $p < 0.05$) and employees' well-being. The negative slope for techno-uncertainty (-0.220) as a predictor of employee well-being indicated a 0.220 decrease in employee well-being for each 1-point increase in techno-uncertainty. In other words, employees' well-being tends to increase as techno-uncertainty decreases. The square semi-partial correlation (sr^2) of techno-invasion is -0.221, which indicates that -22% of the variance in the employee's well-being is uniquely accounted for by techno-insecurity when techno-overload, techno-invasion, techno-complexity, and techno-insecurity was controlled. Therefore, H_5 was accepted for this study. Table 5 summarizes the hypothesis for the study on the impact of technostress creators on employees' well-being in a telecommunication company in Kuching Sarawak.

Table 5: Summary of Hypothesis

HYPOTHESES	RELATIONSHIP	RESULT
$\mathbf{H_1}$	There is a significant relationship between techno-overload and techno-employee's well-being.	**Supported**
$\mathbf{H_2}$	There is a significant relationship between techno-invasion and techno-employee's well-being.	**Supported**
$\mathbf{H_3}$	There is a significant relationship between techno-complexity and techno-employee's well-being.	**Supported**
$\mathbf{H_4}$	There is a significant relationship between techno-insecurity and techno-employee's well-being.	**Supported**
$\mathbf{H_5}$	There is a significant relationship between techno-uncertainty and techno-employee's well-being.	**Supported**

Discussion: Based on the findings, this study concluded that all five technostress creators are influencing employee's well-being. The most prevailing independent variable that would influence well-being is techno-invasion, compared with the other independent variables of the study, namely, techno-overload, techno-complexity, techno-insecurity and techno-uncertainty.

This study found that there was a strong negative relationship between techno-overload and employees' well-being. This is probably because the usage of technology made the employees work beyond normal working hours to complete their tasks. This finding is supported by Lee et al. (2016) that reported the usage of technology made employees spend so much time accomplishing their tasks and dealing with stress, which leads to technology overload. While according to Wang et al. (2022), the usage of technology could lead to an increase in productivity and profitability but also the negative effects of technostress, which could deplete employees' energy, motivation, and well-being.

Based on the findings, this study found there was a strong negative relationship between techno-invasion and employees' well-being for both personal and work-related burnout. The employees feel that their personal life is being interrupted since they proceed with their tasks at home. The findings of this study were supported by Rasool et al. (2022) who highlighted that job-life conflict is an issue that arises when family obligations and work obligations conflict. Due to the widespread usage of technology in the workplace, employees must be present after hours and check their emails and messages (Rasool et al., 2022). Employees are required to work overtime, so they return home with feelings of burden, worry, and mental exhaustion. This results in a conflict between work and family for employees, which eventually has a negative impact on both job performance and family life (Harris et al., 2022).

This research found that there is a positive relationship between techno-complexity and employees' well-being. The respondents feel they have adequate knowledge of the technology used inside the company. The employees need more time to learn to understand the system. The researcher also assumed that the employees have the motivation to learn about the new technology and try to study by themselves. The researcher also assumes that the employees actively participate in any seminars or programs organized by the organization to constantly upgrade their skills and knowledge related to the new system or technologies.

This research found that there was a negative relationship between techno-insecurity and employees' well-being. The respondents feel that they are insecure by the constant updates in the technology used inside the company. They also feel threatened to be replaced by other people who have more potential and skills in using the technology. Technostress can have psychological causes, such as job security, where people worry that computers will replace their jobs; professional jealousy brought on by technological competency; and de-motivation due to extended periods of any technological activity (Tagurum et al., 2017). (Shadbad & Biros, 2020) stated that they could consider limiting the required amount of ICT usage, such as e-mail loads, since it may increase the likelihood of inadvertently clicking on phishing links, such as by employing a filtering technique to limit the number of received e-mails.

Based on the findings, the two variables (techno-uncertainty and employee well-being) were negatively related. Thus, the results obtained support the hypothesis. Learning new IT was often regarded as tough and irritating. When it came to learning new IT, respondents also had to acquire new methods of working, which impacted the software development process as a whole and their productivity. The responder mostly feels that the stressful work atmosphere with tight deadlines and timelines enhanced the need to learn new IT rapidly and effectively. The responders were also burdened by learning due to the rapid rate of development within the organization.

5. Managerial Implications and Recommendations

The most prevailing independent variable in this research study is techno-invasion. Thus, this research recommended that companies need to provide guidelines on ICTs used outside of work and take action to limit such work-related interruptions. To prevent technostress, managers should attempt to strike a balance between workers' technical skills, the technology required for job duties and activities, and the amount to which technology invades non-work life while staffing positions and planning work (Brivio et al., 2018).

Apart from that, it is recommended for a company to conduct technology-based training seminars or programs and encourage knowledge sharing among the employees to cope with the issues of technostress. According to Islam et al. (2022), the most effective ways for employees to deal with the effects of technostress are to participate in technology-based training, practice effective time management, engage in physical

activity, be aware of the different levels of technostress, take regular breaks while using technology, and share their knowledge with colleagues. Moreover, as a means of mitigating the negative effects of poor internet quality, which can lead to technostress for employees, employers should provide access to a high-speed internet network that is both easily accessible and has a wide range of coverage.

The authors also would recommend future research to examine additional potential influences on employees' well-being, including moral disengagements, such as a lack of empathy and a sense of belonging within the company. Another potential influence on employees' well-being might include a lack of organizational training, resistance to new changes and constant updates of new technological advancement. In addition, future researchers could examine additional variables not examined in this study, such as employee performance, job motivation, and level of engagement. Future researchers also can include other causes of technostress, such as lack of technical assistance, professional employees, equipment, involvement in decision-making, a slow network, technological failure, rising user demand, information overload, and inadequate formal training.

Conclusion: The purpose of this study is to determine the relationship between five technostress creators, namely, techno-overload, techno-invasions, techno-complexity, techno-insecurity, and techno-uncertainty towards employee well-being at one Telecommunication Company in Sarawak, Malaysia. The findings of this research indicate that there is a strong relationship between all technostress creators and the well-being of employees. Thus, this research adds to the knowledge of the relationships between technostress creators and employees' well-being in the workplace. Since the research found that the most prevailing independent variable in this research study is techno-invasion, thus, this research recommended that the company needs to provide guidelines on ICTs use outside of work and take action to limit such work-related interruptions.

References

Abd Aziz, N. N., Awang Kader, M. A. & Ab Halim, R. (2021). The Impact of Technostress on Student Satisfaction and Performance Expectancy. *Asian Journal of University Education,* 17(4), 538-552. doi:10.24191/ajue.v17i4.16466

Adel-Mehraban, M., Mahdian, A. & Alavi M, M. (2019). How Managers are Related To Techno-Stress in Organization. *Preventive Care in Nursing & Midwifery Journal,* 9(3), 42-49.

Ahmad Ahmad, U., Amin, S. & Ismail, W. (2012). The Relationship Between Technostress Creators and Organisational Commitment Among Academic Librarians. *Procedia - Social and Behavioral Sciences,* 40, 182-186. doi:10.1016/J.SBSPRO.2012.03.179

Alam, M. A. (2016). Techno-stress and productivity: Survey evidence from the aviation industry. *Journal of Air Transport Management,* 50, 62-70. doi:10.1016/j.jairtraman.2015.10.003

Allen, T. D., Golden, T. D. & Shockley, K. M. (2015). How Effective Is Telecommuting? Assessing the Status of Our Scientific Findings. *Psychological Science in the Public Interest,* 16(2), 40-68. doi:10.1177/1529100615593273

Al-Qallaf, C. L. (2006). Librarians and Technology in Academic and Research Libraries in Kuwait: Perceptions and Effects. *Libri,* 56, 168-179. doi:10.1515/libr.2006.168

Andrade, A. L., Oliveira, M. Z. & Hatfiel, E. (2017). Work-family conflict: a study with Brazilians and Americans. *Revista Psicologia: Organizações e Trabalho,* 17(2), 106-113. doi:10.17652/rpot/2017.2.12738

Anyaoku, E. N., Osuigwe, N. E. & Oguaka, N. C. (2015). Technology and Job Satisfaction in Academic Libraries: Role of Leadership Style and Librarians' Attitude. *International Journal of Library Science,* 4(4), 73-80. doi: 10.5923/j.library.20150404.02

Ayyagari, R., Grover, V. & Purvis, R. (2011). TECHNOSTRESS: TECHNOLOGICAL ANTECEDENTS AND IMPLICATIONS. *MIS Quarterly,* 35(4), 831-858. doi:10.2307/41409963

Bakker, A. & Demerouti, E. (2007). The job demands-resources model: state of the art. *Journal of Managerial Psychology,* 22, 309-328. doi:10.1108/02683940710733115

Bakker, A. & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of occupational health psychology,* 22(3), 273-285. doi:10.1037/ocp0000056

Boswell, W. & Olson-Buchanan, J. (2007). The Use of Communication Technologies After Hours: The Role of Work Attitudes and Work-Life Conflict. *Journal of Management,* 33, 592-610. doi:10.1177/0149206307302552

Brivio, E., Gaudioso, F., Vergine, I., Mirizzi, C. R., Reina, C., Stellari, A. & Galimberti, C. (2018). Preventing Technostress Through Positive Technology. *Frontiers in Psychology, 9*. doi:10.3389/fpsyg.2018.02569

Brod, C. (1984). Technostress: The Human Cost of the Computer Revolution. Reading, USA: Addison-Wesley Publishing Company.

Brown, R., Duck, J. & Jimmieson, N. (2014). E-mail in the workplace: The role of stress appraisals and normative response pressure in the relationship between e-mail stressors and employee strain. *International Journal of Stress Management,* 21(4), 325-347. doi:10.1037/a0037464

Burke, M. (2009). The incidence of technological stress among baccalaureate nurse educators using technology during course preparation and delivery. *Nurse Education Today,* 29(1), 57-64. doi:10.1016/j.nedt.2008.06.008

Chakraborty, A. & Kar, A. K. (2021). *International Journal of Information and Learning Technology,* 38(3), 273-282. doi:10.1108/IJILT-06-2020-0125

Chirumbolo, A., Urbini, F., Callea, A., Lo Presti, A. & Talamo, A. (2017). Occupations at Risk and Organizational Well-Being: An Empirical Test of a Job Insecurity Integrated Model. *Frontiers in Psychology,* 8(2084). doi:10.3389/fpsyg.2017.02084

Chiu, C. M., Tan, C., Hsu, J. C. & Cheng, H. L. (2023). Employee deviance: the impacts of techno-insecurity and moral disengagement. *Information Technology & Peopl,* 36(1), 140-164. doi:10.1108/ITP-03-2021-0198

Coakes, S. (2013). SPSS: Analysis without anguish: version 20 for Windows (2nd ed.). Australia: John Wiley & Sons Australia, Ltd.

D'Arcy, J., Ashish, G., Tarafdar, M. & Turel, O. (2014). Reflecting on the "Dark Side" of Information Technology Use. *Communication of The Association for Information System,* 35(5), 109-118. doi:10.17705/1CAIS.03505

De', R., Pandey, N. & Pal, A. (2020). Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice. International Journal of Information Management, 55. doi:10.1016/j.ijinfomgt.2020.102171

Dragano, N. & Lunau, T. (2020). Technostress at work and mental health: concepts and research results. *Current opinion in psychiatry,* 33(4), 408-413. doi:10.1097/YCO.0000000000000613

Eddleston, K. & Mulki, J. (2017). Toward Understanding Remote Workers' Management of Work–Family Boundaries: The Complexity of Workplace Embeddedness. *Group & Organization Management,* 42, 346-387. doi:10.1177/1059601115619548

Golden, T. (2012). Altering the Effects of Work and Family Conflict on Exhaustion: Telework During Traditional and Nontraditional Work Hours. *Journal of Business and Psychology,* 27, 255-269. doi:10.1007/S10869-011-9247-0

Guest, D. E. (2017). Human resource management and employee well-being: towards a new analytic framework. *Human Resource Management Journal,* 27(1), 22-38. doi:10.1111/1748-8583.12139

Guillaume, Y. R., Dawson, J., Otaye-Ebede, L., Woods, S. A. & West, M. (2015). Harnessing demographic differences in organizations: What moderates the effects of workplace diversity? *Journal of Organizational Behavior,* 38, 276-303. doi:10.1002/job.2040

Hair, J., Black, W., Babin, B. & Anderson, R. (2010). Multivariate Data Analysis (7th ed.).

Hair, J., Money, A., Babin, B. & Samouel, P. (2003). Essentials of business research. Wiley, New York.

Harris , K., Harris, R., Valle, M., Carlson, J., Carlson, D., Zivnuska, S. & Wiley, B. (2022). Technostress and the entitled employee: Impacts on work and family. *Information Technology & People,* 35(3), 1073-1095.

Houli, D. & Radford, M. (2020). An exploratory study using mindfulness meditation apps to buffer workplace technostress and information overload. Proceeding of the Association for Information Science and Technology, 57. doi:https://doi.org/10.1002/pra2.373

Ingusci, E., Signore, F., Giancaspro, M., Manuti, A., Molino, M., Russo, V. & Cortese, C. (2021). Workload, Techno Overload, and Behavioral Stress During COVID-19 Emergency: The Role of Job Crafting in Remote Workers. Frontiers in Psychology, 12. doi:10.3389/fpsyg.2021.655148

Islam, M. S. & Amin, M. (2022). A systematic review of human capital and employee well-being: putting human capital back on the track. *European Journal of Training and Development,* 46(5/6), 504-543. doi:https://doi.org/10.1108/EJTD-12-2020-0177

Jena, R. K. (2015). Impact of Technostress on Job Satisfaction: An Empirical Study among Indian Academician. *The International Technology Management Review,* 5(3), 117-124. doi:https://doi.org/10.2991/itmr.2015.5.3.1

Jena, R. K. (2015). Technostress in ICT enabled collaborative learning environment: An empirical study among Indian academician. *Computers in Human Behavior,* 51, 1116-1123. doi:10.1016/j.chb.2015.03.020

Juchnowicz, M. & Kinowska, H. (2021). Employee Well-Being and Digital Work during the COVID-19 Pandemic. *Information,* 12, 293-304. doi:10.3390/info12080293

Kim, D. G. & Lee, C. W. (2021). Exploring the Roles of Self-Efficacy and Technical Support in the Relationship between Techno-Stress and Counter-Productivity. *Sustainability,* 13(8), 4349. doi:10.3390/su13084349

Kristensen, T., Borritz, M., Villadsen, E. & Christensen, K. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & stress,* 19(3), 192-20. doi:10.1080/02678370500297720

La Torre, G., De Leonardis, V. & Chiappetta, M. (2020). Technostress: how does it affect the productivity and life of an individual? Results of an observational study. *Public Health,* 189, 60-65. doi:10.1016/j.puhe.2020.09.013

La Torre, G., Esposito, A., Sciarra, I. & Chiappetta, M. (2018). Definition, symptoms and risk of techno-stress: a systematic review. International Archives of Occupational and Environmental Health. doi:10.1007/s00420-018-1352-1

Larson, L. E. & Dechurch, L. (2020). Leading Teams in the Digital Age: Four Perspectives on Technology and What They Mean for Leading Teams. The Leadership Quarterly. doi:10.1016/j.leaqua.2019.101377

Lei, C. F. & Ngai, E. W. (2014). The Double-Edged Nature of Technostress on Work Performance: A Research Model and Research Agenda. International Conference on Information Systems, 1-18.

Lin, C., Li, X. & Lam, L. W. (2020). Development or maintenance? Dual-oriented human resource system, employee achievement motivation, and work well-being. *Human Resource Management,* 59(4), 311-325. doi:10.1002/hrm.21997

Major, V., Klein, K. & Ehrhart, M. (2002). Work time, work interference with family, and psychological distress. *The Journal of applied psychology,* 87(3). doi:10.1037/0021-9010.87.3.427

Mann, S. & Holdsworth, L. (2003). The psychological impact of teleworking: stress, emotions and health. *New Technology, Work and Employment,* 18(3), 196-211.

Marchiori, D. M., Mainardes, E. W. & Gouveia, R. (2018). Do Individual Characteristics Influence the Types of Technostress Reported by Workers? International Journal of Human–Computer Interaction, 1-13. doi:10.1080/10447318.2018.1449713

Memon, M., Ting, H., Cheah, J., Thurasamy, R., Chuah, F. & Cham, T. (2020). Sample size for survey research: review and recommendations. *Journal of Applied Structural Equation Modeling,* 4(2), i-xx. doi:10.47263/jasem.4(2)01

Molino, M., Ingusci, E., Signore, F., Manuti, A., Giancaspro, M. L., Russo, V. & Cortese, C. G. (2020). Wellbeing Costs of Technology Use during Covid-19 Remote Working: An Investigation Using the Italian Translation of the Technostress Creators Scale. *Sustainability,* 12(15). doi:10.3390/su12155911

Murray, W. & Rostis, A. (2007). Who's Running the Machine? A Theoretical Exploration of Work Stress and Burnout of Technologically Tethered Workers. *Journal of Individual Employment Rights,* 12, 249-263. doi:10.2190/IE.12.3.F

Nasirpouri Shadbad, F. & Biro, D. (2022). Technostress and its influence on employee information security policy compliance. *Information Technology & People,* 35(1), 119-141. doi:10.1108/ITP-09-2020-0610

Nijp, H. H., Beckers, D. G., van de Voorde, K., Geurts, S. A. & Kompier, M. A. (2016). Effects of new ways of working on work hours and work location, health and job-related outcomes. *Chronobiology International,* 33(6), 604-618. doi:10.3109/07420528.2016.1167731

Ninaus, K., Diehl, S., Terlutter, R., Chan, K. & Huang, A. (2015). Benefits and stressors – Perceived effects of ICT use on employee health and work stress: An exploratory study from Austria and Hong Kong. International Journal of Qualitative Studies on Health and Well-being, 10. doi:10.3402/qhw.v10.28838

Pallant, J. (2010). A Step by Step Guide to Data Analysis Using the SPSS Program (4th ed.). Berkshire: McGraw-Hill Education.

Parker, S., Bindl, U. K. & Strauss, K. (2010). Making Things Happen: A Model of Proactive Motivation. *Journal of Management*, 36, 827-856. doi:10.1177/0149206310363732

Pullins, E., Tarafdar, M. & Pham, P. (2020). The dark side of sales technologies: how technostress affects sales professionals. *Journal of Organizational Effectiveness: People and Performance,* 7(3), 297-320. doi:10.1108/JOEPP-04-2020-0045

Ragu-Nathan, T. S., Tarafdar, M., Ra, S. B. & Tu, Q. (2008). The Consequences of Technostress for End Users in Organizations: Conceptual Development and Empirical Validation. *Information Systems Research,* 19(4), 417-433. doi:10.1287/isre.1070.0165

Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S. & Tu, Q. (2008). The Consequences of Technostress for End Users in Organizations: Conceptual Development and Empirical Validation. *Information Systems Research,* 19(4), 417-433. doi:10.1287/isre.1070.0165

Ramesh, R., Ananthram, S., Vijayalakshmi, V. & Sharma, P. (2021). Technostressors – a boon or bane? Toward an integrative conceptual model. Journal of Indian Business Research. doi:10.1108/jibr-10-2021-0348

Rasool, T., Warraich, N. & Sajid, M. (2022). Examining the Impact of Technology Overload at the Workplace: A Systematic Review. *SAGE Open,* 12(3), 1-18. doi:10.1177/21582440221114320

Salas-Vallina, A., Alegre, J. & López-Cabrales, Á. (2021). The challenge of increasing employees' well-being and performance: How human resource management practices and engaging leadership work together toward reaching this goal. *Human Resource Management,* 60(3), 333-347. doi:10.1002/hrm.22021

Salazar-Concha, C., Ficapal-Cusí, P., Boada-Grau, J. & Camacho, L. J. (2021). Analyzing the evolution of technostress: A science mapping approach. Heliyon, 7. doi:10.1016/j.heliyon.2021.e06726

Sarabadani, J., Compeau, D. & Carter, M. (2020). An Investigation of IT Users' Emotional Responses to Technostress. Hawaii International Conference on System Sciences. doi:10.24251/hicss.2020.748

Sardeshmukh, S., Sharma, D. & Golden, T. (2012). Impact of Telework on Exhaustion and Job Engagement: A Job Demands and Job Resources Model. ORG: Other Human Resource Management & Organizational Behavior (Topic). doi:10.1111/j.1468-005X.2012.00284.x

Satpathy, S., Patel, G. & Kumar, K. (2021). Identifying and ranking techno-stressors among IT employees due to work from home arrangement during Covid-19 pandemic. *Decision,* 48, 391-402. doi:10.1007/s40622-021-00295-5

Schaufeli, W. & Taris, T. (2014). A critical review of the job demands-resources model: Implications for improving work and health. Bridging occupational, organizational and public health: A transdisciplinary approach, 43-68. doi:10.1007/978-94-007-5640-3_4

Sekaran, U. & Bougie, R. (2013). Research Methods for Business: A Skill-Building Approach (6th ed.). Wiley, New York.

Sekaran, U. & Bougie, R. (2016). Research Methods for Business: A Skill-Building Approach (7th ed.). Wiley & Sons, West Sussex.

Shadbad, F. N. & Biros, D. (2020). Technostress and its influence on employee information security policy compliance. *Information Technology & People,* 35(1), 119-141. doi:10.1108/ITP-09-2020-0610

Sonnentag, S. (2001). Work, recovery activities, and individual well-being: A diary study. *Journal of Occupational Health Psychology,* 6, 196-210. doi:10.1037/1076-8998.6.3.196

Srivastava, S. C., Chandra, S. & Shirish, A. (2015). Technostress creators and job outcomes: theorising the moderating influence of personality traits. *Information System Journal,* 25(4), 355-401. doi:10.1111/isj.12067

Suh, A. & Lee, J. (2017). Understanding teleworkers' technostress and its influence on job satisfaction. *Internet Research,* 27(1), 140-159. doi:10.1108/IntR-06-2015-0181

Sundram, V., Rajagopal, P., Bahrin, A., Mohd, R., Sayuti, N. & Othman, A. (2016). Research Methodology: Tools, Methods and Techniques. Malaysia Logistics and Supply Chain Association (MLSCA).

Tabachnik, B. & Fidell, L. (2012). Using multivariate statistics. New York: Harper Collins.

Tarafdar, M., Cooper, C. & Stich, J. F. (2019). The technostress trifecta - techno eustress, techno distress and design: Theoretical directions and an agenda for research. *Information Systems Journal,* 29(1), 6-42. doi:10.1111/isj.12169

Tarafdar, M., Pullins, E. B. & Ragu-Nathan, T. S. (2015). Technostress: negative effect on performance and possible mitigations. *Information System Journal,* 25(2), 103-132. doi:10.1111/isj.12042

Tarafdar, M., Tu, Q., & Ragu-Nathan, T. S. (2010). Impact of Technostress on End-User Satisfaction and Performance. *Journal of Management Information System,* 27(3), 303-334. doi:10.2753/MIS0742-1222270311

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S. & Ragu-Nathan, T. S. (2007). The Impact of Technostress on Role Stress and Productivity. *Journal of Management Information Systems,* 24(1). doi:10.2753/MIS0742-1222240109

Tarafdar, M., Tu, Q., Ragu-Nathan, T. S. & Ragu-Nathan, B. S. (2011). Crossing to the Dark Side: Examining Creators, Outcomes, and Inhibitors of Technostress. *Communications of the ACM,* 54(9), 113-120. doi:10.1145/1995376.1995403

Tu, Q., Wang, K. & Shu, Q. (2005). Computer-Related Technostress in China. *Communication in the ACM,* 48(4), 77-81. doi:10.1145/1053291.1053323

Wang, H., Ding, H. & Kong, X. (2022). Understanding technostress and employee well-being in digital work: the roles of work exhaustion and workplace knowledge diversity. International Journal of Manpower. doi:10.1108/IJM-08-2021-0480

Wang, W., Kakhki, M. & Uppala, V. (2017). The Interaction Effect of Technostress and Non-Technological Stress on Employees' Performance. Americas Conference on Information Systems.

Warr, P. (1994). A conceptual framework for the study of work and mental health. *An International Journal of Work, Health & Organisations,* 8(2), 84-97. doi:https://doi.org/10.1080/02678379408259982

Wu, J., Wang, N., Mei, W. & Liu, L. (2017). Does Techno-invasion Trigger Job Anxiety? Moderating Effects of Computer Self-efficacy and Perceived Organizational Support. *Wuhan International Conference on e-Business,* 42, 241-250.

Yin, P., Ou, C., Davison, R. & Wu, J. (2018). Coping with mobile technology overload in the workplace. *Internet Re,* 28, 1189-1212. doi:10.1108/IntR-01-2017-0016

Zhao, M. (2021). The role of autonomy, status conflict and techno-complexity in exhaustion and self-efficacy: a study with Chinese university teachers.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Role of Status Consumption and Materialism in Influencing Attitude towards Counterfeit Fashion Product

Mohadzlishah bin Mazli*, Mohd Fikri bin Ishak & Ariff Azly bin Muhamed
Faculty of Business and Management, UiTM Cawangan Selangor, Kampus Puncak Alam, Malaysia
*mohadzlishah@uitm.edu.my, fikriishak@uitm.edu.my, ariff@uitm.edu.my

Abstract: The act of counterfeiting spans across various industries and the impact can be seen beyond economic factors. In consumer behavior, the impact of status consumption and materialism has influenced purchase decisions in which consumption is not only based on how it makes an individual feel but also on those around them. Ultimately, the extent to which consumers may go in terms of getting status recognition influenced them to look for "cheaper" alternatives to genuine manufactured products. Hence the demand for counterfeit fashion products kept rising over the years. This research shows the impact of materialism and status consumption in influencing consumer attitudes toward counterfeit fashion products. Data were analyzed using a partial least square (PLS) approach to structural equation modeling (SEM). Materialism is significant in influencing attitude whereas there was no significant relationship found between status consumption and attitude.

Keywords: *Counterfeit fashion, Materialism, Status consumption, Attitude toward counterfeit.*

1. Introduction and Background

Counterfeiting has been plaguing the economics of many countries and Malaysia is not spared. According to the Ministry of Domestic Trade and Cost of Living (MDTCL) key statistics as of September 2022, there were 146 cases of counterfeit seizures of fashion-related products amounting to RM3,416,039 (Ministry of Domestic Trade and Cost of Living, 2022). Technology development is essential to the production and distribution of fake goods. Technology enables producers of counterfeit goods to make their goods seem and occasionally feel exactly like real goods. Due to several variables, counterfeit clothing is becoming exceedingly challenging to stop. In the past, most counterfeit fashion items were of low quality and quickly lost their color. Technology developments, outsourcing, and expanded international trade are a few of the elements that have a positive impact on the emergence of the trade in counterfeit goods. Often, the company hired to make the real things also makes the knockoffs of popular brands of clothes, so they are completely interchangeable with the real ones.

The practice of counterfeiting dates back to the time of the Roman Empire, when a particular wine merchant would duplicate trademarks on wine amphorae on inexpensive wines so that it would appear as though it was a more expensive Roman wine to fool customers and increase profit margins (Philips, 2007). There has been a significant increase in the production and consumption of counterfeit items during the past few decades. The expansion of the consumption pattern has been significantly influenced by factors such as globalization. Many businesses and brands are able to enter additional markets, which increases customers' desire to own global brands. International and well-known brands are frequently more expensive than local brands and are more in demand as a result of their well-known status in the marketplace. These and other similar factors are the primary determinants of the sale and purchase of counterfeit goods.

2. Literature Review

In essence, behavioral intention refers to an individual's purposeful attempt to carry out a given conduct, in this case, the intention to purchase counterfeit fashion products. Furthermore, the possibility of such an act being executed increases as the degree of intention to act increases (Ajzen, 1991). Consumers' intention to behave is a significant concept as it represents the estimated future behavior for market researchers. With regard to this study, intention is broadly described as the consumers' deliberate effort to purchase counterfeit products.

Attitude toward Counterfeit: The attitude construct has always been and still is a major focus of theory and study in the social and behavioral sciences, as shown by the growing number of articles and/or reviews on attitude-related issues over the years including welfare effects of social media, response to CSR activities, attitudes towards e-HRM, and stock market reaction to COVID-19 (Allcott et al., 2020; Baker et al., 2020; Omar et al., 2015; Ramesh et al., 2018).

Attitude involves lasting preferences and aversions, likes and dislikes, towards a specific attitude object. According to Ajzen & Fishbein (1980), attitude is a person's judgment that performing the behavior is good or bad, that he or she is in favor of or against performing the behavior. Allport (1935) on the other hand, defines attitude as a predisposition to respond in a certain way. Although there is a high correlation between attitude and intentions, and attitude itself may result from behavior but they are not synonymous with behavior (Schiffman & Wisenbilt, 2019).

Materialism: Materialism has a significant influence not just on consumer behavior, but also on consumer perceptions, preferences, and decision making. The impact of being a materialist is that consumers will be more likely to be concerned regarding displaying their status and possessions towards their relevant social groups. Previous research has investigated the various impact of materialism, from its effect on sharing intention (Khalek & Chakraborty, 2023), materialistic attitude and material satisfaction (Ozgen & Esiyok, 2020), self-esteem (Wang et al., 2022) and as a mediator between religiosity and impulsive buying tendencies (Habib & Bekun, 2023).

It is important to consider the various definitions of materialism. According to (Belk, 1997), materialism refers to a person's desire to acquire stuff and the importance he or she places on worldly belongings. On the other hand, Richins & Dawson (1992) define materialism as the importance ascribed to the ownership and acquisition of material goods in achieving major life goals or desired states.

Furthermore, someone who is at the pinnacle of materialism would see possession of worldly goods as the focal point of their life and the largest source of satisfaction and dissatisfaction. Consumers with stronger materialistic tendencies are probably more engaged in breaking ethical rules to obtain goods because they prioritize possessions as a fundamental component in their lives (Muncy & Eastman, 1998). This can interfere with other elements of one's life and be harmful to the individual or society (Kozar & Marcketti, 2011).

Status Consumption: The desire for status products among consumers is the result of years of marketing initiatives by brand and product owners to persuade consumers to buy their goods. Market divisions have been developed by numerous companies and products that target distinct markets. According to Eastman et al., (1999), "status consumption" is the process through which people actively seek to elevate their social standing by ostentatiously consuming goods that both confer and symbolize status on the consumer and those around them.

Various research has looked at the impact of status consumption and its influence across different behavioral contexts, such as beauty products, premium alcohol, luxury fashion, perceived economic inequality and restaurant image (C. Dalziel & Sharp, 2023; Cunningham, 2023; Suttikun et al., 2023; Tangri & Yu, 2023; Velandia-Morales et al., 2022). Status goods are valued due to their ability to express or project the image of status; hence, consumers in this context may go beyond ethical boundaries to get the desired goods. However, different consumer generations might have different understandings of what status goods are and may look beyond brand names.

In this study, status consumption involves the desire for status products regardless of their originality. A desire for status involves an interest in status and status products. Counterfeit products are usually associated with products that have high brand recognition and are usually well-known among consumers worldwide. Further, a desire for status involves buying something that represents status to both the individual and its surroundings.

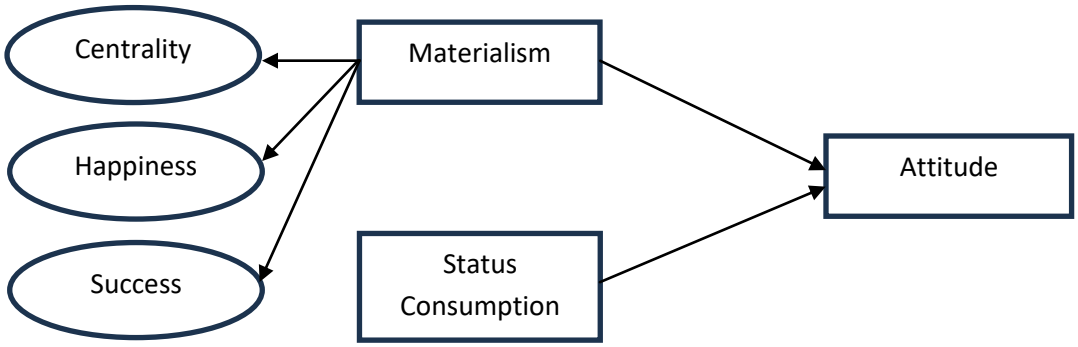
3. Research Methodology

In most cases, both secondary and primary data are used in data collection. Data collecting began with secondary data and progressed to primary data sources. Secondary data used in this analysis include statistics from the Department of Statistics, forgeries from the Ministry of Domestic Trade and Cost of Living, and others. By examining a sample of the population, a survey design can quantify or numerically describe the trends, attitudes, or opinions of the population. One of the most common ways to get primary data is through surveys, which allow researchers to gather data in a set of questions and answers format.

PLS-SEM was conducted as it provides more robust estimations of the structural model and has the ability to model latent variables under non-normality conditions (Hair et al., 2014). Furthermore, it also leads to more theoretical parsimony and reduces model complexity (Hair et al., 2014).

To gather crucial data about the respondents as well as their responses to the factors and circumstances within the framework of this study, the questionnaire prepared for this study is divided into several sections. Basic demographic details like gender, age, education level, and income are included in the information gathered. The variables under consideration for this study, such as attitude towards counterfeit goods, materialism, and status consumption, are covered in other sections.

Figure 1: Measurement Model



4. Results

This section presents sets of results relating to the profile of respondents together with previous counterfeit purchase experience. Data analysis is also presented which includes validity and hypothesis testing.

Profile of Respondents: Table 1 displays a summary of the characteristics of the total sample respondents based on their demographic factors. On the other hand, Table 2 shows the respondents' previous counterfeit purchase experience and product categories.

Table 1: Respondents' Profile

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	176	43.1%
Females	232	56.9%
AGE		
18-25	211	51.7%
26-30	68	16.7%
31-40	111	27.2%
>41	18	4.4%
EDUCATION		
SPM/STPM	69	16.9%
Diploma	129	31.6%
Degree	186	45.6%
Professional	5	1.2%
Others	19	4.7%

OCCUPATION		
Government	112	27.5%
Private sector	83	20.3%
Self-employed	6	1.5%
Student	203	49.8%
Unemployed	4	0.7%
INCOME		
Less than RM1,000	198	48.5%
RM1,001 – RM3,000	87	21.3%
RM3,001 – RM5,000	68	16.7%
RM5,001 – RM7,000	43	10.5%
More than RM7,000	12	2.9%
RACE		
Malay	354	86.6%
Chinese	18	4.4%
Indian	24	5.9%
Others	12	2.9%

Table 2: Respondents' Counterfeit Purchase Experience

PREVIOUS PURCHASE	FREQUENCIES	PERCENTAGE
Experience		
Yes	281	68.9
No	127	31.1
Product		
Clothing	192	29
Shoes	152	23
Sunglasses	98	14.8
Watch	104	15.7
Handbag	92	13.9
Others	24	3.6

Materialism in this study is conceptualized as higher-order components (HOC), which are measured based on the first-order construct (lower-order components or LOC). Conceptually, the LOC will form the dimension for HOC, which in this study consists of three first-order constructs, centrality, happiness, and success. For analysis purposes, a repeated indicator approach was used (Lohmoller, 1989; Wold, 1982). All the LOCs have a similar number of indicators, which are two each, and essential to ensure that the relationships between the HOCs and LOCs and reduced biases (Becker et al., 2012)

Convergent Validity: This involves the degree to which each indicator reflects a construct converging in comparison to indicators measuring other constructs. Average Variance Extracted (AVE) is the degree to which a latent construct explains the variance of its indicators (Hair et al., 2017). For convergent validity to be adequately achieved, each construct should account for at least 50 percent of the assigned indicators' variance (AVE ≥ 0.50) (Fornell & Larcker, 1981; Hair et al., 2017). Based on Table 3, all item loadings have values that are greater than 0.6 and have satisfied the minimum value for both AVE and CR.

Table 3: Convergent Validity for Materialism

DIMENSION	INDICATORS	ITEMS LOADINGS	FACTOR LOADINGS	AVE	CR
Materialism				0.638	0.841
Centrality	CENT1	0.828	0.747	0.686	0.814
	CENT2	0.829			
Happiness	HAP1	0.855	0.822	0.744	0.853
	HAP2	0.869			
Success	SUC1	0.912	0.825	0.834	0.909
	SUC2	0.914			

Discriminant Validity: This refers to the degree to which indicators differ across constructs or measure distinct concepts by examining the correlations between the measures of potentially overlapping (Ramayah et al., 2018). Table 4 shows the results in the form of AVE square root estimates, which show each value is higher than the correlations between the dimensions and resulting in the achievement of discriminant validity. This allows the relationships between higher-level constructs to be examined further.

Table 4: Discriminant Validity for Materialism

DIMENSION	CENTRALITY	HAPPINESS	SUCCESS
Centrality	0.828		
Happiness	0.467	0.862	
Success	0.409	0.499	0.913

Table 5: Reliability and Convergent Validity

CONSTRUCTS	ITEM	LOADINGS	CR	AVE
Attitude	ATT1	0.802	0.878	0.594
	ATT2	0.799		
	ATT3	0.850		
	ATT4	0.794		
	ATT5	0.581		
Status Consumption	SC1	0.927	0.826	0.504
	SC2	0.855		
	SC3	0.517		
	SC4	0.500		
	SC5	0.639		

Table 5 summarizes the reliability and convergent validity of attitude and status consumption. The measurement value of the constructs has adequate levels of convergent validity meeting the minimum level of 0.5 for AVE and 0.7 for CR (Hulland, 1999)

Table 6: Hypothesis Testing

RELATIONSHIP	STD BETA	T-VALUE	P VALUE	DECISION
Mat -> Att	0.132	2.4*	0.016	Supported
SC -> Att	0.116	0.85	0.396	Not supported

*Significant at $p<0.05$

From Table 6 above, the relationship between materialism and attitude, the results showed that there is a significant relationship at a five percent confidence level ($p<0.05$) with a *p*-value of 0.016 and *t*-value of 2.4, which is more than the critical value of 1.96. The relationship between status consumption and attitude on the other hand, showed that there is no significant relationship with *p* value of 0.396 and *t* value of 0.85, which is less than the critical value of 1.96.

Discussion: With regards to the relationship between materialism and attitude, previous findings have shown mixed results where there is no significant impact (Amran Harun et al., 2012; Phau et al., 2009) and some showed a significant impact (Furnham & Valgeirsson, 2007; Phau & Teah, 2009), for this study, it is significant. As mentioned previously, materialism in this study is conceptualized as HOC. Results showed that the dimension centrality has the highest mean which may suggest that respondents feel material things are central in the current stage of their lives. On the other hand, the happiness dimension investigates how respondents feel materialistic things give them a sense of joy. Based on the overall mean, respondents may agree that materialistic things can or may provide some sort of happiness for them. Lastly, the success dimensions gave an insight into how respondents feel that owning materialistic things is a testament to success in life.

Furthermore, the relationship between status consumption and attitude has been found to have no significant impact. Findings showed that respondents feel moderately neutral regarding the status of the product and how that might influence their consumption. This is also an indicator that the majority of respondents might

feel that the status of a product is irrelevant in developing a favorable attitude towards certain objects, in this case, counterfeit fashion products.

5. Managerial Implications and Recommendations

This study provides insights into the factors that may influence consumer attitudes toward counterfeit fashion products. Materialism is significant which may indicate that it is due to the impact of advertisements or may be due to the influence of marketing activities which ultimately gave rise to a materialistic culture within a society. Status consumption on the other has no significant impact on attitude, thus suggesting other factors such as price, may be a huge reason why consumers resort to purchasing counterfeit fashion products.

Awareness is crucial in terms of getting consumers to understand the negative impact of counterfeiting. Thus, companies and organizations, which include the government and its agencies, must play a crucial role in educating society and letting them know the implications of counterfeit activities. The introduction of subject or syllabus related to intellectual property may be introduced in schools or higher education institutions, to provide a better understanding of intellectual property and how it may influence businesses.

Conclusion: The conceptualization of materialism as higher-order modeling (HOM), which summarizes the LOCs into a single multidimensional HOC, allows researchers to include more general constructs represented by several components of dimension in PLS-SEM. The findings in this study suggest that material things are indeed influential in shaping not just consumers' attitudes, but also central in their lives, contributing to happiness, and as a measure of one's success. For status consumption, findings may suggest that there may be other demographic or psychographic factors that influence attitude. Additionally, what constitute "status goods" might differ based on different consumer generation, and the fashion industry is one of the more dynamic ones that constantly changes according to consumer's generational preference. For future research, other behavioral variables can be considered to look at the antecedent of attitude in various contexts. Multigroup consumer analysis can also be conducted, for example, to look at different consumer behavior from different demographic backgrounds.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. https://doi.org/10.1016/0749-5978 (91)90020-T

Ajzen, I. & Fishbein, M. (1980). Understanding attitude and predicting social behavior. Prentice Hall.

Allcott, H., Braghieri, L., Eichmeyer, S. & Gentzkow, M. (2020). The Welfare Effects of Social Media. *American Economic Review*, 110(3), 629–676.

Allport, G. W. (1935). Attitudes. In C. Murchison (Ed.), A Handbook of Social Psychology (pp. 798–844). Clark University Press.

Amran, H., Nurul Adzwina A. B., Norazah, M. S., & Zuhal, H. (2012). Why customers do not buy counterfeit luxury brands? Understanding the effects of personality, perceived quality and attitude on unwillingness to purchase. *Labuan E-Journal of Muamalat and Society*, 6, 14–29.

Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M. & Viratyosin, T. (2020). The Unprecedented Stock Market Reaction to COVID-19. *The Review of Asset Pricing Studies*, 10(4), 742–758.

Becker, J. M., Klein, K. & Wetzel, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. *Long Range Planning*, 45, 359–394.

Belk, R. W. (1997). Third World Consumer Culture. *Frontier Issues in Economic Thought*, 2, 311–313.

Cunningham, N. (2023). The role of social group influences when intending to purchase premium alcohol. *Cogent Business & Management*, 10(1).

Dalziel, R. & Sharp, K. L. (2023). The effect of variety seeking and status consumption on generation Y consumers' attitude toward beauty products: The mediating role of innovativeness. *Innovative Marketing*, 19(1), 208–219.

Eastman, J. K., Goldsmith, R. E. & Flynn, L. R. (1999). Status consumption in consumer behavior : Scale development and validation. *Journal of Marketing Theory and Practice*, 7(3), 41.

Fornell, C. & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50.

Furnham, A. & Valgeirsson, H. (2007). The effect of life values and materialism on buying counterfeit products. *The Journal of Socio-Economics*, 36(5), 677–685.

Habib, M. D. & Bekun, F. V. (2023). Does religiosity matter in impulsive psychology buying behaviors? A mediating model and empirical application. *Current Psychology*, 42(12), 9986–9998.

Hair, J., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2014). A primer on partial least squares structural equation modeling (PLS-SEM). Thousand Oaks, CA: SAGE Publications, Inc.

Hair, J. F., Hollingsworth, C. L., Randolph, A. B. & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems*, 117(3), 442–458.

Hulland, J. (1999). Use of Partial Least Squares (PLS) in Strategic Management Research: A Review of Four Recent Studies. *Strategic Management Journal*, 20(2), 195–204.

Khalek, S. A. & Chakraborty, A. (2023). Shared consumption and its determinants: A systematic literature review and future research agenda. *International Journal of Consumer Studies*, 47(3), 888–921.

Kozar, J. M. & Marcketti, S. B. (2011). Examining ethics and materialism with purchase of counterfeits. *Social Responsibility Journal*, 7(3), 393–404. https://doi.org/10.1108/17471111111154536

Lohmoller, J. B. (1989). Latent Variable Path Modeling with Partial Least Squares. Physica-Verlag.

Muncy, J. A. & Eastman, J. K. (1998). Materialism and consumer ethics : An exploratory study. *Journal of Business Ethics*, 17(2), 137.

Ministry of Domestic Trade and Cost of Living (2022). KPDN Main Statistics 2022, https://www.kpdn.gov.my/en/media-kpdnhep/penerbitan/statistik-utama-kpdn/2022-en.

Omar, M. K., Zakaria, A. & Mohamed, B. A. (2015). The Determinants of Employee Attitude towards e-HRM-A Study of Engineering Company in Malaysia. *Information Management and Business Review*, 7(4), 117–121.

Ozgen, O. & Esiyok, E. (2020). Consumer ethics, materialism and material satisfaction: A study on Turkish adolescent consumers. *International Journal of Consumer Studies*, 44(1), 14–24.

Phau, I., Sequeira, M. & Dix, S. (2009). Consumers' willingness to knowingly purchase counterfeit products. *Direct Marketing: An International Journal*, 3(4), 262–281. https://doi.org/10.1108/17505930911000865

Phau, I. & Teah, M. (2009). Devil wears (counterfeit) Prada: a study of antecedents and outcomes of attitudes towards counterfeits of luxury brands. *Journal of Consumer Marketing*, 26(1), 15–27. https://doi.org/10.1108/07363760910927019

Philips, T. (2007). Knockoff: The Deadly Trade in Counterfeit Goods: The True Story of the World's Fastest Growing Crime Wave. Kogan Page.

Ramayah, T., Cheah, J., Chuah, F., Ting, H. & Mumtaz, A. M. (2018). Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 3.0: An Updated and Practical Guide to Statistical Analysis (1st Ed.). Pearson Malaysia Sdn Bhd.

Ramesh, K., Saha, R., Goswami, S., Sekar. & Dahiya, R. (2018). Consumer's response to CSR activities: Mediating role of brand image and brand attitude. *Corporate Social Responsibility and Environmental Management*, 26(2), 377–387.

Richins, M. L. & Dawson, S. (1992). A consumer values orientation for materialism and its measurement: Scale Development and Validation. *Journal of Consumer Research*, 19(3), 303–316.

Schiffman, L. & Wisenbilt, J. L. (2019). Consumer Behavior (12th Ed.). Pearson.

Suttikun, C., Mahasuweerachai, P. & Bicksler, W. H. (2023). Marketing strategies in the age of <scp>COVID</scp> -19: An Attitude, Belief, Context Approach. *Family and Consumer Sciences Research Journal*, 51(4), 262–276.

Tangri, K. & Yu, H. (2023). Why buy used? Motivators and barriers for re-commerce luxury fashion. International Journal of Retail & Distribution Management.

Velandia-Morales, A., Rodríguez-Bailón, R. & Martínez, R. (2022). Economic Inequality Increases the Preference for Status Consumption. Frontiers in Psychology, 12.

Wang, R., Liu, H. & Jiang, J. (2022). Does Socioeconomic Status Matter? Materialism and Self-Esteem: Longitudinal Evidence from China. *Current Psychology*, 41(3).

Wold, H. O. A. (1982). Soft Modeling: The Basic Design and Some Extensions. In Systems Under Indirect Observation. Causality, Structure, Prediction (pp. 1–54). North-Holland.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Navigating the Future: Exploring the Nexus between Robo-Advisor Service Quality and Customer Satisfaction

Muhammad Azman Ibrahim*[1], Rafiatul Adlin Mohd Ruslan[2], Mohamad Fariz Abdullah[1], Arman Hj Ahmad[3]
[1]Department of Entrepreneurship and Marketing Studies, Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam Campus, Malaysia
[2]Department of Economics and Financial Studies, Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam Campus, Malaysia
[3]Department of Marketing, Centre for Woman Advancement & Leadership (CWAL), Universiti Kuala Lumpur Business School, Malaysia
*muhazman@uitm.edu.my

Abstract: Despite the plethora of research studies conducted on service quality and customer satisfaction in the realm of artificial intelligence, there remains a significant gap in the literature when it comes to robo advisors. Robo advisors, automated platforms that provide algorithm-based financial advice and investment management, are gaining popularity as an alternative to traditional financial advisors. Numerous research studies have been conducted concerning service quality and customer satisfaction in the context of artificial intelligence, yet none have specifically addressed robo-advisors. This research aims to fill the gap and shed light on the crucial aspects of service quality and customer satisfaction within the context of robo advisors. The study will examine the key determinants of service quality offered by robo advisors, considering factors such as the accuracy of financial advice, user interface design, response time, transparency, and communication efficiency. Furthermore, the research seeks to investigate the factors influencing customer satisfaction in their interactions with robo advisors. It will explore the users' perception of robo advisors' reliability, trustworthiness, personalized experience, and the level of control they have over their investments. The outcomes of this research are expected to contribute valuable insights into understanding the strengths and weaknesses of robo-advisors concerning service quality and customer satisfaction. This study is expected to benefit financial service providers, policymakers, and investors by identifying the areas of improvement for robo advisors and enhancing the overall customer experience.

Keywords: *robo-advisor, investing platform, service quality, customer satisfaction, investors.*

1. Introduction and Background

In the rapidly evolving landscape of financial services, Robo-advisors have emerged as technologically advanced platforms that offer automated and personalized investment advice. The rise of robo-advisors has become a huge phenomenon in the financial sector, significantly altering the way people engage in investment activities and manage their portfolios (Ruslan et al., 2022). Without a doubt, the impact of robots and artificial intelligence (AI) is already seen in a variety of industries, including manufacturing, retail, and services (Belanche et al., 2019). According to (Wirtz et al., 2018), service robots differ from autonomous AI software in their ability to participate in complicated activities in both virtual and physical contexts, as well as their ability to learn and develop over time. In recent times, robo-advisors have been recognized as a significant innovation in the present era (Fisch et al., 2018). A multitude of scholarly investigations have explored the effects and importance of robo-advisors in contemporary finance (Brenner & Meyll, 2020; Seiler & Fanenbruck, 2021; Shanmuganathan, 2020;). The continuous progress in artificial intelligence (AI) and the constantly changing financial technology (fintech) environment are expected to contribute significantly to the increased acceptance and improvement of robo-advisory services in the foreseeable future. The study conducted by Kommers (2023) assessed the efficacy of robo-advisors in building investment portfolios. In the study, it utilized three robo-advisory platforms to examine the effectiveness issues of emerging advisory services. Additionally, the study concluded that different robo-advisors employ varying methodologies, investment philosophies, and risk management techniques, leading to differences in portfolio composition and risk/return profiles for investors with similar risk preferences. Shanmuganathan (2020) conducted a study to examine the policy implications of fintech and robo-advisors in the context of financial markets. In addition, the study conducted by How et al., (2020) encompassed a comprehensive global survey that aimed to investigate the extent to which artificial intelligence contributes to the advancement of financial inclusion.

The banking and finance sectors have been leading in the implementation of AI-driven automation processes, thereby emphasizing the increasing importance of robo-advisors within this domain. The study conducted by Shanmuganathan (2020) examined the influence of robo-advisors on the trading behavior of individual investors, providing insights into the behavioral dimensions associated with the utilization of these platforms. In addition, undertook a thorough examination of robo-advisors and examined potential future trajectories within the domain. The finance industry has undergone significant transformation in the past decade due to the emergence of financial technology. Scholars such as Flavián et al. (2022), Goldstein et al. (2019), and Huang & Rust (2021) have conducted studies to investigate the impact of fintech, particularly robo-advisors, on enhancing user value and firm revenues.

The Development of Robo-Advisor in Malaysia: In Malaysia, the rise of robo-advisors has also resulted in substantial financial breakthroughs. Malaysia, a lively and rapidly growing Southeast Asian economy, has seen a growth in the use of fintech solutions such as robo-advisors to fulfil its populace's diverse investing needs (Ruslan, Ibrahim, and Abd. Hamid, 2022). In recent years, a number of domestic and international robo-advisory platforms have launched operations in Malaysia, providing automated and algorithm-based financial services to ordinary people. These platforms frequently provide a user-friendly interface through which users can answer risk tolerance and financial goal-related questions, based on which the robo-advisor constructs and manages a diversified investment portfolio tailored to the individual's needs. The growing popularity of robo-advisors in Malaysia has introduced diverse platforms with varying features (see Table 1). As these features of each robo-advisor can significantly influence the quality of robo-advisory services, they may subsequently impact customer satisfaction levels. The growing presence of robo-advisors in Malaysia has focused emphasis on service quality and its impact on client satisfaction in the financial industry. As robo-advisory platforms gain popularity among investors, their ability to provide personalized financial advice while also providing a flawless user experience has become a crucial variables impacting client happiness.

The Malaysian Securities Commission (SC) has been proactive in fostering fintech innovation, including robo-advisory services, through its regulatory sandbox strategy. This strategy allows robo-advisory platforms to operate in a controlled environment, allowing them to test their services with a limited number of clients before obtaining full regulatory approval (Gan, Khan & Liu, 2021). This has benefited new entrants while also encouraging current financial institutions to enter the robo-adviser industry.

Table 1: List of Robo-Advisors Available in Malaysia

Platform	Year of Launched
Akru	2020
Best Invest	2020
MyTheo	2019
Raiz	2020
StashAway	2018
Wahed Invest	2019
KDI Invest	2022

The relevance of platform reliability, ease of use, and the accuracy of investment advice have been underlined in studies assessing service quality and customer satisfaction (Kundu & Datta, 2015). Numerous studies have concentrated on determining how successfully robo-advisors fit their recommendations with investors' risk preferences and financial goals, as this has a direct impact on client satisfaction with the service.

In Malaysia, robo-advisors are well-positioned to provide cost-effective investment solutions, making them appealing options for retail investors wanting professional guidance without the high fees associated with traditional wealth management services. As a result, client happiness has been inextricably tied to the perceived value and affordability of robo-advisory platforms (Rasiwala & Kohli, 2018).

There have also been studies that look at the impact of robo-advisory services on investment behavior and financial inclusion in Malaysia. Local academics and professionals have been investigating how robo-advisors have altered the investing scene and whether they have democratized access to investment options for a broader segment of the public.

The Malaysian financial industry's regulatory sandbox strategy has also had a substantial impact on robo-advisory service quality. As platforms are tested and refined during the sandbox period, the emphasis shifts to improving user experience and filling potential service gaps (Gan et al., 2021). This iterative method enables robo-advisors to respond to consumer input and enhance service quality, resulting in increased levels of customer satisfaction. Policymakers, regulators, and market participants are keeping a close eye on Malaysia's robo-advisory business as it expands and evolves. The potential benefits of robo-advisors, such as cost-effectiveness, accessibility, and portfolio diversification, are being balanced against the risks and challenges that they bring, such as data security, regulatory compliance, and investor education (Gan et al., 2021).

Despite the numerous benefits that robo-advisors provide, consumer happiness is not only determined by technological solutions. For Malaysian investors, the availability of responsive customer assistance and effective communication channels for query resolution has emerged as an important part of service quality. According to studies, providing accessible customer support can favorably improve customer satisfaction and establish long-term client connections (Gan et al., 2021). Furthermore, robo-advisors are altering how Malaysians invest and manage their money. The incorporation of robo-advisory services into the Malaysian financial industry demonstrates the country's commitment to fostering fintech innovation and making the benefits of technological advances in finance available to a broader public. As the market matures, robo-advisors will play an increasingly crucial role in shaping Malaysia's financial environment, making customized investment solutions more accessible and simple for Malaysian investors.

Numerous research studies have been conducted concerning service quality and customer satisfaction in the context of artificial intelligence (Alsmadi, 2023). The introduction of robo-advisory services in Malaysia has added new dimensions to the financial industry's service quality and consumer happiness. As these platforms improve and incorporate user feedback, their capacity to provide personalized investment advice, dependability, and cost-effectiveness will become increasingly important in evaluating client satisfaction levels. Robo-advisory platforms may increase their market position and contribute to the general growth and development of Malaysia's fintech ecosystem by prioritizing service quality and investing in customer support.

A potential research gap in the area of service quality in robo-advisory services in Malaysia could be the investigation of the role of user interfaces and personalized communication in enhancing customer satisfaction. While existing studies have acknowledged the significance of service quality in customer satisfaction, there is a need to delve deeper into the specific elements of robo-advisory platforms that contribute to a positive user experience (Setiyawati & Bangkalang, 2022). Exploring how user-friendly interfaces and interactive communication channels impact investor engagement and satisfaction could provide valuable insights into optimizing service delivery. Understanding which design features and communication methods resonate most with investors, especially those with varying levels of financial literacy, can help robo-advisory platforms refine their offerings to cater to a broader user base.

Furthermore, examining how robo-advisors utilize client data to offer personalized investment recommendations and how investors perceive the level of personalization in their portfolio allocation could be a relevant research area. Investigating the extent to which investors feel that their unique financial goals and risk preferences are accurately reflected in the platform's investment strategy could shed light on the effectiveness of robo-advisory services in delivering personalized solutions. Addressing these research gaps would advance our understanding of the factors that contribute to service quality in robo-advisory platforms specifically in the Malaysian context. The findings could assist robo-advisory providers in optimizing their services and enhancing customer satisfaction, ultimately contributing to the growth and adoption of robo-advisory solutions in the Malaysian financial market.

2. Literature Review

User interface (UI) Usability: Usability relates to ease of use, learning, and user satisfaction which is one of the crucial attributes in designing a product. Alshira'h (2020) explains that usability has a positive role in user satisfaction of e-government websites in Jordan. Besides having a positive effect on user satisfaction, usability such as simplicity and ease of use make the human-computer interaction more efficient for the gap

between the human and the computer, and the software becomes closer with a good interface, making the use of application more effective (Setiyawati & Bangkalang, 2022). User interface usability refers to the ease of use and navigation of the robo-advisory platform. A well-designed and intuitive user interface enhances investors' experience, enabling them to efficiently access information, interact with the platform, and understand the investment recommendations. A user-friendly interface with clear and concise instructions can reduce user errors and frustrations, leading to higher levels of customer satisfaction (Setiyawati & Bangkalang, 2022).

Personalization: The personalization construct has been commonly identified as a major service quality dimension by some studies on m-shopping service quality, in which the construct's scale items have been largely adapted from SERVQUAL's empathy dimension (Zhang, Jun & Palacios (2023). The personalization attribute in m-shopping service quality is closely related to SERVQUAL's empathy. Personalization is concerned with the degree to which an m-retailer and individual employees attend to, understand and adapt to the specific needs of individual customers (Cameron et al., 2012; Parasuraman et al., 1988). Personalization is a critical aspect of service quality in robo-advisory services. It involves tailoring investment recommendations based on individual investors' unique financial goals, risk tolerance, and investment preferences. A platform that can effectively incorporate these personalized elements into its investment strategies is more likely to provide recommendations that align with the investors' specific needs and aspirations. Studies have shown that investors perceive personalized recommendations positively, leading to increased customer satisfaction and engagement.

Effective Communication: Preece and Ghozati (2001) have maintained that providing individual care and attention is a crucial ingredient in effective buyer–seller communication regardless of the medium used. Whereas traditional retailers could meet consumers' desire for personalization in interpersonal-based service encounters, online retailers would need data mining, modeling and sometimes great expenditure to deliver personalized customer service (Lee and Park, 2009). Huang and Zhou (2018) view personalization as an automated process including identifying consumers, collecting consumers' behavioral records, analyzing consumers' preferences and tailoring content and service for each consumer. Clearly, based on mobile technologies, many online retailers tend to provide personalized customer service (e.g. location-based services), which has become the key component in attaining a competitive edge in the marketplace (Ho, 2012; Xu et al., 2011; Zou and Huang, 2015). In other words, service personalization is expected to enhance customers' patronage and actual purchase intentions through venues featuring the service (Lee and Park, 2009). Effective communication is another dimension of service quality in robo-advisory services. Communication involves keeping investors informed about their portfolio performance, market updates, and changes in investment strategies. Timely notifications, alerts, and relevant updates help investors stay informed and maintain a sense of control over their investments. Moreover, personalized communication that addresses investors' concerns and questions can lead to greater satisfaction and confidence in the robo-advisor's services.

Data Security: Service quality refers to the extent to which a user perceives the overall quality of services for timely assisting users in solving problems from an information security and information technology (Ahn et al., 2007; Kim, Lee & Law, 2008). First, when users can acquire adequate and superior support services for users' information security and information technology usage, it will be perceived as useful among users (Lee, 2010). If financial services information security and information technology can provide users with high and satisfactory service quality, such high-quality services will likely lead to a high level of users' perceived usefulness (Rahi and Ghani, 2019). Next, users' perceptions of service quality of information security and information technology exceed their expectations, thus resulting in higher confirmation (Park, 2020). Finally, high service quality of the information security and information technology will be likely to make users get immersed in their usage and enjoy their usage intensely (Ahn et al., 2007; Cheng, 2023).

In general, marketing interactions embrace the central tenets of exchange (Bagozzi, 1975) and agree that the data collection and usage by robo-advisors follow the same idea. Given the risks incurred from personal information sharing, consumers' perceptions of fairness are critical to robo-advisor usage (Slepchuk et al., 2022). To explain, consumers' information shared during robo-advisor usage constitutes an input of exchange. In return, they would expect outcomes such as better investment performance through robo-

advisors. Thus, consumers' privacy and intrusiveness concerns will be considered in a fairness/justice judgment (Aw, Leong, Hew, Rana, Tan & Jee, 2023). In addition, data security is crucial in robo-advisory services, as these platforms collect and analyze sensitive personal and financial information from investors. A robust data security infrastructure, including encryption protocols, secure data storage, and protection against cyber threats, is essential to instill trust and confidence among investors. Research has shown that investors prioritize data security when choosing a robo-advisor and a platform with a strong focus on data protection can positively influence customer satisfaction.

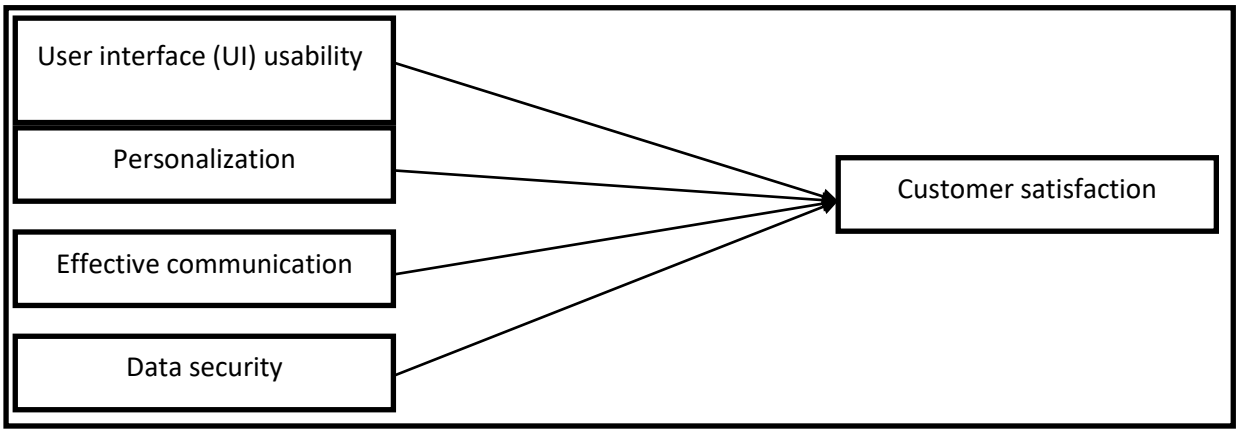
Customer satisfaction: According to Kotler and Keller (2006), customer satisfaction refers to an individual's assessment of their happiness or discontent with a product or service based on their expectations. Customer satisfaction is critical in the context of robo-advisory services since it directly influences long-term reactions such as buying behavior, spending patterns, and overall platform experience. Because robo-advisory services are technology-based and provide linked financial services, customer happiness becomes even more important, considerably determining the company's success or failure.

Oliver and Swan's (1989) disconfirmation theory of consumer expectations coincides with the concept of customer satisfaction in robo-advisory services. Satisfaction occurs when an investor's experience with a robo-advisor exceeds their initial expectations (positive disconfirmation). On the other hand, discontent occurs when the experience falls short of expectations (negative disconfirmation). Positive disconfirmation may occur in the context of robo-advisory services when investors discover personalized and high-performing investment advice that corresponds with their financial goals. Negative disconfirmation, on the other hand, could emerge from gaps between the platform's promises and actual performance.

Customer satisfaction for robo-advisors is defined by the delicate balance between investors' expectations and their actual experiences with the platform's products and services (Khazaei, Manjiri, Samiey & Najafi, 2014). Customer satisfaction is increased when user interface usability, personalization, communication, and data security meet or exceed investor expectations. A well-designed and user-friendly interface that provides personalized investing options based on investors' risk tolerance and financial goals might lead to better levels of satisfaction. Furthermore, excellent communication and comprehensive explanations of the platform's algorithms and investing strategies can create trust and confidence, which can lead to increased client satisfaction.

Customer happiness is critical in investors' decision-making and commitment to a specific platform as robo-advisory services continue to transform the financial landscape. Satisfied investors are more inclined to follow the platform's suggestions, repeat investments, and engage in word-of-mouth referrals, all of which contribute to the platform's growth and success. As a result, for robo-advisory providers aiming to prosper in the competitive fintech sector, encouraging customer happiness through consistent service quality and meeting investors' expectations becomes a strategic priority. Therefore, a conceptual framework is developed to determine the relationship between robo-advisor service quality and customer satisfaction (see Figure 1).

Figure 1: Conceptual Framework



3. Research Methodology

This study looks into the relationship between robo-advisor service quality and customer satisfaction. The study was carried out empirically, with data obtained from convenience sample participants in the Klang Valley area. An online questionnaire was used to collect the data, which was chosen for its ease of use in large population research (Saunders, Lewis, & Thornhill, 2009). The questionnaire sought to ascertain participants' knowledge, perceptions, and behaviors.

Likert scales with a strong disagreement anchor were employed in the survey, which is a frequently used and effective tool for examining attitudes and behaviors in organizational research (Sekaran & Bougie, 2016). The questionnaire was meticulously constructed based on available research and was in line with the overall goal of the study. A pre-test was undertaken with a small number of clients before its complete administration to ensure clarity and detect any potential biases (Sekaran & Bougie, 2016).

Furthermore, Structural Equation Modeling (SEM) was used in the data analysis, which included indicators, latent variables, and measurement errors. Because of its higher performance when compared to other methods, SmartPLS 4.8.4 was chosen as the ideal tool for analyzing Partial Least Squares (PLS) data. SEM facilitated the examination of correlations between latent variables, allowing for successful theory-data research. Given the limited sample size and the use of diverse indicator types, such as categorical, ordinal, interval, and ratio scales, the PLS approach was chosen most appropriate for ensuring the study's analytical validity.

4. Managerial Implications and Recommendations

The research emphasizes the significance of enhancing the quality of robo-advisor services. Firms must prioritize the optimization of user experience, guarantee the accuracy and reliability of guidance, and offer recommendations that are timely and relevant. Consistently monitoring and evaluating service quality by means of client feedback and data analytics can facilitate the identification of areas that require enhancement. Robo-advisor providers should prioritize improving their service quality to ensure higher customer satisfaction. This research highlights the significance of service quality dimensions such as efficiency, reliability, responsiveness, security, and personalized advice. Allocating resources and efforts to enhance these aspects will likely result in increased customer satisfaction and loyalty. Additionally, understanding the features that customers value the most can guide robo-advisor providers in aligning their offerings with customer needs. Analyzing customer preferences revealed in this research can inform the development of tailored features, leading to enhanced customer satisfaction.

5. Conclusion

In conclusion, this research is expected to study the nexus between robo-advisor service quality and customer satisfaction, shedding light on critical factors that influence investors' perceptions and experiences with these automated investment platforms. Through a comprehensive analysis of service quality dimensions, including efficiency, reliability, responsiveness, security, and personalized advice, we have gained valuable insights into the key drivers of customer satisfaction in the robo-advisor industry. In conclusion, the exploration of the nexus between robo-advisor service quality and customer satisfaction will provide valuable contributions to the understanding of investors' experiences. Service quality plays a pivotal role in shaping customer satisfaction levels. Robo-advisor providers must prioritize enhancing their service quality to meet customer expectations and foster long-term relationships with investors. An intuitive and user-friendly interface, combined with proactive customer support and transparent communication on data security and investment strategies, emerged as essential components in ensuring a positive user experience.

Moreover, personalization and customization might emerge as crucial elements in the satisfaction equation. Customers highly value robo-advisors that cater to their unique financial goals and risk preferences, underscoring the significance of leveraging technology to offer personalized recommendations and tailored investment solutions. The implications of this research extend beyond academic insights; and will offer actionable managerial strategies for robo-advisor providers. The managerial implications emphasize the

importance of continuous monitoring of service quality, streamlined user experiences, competitive benchmarking, and regular customer feedback collection to stay attuned to customer needs and preferences. As the robo-advisor industry in Malaysia continues to evolve, providers need to embrace these recommendations and adapt their strategies accordingly. Enhancing service quality and aligning features with customer needs will be instrumental in gaining a competitive edge and building lasting customer loyalty. In conclusion, the exploration of the nexus between robo-advisor service quality and customer satisfaction has illuminated critical dimensions that significantly impact investors' experiences. By embracing the managerial implications derived from this research, robo-advisor providers can enhance their service offerings, cater to customer preferences, and foster enduring relationships, thereby cementing their position in the competitive landscape of the Malaysian robo-advisor market.

References

Ahn, T., Ryu, S. & Han, I. (2007). The impact of web quality and playfulness on user acceptance of online retailing, *Information and Management,* 44(3), 263-275.

Alshira', H. M. (2020). The Effects of Usability and Accessibility for E-Government Services on the End-user Satisfaction. International Association of Online Engineering. Retrieved August 6, 2023 from https://www.learntechlib.org/p/217847/.

Alsmadi, L., E. Al-Amayreh, J. Kasem & Al-Gasaymeh, A. S. (2023). Impact of Robo-advisors and Artificial Intelligence on Customer Service Performance at Personal Finance Industry, 2023 International Conference on Business Analytics for Technology and Security (ICBATS), Dubai, United Arab Emirates, 1-5, doi: 10.1109/ICBATS57792.2023.10111364.

Aw, E. C. X., Leong, L. Y., Hew, J. J., Rana, N. P., Tan, T. M. & Jee, T. W. (2023). Counteracting dark sides of robo-advisors: justice, privacy and intrusion considerations. International Journal of Bank Marketing.

Bagozzi, R. P. (1975). Marketing as exchange, Journal of Marketing, 39(4), 32-39.

Belanche, D., Casaló, L. V. & Flavián, C. (2019). Artificial Intelligence in FinTech: Understanding Robo-advisors Adoption Among Customers. *Industrial Management & Data Systems*, 119(7), 1411–1430. https://doi.org/10.1108/IMDS-08-2018-0368

Brenner, L. & Meyll, T. (2020). Robo-advisors: A substitute for human financial advice? *Journal of Behavioral and Experimental Finance*, 25, 100275. https://doi.org/10.1016/j.jbef.2020.100275

Cameron, D., Gregory, C. & Battaglia, D. (2012). Nielsen personalizes the mobile shopping app: if you build the technology, they will come, *Journal of Advertising Research*, 52(3), 333-338.

Cheng, Y. M. (2023). How can robo-advisors retain end-users? Identifying the formation of an integrated post-adoption model. *Journal of Enterprise Information Management*, 36(1), 91-122.

Fisch, J. E., Labouré, M. & Turner, J. A. (2018). The Emergence of the Robo-advisor (Wharton Pension Research Council Working Papers).

Flavián, C., Pérez-Rueda, A., Belanche, D. & Casaló, L. V. (2022). Intention to Use Analytical Artificial Intelligence (AI) In Services – The Effect of Technology Readiness and Awareness. *Journal of Service Management,* 33(2), 293–320. https://doi.org/10.1108/JOSM-10-2020-0378

Gan, L. Y., Khan, M. T. I. & Liew, T. W. (2021). Understanding Consumer's Adoption of Financial Robo-Advisors at The Outbreak of The COVID-19 Crisis in Malaysia. *Financial Planning Review,* 2021, 4(e1127), 1–18. https://doi.org/10.1002/cfp2.1127

Goldstein, I., Jiang, W. & Karolyi, G. A. (2019). To FinTech and Beyond. *The Review of Financial Studies*, 32(5), 1647–1661. https://doi.org/10.1093/rfs/hhz025

Ho, S. Y. (2012). The effects of location personalization on individuals' intention to use mobile services", Decision Support Systems, 53(4), 802-812.

How, M., Cheah, S., Khor, A. C. & Chan, Y. J. (2020). Artificial Intelligence-Enhanced Predictive Insights for Advancing Financial Inclusion : A Human-Centric AI-Thinking Approach.

Huang, J. & Zhou, L. (2018). Timing of web personalization in mobile shopping: a perspective from uses and gratifications theory, *Computers in Human Behavior,* 88, 103-113.

Huang, M. H. & Rust, R. T. (2021). Engaged to a Robot? The Role of AI in Service. *Journal of Service Research*, 24(1), 30–41. https://doi.org/10.1177/1094670520902266

Khazaei, A., Manjiri, H., Samiey, E. & Najafi, H. (2014). The effect of service convenience on customer satisfaction and behavioral responses in the bank industry. *International Journal of Basic Sciences & Applied Research*, 3(1), 16-23.

Kim, T. G., Lee, J. H. & Law, R. (2008). An empirical examination of the acceptance behavior of hotel front office systems: an extended technology acceptance model, *Tourism Management*, 29(3), 500-513.

Kommers, D. (n.d.). The role of robo-advising in the asset management industry : a study on differences in robo-advised portfolio compositions for investors with similar risk CC-BY-NC.

Kotler, P. & Keller, K. L. (2006). Marketing management, twelfth ed., Upper Saddle River, Pearson Prentice Hall, New Jersey, 809.

Kundu, S. & Datta, S. K. (2015). Impact of trust on the relationship of e-service quality and customer satisfaction. *EuroMed Journal of Business*, 10(1), 21-46.

Lee, E. J. & Park, J. K. (2009). Online service personalization for apparel shopping, *Journal of Retailing and Consumer Services*, 16(2), 83-91.

Lee, J. W. (2010). Online support service quality, online learning acceptance, and student satisfaction, *The Internet and Higher Education*, 13(4), 277-283.

Setiyawati, N. & Bangkalang, D. H. (2022, September). The Comparison of Evaluation on User Experience and Usability of Mobile Banking Applications Using User Experience Questionnaire and System Usability Scale. In *Proceedings*, 82(1), 87). MDPI.

Rahi, S. & Ghani, M. A. (2018). The role of UTAUT, DOI, perceived technology security and game elements in internet banking adoption, World Journal of Science, *Technology and Sustainable Development*, 15(4), 338-356.

Rasiwala, F. & Kohli, B. (2019). A Study on the Awareness and Perception of Robo Advisory Services Among Investors in Pune City. In Proceedings of 10th International Conference on Digital Strategies for Organizational Success.

Ruslan, R. A. H. M., Ibrahim, M. A. & Hamid, H. A. (2022). Application of artificial intelligence in fintech: the decision of youth investors to use robo-advisor platform as micro-investing alternative. *Journal of Entrepreneurship, Business and Economics*, 10(2S2), 38–54.

Oliver, R. L. & Swan, J. E. (1989). Equity and disconfirmation perceptions as influences on merchant and product satisfaction. *Journal of Consumer Research*, 16(3), 372-383.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality, *Journal of Retailing,* 64(1), 12-40.

Park, E. (2020). User acceptance of smart wearable devices: an expectation-confirmation model approach, *Telematics and Informatics*, 47, 101318, April

Preece, J. & Ghozati, K. (2001). Experiencing empathy online, in Preston, C.M. (Ed.), The Internet and Health Communication: Experiences and Expectations, Sage, Thousand Oaks, CA, 147-166.

Saunders, M., Lewis, P. & Thornhill, A. (2009). Research methods for business students. Pearson education.

Seiler, V. & Fanenbruck, K. M. (2021). Acceptance of digital investment solutions: The case of robo advisory in Germany. *Research in International Business and Finance*, 58(May), 101490. https://doi.org/10.1016/j.ribaf.2021.101490

Sekaran, U. & Bougie, R. (2016). Research methods for business: A skill building approach. John Wiley & Sons.

Shanmuganathan, M. (2020). Behavioral finance in an era of artificial intelligence: Longitudinal case study of robo-advisors in investment decisions. *Journal of Behavioral and Experimental Finance*, 27, 100297. https://doi.org/10.1016/j.jbef.2020.100297

Slepchuk, A. N., Milne, G. R. & Swani, K. (2022). Overcoming privacy concerns in consumers' use of health information technologies: a justice framework, *Journal of Business Research*, 141, 782-793.

Wirtz, J., Patterson, P. G., Kunz, W. H., Gruber, T. & Paluch, S. (2018). Brave New World : Service Robots in The Frontline World. *Journal of Service Management*, 29(5), 907–931. https://doi.org/10.1108/JOSM-04-2018-0119

Zhang, R., Jun, M. & Palacios, S. (2023). M-shopping service quality dimensions and their effects on customer trust and loyalty: An empirical study. *International Journal of Quality & Reliability Management*, 40(1), 169-191.

Zou, X. & Huang, K. W. (2015). Leveraging location-based services for couponing and Infomediation, *Decision Support Systems*, 78, pp. 93-103.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Bibliometric Analysis of Technopreneurship Research in Scopus Database

Nur Atiqah Zakiyyah Ramlee*, Lina Nadia Abd Rahim, Hardy Loh Rahim & Nursaadatun Nisak Ahmad
Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
*nurat3842@uitm.edu.my, linanadia@uitm.edu.my, hardy@uitm.edu.my, nursa040@uitm.edu.my

Abstract: Post Covid-19 outbreak has shown a growing trend in technology adoption. Instantaneously, the research on technology entrepreneurship has surged to shed light on the impact of this research on the national economy. This research aims to explore research papers specifically research journal articles on technopreneurship that were published in the Scopus database. 489 and 106 documents were found in the Scopus database on the query of technology entrepreneurship and technopreneurship and were extracted to VOSviewer for data visualization. Key themes were identified using co-word or co-occurrence analysis, and relevant future study directions were demonstrated.

Keywords: *Technology entrepreneurship research, technopreneurship research, bibliometric, Scopus, VOSviewer, and co-word analysis.*

1. Introduction

Research on technology entrepreneurship or technopreneurship has been conducted by various researchers all over the world since the term was first used in 1968 to discuss the role of developing entrepreneurship that interacts with technology. The objective of this research is to explore research papers specifically research journal articles on technopreneurship that were published in Scopus. The data extracted from the Scopus database and search query was refined and intended to focus on technopreneurship and technology entrepreneurship. The VOSviewer software was opted for this study to envision the terms technology entrepreneurship and technopreneurship research. Previous studies on technology entrepreneurship have been conducted by scholars from various countries and the research has been published in various platforms such as conferences, conceptual papers, matrix analysis, empirical research, problem identification, etc. Bibliometric research is the analysis of the literature on a specific topic that extends beyond just compiling scientific texts and their contributions to theory and practice (Rodrigues, Daniel, and Franco, 2022). Mentzer and Kahn (1995) stated the critical value of summarizing.

The literature on the issue is under consideration and identifying gaps and developing routes for future study, with the main goal of contributing to the advancement of scientific knowledge on the subject. According to Elisabetta et al. (2019); and Geng et al. (2017), in the context of quantitative studies, bibliometric is a statistical analysis approach that is useful for assessing the research outputs, relevance, and impact exerted by authors, colleges or universities, journals, and so on within the area of study. According to Yordanova et al. (2020); and Beckman et al. (2012), technopreneurship is a combination of technology entrepreneurship that indicates entrepreneurship emerges entrepreneurship and also technology-based innovation. It contributes to the improvement and expansion of the firm by resulting in higher revenue from an improved product by employing technology (Gebrekidan, 2023). Various scholars used technopreneurship in their literature, while several others used the term technology entrepreneurship in their study. Hence, this study will analyze both key terms to get a clear visual of the trend in this research area.

2. Literature Review

Technopreneurship is a combination of technology and entrepreneurship. The key term has been used by many researchers since 1983, the year it was introduced. Byers (1983) defines technopreneurs as entrepreneurs who are technologically knowledgeable and employ technology in the entrepreneurship process. Technology entrepreneurship is defined as the establishment of a new firm with goods or services that are based substantially on the application of scientific or technological knowledge (Yordanova, 2021; Allen, 1992). Technopreneurship has been referred to by multiple names, including technology entrepreneurship, techno-entrepreneurship, technical entrepreneurship, and technology entrepreneurial ecosystems (Therin, 2007). In the age of technological digitization, an increasing number of technology

enterprises contribute to the economy and provide job opportunities, leading educational institutions to develop technopreneurs programs to instill entrepreneurial behavior in students (Hoque et al., 2017; Barbe, Magids, and Thornton, 2003). Technopreneurship is defined as the act of breaking the conventional economic order by developing new goods or services and utilizing new raw materials to capitalize on untapped prospects (Selladurai, 2016). According to the author, a technopreneur is someone who is technologically knowledgeable, has a creative mindset, is an optimist, and is courageous and enthusiastic about pursuing a road that has never been explored.

In the business world, the rise of technopreneurship is considered an economic development engine, as technology innovation typically improves the quality of life and provides more convenience, while also opening up new prospects for firms. According to Yordanova (2021), encouraging technopreneurship is critical since creating technologies may increase wealth value creation and economic growth. There has been limited research on technopreneurship in the academic sphere. Zhang et al. (2008), Koe et al. (2020), and Boller (2018) have agreed on this. Meanwhile, Yordanova (2021) and Mosey et al. (2017) propose more studies on the role of entrepreneurial education and university efforts in the development of talent and personal experience related to technology entrepreneurship. According to several recent studies, further research is needed to understand how colleges might support student entrepreneurship. According to Yordanova (2021), understanding ways for unleashing technical potential and boosting technological entrepreneurship among STEM students may both be obtained via study on technological processes.

3. Methodology

The data extracted from the Scopus database analyze search results that query the code TITLE-ABS-KEY (“technopreneurship”) and TITLE-ABS-KEY ("technology entrepreneurship"). The data was retrieved on 1st June 2023 and the result shows 106 documents for the keyword technopreneurship and 489 documents for the keyword technology entrepreneurship. It shows that most of the research tends to use technology entrepreneurship rather than technopreneurship, however, the number of documents is expected to increase from time to time. In addition, the VOSviewer software is also being used for data collection to analyze the co-authorship networks, co-occurrence, and keyword networks. For that purpose, query expansion (QE) was employed to refine the obtained literature based on the operational definition. The research objective is to explore research in the context of technopreneurship and technology entrepreneurship that was published in Scopus. For the QE process, the search string was used as follows: TITLE-ABS-KEY ("technology entrepreneurship") ensure the documents shown that may have the elements of significant usage such as printed books, e-learning, and database systems exhibit the co-occurrence of technology entrepreneurship documents.

4. Research and Discussion

Figure 1 shows that the first research article on technology entrepreneurship was published in 1969 with 489 search results. When the search string TITLE-ABS-KEY (technology AND entrepreneurship) is used, it shows that the first paper was published in 1968 with 9801 documents shown. On the other hand, for the technopreneurship keyword, the result shows that the keyword was first used in 2000, with 106 documents shown (refer to figure 2). This indicated that the word technopreneurship which is a combination of technology and entrepreneurship was first published in Scopus in the year 2000 by Arora VK. As shown in Figure 1, the search result for the keyword ‘technology entrepreneurship’ shows that 50 documents were published in 2019 which was the greatest number, followed by 45 documents the following year. The third and fourth highest number of documents was published in 2022 and 2014, with 39 and 38 documents respectively. Meanwhile, Figure 2 shows that the greatest number of documents published about technopreneurship was in 2020 with 17 documents, followed by 14 documents in both the years 2021 and 2022. Looking at this trend, the COVID-19 pandemic that started in 2019 has made research on technology entrepreneurship more popular as the world has shifted to digital transformation.

Figure 1: Screenshot of Scopus Document by Year for Technology Entrepreneurship Keyword

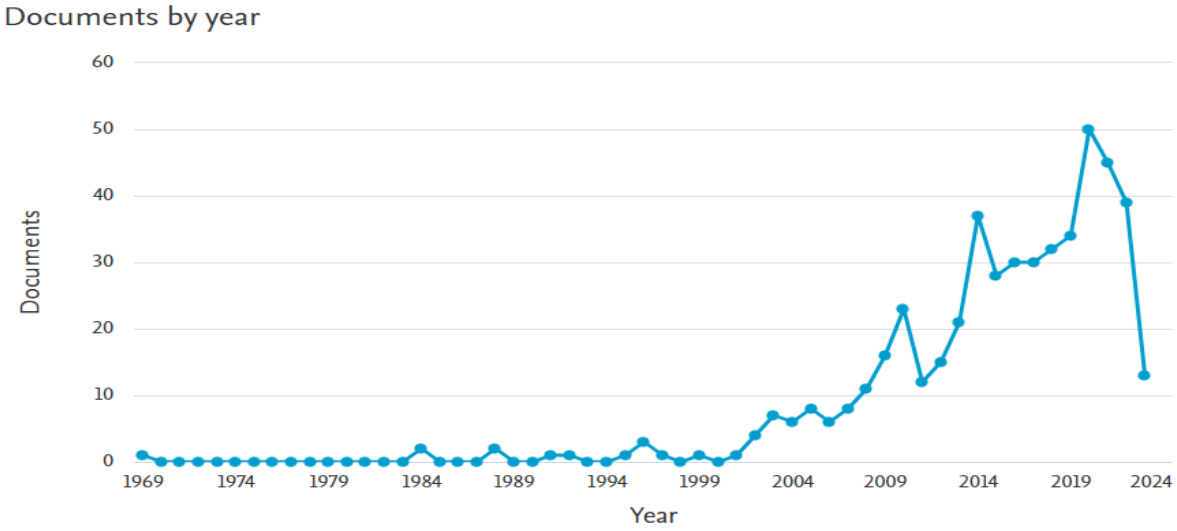


Figure 2: Screenshot of Scopus Document by Year for Technopreneurship Keyword

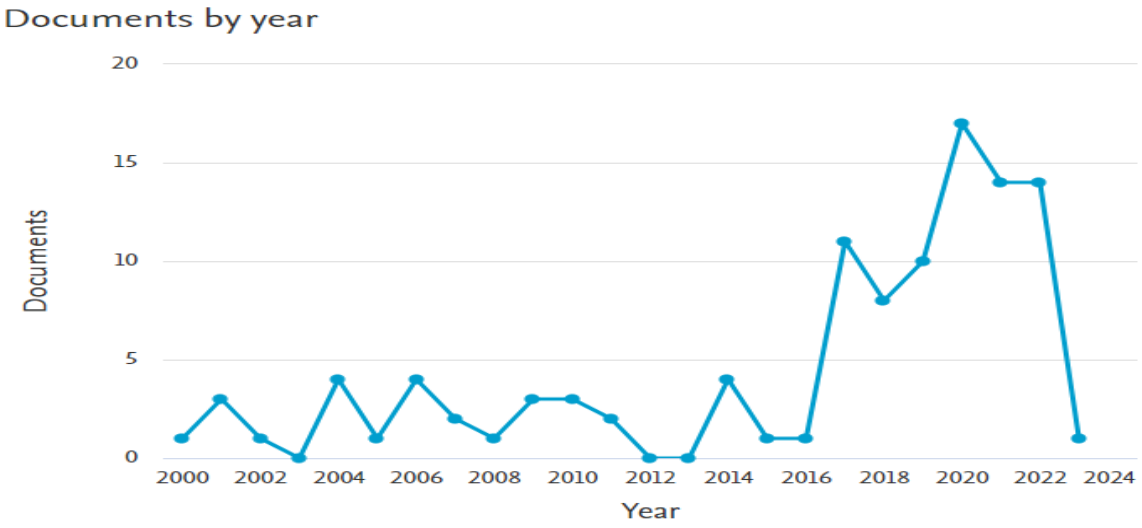


Figure 3 shows the graphs that exhibit the sources by year, from the year 2003 until 2023. Based on the graph, the highest number of documents per year came from Technological Forecasting and Social Change with 20 documents published between the years 2013 and 2022. Subsequently, the second highest number of documents per year came from the Journal of Technology Transfer with 10 documents published from 2013 until 2021, followed by the journal named Technovation with 9 documents between 2010 and 2023. Meanwhile, the least number of documents were published by the Journal of Business Research and the Proceedings Frontiers in Education Conference Fie with 7 documents each, between the years 2013 and 2022 and between 2003 and 2017 respectively. On the other hand, for the keyword technopreneurship (refer to Figure 4), only a small number of documents were published. The greatest number of documents was only 3 documents, which were published individually by five journals, namely, ACM International Conference Proceeding Series, Aip Conference Proceedings, International Journal of Economic Research, International Journal of Technology Management and Journal of Physics Conference Series. The other source had published not more than 3 journals.

Figure 3: Screenshot of Scopus Document by Year and Sources for Technology Entrepreneurship Keyword

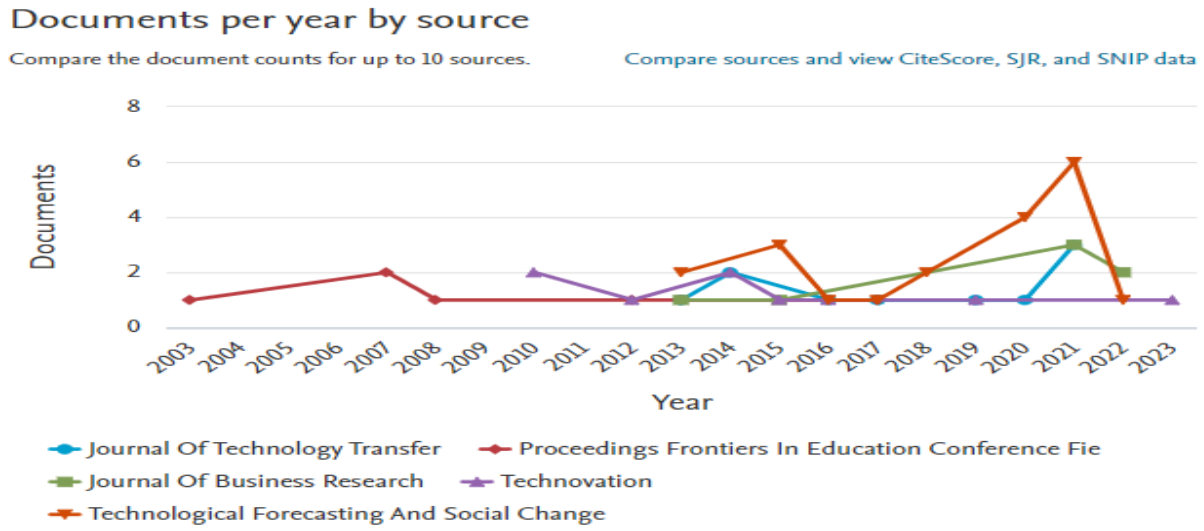
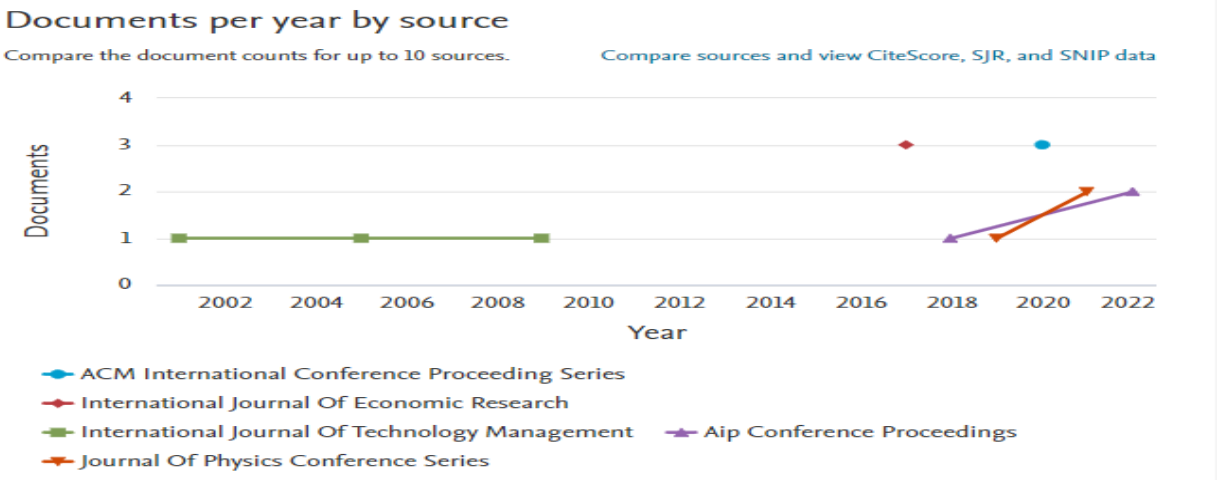


Figure 4: Screenshot of Scopus Document by Year and Sources for Technopreneurship Keyword



The graph in Figure 5 shows the documents published by different authors in the Scopus database. Most of the documents were published by Walsh, S.T. with 11 documents, followed by Walsh, S with 9 documents, Elia, G with 8 documents, Giones, F with 7 documents, while the rest of the authors had published not more than 6 documents. Meanwhile, for technopreneurship documents (refer to Figure 6); the highest number of documents is 8 documents which were published by Sutopo, W. The second highest is 5 documents, published by Hisjam, M. This is followed by 3 documents each, published by Herawati, S., Hidayat, H., Koe, W.L., Milton-Smith, J. and Wong, P.K.

Figure 5: Screenshot of Scopus Document by Authors for Technology Entrepreneurship Keyword

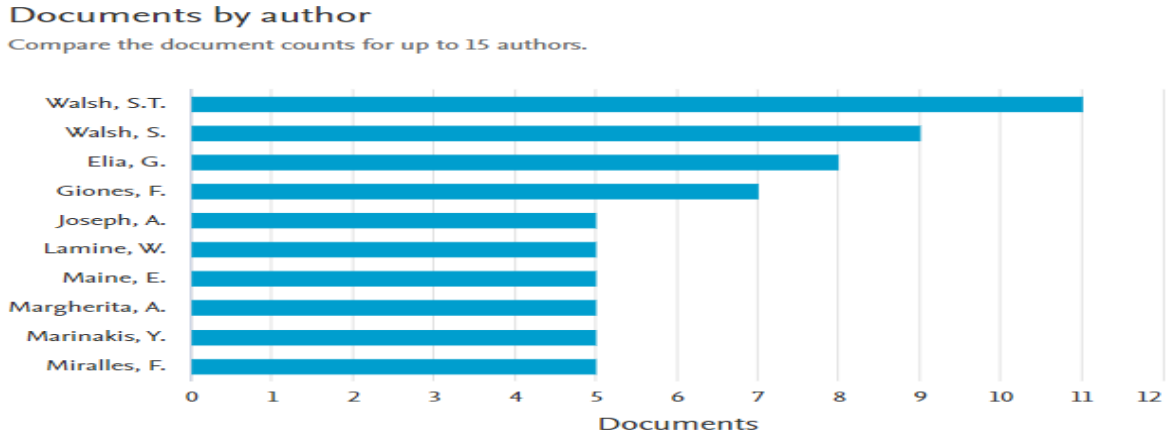
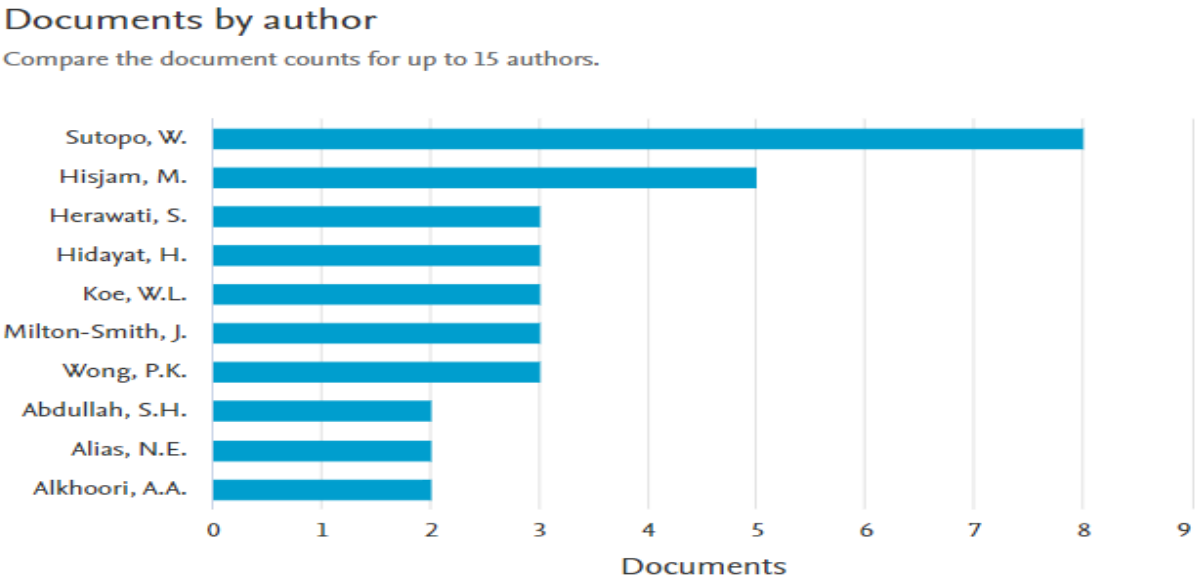


Figure 6: Screenshot of Scopus Document by Authors for Technopreneurship Keyword



The graph in Figure 7 shows documents published by affiliation in the Scopus database. The highest number of documents published on technology entrepreneurship is by The University of New Mexico with 20 documents, followed by 12 documents by Universiteit Twente, and 11 documents by Universita del Salento. Next in order are the University of Maryland, College Park and University of Ottawa with 8 documents each. It appears that the other affiliations had published less than 8 documents. Meanwhile, Figure 8 shows Scopus documents published by affiliations when the technopreneurship keyword is used. The greatest number of documents was published by Universitas Sebelas Maret with 8 documents. The second-highest number of documents was published by Universiti Teknologi MARA and the National University of Singapore with 5 documents from each university. This is followed by 4 documents published by Nanyang Technological University. For the rest of the affiliations, less than 4 documents were published. The above trend shows that the technopreneurship keyword is more familiar and popular among researchers from Asian countries, whereas most Western countries prefer to use the key term technology entrepreneurship in its full form. Details of the country of origin of the documents can be found in the next figures.

Figure 7: Screenshot of Scopus Document by Affiliations for Technology Entrepreneurship Keyword

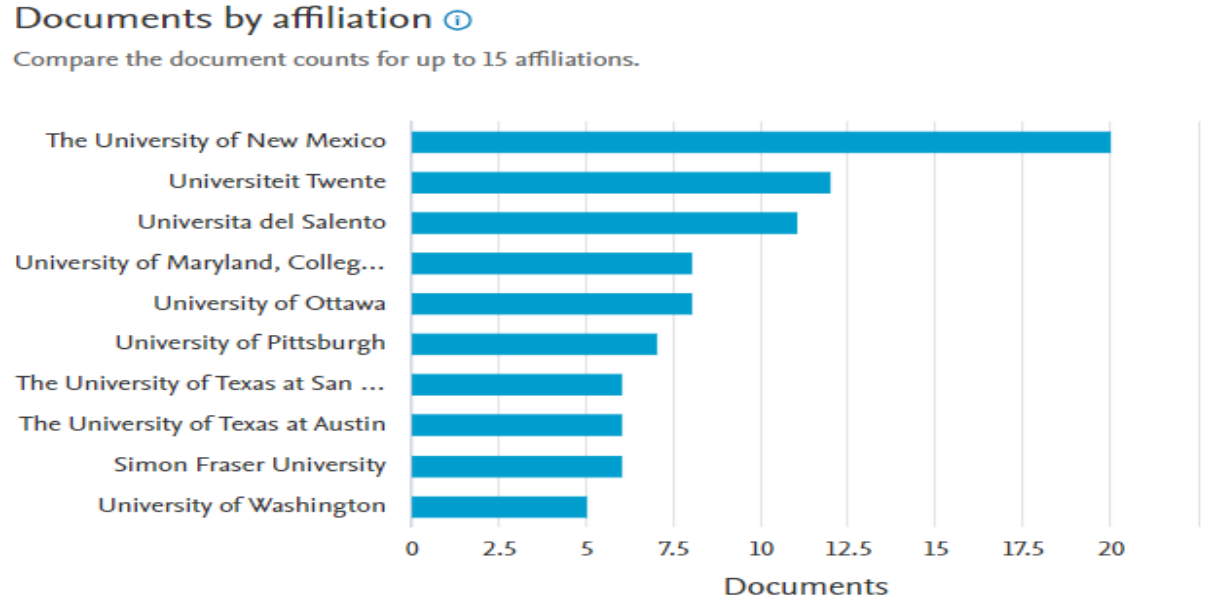
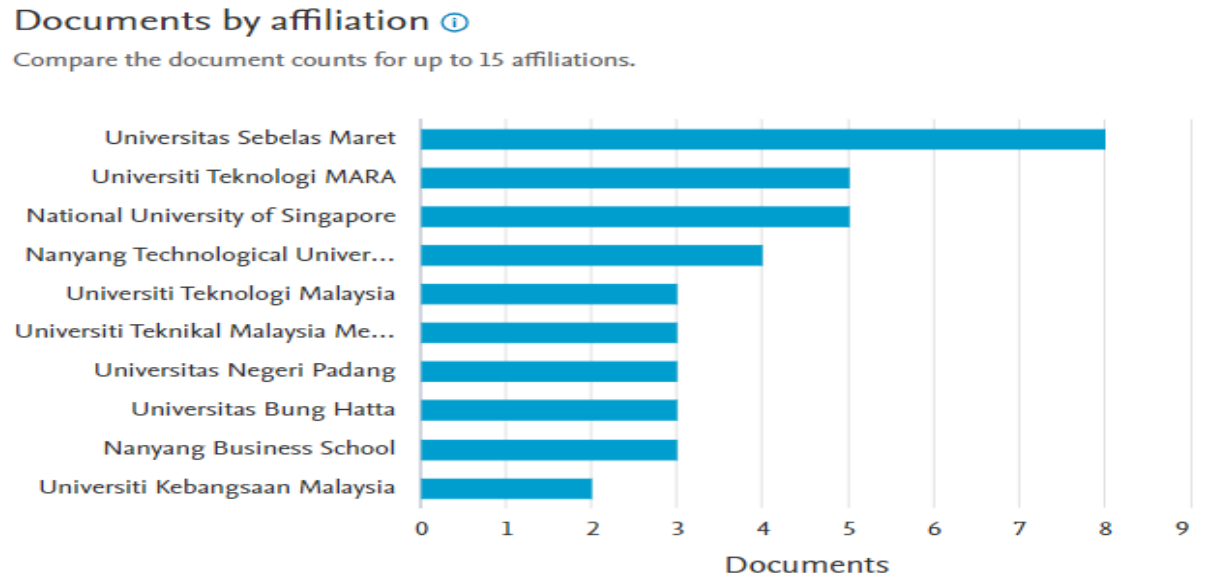


Figure 8: Screenshot of Scopus Document by Affiliations for Technopreneurship Keyword



Figures 9 and 10 show the graph of documents by country or territory that were published in the Scopus database for both the key terms technology entrepreneurship and technopreneurship. Using the keywords technology entrepreneurship, the country with the highest number of documents is the United States with 170 documents. The second highest is the United Kingdom with 49 documents published. This is followed by Canada, China, and the Russian Federation with 27, 25, and 23 published documents respectively. Meanwhile, for the technopreneurship keyword, the highest number of documents is from Indonesia with a total of 33 documents. The second highest is Malaysia with 22 documents, followed by Singapore with 8 documents and India with 7 documents making them the third and fourth highest. The rest of the countries published not more than 3 documents. The graph indicated that the technopreneurship key term is widely used among researchers in Asia countries.

Figure 9: Screenshot of Scopus Document by Country/Territory for Technology Entrepreneurship Keyword

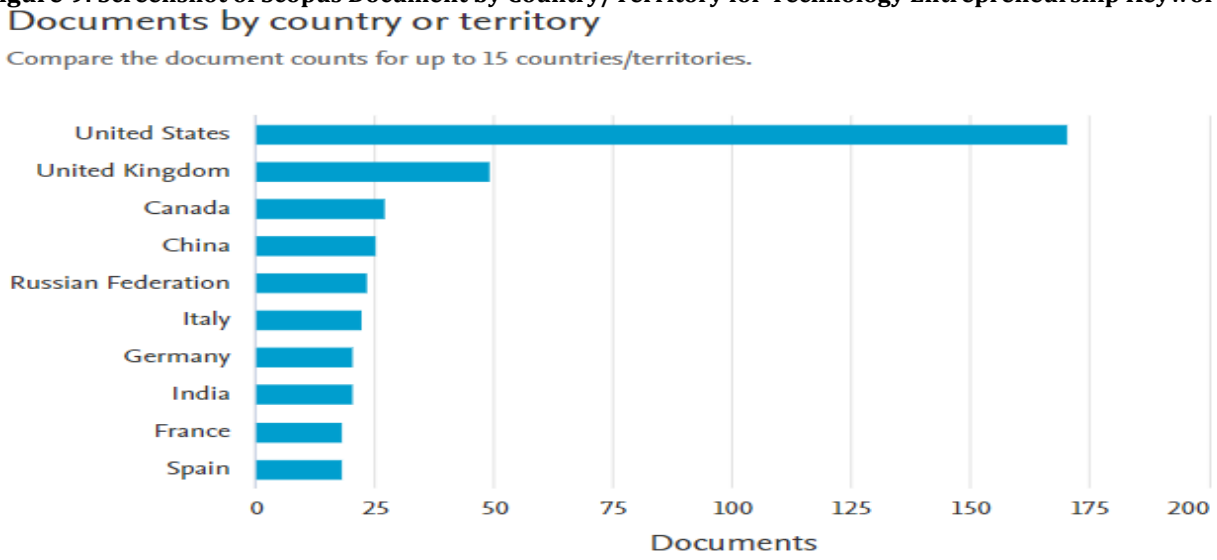


Figure 10: Screenshot of Scopus Document by Country / Territory for Technopreneurship Keyword

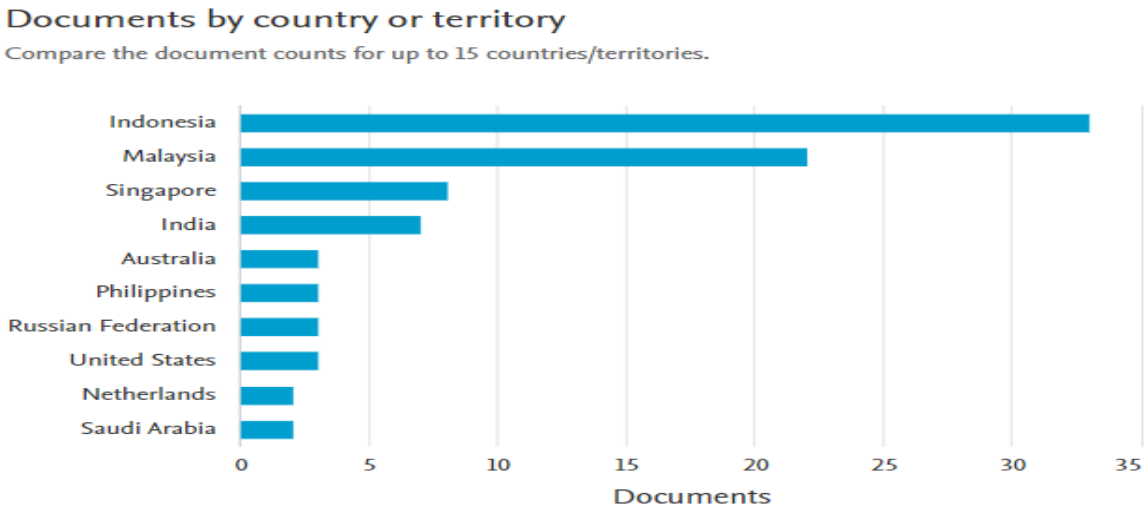


Figure 11: The 489 Documents via VOSviewer Co-Word Analysis

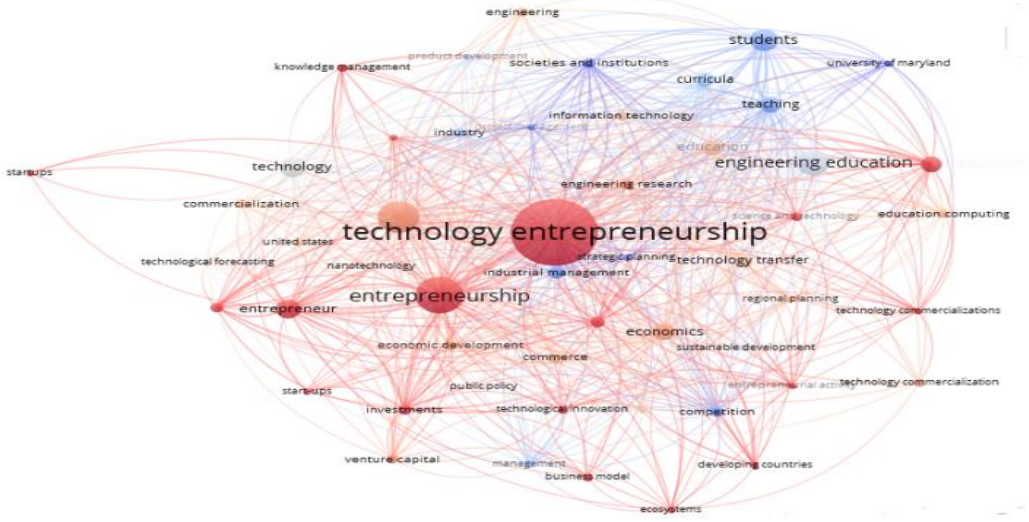


Figure 12: Keyword Classification based on Cluster in VOSviewer (Technology Entrepreneurship)

CLUSTER 1 (16 ITEMS)	CLUSTER 2 (13 ITEMS)	CLUSTER 3 (12 ITEMS)	CLUSTER 4 (6 ITEMS)	CLUSTER 5 (5 ITEMS)	CLUSTER 6 (1 ITEM)
Business model	Commercialization	Curricula	Education computing	Industry	engineering
Commerce	Entrepreneur	Education	Entrepreneurship education	Information technology	
Competition	Entrepreneurship	Engineering education	Science and technology	Knowledge-based system	
Developing countries	Innovation	Engineering Research	Technology commercialization	Knowledge management	
Economic and social effects	Investments	Marketing	Technology transfer	Nanotechnology	
Economic development	Public policy	Product development			
Economic growth	Start-ups	Project management			
Economics	Technological development	Societies and institution			
Ecosystems	Technological forecasting	Strategic planning			
Entrepreneurial activity	Technology	Students			
Industrial management	United States	Teaching			
Management	Venture capital	University of Maryland			
Regional planning					
Sustainable development					
Technological innovation					
Technology entrepreneurship					

From co-word data analysis collected from the software VOSviewer, the result was divided into clusters based on similar themes. Figure 11 illustrates the theme of the keywords which appear in different colors to indicate different clusters. The result was divided into 6 different clusters. The researcher interprets the cluster as follows: Cluster 1 Economy Impact, Cluster 2 Technology Advantage, Cluster 3 Education, Cluster 4 Technology Transfer, Cluster 5 Technology Advancement and Cluster 6 Engineering.

Figure 13: The 106 Documents on Technopreneurship via VOSviewer Co-Word Analysis

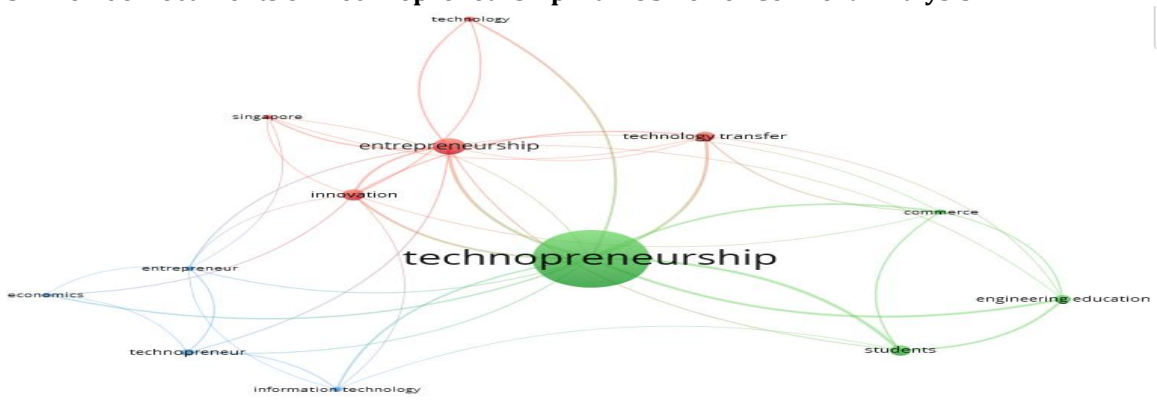


Figure 14: Keyword Classification based on Cluster in VOSviewer (Technopreneurship)

CLUSTER 1 (5 ITEMS)	CLUSTER 2 (4 ITEMS)	CLUSTER 3 (4 ITEMS)
Entrepreneurship	Commerce	Economics
innovation	Engineering education	Entrepreneur
Singapore	Students	Information technology
Technology	Technopreneurship	Technopreneur
Technology transfer		

Study Implication: The findings of this study may benefit future research in the field of technopreneurship or technology entrepreneurship. This study would provide information on keywords that have been used by previous researchers, sources of documents, authors and affiliations that contribute the most to technopreneurship studies, as well as the most documents found by territory or country. From the data, it is found that the term has been used differently in different territories. Technopreneurship is most likely used by researchers from Asia countries, while the keyword technology entrepreneurship has been widely used among researchers from Western countries. On the other hand, this study would be beneficial for academicians in providing analysis information on studies that have been conducted on technopreneurship. The information may further enrich the present evidence of study, and may also help the researchers to improve the current studies.

5. Conclusion

In conclusion, this research has analyzed previous research, particularly in the context of technology entrepreneurship and technopreneurship. Technology entrepreneurship and technopreneurship are defined the same, however, it appears that the term technopreneurship is more widely used by researchers from Asian countries, especially Southeast Asia. In addition, it has been revealed that this research topic has been conducted in a multidisciplinary approach and has a connection to entrepreneurship education and economic growth. Nevertheless, there are still hurdles that must be addressed to ensure that the oversight of technology entrepreneurship is on the right path to alleviate unemployment among graduates and improve the standard of living domestically and worldwide.

References

Allen, John. 1992. *Starting a Technology Business*. London: Pitman.

Boller, R. M. P. (2018, November). A Study on the Factors that Drive Technopreneurial Intention Among the Youth of Paranaque City. In *The 6th National Business and Management Conference* (2345, 292).

Barbe, D. F., Magids, S. A., & Thornton, K. S. (2003, November). Holistic approach for technology entrepreneurship education in engineering. In *33rd Annual Frontiers in Education, 2003. FIE 2003.* (Vol. 1, pp. T2D-1). IEEE.

Beckman, C., Eisenhardt, K., Kotha, S., Meyer, A., & Rajagopalan, N. (2012). Technology entrepreneurship. *Strategic Entrepreneurship Journal*, *6*(2), 89-93.

Byers, T. (1983). A study of technical entrepreneur'. Zutushi: Role of Technical Entrepreneurs in Industrial Development–A Literature View of Technological Entrepreneur. Global Business Press, Singapore.

Elisabetta, R., Gabriele, M., Massimo, S., Sofia, B. & Giuseppe, S. M. (2018). Structural trend and conceptual evolution of research on genetically modified organisms using a science mapping approach. *Journal of Cleaner Production*, 205, 329-338.

Gebrekidan, T. H., Chebo, A. K., Wubetie, Y. F. & Dhliwayo, S. (2023). Linking technology entrepreneurship to a business model towards the growth of ventures: Lessons from Ethiopian small manufacturing ventures. *Social Sciences & Humanities Open*, 8(1), 100506.

Geng, Y., Chen, W., Liu, Z., Chiu, A. S., Han, W., Liu, Z., & Cui, X. (2017). A bibliometric review: Energy consumption and greenhouse gas emissions in the residential sector. *Journal of cleaner production*, *159*, 301-316.

Hoque, A. S. M. M., Awang, Z. & Siddiqui, B. A. (2017). Technopreneurial intention among university students of business courses in Malaysia: A structural equation modeling. *International Journal of Entrepreneurship and Small & Medium Enterprise (IJESME)*, 4(7), 1-16.

Rodrigues, M., Daniel, A. D. & Franco, M. (2022). What is important to know about technopreunership? A bibliometric analysis. International Journal of Organizational Analysis.

Mentzer, J. T. & Kahn, K. B. (1995). A framework of logistics research. *Journal of Business Logistics*, 16(1), 231.

Mosey, S., Guerrero, M., & Greenman, A. (2017). Technology entrepreneurship research opportunities: insights from across Europe. *The Journal of Technology Transfer*, *42*, 1-9.

UiTM Library e-Resources, U. (n.d.). UiTM EzAccess. UiTM Library e-Resources. https://www-scopus-com.ezaccess.library.uitm.edu.my/search/form.uri?display=basic#basic

Selladurai, M. (2016). Conceptual framework on technopreneurship. *SELP Journal of Social Science,* 7(27), 92-97.

Thérin, F. (Ed.). (2007). *Handbook of Research on Techno-entrepreneurship*. Edward Elgar Publishing.

Yordanova, D., Filipe, J. A. & Pacheco Coelho, M. (2020). Technopreneurial intentions among Bulgarian STEM students: The role of the university. *Sustainability*, 12(16), 6455.

Yordanova, D. (2021). Nascent Technology Entrepreneurship among Bulgarian STEM Students. *Administrative Sciences*, 11(4), 121.

Zhang, J., Souitaris, V., Soh, P. H., & Wong, P. K. (2008). A contingent model of network utilization in early financing of technology ventures. *Entrepreneurship Theory and Practice*, *32*(4), 593-613.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Unraveling the Determinants of Microcredit Interest Rate

Rafiatul Adlin Mohd Ruslan[1*], Syahiru Shafiai[2], Mei-Shan Chua[1], Siti Nurhidayah Mohd Roslen[1]
[1]Department of Economics and Financial Studies, Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam Campus, Malaysia
[2]Faculty of Business and Management, Universiti Teknologi MARA, Melaka Campus, Malaysia
*rafiatul@uitm.edu.my, meishan@uitm.edu.my

Abstract: The introduction of microcredit has drawn significant attention to the interest rates charged by microfinance institutions, capturing the interest of policymakers worldwide. Despite the competitive nature of the microfinance market, borrowers still bear the burden of relatively high interest rates. Similar to other loans, microcredit requires repayment, and the interest rate is determined by various factors. Nevertheless, acknowledging that the interest rate is intrinsically linked to the risk associated with microcredit is essential. Microfinance institutions often deal with borrowers from low-income backgrounds, making the repayment process inherently riskier. This study aimed to address the crucial question concerning the factors influencing microcredit loan rates, an area that has not been extensively studied. Since the respondents are SMEs, they have been questioned about the interest rates charged to them. If the enterprises have a well-established track record, opt for short-term loans with smaller amounts, and maintain accurate accounting records, the lender may consider offering a lower interest rate. Understanding the determinants of interest rates helps in segmenting borrowers based on their risk profiles. Policymakers and regulators can use the insights from the study to develop appropriate regulations that balance the need for financial inclusion with consumer protection. Additionally, educating borrowers about the determinants of interest rates, how they are calculated, and ways to improve their creditworthiness can empower them to make informed financial decisions and negotiate better terms.

Keywords: *Microcredit, microfinance institutions, interest rate, loan, characteristics.*

1. Introduction and Background

The Grameen Bank was established in Bangladesh in the 1980s to pave the beginning of the microcredit system, serving as a catalyst for the global development of microcredit programs. According to Aghion and Morduch (2004), microcredit is a component of microfinance targeting individuals excluded from conventional banking, particularly low-income individuals, by providing them with small loans at a subsidized interest rate. The fundamental concept enables impoverished individuals to participate in the economic market by establishing small businesses through microfinance services provided to them (Al-Shami et al., 2013). Nevertheless, microcredit organizations have been strongly criticized for charging high-interest rates since the introduction of microcredit in the late 1970s. The issue has gained the attention of policymakers globally.

The primary purpose of establishing microfinance institutions was to offer credit access to individuals with low incomes, aiding them in their financial needs. Nevertheless, microfinance institutions have implemented higher interest rates in the process of extending credit to these low-income earners. Wondirad (2022) asserted that microfinance institutions are charging a high interest rate not primarily for profit but to cover operational costs. The study of interest rates in microfinance remains relatively limited (Dorfleitner et al., 2013), although previous studies have extensively examined the factors influencing interest rates in the traditional and standard banking literature (Fernando, 2006; Rosenberg et al., 2009, 2013). The interest rate determinants from the perspective of micro-lenders have been assessed in prior studies. Two primary common arguments observed in the existing literature are operational costs and microfinance institutions' sustainability, which contributes to high interest rates (Fernando, 2006; Rosenberg et al., 2009, 2013).

Despite the high level of competition in the microfinance market, microfinance institutions continue to charge considerably high interest rates. This study seeks to enhance understanding regarding the interest rates applied by microcredit institutions. Numerous studies have extensively examined the standard banking literature on the factors influencing interest rates. Nevertheless, empirical investigations in the realm of

microfinance are scarce. Specifically, the microcredit interest rate determinants from the borrower's perspective remain largely unexplored. For instance, Dorfleitner et al. (2013) attempted to address the influence of borrower-related factors on microcredit interest rates. Thus, this study bridges the literature gap by exploring the determinants of interest rates charged to borrowers.

2. Literature Review

Ever since the inception of microcredit in the late 1970s, the interest rate imposed on microcredit has garnered the interest of policymakers globally. Kapkiyai and Kimitei (2015) asserted that the interest rate applied is contingent upon the borrower's risk profile, serving to mitigate adverse selection issues that arise when distinguishing between non-risky and risky borrowers. According to standard economic theory, the reduced interest rates are the result of cost reductions brought on by experience, learning through experience, and economies of scale Nwachukwu et al. (2018). Additionally, interest rates may exhibit discrimination between female and male borrowers. Factors such as gender, lending methodology, regulation, organizational type, and cost factors influencing microcredit interest rates were investigated by Dorfleitner et al. (2013). The study revealed that high microcredit interest rates were paid by women. Alesina et al. (2008) undertook an empirical study in Italy, which revealed that although women are less risky borrowers than men, relatively higher interest rates are paid by women than men. Hermes et al. (2011) noted that microcredit providers are inclined to impose higher interest rates on women borrowers due to the lower efficiency of women compared to men. Furthermore, the borrower's age determines the loan rate. Lenders charge a higher interest rate on younger borrowers as they are perceived to be riskier (Alesina et al., 2008).

The bank-borrower relationship, which plays a crucial role in determining the interest rate on loans, has been explored in prior research (Titman & Wessels, 1988; Rand, 2007). Rand (2007) stated that if firms have an established borrowing history with a bank, they can secure loans at lower interest rates. Titman and Wessels (1988) contended that smaller firms, which have limited relationships with financial institutions, are considered less favored clients, leading to higher interest rates charged by banks. This proposition is corroborated by Thakor (1996), indicating that transaction costs and interest charges decline when there is a closer relationship between banks and small firms. The interest rate is determined by the return and risk profile, and a closer relationship between banks and borrowers allows banks to gather more information, thereby reducing the non-payment risk and resulting in a decline in transaction costs.

Tuyon et al. (2011) stated that each microcredit provider possesses distinct features and employs diverse business models. Dorfleitner et al. (2013) proposed the hypothesis that the interest rate charged varies based on the type of microcredit provider. Credit unions, rural banks, banks, and non-bank financial institutions were the types of microcredit providers used as dummy variables by the authors. According to the authors, compared to other institutions, higher interest rates were charged by non-bank financial institutions. The findings align with Cuéllar-Fernández et al. (2016), who identified that credit unions charged the lowest interest rate while non-bank financial institutions charged the highest. The clients' democratic ownership of credit unions could be one plausible explanation for this phenomenon.

In terms of enterprise characteristics, older firms could obtain debt at lower interest rates as they might be perceived as less risky and less susceptible to financial distress, as suggested by Titman and Wessels (1988). Nevertheless, the impact of the sector variable on interest rates remains understudied. The exposure to natural hazards such as storms, floods and drought contributes to the reason why the agricultural sector is perceived as high risk. Consequently, lenders charge a higher interest rate in line with the concept of higher risk leading to higher interest rates.

3. Research Methodology

In this investigation, the models known as ordinary least squares (OLS) were utilized to determine the elements that affect the interest rate on loans. The respondents were surveyed regarding the interest rates they were charged for loans. The methodologies used by Rand (2007) were the basis for the OLS models shown below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \ldots\ldots\ldots \beta_{15} X_{15} + \varepsilon$$

The interest rate microcredit providers charge the enterprises is the dependent variable in the equation. Networking, microcredit providers' selection, creditworthiness measured by the enterprises' accounts books, enterprise characteristics, borrower characteristics, and loan characteristics are the independent variables.

The study hypothesizes an inverse relationship between interest rate and gender. According to Dorfleitner et al. (2013), based on global data, microfinance institutions (MFIs) charge higher interest rates to women borrowers. Additionally, Hermes et al. (2011) stated that microcredit providers are inclined to charge women higher interest rates since they are less efficient than men. The study hypothesizes a positive relationship between interest rate and educational level. Education can serve as a financial literacy proxy, which encompasses the attitudes, knowledge, and abilities necessary for adopting appropriate money management practices related to income, savings, borrowing, and investment decisions. For instance, the interest rate charged to borrowers declines as a better-educated client can help reduce MFIs' operating costs.

In terms of enterprises' characteristics, the interest rate is negatively associated with the age of the enterprise. Older firms could obtain debt at lower interest rates and be less susceptible to financial distress as they may be perceived as less risky, as per the argument of Titman and Wessels (1988). Bigger enterprises have better opportunities to acquire trade credits from suppliers, bank loans, and liabilities from other sources, as these enterprises possess higher bargaining power when negotiating with financial providers compared to small enterprises. In terms of the sector variable, a notable disparity exists between the interest rates and economic sectors.

Small and medium-sized enterprises (SMEs) involved in the service and manufacturing sectors are anticipated to experience lower interest rates compared to the agricultural sector. Droughts, storms, and floods are among the risks that natural hazards the agricultural sector faces, which contribute to higher interest rates. The loan rate the lender charges increases with the risks. The price of microcredit is impacted by the risk related to lending effects. Similar to other loans, microcredit requires repayment. Thus, the risks SMEs face must be examined by microcredit providers (Serrano-Cinca et al., 2016).

The literature reports a positive correlation between the interest rates and the duration of short-term loans. Increased servicing and monitoring requirements over time contribute to the high administration costs in short-term loans. Consequently, higher interest rates are charged for short-term loans by lenders. Conversely, Rose and Hudgins (2005) discovered that there are greater possibilities of losses over time as long-term loans typically entail higher interest rates due to the maturity risk. Due to potential job or income interruptions, the longer maturity period increases the borrower's likelihood of defaulting (Ramos-Garay, 2006). For example, the borrower is exposed to increased risk if the borrowing period is prolonged due to disruptions in cash inflow caused by a decline in sales, which can adversely impact loan repayment. Moreover, the study hypothesizes a positive association between the interest rate charged and the loan amount. Similarly, the interest rate charged is hypothesized to exhibit a negative relationship with the mode of interest payment.

In this study, it is hypothesized that a significant difference exists in the interest rates charged among MFIs, commercial banks, and DFIs. In other words, the interest rate charged is contingent upon the type of microcredit provider. The study hypothesized that compared to commercial banks and DFIs, MFIs are more likely to charge higher loan rates. For example, compared to MFIs, significantly lower interest rates are imposed by development financial institutions that receive substantial government subsidies (Fernando, 2006). Besides, as MFIs strive to provide better services, they often charge higher loan rates which, in turn, can restrict the capacity for development due to the relatively lower loan rates available.

The study hypothesizes a positive correlation between the interest rate and networking variable. Firms with a prior borrowing relationship with a bank have an increased likelihood of obtaining a loan and can secure loans at lower interest rates (Rand, 2007). As per the observation of Titman and Wessels (1988), higher interest rates are charged on smaller firms with limited relationships with financial institutions as they are regarded as less preferred clients. In examining the factors affecting interest rates charged on bank loans, prior studies incorporated creditworthiness as measured by collateral (Rand, 2007). Contrarily, according to Serrano-Cinca et al. (2016), the collateral variable to measure creditworthiness was not incorporated in the

present study as microcredit does not necessitate collateral. Therefore, the model includes the presence of accounts books to explore whether creditworthiness remains significant in determining the interest rate.

4. Results

The findings of OLS estimates for the factors affecting the interest rate charged on microcredit are displayed in Table 2. As shown in Table 1, heteroscedasticity exists, although the model is free from multicollinearity. Hence, to address this concern, the standard error is reported using robust standard error.

Table 1: Tests for Multicollinearity and Heteroscedasticity

Mean VIF of Multicollinearity	**1.85 (<10)**
Breusch Pagan/Cook-Weisberg (BP/CW)	73.86 (0.000)

Note: 1) The presence of multicollinearity is indicated by a variance inflation factor (VIF) of 10 or greater
2) The probability > chi2 for the BP/CW test is presented in parentheses.

Choice of microcredit institution, networking, creditworthiness, enterprise characteristics, borrower characteristics, and loan characteristics are the six sets of variables that are hypothesized to influence the dependent variable, the interest rate charged on microloans. Nevertheless, loan characteristics, enterprise characteristics, creditworthiness, and networking explain the interest rate charged on microcredit loans (Refer to Table 2). The evidence regarding the impact of borrower characteristics on the interest rate charged remains inconclusive.

The negative coefficient for the age of the enterprise suggests an inverse relationship between the interest rate charged and the enterprise's age. The interest rate decreases as the age of the enterprise increases since lenders perceive mature enterprises as more established and stable. Moreover, if the lender can later compensate for the higher default rate by charging young enterprises higher interest rates, they might be willing to finance riskier borrowers.

A higher interest rate exhibits a negative correlation with a shorter loan duration. This negative relationship indicates that medium-term loans typically have higher interest rates compared to short-term ones. Relative to a medium-term loan, the estimated coefficient indicates that the interest rate charged by a lender for a short-term loan is 0.42% less. As a result of income interruptions, longer loan durations are associated with higher interest rates due to the lender's heightened risk of the borrower defaulting on the loan, aligning with the findings of Diabate (2000) and Rose and Hudgins (2005). Enterprises opting for shorter loan durations are perceived as less risky by lenders as they exhibit confidence and commitment to loan repayment. *Ceteris paribus*, as the loan duration shortens, the risk decreases, leading lenders to offer a lower interest rate.

The loan amount exhibits a positive correlation with the interest rate charged on a microloan, and this relationship is statistically significant at the 10% level. Moreover, the lender is inclined to impose a higher interest rate for a loan amount exceeding RM25,000. Since a larger loan entails higher risk for the lender, as borrowers have a higher probability of default, the lender applies a higher interest rate for a bigger loan. Low-income individuals are often offered a low microcredit amount. Thus, individuals who seek to borrow exceeding RM25,000 face higher interest rates.'

According to Aghion & Morduch (2004), since the lender has inadequate information about a borrower's risk profile, higher average interest rates are charged to all borrowers regardless of their risk profile. However, the networking variables in this study are insignificant and it contradicts (Ruslan, 2018) where borrowers need to be proactive in seeking opportunities to build networking ties with the microcredit providers.

The explanatory variable "accounting books" demonstrates statistical significance at the 1% level for both models as hypothesized. In comparison to SMEs without accounting books, those with accounting books encounter lower interest rates. The estimated coefficient for "accounting books" is -0.782, hence, the interest rate charged decreases by 0.78% if SMEs possess accounting books that display business transactions to the

lender. As financial transactions offer evidence of financial transparency in practice (Lee & Sohn, 2017) and portray the enterprises' money management behavior, the presence of financial statements enables the lender to evaluate the borrower's risk level.

Table 2: Estimated Results of the Determinants of the Interest Rate Charged on Microcredit

Independent Variables	Coefficient	Robust HC3 Standard Error
Constant	5.358	0.705
Borrower/Manager Characteristics		
Gender	0.143	0.154
Age $_{(2)}$	0.006	0.194
Age $_{(3)}$	0.119	0.223
Married	0.030	0.208
Education	-0.090	0.118
SMEs' Characteristics		
Age of Enterprise	-0.024	0.013*
Manufacturing Sector	0.031	0.244
Service Sector	0.108	0.237
Size of Enterprise	-0.008	0.017
Loan Characteristics		
Short Term	-0.417	0.240*
Long Term	0.171	0.142
Loan Amount	0.364	0.211*
Monthly Paid	0.631	0.439
Microcredit Provider		
Commercial Bank	-0.157	0.165
MFI	-0.107	0.134
Networking		
Commercial Bank	-0.038	0.047
MFIs	0.060	0.045
Creditworthiness		
Accounting Book	-0.782	0.115***
No. of Observations	386	
R-squared	0.204	

*, ** and***, represent the 10%, 5% and 1% significance levels, respectively.
Robust standard error applied HC3 options by STATA to correct the heteroscedasticity problem.

5. Managerial Implications and Recommendations

Understanding the determinants of microcredit interest rates can have significant managerial implications for microfinance institutions and policymakers. By unraveling these factors, MFIs can make informed decisions to optimize their operations, improve financial sustainability, and better serve their target clients. Additionally, understanding the determinants of interest rates helps in segmenting clients based on their risk profiles. Policymakers and regulators can use the insights from the study to develop appropriate regulations that balance the need for financial inclusion with consumer protection. If certain factors are found to contribute significantly to higher interest rates, regulations can be put in place to address these issues and

foster a more competitive microfinance market. Additionally, MFIs can provide financial education and literacy programs to their clients. Educating borrowers about the determinants of interest rates, how they are calculated, and ways to improve their creditworthiness can empower them to make informed financial decisions and negotiate better terms with the MFI. The utilization of research findings on the determinants of microcredit interest rates can inform policymakers and regulators in the development of suitable regulatory frameworks. Regulatory frameworks can be developed to effectively reconcile the goals of promoting financial inclusion and safeguarding consumer interests. In the event that particular determinants are discerned as influential in the escalation of interest rates, regulatory bodies possess the ability to intervene to mitigate these determinants and cultivate a microfinance market that is characterized by enhanced competitiveness and equitable practices.

Conclusion: In summary, long-established enterprises possessing proper accounting books and borrowing short-term small loan amounts may lead lenders to charge a lower interest rate. The price of microcredit is associated with the risk. Addressing the factors determining microcredit loan rates is crucial for policymakers, as it can help foster a conducive environment for economic growth and poverty alleviation. By understanding the dynamics behind interest rate settings in the microfinance sector, policymakers can devise strategies to make microcredit more affordable and accessible to those in need, ultimately promoting financial inclusion and socio-economic development. This study endeavors to shed light on the crucial question regarding factors influencing microcredit loan rates. This study aims to provide valuable insights into the field of microfinance, enabling policymakers and stakeholders to make informed decisions that positively impact borrowers with limited financial resources. By addressing this knowledge gap, a fair and sustainable microcredit framework that serves the best interests of all stakeholders involved can be developed.

References

Aghion, B. A. & Morduch, J. (2004). Microfinance: Where do we Stand? In in Charles Goodhart (ed.) (135–148). Palgrave Macmillan, London. https://doi.org/10.1057/9780230374270_5

Alesina, A. F., Lotti, F. & Mistrulli, P. E. (2008). Do women pay more for credit? Evidence from Italy. In NBER Working Paper Series (No. 1402). http://www.nber.org/papers/w14202%0anational

Al-Shami, S. S. A., Majid, I. B. A., Rashid, N. A., & Hamid, M. S. R. B. A. (2013). Conceptual framework: The role of microfinance on the well-being of poor people cases studies from Malaysia and Yemen. Asian Social Science, 10(1), 230–242. https://doi.org/10.5539/ass.v10n1p230

Cuéllar-Fernández, B., Fuertes-Callén, Y., Serrano-Cinca, C. & Gutiérrez-Nieto, B. (2016). Determinants of margin in microfinance institutions. Applied Economics, 48(4), 300–311. https://doi.org/10.1080/00036846.2015.1078447

Diabate, A. S. (2000). The question of gender discrimination in mortgage lending: A cross-regional analysis. Unpublished Thesis, The University of Tennessee, United States-- Tennessee.

Dorfleitner, G., Leidl, M., Priberny, C., & von Mosch, J. (2013). What determines microcredit interest rates? Applied Financial Economics, 23(20), 1579–1597. https://doi.org/10.1080/09603107.2013.839860

Fernando, N. A. (2006). Understanding and dealing with high interest rates on microcredit. A note to policymakers in the Asia and Pacific region. Asian Development Bank, 1–14. http://www.adb.org/Documents/Books/interest-rates-microcredit/Microcredit-Understanding-Dealing.pdf

Hermes, N., Lensink, R. & Meesters, A. (2011). Outreach and efficiency of microfinance institutions. World Development, 39(6), 938–948. https://doi.org/10.1016/j.worlddev.2009.10.018

Kapkiyai, C., & Kimitei, E. (2015). Effects of group lending on the accessibility of micro-credit facilities among low-income households in Keiyo South District. European Journal of Business and Management, 7(3), 39–47.

Lee, B. K., & Sohn, S. Y. (2017). A credit scoring model for SMEs based on accounting ethics. *Sustainability (Switzerland)*, *9*(9). https://doi.org/10.3390/su9091588

Nwachukwu, J. C., Aziz, A., Tony-Okeke, U. & Asongu, S. A. (2018). The determinants of interest rates in microfinance: Age, scale and organizational charter. Rev. Dev. Econ, 22, e135–e159. doi: 10.1111/rode. 12402

Ramos-Garay, A. (2006). Credit accessibility of small-scale farmers and fisherfolk in the Philippines (Issue August) [Lincoln Univeristy]. http://dspace.lincoln.ac.nz/handle/10182/2255

Rand, J. (2007). Credit constraints and determinants of the cost of capital in Vietnamese manufacturing. Small Business Economics, 29(1–2), 1–13. https://doi.org/10.1007/s11187-005-1161-2

Rose, P., & Hudgins, S. (2005). Bank Management and Financial Services (Sixth ed.): McGraw-Hill Irwin.

Rosenberg, R., Gaul, S., Ford, W. & Tomilova, O. (2013). Microcredit interest rates and their determinants: 2004–2011. In Microfinance 3.0: Reconciling Sustainability with Social Outreach and Responsible Delivery (Issue 7). https://doi.org/10.1007/978-3-642-41704-7

Rosenberg, R., Gonzalez, A. & Narain, S. (2009). The new moneylenders: Are the poor being exploited by high microcredit interest rates? 145–181. https://doi.org/10.1108/S1569-3759(2009)0000092008

Ruslan, R. A. H. M. (2018). Accessibility to microcredit and its impact on small and medium-sized enterprises' performance in Malaysia. Lincoln University, New Zealand.

Thakor, A.V. (1996). Capital Requirements, Monetary Policy and Aggregate Bank Lending: Theory and Empirical Evidence. *Journal of Finance*, 51(1), March: 279–324.

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. The Journal of Finance, 43(1), 1–19.

Tuyon, J., Mohammad, S. J. S., & Ali, R. (2011). The role of microfinance in the development of micro-enterprises in Malaysia. *Business & Management Quarterly Review*, 2(3), 47–57.

Serrano-Cinca, C., Gutiérrez-Nieto, B. & Reyes, N. M. (2016). A social and environmental approach to microfinance credit scoring. *Journal of Cleaner Production*, 112, 3504–3513. https://doi.org/10.1016/j.jclepro.2015.09.103

Wondirad, H. A. (2022). Interest rates in microfinance: What is a fair interest rate when we lend to the poor? *Quality & Quantity*, 56(6), 4537–4548. https://doi.org/10.1007/s11135-022-01320-0

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Factors Influencing Online Buying Intention among Royal Malaysian Police (RMP) Officers

Sofia Anis Anisha Mohd Nazri[1] & Abdul Kadir Othman[2*]
[1]Royal Malaysian Police, Bukit Aman, Kuala Lumpur, Malaysia
[2]Institute of Business Excellence, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia
anisanisha289@gmail.com, *abdkadir@uitm.edu.my

Abstract: Online buying has become a norm in Malaysia after the COVID-19 pandemic. It is one of the measures to cope with the rapid spread of the virus. Royal Malaysian Police (RMP) staff is not left behind in following the current trend. The present study is intended to determine the factors that influence them to engage in online buying although they are very busy ensuring public safety. Data was collected using online surveys distributed conveniently to the staff. After the lapse of the allocated data collection period, 150 responses were received and analyzed. Out of five factors that have been selected as the independent variables, only two are significant in influencing online buying intention among the RMP staff: attitude and perceived usefulness. Perceived ease of use, subjective norms, and perceived behavioral control did not significantly influence the online buying intention of RMP officers. The findings show that only those with the right attitude towards online buying and those who find online buying beneficial will pursue online purchases.

Keywords: *Online purchase, attitude, perceived usefulness, perceived ease of use, subjective norms, perceived behavioral control.*

1. Introduction and Background

Online shopping is a rapidly growing phenomenon in today's world. Today, the intention to buy online has become popular among individuals because they are too busy with their daily activities to do personal shopping. Malaysia has recorded high e-Commerce usage, according to statistics; 16.53 million Malaysians are internet users which represents 50 percent of the entire country's population. The intention to buy online has become the main purchase option for individuals due to the spread of the COVID-19 pandemic. Unfortunately, some sellers do not know how to set up their company online, but anyone with Internet access can start an Internet business from the comfort of their home. The website interface, however, will affect customer engagement and their desire to revisit the website.

Most businesses today continue to function traditionally. Malaysian sellers and suppliers, for example, continue to rely on traditional business frameworks, where they must ensure their products are consistent, attractive, and competitive to compete with the big players in the online shopping industry such as Lazada, Shopee, Zalora, 11street, Ezbuy and FashionValet, and Go Shop. Small businesses find it difficult to compete with online business giants because they lack knowledge about the aspects of online business that may influence customers to buy their goods and services online. Meanwhile, large companies use social media and mobile applications to sell their products, offer special deals, develop their customer base, keep in touch with their current customers, and attract future customers (Cheung & To, 2017; Feng, Fu, & Qin, 2016).

According to eMarketer (2015), international mobile ads, especially so-called in-app ads, are expected to triple from USD 69 billion in 2015 to USD 196 billion in 2019. In addition, due to the global pandemic, several governments have implemented movement restriction measures to control the spread of the COVID-19 virus, and Malaysia is included. These regulations encourage more customers to engage in online transactions, resulting in growth in e-commerce gross revenue. Due to an insufficient understanding of their online purchasing behavior, online marketers have struggled to win customers as more people want to buy online. As a result of this research, online marketers will have a better awareness of the factors that influence customers' online purchase intentions. Existing research is insufficient to address the issue of online purchase intention as it has been conducted in several contexts, with limited studies conducted in Malaysia, including those involving leading online sellers such as Lazada, Shopee, Zalora, 11street, Ezbuy, and FashionValet, and Go Kedai. As a result, this study aims to address the existing gap by investigating the factors that influence consumers' online purchase intentions. Although many empirical studies have been conducted on these factors, there are still inconsistencies in their research results.

The present study focuses on police officers of the Royal Malaysian Police (RMP) because they are less inclined towards Internet usage specifically for online buying transactions. Most of the time, they work outside their office to ensure public safety. Therefore, by focusing on them, it is expected that some insights can be obtained to encourage them to engage in online buying behaviors.

There are several research efforts conducted in Malaysia that investigate the factors that influence the intention to buy online in the literature, especially among government agencies. However, not much is known about the variables that influence online purchase intentions among customers, and there is still limited evidence on the factors that drive online purchase intentions, especially among public employees. As a result of this phenomenon, this study aims to address existing gaps in the literature by investigating the relationship between predictive factors; attitudes, perceived behavioral control, subjective norms, perceived ease of use and perceived usefulness (independent variables), and intention to buy online among officers from different departments at RMP headquarters.

2. Literature Review

Online Buying Intention: The customer's willingness to purchase a product from an online seller is referred to as online purchase intention (Pavlou, 2003). Heijdein et al. (2001) defined online purchase intention as a consumer's tendency to purchase a product or service from a particular website. The relationship between online purchase intention and actual online purchase behavior is positive (Lim et al., 2016). Fishbein and Ajzen (1975) defined purchase intention as actual behavior that predicts a person's behavioral intention in the sense that attitude represents belief, intention reflects attitude, and behavior reflects intention. The intention to buy online is influenced by various factors. However, most researchers agree on five main factors that will lead to this phenomenon. They are attitudes, perceived behavioral control, subjective norms, perceived ease of use, and perceived usefulness. These factors are taken from two models or theories, namely the theory of planned behavior (Fishbein & Ajzen, 1975) and the technology acceptance model (Davis, 1989).

Attitude refers to a person's internal feelings about whether they like or dislike something, such as a service or product. It is the degree to which an individual has a good or negative view of something (Albarracin, Fishbein, Johnson, & Muellerleile, 2001). Trust is important in determining consumer attitudes. It is defined as the degree to which an individual conducts positive or negative behavioral evaluations (Ajzen & Fishbein, 1977). More specifically, attitudes change over time causing people to create new notions about the subject or object under consideration (Shaouf et al., 2016). Attitudes usually change, but they may be modified by psychological motivation. They develop over time (Lien & Cao, 2014).

Consumer attitudes determine their intentions (Fishbein & Ajzen, 1975). Consumers' shopping attitudes have been proven to have a positive relationship with their purchase intentions in the context of online shopping (Ha & Nguyen, 2019; Han et al., 2018; Rehman et al., 2019). The more positive the consumer's attitude towards a website/online store, the more likely they will shop at that website/store.

Perceived Behavioral Control: Perceived behavioral control evaluates the level of effort required in performing activities. Perceived behavioral control is linked to the availability (or lack thereof) of resources needed to engage in certain behaviors (Ajzen, 1991). Perceived behavioral control refers to people's assessment of their ability to perform a given task. It refers to the level of difficulty in performing the behavior. Some actions are indeed beyond a person's control, and Ajzen (1991) says that perceived behavioral control can explain a wider and more accurate spectrum of behavior by incorporating perceived behavioral control into their reasoning. According to Ajzen (2002), perceived behavioral control consists of two closely related variables: perceived self-efficacy (belief in one's potential; Bandura & Hall, 2018) and perceived controllability (belief in one's own will; Ajzen, 2002). When these two factors are combined, they form perceived behavioral control, which directly and indirectly predicts behavior through intentions. According to the theory of planned behavior, perceived behavioral control is the individual's belief that they can perform certain activities (Ajzen, 1991). The more in control someone feels about making an online purchase, the more likely they are to do so. Intention is influenced by the effect of control or the perceived difficulty level of the activity (Ajzen, 1985).

In the context of online shopping, perceived behavioral control is related to consumers' perceptions of the availability of necessary resources, knowledge, and opportunities for online shopping (Monsuwé et al., 2004; Lin, 2007). Perceived behavioral control has been shown to have a positive effect on online buying intentions (Javadi et al., 2012; Rehman et al., 2019; Sembada & Koay, 2021).

Subjective Norms: Subjective norms are societal pressures felt to engage in certain behaviors. Subjective norms are based on the individual's perception of what should and should not be done based on the advantages or disadvantages that may arise from that behavior (Rimal & Real, 2003). Subjective expectations are a commonly used idea as a source of doubt because individuals are more likely to act if their role models do (Schwarzer & Luszczynska, 2008).

Meanwhile, some studies show that the opinions of reference groups positively influence online customer purchase intentions (Ha & Nguyen, 2019; Lin, 2007; Park et al., 2007; Zhou et al., 2020). Subjective norms in the e-commerce context reflect consumers' perceptions of the influence of reference groups on online shopping ability (Lin, 2007). According to the findings of the study, the opinion of the reference group has a positive relationship with the customer's online shopping intention. It also implies that the more reference groups encourage online shopping, the more customers are likely to shop online, and vice versa.

Perceived Ease of Use: Perceived ease of use is the degree to which a person feels that using a particular system is not troublesome (Davis, 1989). Perceived ease of use is defined as how someone feels it is easy to use a particular application (Davis, 1989). If the technology is easy to use, the barriers to using the technology have been overcome. When it is difficult to use and the setup is complicated, then no one is inclined to use it.

Consumers' purchase intentions will increase because of the existence of online shopping platforms, ease of product search, and efficiency of the payment process and it will also directly increase consumers' perception that online shopping is easy to use. According to Al-Azzam and Al-Mizeed (2021), when buying products or services, consumers prefer to use convenient online shopping platforms. As a result, users prefer to use technologies that are easy to use and require little effort to learn; thus, this statement supports that the perception of ease of use influences consumers to choose certain online platforms for shopping. Some previous studies have shown that the perception of ease of use is used to determine the intention to buy online, and the results show that the perception of ease of use has a significant influence on the intention to buy online. According to the study of Athapathuthu and Kulathunga (2018), Rehman et al. (2019), and Yang et al. (2021), perceived ease of use has a positive and significant effect on online buying intention.

Perceived Usefulness: Perceived usefulness is described as a measure of how reliable the use of technology is and can benefit those who use it (Davis, 1986). Several prominent authors (Al Rawashdeh et al., 2021; Davis, 1986) agree to define perceived usefulness as the personal ability of consumers to determine the future of consumerism. Using a specific application system will improve performance in an organizational environment. Most of the previous research used the term perceived usefulness, which refers to the advantages of online shopping such as convenience, price comparison, enjoyment, and enhanced customer-retailer relationships (Arghashi & Yuksel, 2022).

In the context of online shopping, perceived usefulness refers to the extent to which consumers believe that online shopping will increase the effectiveness of their shopping activities (Bimaruci et al., 2020). There is evidence supporting that perceived usefulness affects online shopping intentions (Ha & Nguyen, 2019; Singh & Sinha, 2020; Ventre & Kolbe, 2020). Abdullah et al. (2019), Malik and Annuar (2021), and Ru et al. (2021) found a direct relationship between perceived usefulness and purchase intention in the Malaysian context. Previous research by Athapathuthu and Kulathunga (2018), Peña-García, et al. (2020), and Hua and Wang (2019) also found that perceived usefulness has a positive and significant effect on the interest in pursuing online transactions.

3. Research Methodology

A quantitative research design was used in the present study. Quantitative research methods using questionnaires are used to obtain the necessary data from the target respondents. The results are presented

numerically, and they are used to test research hypotheses (Chigbu, 2019). The study population consisted of users from various departments at the Royal Malaysian Police (RMP) headquarters. The office officers are chosen as the subjects of the study because they are less inclined to engage in online buying behaviors due to their job nature. To collect information for this study, the researcher used a non-probability sampling technique known as convenience sampling. Convenience sampling refers to the collection of data from members of the population that are available during the data collection process (Bougie & Sekaran, 2019). According to the table of Krejcie and Morgan (1970), the sample size for this study is 150. Due to the recent outbreak of the COVID-19 pandemic that hit the country, the researchers used an online survey through Google Forms to collect the necessary data. Google forms were distributed through social media platforms, such as WhatsApp, among users in different departments at the Royal Malaysian Police headquarters. The data collection process took approximately one month, and the analysis of the research data was done using SPSS version 23.

4. Results

After one month, this study managed to collect all 150 questionnaires that had been distributed, making the response rate 100%. Table 1 shows the results of the descriptive analysis of the respondents' profiles.

Table 1: Respondents Profile (N=150)

Variable	Descriptive	Frequencies	Percentages
Gender	Male	50	33.3
	Female	100	66.7
Age	21-30 Years Old	67	44.7
	31-40 Years Old	59	39.3
	41-50 Years Old	16	10.7
	51-60 Years Old	8	5.3
Education	SPM/Certificate	21	14.0
	Diploma	12	8.0
	Bachelors	15	10.0
	Masters	70	46.7
	PhD	29	19.3
Income	RM 1,000 - RM 1,999	19	12.7
	RM 2,000 - RM 2,999	59	39.3
	RM 3,000 - RM 3,999	29	19.3
	RM 4,000 - RM 4,999	15	10.0
	RM 5,000 - RM 5,999	13	8.7
	≥ RM 6,000	15	10.0
Average Using Internet (per week)	1-2 Hours	13	8.7
	3-4 Hours	42	28.0
	5-6 Hours	39	26.0
	7-8 Hours	35	23.3
	≥ 9 Hours	21	14.0

The percentage of female respondents is higher than male, where females are 100 (66.7%) while males are only 50 (33.3%) persons. Concerning the age of the respondents, the highest number of respondents aged between 21 and 30 years, with a total of 67 respondents (44.7%), followed by the age group of 31 years to 40 years, with a total of 59 respondents (39.3%), followed by those aged between 31 and 40 years. 16 respondents (10.7%) belong to the age group of 41 to 50 years. Referring to the level of education of the respondents, the majority of them have a master's degree 70 respondents (46.7%), followed by 29 respondents (19.3%) with a Ph.D., 21 respondents (14%) with an SPM/Certificate, 15 respondents (10%) with a bachelor's degree, and 12 respondents (8%) graduated with a diploma.

From the income distribution of respondents, it shows the majority of respondents, or 59 (39.3%) individuals earned MYR 2000-2999 a month, followed by 19.3% or 29 respondents earning MYR 3000-3999 a month,

followed by 12.7% or 19 respondents earning MYR 1000-1999 a month. Respondents who earned MYR 4000-4999 and MYR 6000 and above have the same percentage, which is 10% with 15 respondents, while 8.7% or 13 respondents earn MYR 5000-5999. Finally, based on average internet usage, the highest average internet usage per day is 3-4 hours with 42 respondents (28%), followed by 5-6 hours with 39 respondents (26%), 7-8 hours with 35 respondents (23.3 %), more than 9 hours with 21 respondents (14%) and an average of 1-2 hours per day represented by 13 respondents (8.7%).

Table 2: Results of Factor Analysis for the Independent Variables

	Component				
	1	2	3	4	5
Perceived Usefulness					
Online stores allow me to search and buy products/services faster	.838				
Online stores increase my productivity in searching and buying products/service	.817				
Online stores improve my performance in searching for and buying products/services	.805				
Online stores improve my effectiveness when buying	.799				
Perceived Ease of Use					
It is easy to learn to use the website		.766			
It is easy to interact with the website		.744			
It is easy to become skillful at using the website		.689			
The website is easy to use		.620			
Subjective Norms					
People who influence me think I should buy in online stores			.910		
People who are important to me believe I should buy from online stores			.845		
People whose opinions are valuable to me would rather suggest I buy from online stores			.823		
Attitude					
I like to buy in online stores				.849	
Buying in an online store is attractive				.807	
Buying in online stores is a good idea				.802	
Perceived Behavioral Control					
Using the Internet to buy online is entirely under my control					.712
I have the resources, knowledge, and skills to buy online					.672
I would be able to use the Internet for online shopping					.642
% variance explained (92.3%)	24.8	18.6	18.2	18.1	12.6
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.					.921
Bartlett's Test of Sphericity	Approx. Chi-Square				3911.908
	df				136
	Sig.				.000
MSA					.863-.961

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

Based on the results of the factor analysis for the independent variables as shown in Table 2, the total percentage (%) of variance explained is 92.3%. Next, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy is .921, higher than the minimum value of 0.6, showing sufficient intercorrelation, and it is supported by Bartlett's Sphericity Test is significant (Approx. Chi-Square=3911.908, $p<0.01$). The results of the factor analysis show the existence of five factors that make up the independent variables as originally conceptualized. The factors are perceived usefulness, perceived ease of use, subjective norms, attitudes and perceived behavioral control.

Table 3: Results of Factor Analysis for the Independent Variables

		Component 1
I am likely to transact with an online store soon		.983
If the opportunity arises, I intend to buy from online stores		.975
If given the chance, I can predict what I should buy from an online store in the future		.965
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.764
Bartlett's Test of Sphericity	Approx. Chi-Square	624.513
	df	3
	Sig.	.000
MSA		.699-.852

Extraction Method: Principal Component Analysis.

Based on the results of the factor analysis for the dependent variable as shown in Table 3, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy is .764, which is greater than 0.6, showing sufficient inter-correlation while Bartlett's Sphericity Test is significant (approximately Chi-Square =624.513, $p<0.01$), supports this result. The results show the existence of a uni-dimensional factor for the dependent variable, which is online buying intentions.

Table 4: Results of Reliability and Correlation Analysis

No	Variables	Mean	SD	1	2	3	4	5	6
1	Attitude	3.82	.83	(.946)					
2	Perceived Behavioral Control	3.93	.90	.721**	(.956)				
3	Subjective Norms	3.38	.82	.566**	.580**	(.940)			
4	Perceived Ease of Use	3.84	.90	.707**	.858**	.629**	(.964)		
5	Perceived Usefulness	3.78	.97	.676**	.800**	.595**	.816**	(.984)	
6	buying Intention	3.92	.88	.747**	.684**	.583**	.690**	.704**	(.973)

Notes: **. Correlation is significant at the 0.01 level (1-tailed). N=150. Cronbach's alphas are along the diagonal in the parentheses.

Correlation analysis was performed to test the strength of the relationship between two variables (Sweet & Martin, 2008). If the correlation value is zero, the variable has no relationship with the other variable. Whereas, if the value is close to one, it shows a strong relationship between two variables.

Table 4 presents the results of the correlation analysis between the independent variables; attitudes, perceived behavioral control, subjective norms, perceived ease of use, and perceived usefulness, and dependent variables; that is, the intention to buy online. First, attitude and intention to buy online are strongly and significantly correlated ($r =.747^{**}$, $p<0.01$). Second, perceived behavioral control (PBC) and online purchase intention also have a significant and strong correlation ($r =.684^{**}$, $p<0.01$). Third, subjective norms and intention to buy online are significantly but moderately correlated ($r =.583^{**}$, $p<0.01$). Next, the perception of ease of use and intention to buy online is significantly and strongly correlated ($r = .690^{**}$, $p<0.01$). Finally, perceived usefulness and intention to buy online are significantly and strongly correlated ($r=.784^{**}$, $p<0.01$).

The Cronbach Alpha value for perceived usefulness was .984, followed by intention to buy online (.973), perceived ease of use (.964), perceived behavioral control (.956), attitude (.946), and subjective norms (.940). According to the Rule of Thumb on Cronbach's Alpha Coefficient, the reliability for all items measuring the intended variable is very good. Therefore, it is concluded that all the items that measure the intended variable are highly reliable.

Table 5: Results of Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	Collinearity Statistics				
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF	
1(Constant)	.464	.224		2.067	.040			
Attitude	.453	.080	.428	5.626	.000	.426	2.350	
Perceived Behavioral Control	.047	.104	.048	.455	.650	.219	4.568	
Subjective Norms	.132	.070	.124	1.882	.062	.565	1.771	
Perceived Ease of Use	.062	.107	.064	.584	.560	.203	4.930	
Perceived Usefulness	.226	.084	.250	2.682	.008	.284	3.515	

a. Dependent Variable: buying Intention

Table 5 presents the results of the multiple regression analysis. The results of this analysis show an R Square value of .645, which means that 64.5% of the variance in the dependent variable: online buying intentions is explained by the independent variables: attitude, perceived behavioral control, subjective norms, perceived ease of use, and perceived usefulness.

From these results, attitude is a significant factor in influencing online buying intentions ($p<0.01$, $\beta= .428$). Second, perceived behavioral control is not a significant variable in influencing online buying intentions ($p >0.05$, $\beta= .048$). Third, subjective norms are not significant in influencing online buying intentions ($p >0.05$, $\beta= .124$). Fourth, perceived ease of use is not a significant factor in influencing online buying intentions ($p >0.01$, $\beta= .064$). Finally, perceived usefulness is a significant factor in influencing online buying intentions ($p < 0.01$, $\beta= .250$).

Discussion: The findings of this study show that there is a significant relationship between attitude and online buying intentions. The results of this study prove that consumers' attitudes toward online shopping have a positive effect on their shopping intentions. The more positive the consumer's attitude towards a website/online store, the more likely they are to shop at that website/store. Consumers who find the buying process convenient will make a buying decision. This finding is consistent with previous studies by Lin (2007), Song et al. (2021), and others that attitude is the most significant factor influencing online buying intentions.

Based on the findings, there is no significant relationship between subjective norms and online buying intentions. The findings of this study contradict the findings of previous studies by Ha and Nguyen (2019), and Ventre and Kolbe (2020), which showed that reference group opinions have a positive relationship with online shopping intentions. The more reference groups encourage online shopping, the more online customers are likely to shop online, and vice versa. This finding is like the study of Lin (2007), and Hasan and Suciarto (2020) that subjective norms might not necessarily lead to online buying intentions.

The findings of the study also show that there is no significant relationship between perceived behavioral control and online buying intentions. The findings of this study contradict previous research by Peña-García et al. (2020), Hua and Wang (2019), and Rehman et al. (2019), who found that perceived behavioral control is a key driver of first impressions to customers. Complicated processes and unnecessary requirements should be simplified. Online stores should be seen as easy to use, and this affects the number of users who will make purchases on such sites (Iriani & Andjarwati, 2020). Customers often want to shop on a platform that is easy to use and will save them time.

This finding also shows that there is no significant relationship between perceived ease of use and online buying intentions. The findings of the current research contradict some of the results of previous research, including the results of the study of Lim et al. (2016), Peña-García et al. (2020), and Rehman et al. (2019). If the technology is user-friendly, customers are likely to use it (Fan, et al., 2021; Roberts, et al., 2021). But, when it is hard to use, and the configuration is confusing, nobody likes it. According to Li et al. (2020), consumers prefer to buy products or services through convenient online shopping platforms.

Based on the findings, there is a significant relationship between perceived usefulness and online buying intentions. The results of this study have proven that users who see the usefulness of online transactions will engage in online shopping. Several studies have shown that perceived usefulness directly affects buying intention in an e-commerce context (Abou Ali et al., 2020; Gupta et al., 2021; Ventre & Kolbe, 2020). According to previous findings of Abdullah et al. (2019), Malik and Annuar (2021), and Ru et al. (2021), there is a direct relationship between perceived usefulness and online buying intentions in the Malaysian context. This study provides the needed evidence to support the assertion.

5. Managerial Implications and Recommendations

In this section, the present study makes several recommendations for future efforts in determining factors influencing online buying intentions. The recommendations are as follows:

- This study aims to determine the factors that influence online buying intentions: attitude, perceived behavioral control, subjective norms, perceived ease of use, and perceived usefulness. However, the results show that only attitude and perceived usefulness have a significant relationship with online buying intentions, while perceived behavioral control, subjective norms, and perceived ease of use do not significantly influence online buying intentions. As a result, it is suggested that further research should conduct similar studies to confirm the current study's findings.
- A larger sample size is recommended for future studies because the sample size obtained for this study was too small due to access limitations. Since this study only received 150 responses, the number of samples studied is relatively small compared to the total population. This study strongly believes that a larger sample size will provide a better representation of the population.
- The same study is proposed to be replicated with users from different backgrounds in other Malaysian government organizations to generate more thorough data on how the five factors consisting of attitudes, subjective norms, perceived behavioral control, perceived ease of use, and perceived usefulness have a significant relationship with online buying intentions. Furthermore, additional research could provide sufficient data for comparison.
- This study only focuses on specific factors to determine their influence on the dependent variable, online buying intentions. Future researchers should include other influential variables to measure consumers' online purchase intentions, such as trust, security, perceived risk, etc. so that the findings will enrich the existing body of knowledge in the field.
- It is suggested to use different methods for data collection. The present study only used a questionnaire as a survey method to collect the required data for this study. For future studies, researchers can use qualitative methods to learn more about human behavior, attitudes, and experiences through observation and interviews or focus group studies.
- In the future, researchers can use stratified sampling techniques to choose the right respondents. Stratified sampling allows researchers to divide the population into different groups known as strata. From each group, a probability sample can be made. Stratified sampling has several advantages over other sampling techniques. For example, using stratified sampling may allow for a reduction in the sample size required to achieve a certain precision.

For managerial implications, it is recommended that the RMP headquarters should promote online buying by emphasizing the advantages of this activity. They need to be exposed to these advantages before they can have positive perceptions of online buying platforms, and activities. This is meant to change the perception of the officers on online buying and subsequently encourage them to participate in this activity.

Conclusion: Online buying behavior has become a common practice among Malaysians. The COVID-19 pandemic has contributed to changing Malaysians to be more receptive to this phenomenon. The subject of this study is the Royal Malaysian Police (RMP) because this group is quite reluctant to accept the new norm due to the nature of their job. Using an online survey approach to collect the required data, a sum of 150 responses was obtained from various departments at the RMP headquarters. The results of multiple regression analysis confirm that only two factors; attitude and perceived usefulness, are crucial to influencing online buying intentions. Therefore, it is suggested that for the police force to have the intention to buy

online, their attitude and perception towards online shopping needs to be changed. They need to be guided, especially during the first attempt to make an online purchase transaction a favorable experience.

References

Abdullah, D., Kamal, S. B. M., Azmi, A., Lahap, J., Bahari, K. A., Din, N. & Pinang, C. P. (2019). Perceived website interactivity, perceived usefulness and online hotel booking intention: a structural model. *Malaysian Journal of Consumer and Family Economics,* 21(1), 45-57.

Abou Ali, A., Abbass, A. & Farid, N. (2020). Factors influencing customers' buying intention in social commerce. *International Review of Management and Marketing,* 10(5), 63.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In Action control: From cognition to behavior (pp. 11-39). Berlin, Heidelberg: Springer Berlin Heidelberg.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes,* 50(2), 179-211.

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior 1. *Journal of Applied Social Psychology,* 32(4), 665-683.

Ajzen, I. & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin,* 84(5), 888.

Al Rawashdeh, A. Z., Mohammed, E. Y., Al Arab, A. R., Alara, M. & Al-Rawashdeh, B. (2021). Advantages and disadvantages of using e-learning in university education: Analyzing students' perspectives. *Electronic Journal of E-learning,* 19(3), 107-117.

Al-Azzam, A. F. & Al-Mizeed, K. (2021). The effect of digital marketing on purchasing decisions: A case study in Jordan. *The Journal of Asian Finance, Economics and Business,* 8(5), 455-463.

Albarracin, D., Johnson, B. T., Fishbein, M. & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: a meta-analysis. *Psychological Bulletin,* 127(1), 142.

Arghashi, V. & Yuksel, C. A. (2022). Interactivity, inspiration, and perceived usefulness! How retailers' AR apps improve consumer engagement through flow. *Journal of Retailing and Consumer Services,* 64, 102756.

Athapaththu, J. C. & Kulathunga, K. M. S. D. (2018). Factors affecting online purchase intention (OPI): A study of Sri Lankan online customers. *International Journal of Scientific and Technology Research,* 7(9), 120–128.

Bandura, A. & Hall, P. (2018). Albert Bandura and social learning theory. Learning Theories for Early Years Practice, 63-65.

Bimaruci, H., Hudaya, A. & Ali, H. (2020). Model of consumer trust on travel agent online: analysis of perceived usefulness and security on re-buying interests (case study tiket. com). *Dinasti International Journal of Economics, Finance & Accounting,* 1(1), 110-124.

Bougie, R. & Sekaran, U. (2019). Research methods for business: A skill building approach. John Wiley & Sons.

Cheung, M. F. Y. & To, W. M. (2017). The influence of the propensity to trust on mobile users' attitudes toward in-app advertisements: An extension of the theory of planned behavior. *Computers in Human Behavior,* 76, 102–111. https://doi.org/10.1016/j.chb.2017.07.011

Chigbu, U. E. (2019). Visually hypothesizing in scientific paper writing: Confirming and refuting qualitative research hypotheses using diagrams. *Publications,* 7(1), 22.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 13(3), 319–340.

Davis, F. D. (1986). A Technology Acceptance Model for Empirical Testing New end-user information system: Theory and Results. Massachusetts Institute of Technology.

eMarketer (2015). US M-Commerce 2015: eMarketer's Forecast and Trends. http://www.emarketer.com/corporate/coverage#/results/1282.

Fan, X., Chao, D., Zhang, Z., Wang, D., Li, X. & Tian, F. (2021). Utilization of self-diagnosis health chatbots in real-world settings: A case study. *Journal of Medical Internet Research,* 23(1), e19928.

Feng, X., Fu, S. & Qin, J. (2016). Determinants of consumers' attitudes toward mobile advertising: The mediating roles of intrinsic and extrinsic motivations. *Computers in Human Behavior,* 63, 334-341.

Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.

Gupta, P., Prashar, S., Vijay, T. S. & Parsad, C. (2021). Examining the influence of antecedents of continuous intention to use an informational app: the role of perceived usefulness and perceived ease of use. *International Journal of Business Information Systems,* 36(2), 270-287.

Ha, N. & Nguyen, T. (2019). The effect of trust on consumers' online buying intention: An integration of TAM and TPB. *Management Science Letters,* 9(9), 1451-1460.

Han, B., Kim, M. & Lee, J. (2018). Exploring consumer attitudes and purchasing intentions of cross-border online shopping in Korea. *Journal of Korea Trade,* 22(2), 86–104. https://doi.org/10.1108/jkt-10-2017-0093

Hasan, H. N. & Suciarto, S. (2020). The influence of attitude, subjective norm and perceived behavioral control towards organic food purchase intention. *Journal of Management and Business Environment (JMBE),* 1(2), 132.

Hua, L. & Wang, S. (2019). Antecedents of consumers' intention to buy energy-efficient appliances: An empirical study based on the technology acceptance model and theory of planned behavior. *Sustainability,* 11(10), 2994.

Iriani, S. S. & Andjarwati, A. L. (2020). Analysis of perceived usefulness, perceived ease of use, and perceived risk toward online shopping in the era of the COVID-19 pandemic. *Systematic Reviews in Pharmacy,* 11(12), 313-320.

Javadi, M. H. M., Dolatabadi, H. R., Nourbakhsh, M., Poursaeedi, A. & Asadollahi, A. R. (2012). An analysis of factors affecting online shopping behavior of consumers. *International Journal of Marketing Studies,* 4(5), 81.

Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement,* 30(3), 607-610.

Li, X., Zhao, X. & Pu, W. (2020). Measuring the ease of use of mobile applications in e-commerce retailing from the perspective of consumer online shopping behavior patterns. *Journal of Retailing and Consumer Services,* 55, 102093.

Lien, C. H. & Cao, Y. (2014). Examining WeChat users' motivations, trust, attitudes, and positive word-of-mouth: Evidence from China. *Computers in Human Behavior,* 41, 104-111.

Lim, Y. J., Osman, A., Salahuddin, S. N., Romle, A. R. & Abdullah, S. (2016). Factors influencing online shopping behavior: the mediating role of buying intention. *Procedia Economics and Finance,* 35, 401-410.https://doi.org/10.1016/s2212-5671(16)00050-2

Lin, H. F. (2007). Predicting consumer intentions to shop online: An empirical test of competing theories. *Electronic Commerce Research and Applications,* 6(4), 433-442.

Malik, A. N. A. & Annuar, S. N. S. (2021). The effect of perceived usefulness, perceived ease of use, reward, and perceived risk toward e-wallet usage intention. In Eurasian Business and Economics Perspectives: Proceedings of the 30th Eurasia Business and Economics Society Conference (pp. 115-130). Springer International Publishing.

Monsuwé, T. P., Dellaert, B. G. & De Ruyter, K. (2004). What drives consumers to shop online? A literature review. *International Journal of Service Industry Management,* 15(1), 102-121.

Park, D. H., Lee, J. & Han, I. (2007). The effect of online consumer reviews on consumer purchasing intention: The moderating role of involvement. *International Journal of Electronic Commerce,* 11(4), 125-148.

Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce,* 7(3), 101-134.

Peña-García, N., Gil-Saura, I., Rodríguez-Orejuela, A. & Siqueira-Junior, J. R. (2020). Buying intention and buying behavior online: A cross-cultural approach. *Heliyon,* 6(6). https://doi.org/10.1016/j.heliyon.2020.e04284

Rehman, S. U., Bhatti, A., Mohamed, R. & Ayoup, H. (2019). The moderating role of trust and commitment between consumer buying intention and online shopping behavior in the context of Pakistan. *Journal of Global Entrepreneurship Research,* 9(1), 1-25.

Rimal, R. N. & Real, K. (2003). Understanding the influence of perceived norms on behaviors. *Communication Theory,* 13(2), 184-203.

Roberts, A. E., Davenport, T. A., Wong, T., Moon, H. W., Hickie, I. B. & LaMonica, H. M. (2021). Evaluating the quality and safety of health-related apps and e-tools: Adapting the Mobile App Rating Scale and developing a quality assurance protocol. *Internet Interventions,* 24, 100379.

Ru, L. J., Kowang, T. O., Long, C. S., Fun, F. S. & Fei, G. C. (2021). Factors influencing online buying intention of Shopee's consumers in Malaysia. *International Journal of Academic Research in Business and Social Sciences,* 11(1), 761-776.

Schwarzer, R. & Luszczynska, A. (2008). Self-efficacy. Handbook of Positive Psychology Assessment, 207-217.

Sembada, A. Y. & Koay, K. Y. (2021). How perceived behavioral control affects trust in buying in social media stores. *Journal of Business Research,* 130, 574-582.

Shaouf, A., Lü, K. & Li, X. (2016). The effect of web advertising visual design on online buying intention: An examination across gender. *Computers in Human Behavior*, 60, 622-634.

Singh, N. & Sinha, N. (2020). How perceived trust mediates a merchant's intention to use mobile wallet technology. *Journal of Retailing and Consumer Services,* 52, 101894.

Song, H., Ruan, W. J. & Jeon, Y. J. J. (2021). An integrated approach to the buying decision-making process of food-delivery apps: Focusing on the TAM and AIDA models. *International Journal of Hospitality Management,* 95, 102943.

van der Heijden, J. G. M., Verhagen, T. & Creemers, M. R. (2001). Predicting online buying behavior: Replications and tests of competing models. In Proceedings of the 34th Hawaiian International Conference on System Sciences (HICSS) HICSS.

Ventre, I. & Kolbe, D. (2020). The impact of perceived usefulness of online reviews, trust and perceived risk on online buying intention in emerging markets: A Mexican perspective. *Journal of International Consumer Marketing,* 32(4), 287-299.

Yang, M., Mamun, A. A., Mohiuddin, M., Nawi, N. C. & Zainol, N. R. (2021). Cashless transactions: A study on the intention and adoption of e-wallets. *Sustainability,* 13(2), 831.

Zhao, Y., Wang, L., Tang, H. & Zhang, Y. (2020). Electronic word-of-mouth and consumer buying intentions in social e-commerce. *Electronic Commerce Research and Applications,* 41, 100980.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Stop! I am Shaking: Workplace Aggression and Anxiety among Interns in Klang Valley

Mohamad Shahril Mohamad Besir[1*], Mohd. Zulkifli Abdullah[2], Saadiah@Juliana Saadun[3]
Siti Noraini Mohd. Tobi[4], Nor Zaihan Mat Hasan @ Mat Hussin[5] & Ayman Hazim Huzahim[6]
[1,2,3,4,5] Faculty of Business and Management, UiTM Puncak Alam, Malaysia
[6]National Heart Institute, Jalan Tun Razak, Kuala Lumpur, Malaysia
*shahrilbesir@uitm.edu.my, m_zulkifli@uitm.edu.my, saadiah2861@uitm.edu.my,
snoraini7601@uitm.edu.my, norzaihanmh@uitm.edu.my, ayman@ijn.com.my

Abstract: Internships have become crucial to help students make them stand out while at the same time providing training and work experience for the students. However, the issue of workplace aggression among internship students is increasing and is worrying many parties as it is a prevalent matter that internship students can be subjected to mistreatment in the workplace. Drawing from the Job Demand-Resource model and Conservation of Resources theory, this paper sought to identify the relationship between independent variables such as workplace bullying, interpersonal conflict, abusive supervision and anxiety among interns from the Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam campus who underwent internship in Klang Valley. An online questionnaire was distributed to the interns, and 128 completed sets were responded to. The results found that there were positive correlations between workplace bullying, abusive supervision and interpersonal conflict on anxiety among the interns. The findings suggest that aggression in the workplace correlates with psychological disorders as it can cause the interns to experience psychological strain such as anxiety. In general, the research aims to contribute to a better understanding of workplace aggression and anxiety to mitigate these conundrums and foster a positive and supportive atmosphere for internship students. Furthermore, both organizations and interns need to have the knowledge and skills to prevent them from experiencing psychological illnesses. The implications of the study will be further discussed in the paper.

Keywords: *Bullying, abusive supervision, interpersonal conflict, anxiety.*

1. Introduction and Background

Aggression is a worldwide issue that could affect an individual's psychology and physiology. According to Yosep et al. (2022), various types of aggression include verbal, psychological, physical and sexual abuse. The common type of aggression is verbal aggression which is defined as a series of words that are intended to inflict intense humiliation-denigration-fear on others such as verbal insults, threats and undermining (Cao et al. 2022). Aggression in the workplace correlates with psychological disorders as it can cause an individual to feel depression, anxiety, low self-confidence, distress and disappointment (Alfandari et al., 2022) and this notorious social behavior could yield professional consequences for instance, absenteeism, poor work quality, and turnover (Geoffrion et al., 2023). Workplace aggression can be expressed into workplace bullying, abusive supervision and interpersonal conflict as this phenomenon is an ongoing or recurrent abuse of power that takes place through human interaction, undermines the dignity of the relationship, and impairs effective workforce management (Ahmad, 2022). Basharat et al. (2019) found that the victims of workplace aggression who experienced distress from the mistreatment tended to exhibit aggression which can be reflected as an undermining behavior. Shdaifat et al. (2020) believe that aggression in the workplace yields a negative impact on not only the quality of work it also productivity, and job satisfaction and this leads to stress and anxiety. According to Gülüm and Jordi (2023), this is because conflicts in the workplace are inevitable and could occur from misunderstanding, clash of opinions and interests and when the conflict is unsolved, it may lead to workplace aggression.

Numerous studies have reported that this malicious behavior is thought to occur at a rate of between 5% to 10% in Europe while America has a rate of 10% to 14% of bullying (Jalali, 2020) and bullying is everywhere from school to the workplace (Mohammed & Ahmed, 2022). In addition, a study reveals that workplace bullying as an occupational and psychological stressor has many implications on employees' satisfaction which means it goes to affects the interns' entire sense of well-being such as anxiety (Nauman, Malik & Jalil, 2019). Anxiety is an emotion characterized by worried thoughts, tense feelings, and physical changes such as increased blood pressure whereas people with anxiety disorders usually have recurring worries or disturbing

thoughts (Szlenk-Czyczerska & Włodarczyk, 2023). Even though anxiety may have positive impacts, however, excessive anxiety can lead to nervousness, boredom, and sullenness; severe anxiety can even cause learning challenges and affect physical and psychological health (Yi et al., 2022). When anxiety levels are too high, intern students may experience melancholy, burnout syndrome, post-traumatic stress disorder, and other psychological health problems (Yi et al., 2022).

2. Literature Review

General statistics about workplace aggression state that a 2019 survey found that about 94% of U.S. workers have been bullied at least once at work, up from 75%. Of the 94% of workers who claimed to have been bullied at work, 51.1% of them said the bullying was perpetrated by a boss or manager (Goh, 2023). After extensive research, about 83% of U.S. workers experience work-related stress, with 25% saying their workplace aggression is the number one stressor in life that can affect their physical and psychological health (Goh, 2023). It is imperative to have an understanding of the issue of workplace aggression so this will aid in the development of interventions and policies targeted to reduce this social behavior problem. The issue of bullying among internship students is increasing and is worrying many parties. According to Fauzi et al. (2022), although various guidelines, warnings and advice are gathered through the mass media, the solution to this social problem is still inconclusive. Many new hires who are bullied in their workplace are already a cultural and habitual practice; nevertheless, this has a serious effect on their psychological morbidity such as anxiety (Shahril et al., 2023). Anxiety is recognized as a negative emotion because of unsettling feelings inside and is accompanied by caution, complaining, nervousness and concern (Liu et al., 2019). Besides, another study stated that anxiety can be seen with the symptoms of a subjective feeling of distress and concomitant difficulties with sleep, concentration, and social or vocational functioning (Almokhtar et al., 2019). Sahin and Erdogan (2022) also note that signs of anxiety such as fear, depression, anger, guilt and perceptions of grief and loss, were the common signs of anxiety.

Workplace Bullying and Anxiety: Bullying has been defined as unwanted aggressive behavior performed by peers involving actual or the perception of a possible power imbalance repeated over time (Holmgren et al., 2022). According to Holmgren et al. (2022), the four subtypes are verbal, physical bullying, relational bullying and property damage. Firstly, verbal bullying includes aggressive communication such as teasing, name-calling and threats. Secondly, physical bullying refers to acts of physical aggression such as hitting and kicking. Thirdly, relational bullying includes actions aimed at isolating the victim. Finally, property damage includes actions designed to harm the victim, such as taking goods and refusing to give them back or destroying the victim's property. Workplace bullying is an exhausting experience that consumes physical and mental resources (Sprigg, 2019). It eventually leads to severe exhaustion of self-control resources and failure of that self-control, as well as mental health difficulties (Saridi et al., 2019). Therefore, it is hypothesized that:
H1: There is a significant relationship between workplace bullying and anxiety.

Abusive Supervision and Anxiety: Gatti et al. (2019) have defined abusive supervision as "a subordinate's perception of the extent to which supervisors engage in persistent verbal and nonverbal displays of hostility behavior does not include physical contact." In contrast, abused workers exhibit even more negative or harmful behavior such as turnover intentions, unproductive work behavior and malpractice (Mamani et al., 2022). When looking at the workplace, the role of the supervisor plays an important role to improve or reduce employee effort towards task achievement. According to the conservation of resources (COR) theory, research attempts to investigate the relationship between abusive supervision and counterproductive work behavior (Zubair et al., 2019). Then, the results of the study show that abusive supervision is increasing and subordinates experience urgent emotional exhaustion. In addition, the involvement of internal employees also results in unproductive work behavior. This stress will increase when there are many work demands from an abusive supervisor. According to Ali et al. (2022), employees including interns who are abused by their leaders are negatively affected at work and in their personal lives and eventually become less committed to the organization, and may even leave their jobs. This also greatly contributes to the intern's psychological strain such as anxiety. Therefore, the following hypothesis suggests that:
H2: There is a significant relationship between abusive supervision and anxiety.

Interpersonal Conflict and Anxiety: Interpersonal conflict is a source of job stress that has an impact on organizational outcomes. Workplace conflict can be categorized into task conflict and relationship conflict. Khan et al. (2019) define task conflict as a conflict that focuses on task-related activities such as procedures and policies while relationship conflict focuses on personal issues like a clash of personalities, different styles opinions and political preferences. The conflict will interfere with work performance and reduce work satisfaction while in some cases it will lead to anxiety, absenteeism and depression (Pitafi et al., 2020). Along with organizational outcomes, interpersonal conflict can hurt employee attitudes and behaviors (Hunter et al., 2022). Interpersonal conflict can cause stress among interns and this leads to anxiety. Therefore, it is hypothesized that:
H3: There is a significant relationship between interpersonal conflict and anxiety.

3. Research Methodology

A cross-sectional research design was used to examine the association between workplace bullying, abusive supervision, interpersonal conflict and anxiety among interns. Data were collected through online questionnaires that were personally emailed to the respective interns who were undergoing internships in Klang Valley. A total of 128 sets of the questionnaire were responded to, recording a return rate of 100%. The questionnaire was adapted from the established questionnaire and the items were modified to align with the research questions of the present study. The items in the questionnaire were adapted from the Malaysian Workplace Bullying Index (MWPBI), abusive supervision scale, workplace interpersonal conflict scale (WICS) and general anxiety disorder (GAD-7). The questionnaire consisted of 38 questions that were related to the study and divided into five sections. Section A involved the demographic information of the respondents, including their gender, age, degree programs, types of company and marital status. Sections B, C and D consisted of questions related to the independent variables that were workplace bullying, abusive supervision and interpersonal conflict. Finally, section E consisted of questions regarding the dependent variable which was anxiety. The questionnaire utilized closed-ended questions with a fixed range of possible answers using a 4-point Likert scale with the following values: 1 = never, 2 = sometimes, 3 = often, and 4 = very often to measure all variables. The items were modified to get the required responses that would answer the research questions. The collected data were analyzed using statistical software, i.e., SPSS Version 26. The study used both descriptive statistics (mean and standard deviation) and inferential statistics (a simple linear regression analysis).

4. Results

This section presents sets of results relating to the profile of respondents, and descriptive statistics such as means score, for workplace bullying, abusive supervision, interpersonal conflict, and anxiety. This section also shows the correlation, reliability and regression analyses.

Profile of Respondents: Table 1 displays a summary of the characteristics of the total sample of interns who participated in this study.

Table 1: Demographic Information

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	15	11.7%
Females	113	88.3%
Total	**128**	**100%**
AGE		
21-23	40	31.3%
24-26	85	66.4%
>27	3	2.3%
Total	**128**	**100%**
DEGREE PROGRAM		
Office Systems Management	3	2.3%
Entrepreneurship	2	1.6%

Customer Service Management	1	0.8%
Health Administration	63	49.2%
Event Management	1	0.8%
Marketing	1	0.8%
Insurance	1	0.8%
Finance	8	6.3%
Human Resource Management	8	6.3%
Operations Management	10	7.8%
International Business	27	21.1%
Islamic Banking	1	0.8%
Business Economic	2	1.6%
Total	**128**	**100%**
TYPE OF INTERNSHIP PLACEMENT		
Government	37	28.9%
Semi-Government	24	18.8%
Local-Owned Private Company	44	34.4%
Foreign-Owned Private	8	6.3%
Others	15	11.7%
Total	**128**	**100%**
MARITAL STATUS		
Single	117	91.4%
Married	11	8.6%
Total	**128**	**100%**

A total of 128 respondents were involved in the study which reported that about 11.7% or 15 of the respondents were male and 88.3.7% or 113 of the respondents were female. Regarding the participants' age, 85 respondents, or 66.4% of them, were between 24 and 26 years old; 40 (31.3%) of them were between 21 and 23 years old and 3 (2.3%) of the respondents were 27 years old and above. Regarding the respondents' degree program, 63 (49.2%) of them were from Bachelor of Health Administration; 27 (21.1%) of the respondents were from Bachelor of International Business; 10 (7/8%) of them were from Bachelor of Operations Management; 8 (6.3%) of the interns were Bachelor of Finance and Bachelor of Human Resource Management respectively and about 3 (2.3%) of them were from Bachelor of Office Systems Management. About 44 (34.4%) of the respondents underwent an internship at local-owned private companies; 37 (28.9%) of the respondents went to government offices for their internship placement and only 8 (6.3%) of the interns went to foreign-owned private companies. It was found that about 117 (91.4%) of the respondents were unmarried and 11 (8.6%) of the interns were married.

Descriptive Statistics: Table 2 displays the descriptive statistics for workplace aggression and anxiety among interns in Klang Valley. These provide the average mean scores of the independent variables including workplace bullying, abusive supervision, interpersonal conflict and anxiety as the dependent variable.

Table 2: Descriptive Statistics

	Descriptive Statistics		
Variable	**Factor Name**	**Mean**	**Std. Dev.**
WB	Workplace Bullying	2.5234	0.82907
AS	Abusive Supervision	2.1304	0.62249
IC	Interpersonal Conflict	1.0445	0.73580
ANX	Anxiety	2.0212	0.86945

The mean scores ranging from 2.5234, 2.1304, 1.0445 and 2.0212 were obtained from workplace bullying, abusive supervision, interpersonal conflict and anxiety. These results indicate that respondents sometimes experienced workplace aggression while undergoing their internship.

Reliability and Correlation: Table 3 shows the reliability and correlation results of workplace bullying, abusive supervision, interpersonal conflict and anxiety.

Table 3: Reliability and Correlation

No	Variables	Mean	SD	1	2	3	4
1	Workplace Bullying	2.5234	0.82907	(.882)			
2	Abusive Supervision	2.1304	0.62249	.484**	(.957)		
3	Interpersonal Conflict	1.0445	0.73580	.470**	.794**	(.896)	
4	Anxiety	2.0212	0.86945	.182*	.371**	.418**	(.933)

(*p<0.05; **p<0.001)

Table 3 demonstrates the results of reliability analysis that indicate that all items are reliable to measure the intended variables; workplace bullying (α=.88), abusive supervision (α=.96), interpersonal conflict (α=.9), anxiety (α=.93). The results of the correlation analysis show that all independent variables are significantly correlated with each other, indicating a convergent validity. The highest correlation (r=.794; p<.001) is found between interpersonal conflict and abusive supervision, while the lowest correlation (r=.470; p<.001) is found between workplace bullying and interpersonal conflict. All independent variables are significantly correlated with the dependent variable, signifying concurrent validity. The lowest correlation is between workplace bullying and anxiety (r=.182; p<.005) and the highest correlation is between interpersonal conflict and anxiety (r=.418; p<.001).

Regression Analysis: Table 4 shows the regression analysis of workplace aggression and anxiety.

Table 4: Regression Analysis of Workplace Aggression and Anxiety

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.424[a]	.180	.160	.679	.180	9.045	3	124	.000

Table 4 demonstrates the model summary of the relationship between workplace aggression including workplace bullying, abusive supervision, interpersonal conflict and anxiety among interns in Klang Valley. The value of Significant F Change is less than 0.05, hence the model is significant. The table shows that the value of R^2 is .18 implying that all independent variables which are workplace bullying, abusive supervision and interpersonal conflict explain 18% of the variance in the dependent variable. The remaining 82% are contributed by other variables which are not covered in this study. Besides that, the table states that the F value of 9.045 is more than 1.00 which indicates that the model of analysis is fixed.

Discussion: Pearson correlation analysis was used to determine the relationship between workplace bullying and anxiety. The result shows a positive with a low relationship between both variables. Hence, H1 (there is a relationship between workplace bullying and anxiety) is supported. According to Pan et al. (2022), workplace bullying is a significant predictor of mental health issues, such as anxiety. This means that individuals who experience workplace bullying are more likely to report higher levels of anxiety compared to those who do not experience such ill-treatment. Nielsen (2022) stated that the cases of workplace bullying need to be explored in a sustained and systematic way because all organizations have a responsibility to protect their employees including interns from the psychological harassment of a workplace bully. Management should establish and communicate clear policies and procedures that explicitly address workplace bullying and harassment to employees. They need to ensure that all employees are aware of these policies and know how to report incidents confidentially and without fear of retaliation.

The findings from the correlation between abusive supervision and anxiety revealed a positive with a moderately significant relationship between both variables. Therefore, this suggests that H2 (there is a relationship between abusive supervision and anxiety) is supported. According to Sannes et al. (2021), abusive supervision was positively related to employee anxiety, which, in the long run, negatively affected

their job performance and overall job satisfaction. When employees such as interns are subjected to abusive supervision, they experience higher levels of anxiety. The malicious behavior exhibited by supervisors or peers can cause stress, fear, and uncertainty about their work environment and job security (Salem et al., 2023). This is also compatible with a study conducted by Xi et al. (2022) where they studies confirmed that feeling anxious is the outcome of abusive leaders. A previous study by Pyc et al. (2017) also found that abusive supervision was associated with higher levels of employee stress, which could lead to increased anxiety. This stress, in turn, can cause affected interns to experience increased levels of anxiety in their daily lives.

Pearson correlation was also used to determine the relationship between interpersonal conflict and anxiety. The results revealed a positive significance with a moderate relationship between both variables. Consequently, H3 (there is a relationship between interpersonal conflict and anxiety) is supported. According to Zahlquist et al. (2023), interpersonal conflict is associated with substantial negative outcomes such as anxiety for employees including interns. When interns have disagreements with their potential coworkers or superiors, their job satisfaction suffers and this can lead to feelings of anxiety and uncertainty about one's future. This finding is compatible with a study undertaken by Malivoire and Koerner (2022) reported that interpersonal conflict with co-workers has a positive relationship with anxiety. A positive relationship means that as the level of interpersonal conflict with co-workers increases, so does the level of anxiety experienced by the individuals involved in those conflicts.

5. Managerial Implications and Recommendations

The aim of the research is expected to enrich the extant literature stream by integrating the unique aspects of workplace aggression such as bullying, abusive supervisors and interpersonal conflict outcome variable; anxiety. The present study is also expected to contribute to existing knowledge on the prevalence and consequences of workplace aggression and be used as a reference or guideline to design interventions in reducing or mitigating workplace violence and its outcomes such as anxiety, especially among internship students. There are a few suggestions about dealing with workplace aggression that involves interns. Firstly, management should be able to tackle the level of stress experienced by the current staff via the improvement of their job satisfaction encompassing reasonable compensation, practical work policies, and flexible work conditions and encourage employee interactions in staff meetings (Kollerová et al., 2023). Besides that, organizations should design training programs related to managing anxiety, stress and conflict. Furthermore, the organization should emphasize training their staff in resolving conflicts to minimize the effects of interpersonal conflicts. Employers should organize training for all employees as well as internship students that aim to increase their effective communication skills, empathy and techniques for problem-solving.

The employees may be better equipped to handle conflicts constructively and prevent the situation from escalating (Quiun, 2023). Furthermore, management should promote open communication among employees by encouraging employees to express their concerns and emotions in a safe and non-judgmental environment. Supervisors should acknowledge the causes of the conflicts and develop several strategies to combat the issues such as developing informal interaction to encourage the employees to communicate and get to know each other (Lekalakala et al., 2023). Finally, the company should develop a feasible reporting system that allows and encourages victims to lodge reports related to workplace aggression. Employees must have clear channels to report instances of abusive supervision or mistreatment. Employees will feel safer and supported when raising concerns and it assures them that retaliation will not be tolerated. Besides, management must investigate and address complaints made by employees seriously and conduct thorough investigations based on the lodged complaints. They must address the issues as soon as possible and take appropriate action, which could include coaching or disciplinary measures.

Conclusion: As denoted throughout, workplace aggression has been shown to significantly damage victims' mental health in a plethora of ways including internship students. Internship is an imperative learning cycle for students and should be made conducive to improving critical skills especially when they are in the real workforce. Nonetheless, workplace toxicity such as aggression that includes workplace bullying, abusive supervision and interpersonal conflict not only hinders their ability to grasp the important aspects of tasks but also leads to serious psychological illness, for instance, anxiety. Thus, this study aimed to investigate the

relationship between workplace aggression (workplace bullying, abusive supervision, interpersonal conflict) and anxiety among internship students of UiTM Puncak Alam from the Faculty of Business and Management. It can be concluded there was a positive relationship between workplace bullying, abusive supervision, interpersonal conflict, and anxiety among the internship students. To understand this, it is imperative to turn to the Job-Demand Resource Model and Conservation of Theory which explains why negative outcome such as anxiety is faced by the internship when such predictors exist. Considering the results of the research, there is an urgent need to develop and implement prevention and reporting mechanisms to mitigate workplace aggression. Finally, it is viewed as necessary for the faculties and organizations to strengthen the internship students' soft skills such as conflict negotiation and communication skills.

Acknowledgments: The authors gratefully acknowledge the help of University Teknologi MARA in providing a grant and supporting the research work (Project Reference: 600-UiTMSEL (P.1 5/4) (053/2022) Dana UCS Pembudayaan and Faculty of Business and Management, UiTM Puncak Alam.

References

Ahmad, S. (2022). Caring for those in your charge : the role of servant leadership and *compassion in managing bullying in the workplace,* 34(1), 125–149. https://doi.org/10.1108/IJCMA-05-2022-0098

Alfandari, R., Enosh, G., Tzafrir, S. S. & Regehr, C. (2022). Understanding health outcomes following workplace aggression: A social exchange perspective. *Health & Social Care in the Community*, 30(6), e3995-e4005.

Ali, S., Hussain, I. & Shahzad, F. (2022). A Multidimensional Model of Abusive Supervision and Work Incivility.

Almokhtar, A. A. J. M. J. & Azab Elsayed, A. (2019). Anxiety: Insights into Signs, Symptoms, Etiology, Pathophysiology and Treatment. *East African Scholars Journal of Medical Sciences*, 2(10), 580–591. http://www.easpublisher.com/easjms/

Basharat, R., A. A., S, Z. & A. M. (2019). Linking Workplace Deviance and Abusive Supervision: Moderating Role of Positive Psychological Capital. *International Journal of Organizational Leadership*, 8(1), 95-111. doi:10.33844/ijol.2020.60472

Cao, W., Li, P., C. van der Wal, R. & W. Taris, T. (2022). Leadership and workplace aggression: A meta-analysis. *Journal of Business Ethics*, 1-21.

Fauzi, R., Sharoni, S. K. A., Bakar, S. F. A., Isa, S. N. I., Isa, R. & Yusof, R. C. (2022). Psychometric Properties of the Malay Version of the Negative Acts Questionnaire-revised (NAQ-R) and Workplace Violence in the Health Sector Country Questionnaire on Workplace Bullying Among Nurses in Selangor, Malaysia. Malaysian Journal of Medicine & Health Sciences, 18.

Gatti, P., Caputo, A. & Cortese, C. G. (2019). An initial validation of Tepper's Abusive Supervision Scale. *BPA-Applied Psychology Bulletin (Bollettino di Psicologia Applicata)*, 67(284).

Geoffrion, S., Lamothe, J., Giguère, C. É. & Collin-Vézina, D. (2023). The effects of adherence to professional identity, workplace aggression, and felt accountability on child protection workers' professional quality of life. *Child Abuse & Neglect*, 135, 105950.

Goh, H. S., Hosier, S. & Zhang, H. (2022). Prevalence, Antecedents, and Consequences of Workplace Bullying among Nurses—A Summary of Reviews. *International journal of environmental research and public health*, 19(14), 8256.

Gulum, Ö. & Jodi. E. (2023). The making and breaking of workplace bullying perpetration: A systematic review on the antecedents, moderators, mediators, outcomes of perpetration and suggestions for organizations. *Aggression and Violent Behavior*, 69, 1-16. doi:10.1016/j.avb.2023.101823

Holmgren, R., Sørensen, K., Dalsager, L., Rugulies, R., Östberg, V. & LL, M. H. (2022). Workplace bullying, symptoms of anxiety and the interaction with leadership quality–a longitudinal study using dynamic panel models with fixed effects. *Scandinavian journal of work, environment & health*, 49(1), 64-74.

Hunter, E. J., Eades, C. E. & Evans, J. M. M. (2022). Violence experienced by undergraduate nursing students during clinical placements: An online survey at a Scottish University. Nurse Education in Practice, 61, 103323. https://doi.org/10.1016/j.nepr.2022.103323

Jalali, A. (2020). Indirect effect of workplace bullying on emotional exhaustion through job insecurity *among Malaysian workers,* 11(7), 1325–1342. https://doi.org/10.1108/JIABR11-2018-0182

Khan, A. N., X. C. & Pitafi, A. H. (2019). Personality Traits as Predictor of M-Payment Systems: A SEM-Neural Networks Approach. *Journal of Organizational and End User Computing,* 31(4), 89-110. doi:10.4018/JOEUC.2019100105

Kollerová, L., Květon, P., Zábrodská, K. & Janošová, P. (2023). Teacher exhaustion: The effects of disruptive student behaviors, victimization by workplace bullying, and social support from colleagues. *Social Psychology of Education*, 1-18.

Lekalakala-Mokgele, E., Ajoke, O. O. & Goosen, S. (2023). Nurses' Perceptions of the Management of Bullying in Private Hospitals in Eight Provinces in South Africa. *Gender and Behavior*, 21(1), 21187-21203.

Liu, C., Wang, L., Qi, R., Wang, W., Jia, S., Shang, D., Shao, Y., Yu, M., Zhu, X., Yan, S., Chang, Q. & Zhao, Y. (2019). Prevalence and associated factors of depression and anxiety among doctoral students: the mediating effect of mentoring relationships on the association between research self-efficacy and depression/anxiety. *Psychology Research and Behavior Management,* 12, 195–208. https://doi.org/10.2147/prbm.s195131

Mamani-Benito, O., Esteban, R. F. C., Castillo-Blanco, R., Caycho-Rodríguez, T., TitoBetancur, M. & Farfán-Solís, R. (2022). Anxiety and depression as predictors of life satisfaction during pre-professional health internships in COVID-19 times: *the mediating role of psychological well-being. Heliyon*, 8(10), e11025. https://doi.org/10.1016/j.heliyon.2022.e11025

Mohammed, S., Ali, A., Ahmed, M. & Abdelrehem, E. (2022). Bullying among Nursing Intern Students : *Factors and Consequences,* 10, 1–7

Nauman, S., Malik, S. Z. & Jalil, F. (2019). How workplace bullying jeopardizes employees' life satisfaction: The roles of job anxiety and insomnia. *Frontiers in Psychology*, 10(OCT). https://doi.org/10.3389/fpsyg.2019.02292

Malivoire, B. L. & Koerner, N. (2022). Interpersonal dysfunction in individuals high in chronic worry: relations with interpersonal problem-solving. *Behavioral and cognitive psychotherapy*, 50(2), 142-157.

Nielsen, M. B., Harris, A., Pallesen, S. & Einarsen, S. V. (2020). Workplace bullying and sleep–A systematic review and meta-analysis of the research literature. *Sleep medicine reviews* 51, 101289.

Pan, D., Zhang, Z., Lei, M. & Hu, Q. (2022). Bullying experience of student nurses during clinical placement. *American Journal of Nursing*, 11(3), 93-97.

Pitafi, A. H., Khan, A. N., Khan, N. A. & M. R. (2020). Using Enterprise Social Media to Investigate the Effect of Workplace Conflict on Employee Creativity. *Telematics and Informatics*, 55, 1-14. doi:10.1016/j.tele.2020.101451

Pyc, L. S., Meltzer, D. P. & Liu, C. (2017). Ineffective leadership and employees' negative outcomes: The mediating effect of anxiety and depression. *International Journal of Stress Management*, 24(2), 196.

Quiun, L. (2023). An approach to the etiology of effects in targets of workplace bullying. Current Psychology, 1-12.

ŞAHİN, S. K. & ERDOĞAN, Z. (2022). The Effect of COVID-19 Fear and Death Anxiety on the Professional Values of Intern Nursing Students before Clinical Practices. *Yükseköğretim ve Bilim Dergisi*, 12(3), 588-597.

Selem, K. M., Boğan, E., Shehata, A. E. & Mohamed, H. A. (2023). A moderated-mediation analysis of abusive supervision, fear of negative evaluation and psychological distress among Egyptian hotel employees. *Current Psychology*, 42(4), 3395-3410.

Sannes, A. C., Christensen, J. O., Nielsen, M. B. & Gjerstad, J. (2021). The association between abusive supervision and anxiety in female employees is stronger in carriers of the CRHR1 TAT haplotype. *Current Research in Behavioral Sciences*, 2, 100021.

Saridi, M., Panagiotidou, A., Toska, A., Panagiotidou, M. & Sarafis, P. (2019). Workplace interpersonal conflicts among healthcare professionals: A survey on conflict solution approach at a General Hospital. *International Journal of Healthcare Management,* 14(2), 468–477. https://doi.org/10.1080/20479700.2019.1661114

Shahril, A. S. R. B. M., Lim, L. C., binti Rosli, N. T., binti Hussain, I. A. & Lee, L. W. (2023). Student perceptions of internship experience: Do work stress and workplace bullying decrease personal development? In *E3S Web of Conferences*, 389, 08025. EDP Sciences.

Shdaifat, E. A., Mohammed M., Al Amer, MSN. & Jamama, A. A. (2020). Verbal abuse and psychological disorders among nursing student interns in KSA. *Journal of Taibah University Medical Sciences*, 66-74.

Sprigg, C. A., Niven, K., Dawson, J., Farley, S. & Armitage, C. J. (2019). Witnessing workplace bullying and employee well-being: A two-wave field study. *Journal of Occupational Health Psychology*, 24(2), 286.

Szlenk-Czyczerska, E. & Włodarczyk, M. (2023). Evaluation of anxiety, depression, aggression, and life satisfaction of nurses working with severe acute respiratory syndrome coronavirus 2-infected patients. *Medical Science Pulse*, 17(1), 13-23.

Yi, Q. F., Yan, J., Zhang, C. J., Yang, G. L., Huang, H. & Yang, Y. (2022). The experience of anxiety among Chinese undergraduate nursing students in the later period of their internships: findings from a qualitative study. *BMC Nursing*, 21(1), 1-10.

Xi, M., He, W., Fehr, R. & Zhao, S. (2022). Feeling anxious and abusing low performers: A multilevel model of high-performance work systems and abusive supervision. *Journal of Organizational Behavior*, 43(1), 91-111.

Yosep, I., Hikmat, R. & Mardhiyah, A. (2022, August). Types of nursing intervention to reduce the impact of bullying and aggression on nurses in the workplace. In *Healthcare*, 10(8), 1463. MDPI.

Zahlquist, L., Hetland, J., Einarsen, S. V., Bakker, A. B., Hoprekstad, Ø. L., Espevik, R. & Olsen, O. K. (2023). Daily interpersonal conflicts and daily exposure to bullying behaviors at work: The moderating roles of trait anger and trait anxiety. *Applied Psychology*, 72(3), 893-914.

Zubair, A., Yan, L. and Umair, A. (2019). When Employees are Emotionally Exhausted Due to Abusive Supervision. A Conservation-of-Resources Perspective. Environmental Research and Public Health.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Risk Issues in Esports Events: A Proposal for a Research Framework

Nur Afiqah Ahmad Kamaruddin, Masrur Mohd Khir* & Hazira Mohd Nasir
Universiti Teknologi MARA, Malaysia
*masrur@uitm.edu.my

Abstract: Online gaming or esports has become extremely popular nowadays. As esports popularity increases, the trend of esports events has also been increasing around the world and all major esports stakeholders such as players, organizers, sponsors, teams and broadcasters are taking this opportunity to step up and shine. People participated and watched esports as a form of entertainment until it is now one of the most popular sports in the world. Players are now fighting to be professional players while event organizers take the opportunity to organize more esports events. However, with no specific policy or guideline regarding esports, many issues and risks could arise especially among the major esports stakeholders. Without proper planning on risk management, not only players but all major stakeholders in esports events could be at great risk. To address the gap, this research will explore major esports event stakeholders and identify risks associated with esports events from the stakeholders' perspective. The proposed research will first need to explore the esports stakeholders in its preliminary stage and continue with addressing the risks and issues for all major stakeholders at the secondary stage. Methodically, this exploratory research will apply focus study interviews and case studies as its main method of investigation. The framework can later help all esports events stakeholders enhance their planning process through a proper risk management plan. It will also benefit the government in the development of policy regarding esports events.

Keywords: *Esports, Esports Events, Stakeholders, Risk Management, Research Framework*

1. Introduction

The trend for esports activities keeps increasing showing an excellent development in the past couple of years (Billings & Hou, 2019). As there is a lot of interest in esports, organizing esports events also seems to be giving a lot of benefits and profits, hence why event organizers and other stakeholders such as sponsors and game developers take this as their opportunity. Even during the pandemic Covid-19, when other sporting events needed to be cancelled and postponed, esports events are still being held online and no mass gatherings were involved. The esports industry is one of the industries that suffered the least compared to other sports (Lopez-Cabarcos, 2020). While other people are locked up at home, the esports industry keeps growing throughout the first half of 2020 (Gomez and Raizda, 2020).

Global esports market revenue has multiplied every year, and from 2014 to 2020 the revenue increased to almost USD 906 million (Newzoo, 2017, 2020; Statista, 2020). The total revenue of esports is expected to rise to USD1,598 million in the year 2023. As the data speak, the growth of esports is indeed tremendously fast and there is no sign of a slowdown shortly (Bousquet and Ertz, 2021). Due to the global growth, esports in Malaysia is also going extremely fast and resulting in rapid development for all esports stakeholders. For the past few years, researchers in Malaysia started to study esports such as Rasdi and Rusli (2021) focusing on the benefits and disadvantages of playing esports among university students, Yusof and Basri (2021), on the socialization process among Malaysian esports Players and Lim et.al., (2022) on esports participants' view. The rise of esports has resulted in a huge number of esports events being organised in Malaysia and as such resulted in more risk issues to occur.

When looking for more evidence and information on the risk and safety in esports, most of the research papers discuss the health risks for the esports player/athlete (Jenny, 2022; Trotter et al., 2020; Yin et al., 2020; Donoghue et al., 2022; Ketelhut, 2021) and scant on the safety and risk from the perspective of other stakeholders. Another gap in this study is a geographical gap in which most study of risk in esports has been done abroad such as in the US (Holden et al., 2019, Fuentes and Merces, 2019, Bosquet and Ertz, 2021) which studies esports risk in the area of cyberattack, law and hacking, whereas in India (Gupta et al., 2021) which studies doping in esports. No study in the world has developed a specific risk framework or guideline for esports stakeholders. Therefore, to address the gap, this study's objective is to take the first step by proposing

research with the following objectives: to explore the major esports event stakeholders in Malaysia; and to identify major risks and issues related to esports events from the stakeholders' perspective.

Risk can arise wherever it wants, which is why those people and experts need to work together to ensure the events go according to the plan and achieve the event goal. Singh et al. (2007) mention that experts and vendors from different fields need to work together with the event manager to create a safe, secure and successful event. Looking other researchers, safety and risk in esports have been paying more attention to the player's side such as their medical problems and health (Jenny, 2022; Trotter et al., 2020; Yin et al., 2020; Donoghue et al., 2022; Ketelhut, 2021). There are very few studies have been done from the other esports stakeholders' perspective. There was hardly any specific rule or legislation for the esports industry in Malaysia before this (KBS, 2020). Only this year KBS has come out with "National Esports Development Guideline (NESDEG) which was launched very recently on July 2023(KBS, 2023). According to the KBS Strategic Plan for Esports Development 2020-2025, "There is no dedicated law to govern esports as esports is currently covered under the Sports Development Act 1997" (KBS, 2020). From the statement, it shows that no legislation was formed for esports under the Sports Development Act 1997. Hence, specific legislation for esports needs to be formed under the name of the Esports and Games Development Act (KBS, 2020) addressing issues such as gaming addiction, cheating, doping, hacking and cyberattacks. Therefore, once the act has been established, it is important to create awareness and instill the knowledge to all esports organizers that legislation toward esports is a must to ensure the safety and security of any esports events. NESDEG has provided a general guideline focusing on players' and organizers' contracts and player's ethics. In the guideline also, KBS highlights the risks of doping and cyber security (KBS, 2023). However, the risk is only being explained briefly to create awareness among esports event organizers and there are still no policies and guidelines focusing on risk management for the esports industry.

From the statement above, it can be seen that less attention has been paid to the safety and risk in esports especially from the perspective of the esports organisers. An esports event organizer needs to address all the upcoming risks and safety issues since during the planning stage, failing to do so might expose them to a total disaster. There might be a reason why this study has not yet come to the attention of other researchers - they might think that the risk is somehow similar to any traditional sport. Yes, risk can be predicted but predictions are only as good as a theory that defines information becoming data (Tarlow, 2002). Hence, good safety and risk management comes from past incidents or past studies and is being developed as the guideline for future uses.

2. Literature Review

Defining Esports and its Significance: According to Wagner (2006), and Block and Haack (2021), a specific esports definition does not exist. However, Block and Haack (2021, p.2) did mention that "the German esports association "export-Bund Deutschland e.V." (ESBD) came out with a definition at its general meeting on 26th October 2018 in Hamburg: "esports is the direct competition between human players using suitable video and computer games on various devices and digital platforms under defined rules". Other than that, another study said that esports is the combination of the word real-time, competitive, tournament-based video games played and game system (Abbasi et al., 2021). Esports also has been recognized by the Malaysia Ministry of Sports and Youth (KBS) as one of the sporting events (KBS, 2020). Hence, esports has been seen receiving notable recognition from official traditional sports competitions and SEA Games (Sun Daily, 2022). Esports has also been included as the conventional sport on the global stage where the International Olympic Committee (IOC) has considered incorporating esports in the Olympics (Hilvoorde, 2016). An Esports event is an organized competitive video game usually organized by different leagues, ladders and tournaments (Hamari & Sjöblom, 2017) and it involves teams competing against one another for cash prizes and glory. For example, a worldwide video game championship was held in 2006 where players competed for a one million top reward (Grove & Krejcik, 2015). Professional players or 'Pro-Gamer' are viewed online and are followed by high ratings from viewers all over the world who can participate in live events and see their favorite players (Willingham, 2018). Unlike traditional sports, esports players compete virtually via gaming platforms such as gaming consoles, computers, or mobile phones. However, there is also a similarity between traditional sports and esports in which every esports game's title can be defined as a different type of sport and has different guidelines, rules and regulations. To name a few, desktop computers or PCs offer games

such as Dota 2, League of Legends, Player Unknown Battleground (PUBG) and Starcraft 2 while mobile offer games such as Mobile Legends: Bang (MLBB) and Call of Duty Mobile (COD).

Most esports competitions nowadays involve real-time technique (RTS), Multiplayer online fight arenas (MOBA), Battle Royals, and First-person shooting and fighting (Hamari & Sjöblom, 2017). More competition has, it has led to video games being aired in many shows where the battle among players is broadcast on television for the sake of earning the highest score and winning the prize (Olsen, 2015). Up until today, even in Malaysia, there is a channel specially made to broadcast esports such as eGG Network HD. Other than television, an online broadcast has also been made and nowadays, "Twitch" has become one of the biggest online gaming broadcasting tournaments and events around the world (Keiper et al., 2017). According to Keiper et al. (2017), a lot of video games such as Dota 2 and Mobile Legend have been promoted and Twitch has gained thousands of audience. Nowadays, esports has also opened a job opportunity where some talented players consider themselves as professional full-time players. They are self-trained and some of them are bound to a company or society. Usually each competitor or player will come with their sponsor team which has been the major contribution to the esports organiser in terms of revenue. Similar to physical sports, esports players also earn salaries and do routine training there. Some agencies require their players to go on Live Streaming as one of their training requirements. In 2006, a worldwide video game championship was held and players competed for a one million top reward (Grove & Krejcik, 2015).

Ever since video games could be played online, players started to show their unique skills and strategies to get high ratings. The rating will end up published by the video game trade publication and it will end up being incredibly popular (Lynch, 2016). Esports has shown rapid growth in the community around the world, not only its growth among the players but also the organizers. It is currently the most popular and significant sport around the world (Lynch, 2016). Despite that, esports is still something new and there is still quite minimal information provided on this field. Even though esports has been a part of the culture for a long time, it was played mainly as a hobby until it gained a large amount of popularity and became a competitive event. In 2016, the LoL World Championship brought esports to the peak of popularity and it became an annual tournament that is big in the eyes of financial and company (Chikish et al., 2019).

Growth of Esports: Computer-based esports has dominated and grown its market to many countries such as North America, Europe, China, South Korea and Japan while mobile esports dominate Latin America, the Middle East and Southeast Asia. Newzoo has come out with a full report regarding esports revenue from 2012 until 2017 and they show that the revenue growth increased by a CAGR of 29% every year. For instance, in 2012 the esports revenue was USD130 Million and was increased to USD 465 Million in 2017 (Newzoo, 2017). The total revenue came from Game Publisher Investment, Sponsorship, Online Advertising Merchandise, Licensing and Tickets. In 2021, the online audience almost reached 810 Million and generated nearly USD 1.38 Billion by the end of 2022 (Newzoo, 2022). They predicted that the revenue for esports could reach nearly USD 2 Billion by 2025 as the revenue doubled up consistently every year (Luan & Khanh, 2022). In 2022, China News mentioned that the global esports tournament is expected to reach USD 1.4 Billion and USD 1.9 Billion by 2025 (China Briefing, 2022). In the United States, esports revenue for the year 2021 reached USD 243 Million and for other Western countries, the contribution was also extremely remarkable (Gough, 2022). As for the audience, there are over 205 million people internationally watching esports as per year 2014 (Newzoo, 2017) and it keeps increasing. The United States is the second largest in the world esports market but in terms of investment, the US is the one that leads as it is home to many popular esports personalities, organizations, teams and tournaments (ESI, 2023). They are also among the first countries to introduce the esports industry to the global sphere and now have the most valuable esports team in the world.

Esports Development in Malaysia: For the past few years, Malaysia has started to arrange its future planning toward esports and striving to become one of the best esports hubs in the Southeast Asian region. During the Annual Budget presentation 2019, MYR 10 Million was allocated for esports development which increased to MYR 20 Million in 2020 (KBS, 2020). KBS believes that Malaysia has the potential to be one of the best esports hubs in Southeast Asia. In 2020, the total game revenue in Malaysia was 586.7 Million and ranked 21st in the world (Newzoo, 2020). In 2022, Malaysia has been the host for one of the biggest esports organizers in the world which is ESL One. This was the third time Malaysia hosted the largest esports Event

and the largest was the Dota 2 esports Event of the Year at Arena of Star, Genting Highland. Malaysia also has been one of the first Dota 2 stops for ESL One in 2017 (Malaymail, 2016) which showed that Malaysia has the potential to be the best esports hub in Southeast Asia. Malaysia also has been awarded "The Longest Running Professional Esports Tournament" during MLBB Professional League Malaysia (MPL MY) which began in 2017 and ended in 2020 (Malaysia Book of Record, 2020). Other than that, universities and higher institutions in Malaysia also have started to adopt esports into their annual event with the organization of XPAX KEK (Kejohanan E-Sukan Kampus) beginning in 2019 (Mohd Khir et al., 2022). Esports have benefited students in many ways, thus why many universities in Malaysia have adopted esports as annual events (Rasdi and Rusli, 2021). Therefore, Malaysia's esports industry has expanded widely across the country and benefits the whole country.

The esports event industry in Malaysia is governed by the Ministry of Youth and Sports and the Malaysia Digital Economy Corporation (MDEC). During the Southeast Asia Game Report 2021, MDEC revealed that Malaysia is the third largest game market in the region with USD 786 Million worth (New Straits Times, 2023). Aside from that, Esports Business Network (EBN) also launched Malaysia's very first esports city located at Quill City Mall worth MYR 4 Million (Sun Daily, 2020). The mission is to establish Malaysia's very own esports arena and to attract more international esports events. EBN believes that this opportunity will help esports in Malaysia to grow and indirectly contribute to Malaysia's economic growth by hosting many international events. Therefore, to create better esports development, the Malaysia Electronic Sports Federation (MESF) was established. The role of this federation is to support the growth of the entire esports ecosystem and promote esports activities. In 2020, the Ministry of Youth and Sports came out with a strategic plan for esports development 2020-2025, the first blueprint for esports development. The strategic plan has been made to cater to all esports stakeholders by creating a team for esports development by gathering data and information raised by them (KBS, 2020). ESports events have a huge potential however it is still not widely discovered in many areas which gives many potential for future study such as esports events risk management.

Economic Impact of Esports: Esports has been growing extremely fast (Block and Hack, 2021; Yusoff and Basri, 2021; Lim et al., 2022) hence will affect economic growth positively. According to Malaysia Digital Economy Corporation (MDEC, 2022), the video game industry in Southeast Asia has seen a full decade of strong growth which resulted in a massive rise, especially in the area of tourism, communication, technologies and digital economy. This shows that esports events contribute massively to the growth of a country's economy. Rojas Valverde et al. (2021) as cited by Lim et al. (2022, p.140) mentioned that "esports have unquestionably been the most significant growth in sports which is a newcomer to the unorthodox sports business". The increasing popularity in the esports industry in 2017 has seen the global audience for esports surpassed 385 million (Chanavat, 2017) with total revenue of USD 655 million in 2017 and exceeded USD 1 Billion in 2019 and USD 1.8 Billion by 2022. This produces $3 Billion annually and attracts 300 million views worldwide (Lim et al., 2022). As in Southeast Asia, the gaming industry generated revenue of over USD 4.4 Billion in 2019 with 16% year-on-year growth (MDEC, 2022). In Malaysia, data by IGDA Malaysia shows that the game revenue in Malaysia reached over USD 402 Million in 2021. Malaysia is the 22nd largest esports market in the world valued at MYR 2.4 billion with over 14 million participants (Yusoff & Basri, 2021). This data shows how much an esports event is worth in contributing to the growth of our economy.

Social Impact of Esports: Besides economic growth, the evolution of esports is important for consumer motivation (Chang, 2019). Since the growth of esports, video games have been one of the biggest sources of leisure activity (Hamari & Keronen, 2017). This is not only applicable to the players but also to esports fans. Seeing their favorite team on online streaming makes them happy and boosts their motivation which will functionally be useful in their work life (Hamari and Keronen, 2017). Gan and Li (2018, p.308) did a study on consumer motivation by using the gratification approach and summarised that "enjoyment obtained from interacting with the entertainment, interaction with others, information sharing and self-presentation". From the statement above, esports is also a source of entertainment and players can interact with each other, and so do fans. Other than that, esports sometimes become an information-sharing platform during online streaming and it is also one of the ways of self-presentation for esports players and athletes. Chang (2019) discovered that people play games and watch esports as a form of escaping reality, passing time and also for relaxing. The study also mentioned their favorite team and player saying that watching esports is very

interesting and makes them happy. Therefore, the data show that esports is important for consumers' motivation.

On the other hand, being involved in esports activities can help the development of certain skills, especially among esports players. When individuals are seriously involved in esports and participate in esports tournaments, they need to have multiple skills. Among the skills that could be improved by esports players are in terms of their teamwork skill, interpersonal skills and communication skills (Rasdi and Rusli, 2021). When engaging in esports games, players need to interact with each team member and it is important to sync with other players as well. In this way, an esports player can also improve their communication skill and develop teamwork skills. Research has been done on this in which a respondent stated that "esports helped her as it molded her into a better team player, increased her interpersonal skill and allowed her to break out of her introvert shell" (Tan, 2019), as cited by Rasdi and Rusli (2021). Other than teamwork skills and communication skills, involvement in esports can enhance task management skills, problem-solving skills, and decision-making skills and increase critical thinking. (Bányai et al., 2019; Freeman & Donghee, 2017; Baltezarević & Baltezarevic, 2019). Playing games, especially by joining or being involved in esports, requires the player to have strong decision-making and problem-solving skills together with critical thinking all at the same time so that they can produce a great strategy to win in the competition or tournament. Developing skills from playing in esports can be useful especially when an esports player starts his or her working career outside of the digital world of gaming.

Esports Events Stakeholders: Esports stakeholder is the network of all esports events including tournaments and competitions to success. According to Scholz (2020, p.4) "The esports industry, with its various stakeholders can be seen as an interwoven network, where stakeholders need each other to work and succeed". In the previous study, An esports industry stakeholders group was discovered which consisted of the publisher, developers, event operator/organizer, leagues, teams, streaming platforms, broadcaster, sponsors, players, association and fans (Finch et al., 2019,p.31-32) (Table 1).

Table 1: Esports Industry Stakeholders Groups

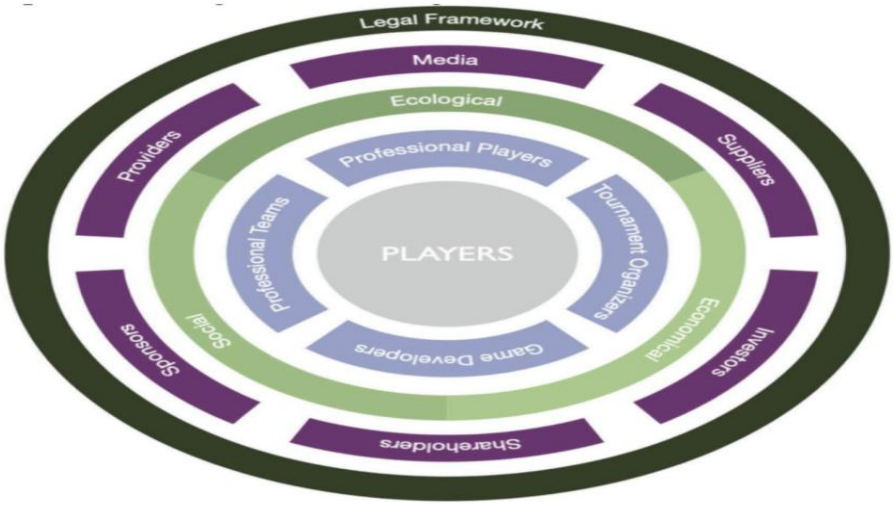
Stakeholders	Definition	Example	Scale Range
Publishers	These organizations own the intellectual property of the video games in which esports leagues, clubs and players compete.	- Riots Games Inc. - Valve Corporation - Activision Blizzard	Very High
Developers	These organizations are the creators of the games in which play occurs	- NetherRealm - EA Sports	Very High
Event Operators	Organizations or groups that organize and host esports events	- ESL - FACEIT	Medium to High
Leagues	The competitive set of events or tournaments, where teams compete for an overall title	- Esports Championship Series (ECS) - The American Collegiate esports leagues (ACEL)	High
Teams/Clubs	Sets of players who compete as a group, as an identified team, in an esports league	- Fanatic - Astralis - Complexity Gaming	Medium to High
Streaming Platforms	Organisations that offer, manage and develop platforms for online media and streaming by fans	- Twitch - YouTube	Very High

Broadcasters	Traditional cable broadcasters who also offer streaming and other media services and outlets	- ESPN - Turner Sports	High
Sponsors	Brands who invest resources into esports in return for marketing rights to achieve their objectives	- Intel - Redbull - Coca-Cola	Medium to High
Players	The athletes/participants who compete as individuals or members of teams in leagues or competitions	- Fatality - NaDeSHoT - Ninja	High
Federations and Associations	The governing bodies who are responsible for the stewardship of esports, its rule and its development	- International Esports Federation	Medium to High
Fans	Followers of esports leagues, clubs and players.		

(Source: Finch et al., 2019).

Scholz (2019) study entitled "Stakeholders in Esports Industry: Management in the World of Competitive Gaming" and "Deciphering the World of Esports", 2020 came out with an esports ecosystem (Figure 1) that comprised of esports stakeholders (Scholz, 2020).

Figure 1: Esports Ecosystem



(**Source:** Scholz, 2020).

From the ecosystem, Scholz (2020) divides it into endemic (players, developers, teams) and non-endemic (sponsors, investors, suppliers). Inspired by the study, another exploratory case study research by Peng et al. (2020) has been done to find out the list of stakeholders of esports governance (Table 2) in which key stakeholders and emerging stakeholders have been separated:

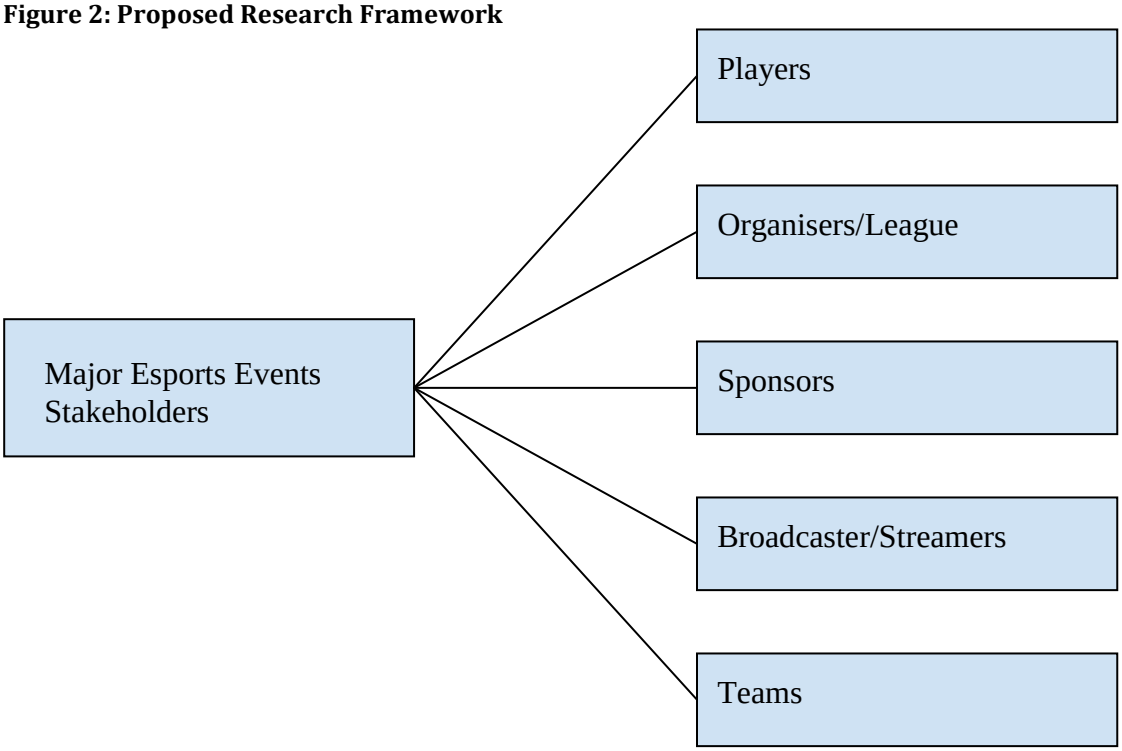
Table 2: Key and Emerging Stakeholders of Esports Governance

Stakeholder Type	Examples	Definition
Key Stakeholders	Game publishers	Companies which publish video games that are produced either internally or externally (i.e., by financing external developers to create games) and hold the intellectual properties of the video games
	Players	Professional and skilled gamers
	Teams	A group of players competing together to win in an esports event
	Tournament/League organisers	Esports events in which players and/or teams compete against each other with the goal to win
	Broadcast and media	Media company and broadcasters that distribute the esports content online or offline (e.g., Twitch)
	Sponsors	Commercial brands that sponsor esports players, teams or events to promote their image
	Fans (communities)	Esports game viewers
Emerging Stakeholders	Esports associations and federations	Both national and international
	Government agencies	Government organisation with legislative and lawful rights to govern esports
	Self-proclaimed industrial guardian organisations	Esports Integrity Commission; game industry trading bodies

Source: (Peng et al., 2020).

Combining all three of the previous studies, this study on esports event risk from the perspective of esports stakeholders will use these findings to explore the main stakeholders that are important in esports events risk and finally come out with the Esports Events Risk Framework to be used by those stakeholders in the future. Hence, the following research framework for esports stakeholders is proposed based on the three esports ecosystems (Finch et al., 2019; Scholz, 2020; Peng et al., 2020).

Figure 2: Proposed Research Framework



Event Management and Esports: Event management is a sector that exposes and involves a lot of risks. Events or festivals that involve a large gathering will bring a huge safety challenge (Mykletun, 2011) and risk management is important in the event industry where all event professionals will need to take charge as the event risk manager. Esports event is an industry with a lot of risk exposure such as injuries and losses (Leopkey and Parent, 2009). Since sporting events usually attract huge crowds, organizers need to deal with the risk of exposure not only to the player but also to the audience. Without proper safety precautions, the risk can be high and cause a lot of damage and injuries. As more issues and incidents come up in this industry, a proper rule has been established by the government. In Malaysia specifically, all sports legislation was covered under the "Sports Development Act 1997" (KBS, 2013).

Esports is a form of a sports tournament or competition which goes under "Sports Event". In the context of Event Management, all five pillars are derived from the Event Management Body of Knowledge or EMBOK Model. Therefore, the issues of risk management and safety were also one of the most important parts of the EMBOK Model". The EMBOK is a three-dimensional description of the knowledge and skills essential to create, develop and deliver an event. The three-dimensional descriptions are Domains, Phases and Processes in which risk is placed as one of the five important domains of the event management study. The risk domain was divided into seven classes which are: Compliance; Decision; Emergency; Health and Safety; Insurance; Legal; and Security.

Esports events started to gain popularity around the world and it can already be introduced as one of the sporting events in which players can play on any platform whether online or offline, professional or non-professional, individual or teams. The industry and a few researchers describe esports events as a fast-growing industry (Block and Haack, 2021; Yusoff and Basri, 2021; Lim et al., 2022; Willingham, 2018; Yun, 2018; Chikish et al., 2019; Holden et al., 2017). Even though the study on esports events is unpopular and still under-researched, many countries have acknowledged esports and are benefiting from the industry (Parshakov and Zavertiaeva, 2016). However, due to the low concern and little study being done on this area, several challenges and threats have occurred resulting in the process of planning and conducting an esports event more difficult and complex. Esports safety and risk management are important to ensure that the event runs smoothly (JWU, 2019). This process is very complicated as it involves various people and expertise from all parties, hence, there is a need to explore the major stakeholders in esports events.

Risks and Threats in Esports Events: Similar to traditional sports, esports also have its risks. Moreover, it is more challenging as esports organizers need to monitor not only the venue, player and audience but also the online platform as esports' most important part is the internet and online platform stability. An incident such as a lost internet connection or cyberattack might occur if proper precautions did not take place. An esports event consultant, Elafros (2021) has come out with a risk matrix regarding esports events and the internet outage score is 12 with a level 4 of severity. This shows that the internet is very important in esports Events. Not only that, when we talk about the internet or online gaming, the possibility of cyberattack, hacking and cheating is also high. This is because esports events involve a lot of sponsors from big companies such as Coca-Cola, Nissan, Disney, Mercedes-Benz and Intel. Attack on these corporations will lead to identity theft, financial loss and reputation damage (Fuentes and Merces, 2019). Other than that, due to the attractiveness of the prize pool, some unethical players will come out with a plan to cheat and hack during esports tournaments, some using AI technology such as aimbots and wallhack. Therefore, risk and safety precautions are crucial in any esports event. Other than risk in the digital area, the risk and safety of the event venue also need to be focused on especially if it involves a physical tournament at an arena. Similar to other physical events, risk management needs to be done especially on crowd control and other technical risk. Since an esports event requires a lot of electrical appliances such as LED screens, IT equipment, computer networks, lighting and sound systems, precautions need to be taken to avoid the risk of fire or electrocution.

Esports has encountered a few threats and risks involving all esports stakeholders. The 2015 esports tournament, the international Dota 2 in Seattle's Key Arena with a 10,000 audience needed to be paused due to a denial of service (DDoS) attack (Meiberg, 2015). Even if there has never been any DDoS incident happening in Southeast Asia, all stakeholders, especially the event organizers need to take precautions. Esports events usually were streamed online and this led to the 'stream sniping' incidents. According to ESIC (Esports Integrity Commission, 2020), "Stream sniping is cheating and specifically prohibited by the rule of

almost all CS: GO tournament organizers. This type of cheating is a breach of the ESIC code of conduct". In September 2020, esports event commissioner Ian Smith stated that they discovered several players and coaches stream sniping their match during a CS: GO tournament resulting in them taking zero tolerance toward the situation. After that, little did we know that weather also affects the condition of esports events. In 2015, during the ESWC (Electronic Sports World Cup) Counter-Strike: Global Offensive Tournament, due to the heatwaves in Montreal, the event's servers overheated and caused multiple delays during the competition and after that being attacked by DDoS. In Malaysia, heat waves are a common situation, hence, this situation can likely occur during any esports events here.

Since esports revenues and prize range keep increasing every year, unethical people or players will take the opportunity to exploit the game and take advantage of the competition for their self-satisfaction. Cheating and hacking which is prohibited from any sporting events including official gaming competition sometimes being committed by some esports players. Moreover, cheat tools are using AI technology called "Aimbots" being sold on the internet which give the player a certain advantage when playing games (Fuentes, and Mercês, 2019). Cheating and hacking happen during a tournament usually when players are allowed to bring and use their device which has supposedly not been allowed by the esports tournament organiser.

Other than cheating and hacking, "Cyber Attack" is also one of the important risks in esports events. DDoS attacks or 'distributed denial of service' can be a major risk that could disrupt esports events (Fuentes, and Mercês, 2019). Due to DDoS, serious lag issues during the competition will occur and delay the competition. As for now, a study regarding cyberattacks in esports tournaments such as DDoS is rarely to be found especially in Malaysia. As for now, there are already several cases of DDoS attacks on major esports competitions (Fuentes, and Mercês, 2019). They predicted that DDoS will continue to occur and disrupt many other major esports tournaments in the future.

Another risk that is often ignored when organizing esports events is Doping. Doping is very familiar and usually being used in physical sports such as football or swimming but rarely being talked about when it comes to esports. According to Holden et al. (2017), the existence of esports has seen a rise in problems connected to drugs to enhance the player's performance. In esports, drugs are used to improve focus and act as emotional control (Jasny, 2020). During the Electronic World Cup 2015, a player admitted that his team was under the influence of 'Adderall' which is a drug substance. Although the anti-doping agency has been established in Germany, there are still other countries including Malaysia that are still left behind.

Even though the esports industry is growing rapidly, it can be seen that less attention has been paid to safety and risk in esports events, especially for all event stakeholders. During the planning process, all stakeholders need to address all the upcoming risks during the planning stage. Less knowledge and exposure to esports safety and risk will bring a total disaster if the risk is not addressed properly in the early phase. There might be a reason why this study has not yet come to the attention of other researchers. They might think that the risk is somehow similar to a traditional sports event and some might think risk can be predicted along the way of the process but little did they know it is wrong. Yes, risk can be predicted but predictions are only as good as theory which defines information becoming data (Tarlow, 2002). Therefore, this study's objective is to shorten the gap in the current study by providing a proper risk management framework that will contribute to all esports event stakeholders.

3. Research Methodology

This qualitative research is suitable with the objective of exploring and understanding a group associated with social or human problems (Creswell, 2018). Most research studies on social science implement qualitative research in their method as it is very important in British leisure research (Veal, 2017). However, since esports is a new industry and there is limited research conducted on esports events, especially on safety and risk management, this study applies an exploratory case study research design (Gratton and Jones, 2004). Exploratory research is used when researchers want to understand a problem better and find new ideas for future research (Yin, 2003), and since this study is new, it is appropriate to use this method since case study involves in-depth and narrow which allows more specific focus on limited areas. Moreover, according to Yin (2018), when answering the questions "what", "why" and "how", a case study design has a huge advantage

because it allows the researcher to focus on a situation and retain a specific and real-world perspective. By referring to the problem statement and research objective it is valid that a qualitative approach with an exploratory case study is the best method to be applied.

This study involves two stages which are the preliminary stage and the secondary stage. As the study needs to explore the major esports stakeholders first before proceeding to explore the risk, two stages are appropriate to ensure a better outcome. In the preliminary stage, the researcher will explore all major esports stakeholders by participating in esports events as attendees to observe using participant observation methods. A technique called "Research Diary" is used to collect the data from the event's participants. This technique is appropriate to be used in this stage as it allows a report on an event and experience to be natural, and spontaneous in providing information (Reis, 1994; Bolger and Rafaeli, 2003). Other than that, secondary data such as articles and journals also will be used to identify the major stakeholders and possible risks. After identifying the major stakeholders, the researcher will schedule a few interview sessions for the secondary stage. At this stage, a focus group and semi-structured in-depth interview with esports events major stakeholders on esports safety and risk will be established to ensure better understanding and more accurate data. As this research uses an exploratory case study, a focus group and semi-structured in-depth interviews are suitable for the second stage. Focus groups allow the researcher to see how participants respond to each other's views and build up a view of the interaction that takes place within the groups (Bryman, 2016). On another note, Magaldi and Berler (2020) defined the semi-structured interview as an exploratory interview and based on Brounéus (2011, p. 130), an "in-depth interviewing is used in peace research to deepen and sharpen our understanding of the complexities of conflict-ridden societies". The interview is done by doing either face-to-face interviews or online interviews as the researchers may need audio-visual or digital material to analyze the data after being collected.

After the interview, the data will be analyzed using a constant comparative method and thematic analysis. Thematic Analysis is used to identify, organize, and offer a systematic insight into the theme across a dataset and with the constant comparative method, the data collected from the interview is compared with each other and comes lastly with the differences and similarities. Barney (1965, p. 436) stated that this constant comparative method is a method where "while coding an incident for a category, compare it with the previous incidents coded in the same category". This study used a qualitative approach, and an inductive study, where researchers start from a big view or data into specific data. A researcher using inductive reasoning is someone who works from the "bottom-up, using the participant" point of view to create the theme that leads to the research outcome (Creswell and Plano, 2007). Finally, the outcomes are maximized by a triangulation technique which is used to develop a comprehensive understanding of the phenomena (Patton, 1999). By combining the two methods, we were able to compare and contrast the data, and no conflicts between the focus group and semi-structured in-depth interview data were noticeable. Other than that, to ensure the accuracy and credibility of the data, a technique of "member check" is also used throughout the process (Birt et al., 2016).

As for the sampling for this study, this exploratory qualitative study uses purposive sampling where the participant is chosen based on their experience and it is relevant to the research questions according to the researcher's judgment. The sampling comprises major esports event stakeholders in Malaysia and the snowballing technique is also used so that a new unit or respondent can be recruited by another unit to be a part of the sample (Naderifar et al., 2017). Therefore, the researcher will be able to discover the "hidden population" by using the snowball method (Dragan and Maniu, 2013). Since this study uses purposive sampling, the sampling size is not fixed but instead the data will be collected until new data no longer brings any additional information to the research question or reaches data saturation. Since purposive sampling was designed to provide an information-rich case for in-depth study (Lopez and Dean, 2013), researchers need to select the best sample to fulfill the research question as they have the experience and are known to have special knowledge to provide to the researcher.

In short, this study adopted a qualitative research design by doing observation, focus groups, and interviews which findings expected to come out with a comprehensive 'Esports Events Risk Management Framework'. There are two stages of this research which are the preliminary stage and the secondary stage. It is expected that the outcome will benefit all esports events stakeholders and be able to help them conduct better event

planning. In other ways, the outcome will also help the government in the development of esports events policy and contribute towards the industry's growth and sustainability.

4. Conclusion

As stated before, the esports industry has rapidly expanded around the world and has contributed to the economy of any country, especially in the sports industry. Even though some countries still do not recognize esports due to the absence of legislation and policy, many other countries all around the world are making an effort to build their esports' very own laws and policies (ESL, 2022). This research will focus on all esports major stakeholders such as sponsors, developers and event organisers but limited only to the Malaysia region. The Minister of Youth and Sports mentioned that the proper development of esports is a must due to its massive contribution to the sports industry in Malaysia (KBS, 2020). The esports industry needs to get its spotlight and this research outcome will be significant to help all esports stakeholders in Malaysia in conducting better esports events in the future. It will also attract more attention towards esports by future researchers especially those in the sport science and recreational or leisure studies (Funk et al., 2018).

Moreover, it is expected that the outcome of this study will discover specific issues and risk focus on each stakeholder that will be significant towards the development of the esports industry in Malaysia, helping the government of Malaysia especially for the development of esports policy and legislation. This is in line with the KBS aspiration that a proper esports act needs to be developed to ensure better esports event safety in the future (KBS, 2020). Additionally, the framework will also be useful for future esports athletes who will later go for a tournament as their guideline.

Most importantly, the proposed framework will benefit all esports stakeholders as a guideline and reference for future esports events and come out with a proper and specific esports Event Guideline or modules to be used by all esports event organizers. As the number of esports events and tournaments increases, many problems and uncertainty will arise. More incidents related to esports will be coming hence why this research is crucial. Even though the interest in esports among researchers is already starting to grow, the literature proves that none of the research acknowledges esports risk and safety issues, especially the stakeholders – something that this study will contribute to the body of knowledge. Therefore, the proposed framework will later help esports organizers, players, sponsors, developers and other major stakeholders in their event planning and implement proper risk management throughout.

References

Abbasi, A. Z., Asif, M., Hollebeek, L. D., Islam, J. U., Ting, D. H. & Rehman, U. (2021). The effects of consumer esports videogame engagement on consumption behaviors. *Journal of Product & Brand Management*, 30(8), 1194-1211.

Baltezarević, B. & Baltezarevic, V. N. (2019). Esports as a new playground. Facta Universitatis, Series: *Physical Education and Sport,* 17(1), 23-30. doi: https://doi.org10.22190/FUPES190303005B

Bányai, F., Griffiths, M. D., Demetrovics, Z. & Király, O. (2019). The mediating effect of motivations between psychiatric distress and gaming disorder among esport gamers and recreational gamers. Science Direct. *Comprehensive Psychiatry,* 94, 152117. doi: https://doi.org/10.1016/j.comppsych.2019.152117

Barney, G. & Glaser. (1965). Constant Comparative Method of Qualitative Analysis. *Social Problems,* 12(4) 436-445. Oxford University Press on behalf of the Society for the Study of Social http://www.jstor.org/stable/798843.

Billings, A. A. & Hou, J. (2019). The Origins of Esport: A Half Century History of an "Overnight" Success. In Understanding Esports: An Introduction to the Global Phenomenon (pp. 31-44). Lexington Books.

Birt, L., Scott, S. E., Cavers, D., Campbell, C. & Walter, F. M. (2016). Member checking. *Qualitative Health Research,* 26(13), 1802–1811. https://doi.org/10.1177/1049732316654870

Block, S. & Haack, F. (2021). esports: a new industry. *SHS Web of Conferences*, 92, 04002. https://doi.org/10.1051/shsconf/20219204002

Bousquet, J. & Ertz, M. (2021). Esports. In IGI Global eBooks (pp. 1–24). https://doi.org/10.4018/978-1-7998-7300-6.ch001

Bolger, N., Davis, A. & Rafaeli, E. (2003). Diary Methods: Capturing Life as it is Lived. *Annual Review of Psychology*, 54(1), 579–616. https://doi.org/10.1146/annurev.psych.54.101601.145030

Brounéus, K. (2011). In-depth Interviewing: The process, skill and ethics of interviews in peace research. ResearchGate.https://www.researchgate.net/publication/257251767_Indepth_Interviewing_The_process_skill_and_ethics_of_interviews_in_peace_research

Bryman, A. (2016). Social Research Methods, 4th ed.; Oxford University Press: New York, NY, USA, 2016.

Briefing, C. (2022, October 7). China's E-Sports Market: Opportunities and challenges for foreign players. China Briefing News. https://www.china-briefing.com/news/chinas-e-sports-market-opportunities-challenges-foreign-investors-game-publishers/

Chanavat, N. (2017). French football, foreign investors: Global sports as country branding. *Journal of Business Strategy,* 38(6), 3-10.

Chang, Z. (2019). What's the hype about esports?: A qualitative study about esports consumer motivation.

Chikish, Y., Carreras-Simó, M. & Garci, J. (2019). Esports: a new era for the sports industry and a new impulse for the research in sports (and) economics? Research Gate. https://www.researchgate.net/publication/332781901_esports_A_New_Era_for_the_Sports_Industry_and_a_New_Impulse_for_the_Research_in_Sports_and_Economics

Creswell, J. & Plano Clark, V. (2007). Designing and Conducting Mixed Methods Research. Thousand Oaks, CA: Sage. *Organizational Research Methods*, 12(4), 801–804. https://doi.org/10.1177/1094428108318066

Creswell, J. W. & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage, Los Angeles.

Dragan, I. & Isaic-Maniu, A. (2022). An Original Solution for Completing Research through Snowball Sampling-Handicapping Method. *Advances in Applied Sociology,* 12(11), 729–746. https://doi.org/10.4236/aasoci.2022.1211052

Donoghue, J., Balentine, J., Schmidt, G. & Zwibel, H. (2019). Managing the health of the esport athlete: an integrated health management model. *BMJ Open Sport and Exercise Medicine,* 5(1), e000467. https://doi.org/10.1136/bmjsem-2018-000467

EMBOK-Event Management Body of Knowledge-Afterburner2-Free, GPL template. (n.d.). https://www.embok.org/

ESL One Malaysia 2022 - Back to the best crowd. (n.d.). https://www.esl-one.com/malaysia/

Elafros, B. (2021). Ways to manage risk at esports events. Helping You Succeed in Lean Software Delivery, Esports & Web 3.https://www.billelafros.com/ways-to-manage-risk-at-esports-events

Esports Integrity Commission (ESIC) Statement Regarding Stream Sniping/Ghosting in Online CS: GO tournaments – ESIC. (n.d.). https://esic.gg/sanction-outcome/esports-integrity-commission-esic-statement-regarding-stream-sniping-ghosting-in-online-csgo-tournaments/

Finch, D. J., O'Reilly, N., Abeza, G., Clark, B. & Legg, D. (2020). Implications and Impacts of esports on business and Society. In IGI Global eBooks. https://doi.org/10.4018/978-1-7998-1538-9

FMT. (2022). Govt is working on developing the esports industry, says PM. Free Malaysia Today News.https://www.freemalaysiatoday.com/category/microsite/2022/11/13/govt-is-working-on-developing-esports-industry-says-pm/

Freeman, G. & Wohn, D. Y. (2017). Esports as An Emerging Research Context at CHI. CHI Conference Extended Abstracts. https://doi.org/10.1145/3027063.3053158

Fuentes, M. R. & Mercês. (2019). Cheats, Hacks, and Cyberattacks Threats to the Esports Industry in 2019 and Beyond. Trend Micro Research. https://documents.trendmicro.com/assets/white_papers/wp-threats-to-the-esports-industry-in-2019-and-beyond.pdf

Funk, D. C., Pizzo, A. D. & Baker, B. J. (2018). Esport Management: Embracing esport Education and Research Opportunities. *Sport Management Review*, 21, 7-13.

Gan, C. & Li, H. (2018). Understanding the effects of gratifications on the continuance intention to use WeChat in China: A perspective on uses and gratifications. *Computers in Human Behavior*, 78, 306–315. https://doi.org/10.1016/j.chb.2017.10.003

Gomez, K. & Raizada, S. (2020). Preferences and Future of Gaming and E-Sports in India. *Annals of Tropical Medicine and Public Health*, 23(17).

Gough, C. (2022). Global esports market revenue 2025 | Statista. (2023, July 13). Statista. https://www.statista.com/statistics/490522/global-esports-market-revenue/

Gratton, C., & Jones, I. (2010). *Research Method for Sports Studies* (second). Routledge.

https://repository.bbg.ac.id/bitstream/575/1/Research_Methods_for_Sports_Studies.pdf

Grove, C. & Krejcik, A. (2015). esports Betting: It's real, and bigger than you think. Anaheim, CA.

Gupta, D., Sharma, H. & Gupta, M. (2021). Doping as a barrier to universal acceptance of esports. *International Journal of Sports Marketing and Sponsorship*, 23(3), 645–664. https://doi.org/10.1108/ijsms-05-2021-0105

Hamari, J. & Sjöblom, M. (2017). What is esports and why do people watch it? *Internet Research,* 27(2), 211–232. https://doi.org/10.1108/intr-04-2016-0085

Hamari, J. & Keronen, L. (2017). Why do people play games? A meta-analysis. *International Journal of Information Management*, 37(3), 125–141. https://doi.org/10.1016/j.ijinfomgt.2017.01.006

Holden, J. T., Kaburakis, A. & Rodenberg, R. M. (2017). The future is now: esports policy considerations and potential litigation. *Journal of the Legal Aspects of Sport*, 27(1), 46–78. https://doi.org/10.1123/jlas.2016-0018

Jasny, M. (2020). Doping in e-sports. An empirical exploration and search for sociological interpretations. *Acta Universitatis Lodziensis*, *75*, 85–99. https://doi.org/10.18778/0208-600x.75.06

Jenny, S. E. (2022). Levelling Up Esports Health: Current Status and Call to Action. Slippery rock. https://www.academia.edu/73491615/Leveling_Up_Esports_Health_Current_Status_and_Call_to_Action

Keiper, M. C., Manning, R. D., Jenny, S. E., Olrich, T. W. & Croft, C. (2017). No reason to LoL at LoL: the addition of esports to intercollegiate athletic departments. *Journal for the Study of Sports and Athletes in Education*, 11(2), 143–160. https://doi.org/10.1080/19357397.2017.1316001

Ketelhut, S., Martin-Niedecken, A. L., Zimmermann, P. & Nigg, C. R. (2021). Physical Activity and Health Promotion in Esports and Gaming–Discussing unique opportunities for an unprecedented cultural phenomenon. Frontiers in Sports and Active Living .https://doi.org/10.3389/fspor.2021.6937000

KBS Strategic Plan for Esports Development 2020-2025. (2020). KBS MALAYSIA.

Leopkey, B. & Parent, M. M. (2009). Risk Management Issues in Large-scale Sporting Events: a Stakeholder Perspective. *European Sport Management Quarterly,* 9(2), 187–208. https://doi.org/10.1080/16184740802571443

Lim, C. N., Goh, Y. N., Isa, S. M., Thurasamy, R., & Suki, N. M. (2022). A Bibliometric Review on Esports Participation: View from Malaysia. *Journal of Entrepreneurship, Business and Economics*, 10(2), 139-171.

López-Cabarcos, M. N., Ribeiro-Soriano, D. & Piñeiro-Chousa, J. (2020). All that glitters is not gold. The rise of gaming in the COVID-19 pandemic. *Journal of Innovation & Knowledge,* 5(4), 289–296.

Lopez, V. & Whitehead, D. (2013). Sampling data and data collection in qualitative research. ResearchGate. https://www.researchgate.net/publication/255950308_Sampling_data_and_data_collection_in_qualitative_research

Lynch, A. (2016). Tracing the 70-year history of video games becoming esports. (2016, May 6). FOX Sports. https://www.foxsports.com/stories/other/tracing-the-70-year-history-of-video-games-becoming-esports

Magaldi, D. & Berler, M. (2020). Semi-structured Interviews. In: Zeigler-Hill V., Shackelford, T. K. (Eds.) Encyclopaedia of Personality and Individual Differences. Springer, Cham.https://doi.org/10.1007/978-3-319-24612-3_857 Accessed on July 5th, 202

Maiberg, E. (2015, August 7). eSports Has a DDoS Problem. *Vice*. https://www.vice.com/en/article/vvba9m/esports-has-a-ddos-problem%20management

Khir, M. M., Maon, S. N. & Demong, N. A. R. (2022). Healthy eSport Engagement for eSport Athletes: A Proposal for A Research Framework. *Journal of Entrepreneurship, Business and Economics,* 10(2), 110-126, sep. 2022. ISSN 2345-4695.

Mykletun, R. J. (2011). Festival Safety–Lessons Learned from the Stavanger Food Festival (the Gladmatfestival). *Scandinavian Journal of Hospitality and Tourism,* 11(3), 342-366.

Newzoo. (2017). Global Games Market Report 2017. https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2017-light-version

Newzoo. (2020). Global Games Market Report 2020. https://newzoo.com/resources/trend-reports/newzoo-global-esports-market-report-2020-light-version

New Straits Time. (2023). #TECH: Boosting esports in Malaysia. https://www.nst.com.my/lifestyle/bots/2023/03/886522/tech-boosting-esports-malaysia

Naderifar, M., Goli, H. & Ghaljaie, F. (2017). Snowball sampling: a purposeful method of sampling in

qualitative research. *Strides in Development of Medical Education,* 14(3).https://doi.org/10.5812/sdme.676700

Olsen, A. H. (2015). The Evolution of esports: An Analysis of its origin and a look at its prospective future growth as enhanced by Information Technology Management tools. arXiv (Cornell University). https://doi.org/10.48550/arxiv.1509.08795

Patton, M. Q. (1999). Enhancing the Quality and Credibility of Qualitative Analysis. *Health Services Research*, 34, 1189-1208.

Peng, Q., Dickson, G., Scelles, N., Grix, J. & Brannagan, P. M. (2020). Esports Governance: *Exploring Stakeholder Dynamics. Sustainability*, 12(19), 8270. https://doi.org/10.3390/su12198270

Rasdi, N. N. & Rusli, A. N. (2021). Playing E-Sport Among University Students: Benefits And Disadvantages. Research Gate. https://www.researchgate.net/publication/348779211_

Reis HT. (1994). Domains of experience: investigating relationship processes from three perspectives. In Theoretical Frameworks in Personal Relationships, ed. R Erber, R Gilmore,pp. 87–110. Mahwah, NJ:Erlbaum

Rojas-Valverde, D., Córdoba-Blanco, J. M. & González-Salazar, L. (2021). Cyclists or avatars: is virtual cycling filling a short-term void during the COVID-19 lockdown? *Managing Sport and Leisure*, 27(1-2), 158-162.

Scholz, T. (2020). Deciphering the world of esports. *International Journal on Media Management,* 22(1), 1–12. https://doi.org/10.1080/14241277.2020.1757808

Singh, N., Racherla, P., & Hu, C. (2007). Knowledge mapping for safe festivals and events: An ontological approach. *Event Management*, 11(1-2), pp. 71-80.

Tan, M. Z. (2019, January 22). Malaysian gamer girls ace e-sports competition. Malay Mail Online. Retrieved from https://www.malaymail.com/

Tarlow, P. (2002). *Event Risk Management and Safety* (1st ed.). Wiley. Retrieved from https://www.perlego.com/book/3865896/event-risk-management-and-safety-pdf (Original work published 2002)

Trotter, M. G., Coulter, T. J., Davis, P. A., Poulus, D. & Polman, R. (2020). The Association between Esports Participation, Health and Physical Activity Behaviour. *International Journal of Environmental Research and Public Health,* 17(19), 7329. https://doi.org/10.3390/ijerph171973299

Veal, A. J. (2017). Research Methods for Leisure and Tourism. Pearson, London, UK.

Van Hilvoorde, I. (2016). Sport and play in a digital world. Sport, Ethics and Philosophy, 10(1), 1–4. https://doi.org/10.1080/17511321.2016.1171252

Wagner, M. (2006). On the scientific relevance of sport", in Arrey Mbi, J., Clincy, V.A., Droegehorn, O.L., Joan, S., Ashu, M.G., Ware, J.A., Zabir, S. and Arabnia, H.R. (Eds), Proceedings of the 2006International Conference on Internet Computing and Conference on Computer Game Development, CSREA Press, Las Vegas, NV, 437-440.

Willingham, A. (2018). What is esports? A look at an explosive billion-dollar industry. Retrieved from CNN website:https://www.cnn.com/2018/08/27/us/esports-what-is-video-game-professional-league-madden-trnd/index.html

Yin, R. K. (2003). Case Study Research: Design and Methods. Sage. Thousand Oaks, California.

Yin, R. (2018). Case Study Research and Applications Design and Methods, 6th ed.; Sage Publications Ltd.: Thousand Oaks, CA, USA, 2018; 115.

Yin, K., Zi, Y., Zhuang, W., Gao, Y., Tong, Y., Song, L. & Liu, Y. (2020). Linking Esports to health risks and benefits: Current knowledge and future research needs. *Journal of Sport and Health Science*, 9(6), 485–488. https://doi.org/10.1016/j.jshs.2020.04.006

Yusoff, N. H. & Basri, S. (2021). The role of socialization towards the participation of Malaysian female players in e-sport. *International Journal of Social Science Research*, 3(1), 132-145.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Employee Retention in Pharmaceutical Companies in Malaysia

[1]Azlina Saedin, [2]Syarifah Mastura Syed Abu Bakar*, [3]Natasha Dzulkalnine, [4]Abidah Saad, [5]Harpajan Singh, [6]Shamsul Azren Mohd Shukur
[1]Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia
[2,3,6]UiTM Cawangan Selangor, Kampus Bandar Puncak Alam, Selangor, Malaysia
[4]UiTM Cawangan Kedah, Kampus Sungai Petani, Kedah, Malaysia
[5]INTI International University , Nilai, Negeri Sembilan, Malaysia
azlina.saedin@gmail.com, *syarifahmastura@uitm.edu.my, natashad@uitm.edu.my, abidahsaad@uitm.edu.my, harpajans.tarasingh@newinti.edu.my, shamsulshukur@uitm.edu.my

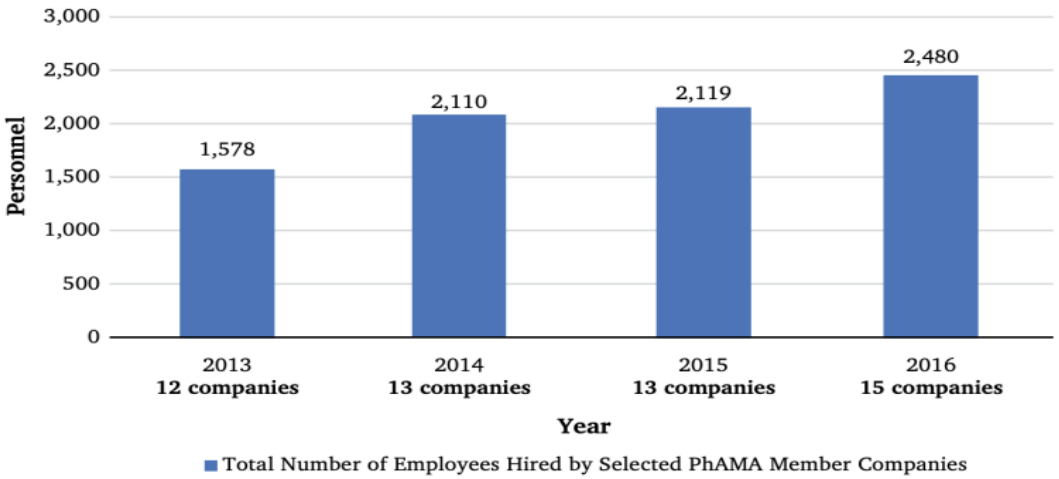
Abstract: In today's global economy, more companies are going global, and employees are actively seeking better career opportunities and growth. This dynamic has made employee retention a significant focus for Human Resources Management. The main purpose of this study is to understand the factors that influence employee retention at pharmaceutical companies in Malaysia. The research objectives were to examine whether factors such as reward, career advancement, and manager engagement have a significant influence on employee retention in pharmaceutical companies in Malaysia. The population in this study is made up of employees of pharmaceutical companies in Malaysia. This research was conducted in a natural setting in a non-contrived manner using non-probability convenience sampling. Of the 400 surveys provided, 365 were answered by Malaysian pharmaceutical company employees, regardless of status. The validity and reliability of the questionnaire were checked, and responses were collected and analyzed via SPSS software. The result suggests that rewards, career advancement, and manager engagement positively influence the retention of employees in pharmaceutical companies in Malaysia. For hypothesis testing, all independent variables show a significant relationship with employee retention.

Keywords: *Employee Retention, Career Advancement, Manager Engagement, Pharmaceutical Companies*

1. Introduction and Background

Employee retention is becoming an important parameter in assessing the success of an organization (Aguenza & Som, 2018). One of the most valuable dimensions in an organization is employee retention (Ivana & Chiripuci, 2020). For an organization to be competitive, it has to maintain an experienced and efficient workforce, and employee retention is affected by multiple factors (Kalyanatamitra et al., 2020). Due to its growing population and longer life expectancy, Malaysia expects to increase healthcare expenditures to improve facilities and services (MIDA, 2020). Figure 1 shows that the number of companies and employees in the pharmaceutical industry continues to grow year by year.

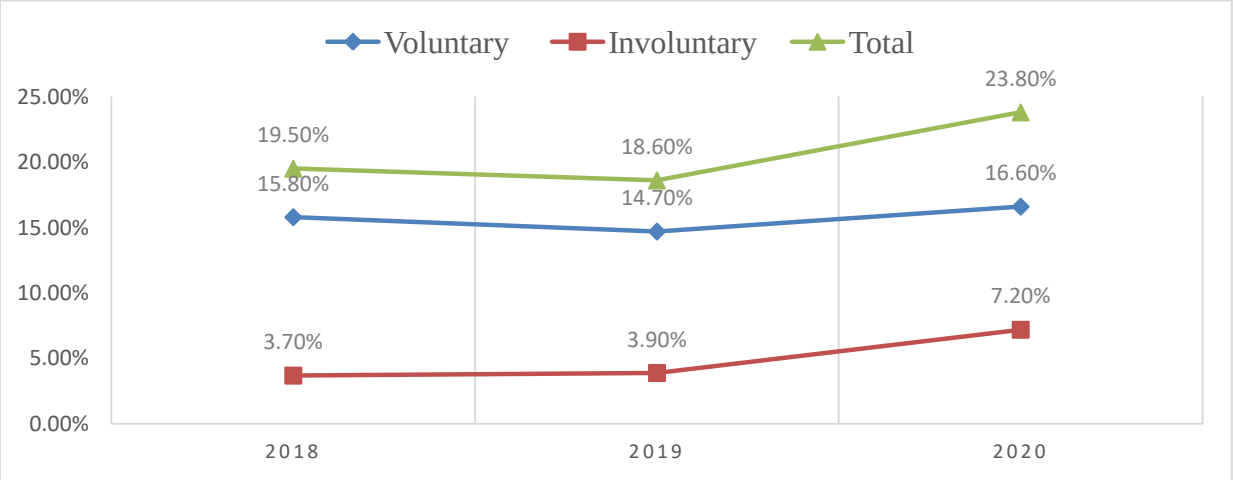
Figure 1: Total Number of Companies and Employees in Pharmaceutical Companies in Malaysia



Source: PhAMA 2018.

The Mercer survey, as reported in the Malaysian Reserve 2020 report for the first half of 2019, has a voluntary attrition rate of 6.5%. The internal data showed voluntary turnover is higher and will continue to rise from 14.7% in 2019 to 16.6% in 2020, as shown in Figure 2 below.

Figure 2: Voluntary and Involuntary Turnover in Pharmaceutical Companies in Malaysia



Source: Internal data from Tower Watson report (2018-2020).

Healthcare reforms, changes in technology, government policy, and complex relationships with stakeholders are some of the complex issues faced by pharmaceutical companies (Haider et al., 2018). Employee retention is important in assessing the success of an organization, especially when the organization has been moving towards globalization (Khandelwal, 2018). Despite many studies on factors that influence employee retention (Aquenza & Som, 2018; Sheraz et al., 2019; Subramaniam et al., 2019), there are still limited studies on employee retention in pharmaceutical industries in Malaysia.

In a previous study of the pharmaceutical industry, six factors were found to have a positive correlation with employee retention: salary and benefits, job and work conditions, work relationships, company culture, motivation, and leadership within the organization (Shamanism et al., 2023). In a comparable industry, we would like to examine the top three determining factors in Malaysia. The variables identified in this study are rewards, career advancement, and manager engagement.

The relationship between employee retention (a dependent variable) and the factors influencing employee retention (independent variables) needs to be determined to have a better understanding of how to retain employees in pharmaceutical companies. There are three specific objectives of this research project:

- RO1: To determine the influence of rewards on employee retention in pharmaceutical companies in Malaysia.
- RO2: To determine the influence of career advancement on employee retention in pharmaceutical companies in Malaysia.
- RO3: To determine the influence of manager engagement on employee retention in pharmaceutical companies in Malaysia.

2. Literature Review

Employee Retention: Employee Retention is when an employee is motivated to stay with the organization for the longest possible period or until the fulfillment of the venture (Sheraz et al., 2019). For employers to remain competitive and profitable, they need to have a strategy to develop and retain high-quality human capital because any employer that fails to retain employees will end up understaffed (Subramaniam et al., 2019). From the employee's point of view, voluntary turnover opens doors for new opportunities, but for the company, it creates a high burden as it involves the cost of hiring new employees and the indirect and direct costs of on boarding and training (Wadhera & Bano, 2020). Employee retention, especially of high-skilled

employees, increases the company's performance, and caring for the psychological needs and social surroundings that create happy employees can save the organization from losing talented employees (Barween et al., 2020). In the current business environment, besides salary and designation, many other factors play an important role, so organizations have to make enormous efforts to attract and sustain employees (Ivana & Chiripuci, 2020). It is hard to gain a competitive advantage over other companies, especially in a challenging environment, as one of the biggest challenges is retaining experienced employees. However, effective practices in human resources can help organizations gain a competitive edge (Kalyanamitra et al., 2020).

Rewards: Effective rewards and recognition strategies can determine the success or failure of an organization because highly engaged and motivated employees are more productive and offer superior service compared to disengaged employees (Madhani, 2020). Compensation connects employee and organizational goals, and it is a bridge between the macro issue of retention in an organization and the micro behavior of its members in the organization (Sarkar, 2018). Financial awards are given to employees as part of an economic exchange for better performance when the employee displays better work in their job and responsibilities (Diah et al., 2020). Compensation is used as an effective tool because people work to earn a living, so compensation is a key factor in retaining employees (Sarkar, 2018). Subramaniam et al. (2019) found rewards and recognition significantly influenced employee retention, and employees are more likely to stay in the organization if they have positive perceptions about the rewards and recognition it offers.
H1: Rewards increase employee retention at pharmaceutical companies in Malaysia.

Career Advancement: One of an organization's Human resources policies is retention policies relating to the career development of employees, which include performance management practices, training, and development of employees (Houssein, 2020). Investment in employee development has a positive impact on employee retention, improves the working attitude of employees, and eventually increases profitability (Diah et al., 2020). Career development has a positive and significant relationship with employee retention (Houssein, 2020). Offering tasks that can help professional development can keep motivation high, and since most people want to learn and enhance their skills, employees will work towards enriching their work to achieve greater accountability, thus making, they more interested in their work (Sylqa, 2020). Besides focusing on performance management, organizations should expand efforts to show employees their career paths and offer them opportunities to develop their careers (Subramaniam et al., 2019).
H2: Career advancement increases employee retention at pharmaceutical companies in Malaysia.

Manager Engagement: An organization must use proper HR practices, including the support of supervisors, as part of human resource management factors to retain employees (Bibi et al., 2018). Employees who perceive a high level of support from supervisors are less likely to leave the organization (Gordon et al., 2019). Manager engagement and retention are vital to the success and organizational performance of many organizations (Aldamatmaz et al., 2016). Bussin (2018), in his book on retention strategies, wrote, as the saying goes, People don't quit jobs, they quit managers, and he emphasized the importance of supervisory management and the positive employee-supervisor relationship to improve retention. Khoele & Daya (2014), in a study on the turnover of middle and senior managers in pharmaceutical companies in South Africa, revealed the importance of relationships with managers in determining employee turnover. Another similar study in Hyderabad stated that interaction with managers is an important aspect of employee engagement (Jindal et al., 2017).
H3: Manager Engagement increases employee retention at pharmaceutical companies in Malaysia.

Figure 3: Conceptual Framework

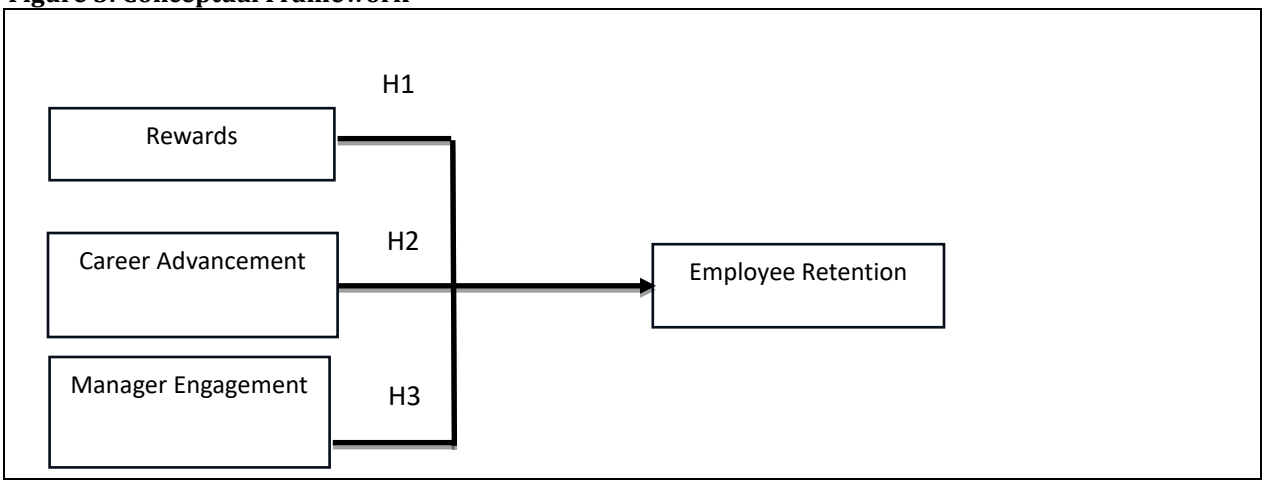


Figure 3 shows the conceptual framework developed for this study. The independent variables are the rewards, career advancement and manager engagement. The dependent variable is employee retention. The social exchange theory was used as the underpinning theory between rewards, career advancement, manager engagement and employee retention.

3. Research Methodology

This study uses quantitative methods to examine the relationship between reward, career advancement, manager engagement, and employee retention in pharmaceutical companies in Malaysia. In quantitative design, research design consists of procedures to select research participants and determine how data will be collected from those participants (Schwab, 2013). According to Krejcie & Morgan (1970), the suitable sample size is 335 respondents, and the study received 365 employees who work for pharmaceutical companies in Malaysia. The main study variables questionnaires were tailored and modified to the scope of this research for the Malaysian pharmaceutical industry based on Yong et al., (2020) and Bibi et al., (2018). Career advancement is adapted from Yong et al., (2020) and Bibi et al., (2018), whereas the questionnaire items for manager engagement are adapted from Bibi et al., (2018). The constructs used in this study are well-known in organizational behavior, and their reliable and valid measurement is also available. Four primary measures are scored on a five-point Likert scale (1=strongly disagree, 5=strongly agree). Scale scores are created by averaging the composite items for each scale. The higher the score on a scale, the higher the level of the variable being measured.

4. Results

From the 400 questionnaires distributed, respondents returned 365 questionnaires for a response rate of 91.25 percent.

Profile of Respondents: Table 1 displays a summary of the characteristics of the total sample of respondents who participated in the study.

Table 1: Demographic Profile

	Variables	Frequency	Percentage (%)
Gender	Male	154	42.2
	Female	210	57.5
Age	21-30 years	74	20.3
	31-40 years	156	42.7
	41-50 years	102	27.9
	> 50 years	32	8.8

Years of Experience	< 2 years	71	19.5
	2-5 years	49	13.4
	5-10 years	86	23.6
	10-15 years	71	19.5
	> 15 years	87	23.8

Multiple Linear Regression: In Table 2, the adjusted R^2 value is 0.458. This demonstrates that the three independent variables used in the study were able to explain about 45.8% of the variance in employee retention. Other factors that were not considered in this study might have an impact on the remaining 54.2%. The R^2 value of 0.12 indicates a low effect size; 0.13-0.25 is medium; and 0.26 and above is a high effect size (Cohen, 1988). The adjusted R^2 value of 0.458 is below 0.5, which meets the rule of thumb of > 0.4, suggesting the model fit is strong between the three independent variables and dependent variables.

Table 2: Multiple Linear Regression Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.680[a]	0.462	***0.458***	0.626

ANOVA and Beta coefficient: Table 3 and Table 4 on Regression ANOVA and Beta coefficient show significant p-values, meaning rewards, career advancement, and manager's engagement have a significant relationship with employee retention. Multicollinearity (VIF) is between 0.1 and 10, which is within the acceptable threshold, indicating the constructs are well distributed with a lower chance of skewness. Rewards, career advancement, and manager engagement have a positive and significant effect on employee retention. Result from a standardized regression coefficient of 0.318 for rewards, 0.269 for career advancement, and 0.206 for manager's engagement. This result is proof that a unit increase in rewards, career advancement, and manager engagement will result in a unit increment in employee retention in the organization. The beta coefficient is higher for rewards, followed by career advancement, then manager's engagement, showing the degree of influence is higher in rewards towards employee retention, followed by career advancement, and lastly manager's engagement. This result also indicates that the independent variables have a different influence than the dependent variables. All independent variables show a significant beta coefficient with a p-value of 0.00 for rewards and career advancement and 0.001 for manager engagement.

Table 3: **ANOVA Result**

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	114.565	3	38.188	97.442	***.000[b]***
	Residual	133.249	340	.392		
	Total	247.814	343			

Table 4: **Coefficient and Multicollinearity Result**

	Unstandardized Coefficients	Std. Error	Standardized Coefficients	T	Sig	Tolerance	VIF
(Constant)	0.879	0.195		4.508	.000		
Rewards	0.318	0.053	***0.318***	5.963	***.000***	0.556	***1.798***
Career Advancement	0.269	0.054	***0.280***	4.997	***.000***	0.504	***1.983***
Manager engagement	0.206	0.061	***0.187***	3.380	***.001***	0.515	***1.942***

Discussion: This study confirmed the factors related to employee retention and provided results indicating rewards, career advancement, and manager engagement as important factors in retaining employees in the organization. Pharmaceutical companies need to review their compensation benefits to remain competitive. Intervention in the form of training and development is needed as part of human resource strategies for retaining employees. The role of the manager in engaging employees is often neglected; hence, companies need to look into the manager's effectiveness during performance management, providing feedback, and coaching.

This research provides a better understanding of employee retention in pharmaceutical companies given the lack of similar studies in Malaysia. Despite studies on employee retention in pharmaceutical companies done outside Malaysia, no such study has been conducted in Malaysia. Three influencing factors have been selected in this research about employee retention. Nevertheless, other factors can influence employee retention, but they are beyond the scope of this study. The findings from this study will pave the way for future studies to study the factors that influence employee retention in Pharmaceutical companies in this country. This research can be a reference for academicians to refer to when carrying out further research.

5. Managerial Implications and Recommendations

Overall compensation on top of basic salary is an important determinant; hence, benchmarking the current rewards vs. other companies in the same industry must be done regularly to maintain competitiveness. Companies should review financial and non-financial rewards, as these are the two categories of rewards used in many organizations. Multinational corporations tend to have well-established and effective reward and recognition systems that feature attractive compensation packages and a strong emphasis on internal and external equity. Financial rewards include wages, performance bonuses, and benefits, e.g., childcare, allowances, company cars, etc., while non-financial rewards focus on recognition, appreciation, team building, etc (Malik et al., 2015).

The highest loading in the career advancement item is "My organization provides formal developmental training to employees to increase their chances of promotion." Employees must be aware of their career progress and the skill improvements required to increase their chances of promotion. Job rotation can improve skills and be perceived as a better chance of promotion among employees. Organizations can employ interventions, including learning and development, a career plan, job rotation, mentoring, and coaching, that are important to upgrade employee skills, knowledge, competency, and attitudes as part of an employee's career progression. A company can offer training or professional development by providing an opportunity to challenge and advance within the company, and if employees know that the organization is willing to train and help them grow professionally, they are likely to stay in the organization (Sylqa, 2020). Rotating jobs between sales and marketing allows employees to have a better understanding of the rewards and challenges faced by other departments and will increase sales and marketing collaboration (Fitzhugh & Massey, 2019).

The company must ensure effective performance appraisal with ongoing feedback by the manager and continue to build the interpersonal relationship between employee and manager. A structured performance management system with a periodic feed-forward system that captures the discussion between employees and managers is essential. As part of performance management and a renewed approach to performance management, manager's roles are increasingly shifting to acting as coaches to their direct reports (Ellinger et al., 2014). There is a positive correlation between turnover intention when employees are not appraised appropriately and employee motivation; hence, they start to look for another job (Ninroon et al., 2020). Malaysia is viewed as a country with high power distance but is highly collectivistic, and despite formal hierarchy, supervisors play a pivotal role in employee engagement as they can play a supportive role and provide feedback to assist employee learning and development (Lee et al., 2019).

Conclusion: The analysis and findings in this study showed that rewards, career advancement, and manager engagement positively influenced the retention of employees in pharmaceutical companies in Malaysia. This result is consistent with the previous findings in other industries (Mahadi et al., 2020, Pareek et al., 2019) and in pharmaceutical companies, outside Malaysia (Asif & Gul 2021,). As this research is the first in this industry, it creates a path for industry and academia as per the recommendations discussed.

References

Aldamatmaz, I., Aykac, C. & Dicle, U. (2016). The Impact of Benefits and Services on Manager Engagement and Manager Retention in Tourism Industry: Enhanced by the Effect of Management Level', *Marmara University Journal of Economic & Administrative Sciences,* 38(2), 21-44.

Asif, A. & Gul, N. (2021). Analyzing the determinants of employee retention: A case of pharmaceutical companies in Pakistan. *Journal of Entrepreneurship, Management, and Innovation*, 3(1), 147-176.

Aquenza, B. B. & Som. (2018). Motivation factors of employee retention and engagement in organization', IJAME.

Barween, A. K., Muhammad A. & Tayseer A. (2020). Employee retention and organizational performance: Evidence from the banking industry. *Management Science Letter*, 3981-3990.

Bibi, P., Ahmad, A. & Majid, A. H. A. (2018). The Impact of Training and Development and Supervisors Support on Employees Retention in Academic Institutions in Pakistan: The Moderating Role of the Work Environment. *Gadjah Mada International Journal of Business*, 20(1), 113-131.

Bussin, M. (2018). Retention Strategies : The Key to Attracting and Retaining Excellent Employees, Randburg [South Africa]: KR Publishing (Talent Management Series).

Diah, A. M. et al. (2020). Employee Retention of Pharmaceutical Firms in Indonesia: Taking Investment in Employee Development and Social and Economic Exchange as Predictors. *Systematic Reviews in Pharmacy*, 11(1), 564-572.

Ellinger, A. D. & Sewon, K. (2014). Coaching and human resource development: Examining relevant theories, coaching genres, and scales to advance research and practice. *Advances in Developing Human Resources* 16(2), 127-138.

Le Meunier F. K. & Graham, R. M. (2019). Improving relationships between sales and marketing: the relative effectiveness of cross-functional coordination mechanisms. *Journal of Marketing Management,* 35(13-14), 1267-1290.

Gordon, S., Tang, C.-H., Day, J. & Adler, H. (2019). Supervisor support and turnover in hotels: Does subjective well-being mediate the relationship? *International Journal of Contemporary Hospitality Management*, 31(1), 496-512.

Haider, S., Nisar, Q. A., Baig, F., Azeem, M. & Waseem-ul-Hameed. (2018). Dark Side of Leadership: Employees' Job Stress & Deviant Behaviors in Pharmaceutical Industry, *International Journal of Pharmaceutical Research & Allied Sciences,* 7(2), 125–138.

Houssein, A. A., Singh, J. S. K. & Arumugam, T. (2020). Retention of Employees through Career Development, Employee Engagement and Work-life Balance: An Empirical Study among Employees in the Financial Sector in Djibouti, East Africa. *Global Business & Management Research,* 12(3), 17–32.

Ivana, D. & Chiripuci, B. (2020). Human Resource Practices in Improving Employee Retention, *Review of Economic Studies & Research Virgil Madgearu*, 13(1), 33-43.

Jindal, P., Shaikh, M. & Shashank, G. (2017). Employee engagement; tool of talent retention: Study of a pharmaceutical company. *SDMIMD Journal of Management*, 8(2), 7-16.

Kalyanamitra, P., Saengchai, S. & Jermsittiparsert, K. (2020). Impact of Training Facilities, Benefits and Compensation, and Performance Appraisal on the Employees' Retention: A Mediating Effect of Employees Job Satisfaction, *Systematic Reviews in Pharmacy*, 11(3), 166-175.

Khandelwal, A. & Shekhawat, N. (2018). Role of talent retention in reducing employee turnover. Available at SSRN 3186397.

Khoele, A. & Daya, P. (2014). Investigating the turnover of middle and senior managers in the pharmaceutical industry in South Africa. *Journal of Human Resource Management,* 12(1), 562.

Krejcie & Morgan (1970). Determining sample size for research activities. *Education and Psychological Measurement,* (30), 607-610.

Lee, M. C. C., Idris, M. A. and Tuckey, M. (2019). Supervisory coaching and performance feedback as mediators of the relationships between leadership styles, work engagement, and turnover intention. *Human Resource Development International,* 22(3), 257-282.

Madhani, P. (2020), Effective rewards and recognition strategy: Enhancing employee engagement, customer retention and company performance. World at work journal.

Mahadi, N., Woo, N. M., Baskaran, S., & Yaakop, A. Y. (2020). Determinant factors for employee retention: Should I stay? *International Journal of Academic Research in Business and Social Sciences*, *10*(4), 201-213.

Malik, M.A.R., Butt, A.N., & Choi, J.N. (2015). Rewards and employee creative performance: moderating effects of creative self-efficacy, reward importance and locus of control. *Journal of Organizational Behavior*, 36(1), 59-74.

Ninroon, P., Khlungsaeng w., & Rajabhat, S. (2020). 'Identifying the predictors of the turnover intentions: A case of Thailand pharmaceutical companies. Systematic Review Pharmacy, 11 (3), 134-143

Pareek, A., Mohanty, S. S., & Mangaraj, S. (2019). Systematic review on employee engagement and its impact on employee retention.

Sarkar, J. (2018). Linking Compensation and Turnover: Retrospection and Future Directions. *IUP Journal of Organizational Behavior*, 17(1), 43–75.

Sawilowsky, S. S. (2009). New effect size rules of thumb. *Journal of modern applied statistical methods*, *8*(2), 26.

Schwab, D. P. (2013). *Research methods for organizational studies*. Psychology Press.

Shamanism, M., Alharthi, S., Helmi, M., & Alwadei, T. (2023). Determinants of employee retention in pharmaceutical companies: Case of Saudi Arabia. *Journal of Business and Management Studies*, *5*(2), 08-22.

Sheraz, F., Batool, S. and Adnan, S. (2019). Employee's Retention and Job Satisfaction: Mediating Role of Career Development Programs. *Dialogue*, 14(2), 67-78.

Subramaniam, C., Choo, L. S. and Johari, J. (2019). What makes employees want to stay? A study in the Malaysian manufacturing sector. Global Business & Organizational Excellence, 38(5), 33-43.

Sylqa, D. (2020). Motivation of People - Theoretical Models and Practices. *Business Management / Biznes Upravlenie*, (2), 5-24.

Wadhera, T. and Bano, S. (2020). Role of perceived organizational support, work engagement and workplace spirituality in turnover intentions of IT professionals', Indian Journal of Positive Psychology, 11(2), 128-135.

Yong, F. R., Garcia-Cardenas, V., Williams, K. A., & Benrimoj, S. I. C. (2020). Factors affecting community pharmacist work: A scoping review and thematic synthesis using role theory. *Research in Social and Administrative Pharmacy*, *16*(2), 123-141.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Determinants of Work-Life Balance among Nurses in Public Hospital in Klang Valley

Nazri Harris Bin Shamshir Ali[1], Sharifah Fazirah Syed Ahmad[2*], Nur Raihan Che Nawi[3], Sarinah Sabar[4], Liatul Izian Ali Husin[5]
[1,2,4,5] Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
[3]Faculty of Educational Studies, Universiti Putra Malaysia, Malaysia
nazri.harris@moh.gov.my, *Sharifah Fazirah Syed Ahmad, fazirah@uitm.edu.my, nurraihan@upm.edu.my, sarinahs@uitm.edu.my, liatul@uitm.edu.my

Abstract: The need to have a healthy work-life balance is generally recognized across several professional domains. The present investigation was carried out within a public health institution situated in the Klang Valley region. The objective of this study is to investigate the impact of workload, time management, and work environment on the work-life balance of nurses, who serve as frontline healthcare professionals. The research utilized purposive sampling as one of the quantitative research methods. Online distribution was utilized as the means of data collection. A grand total of 276 questionnaires were appropriately completed and afterward returned. The findings indicate that workload negatively impacts employee work-life balance when compared to aspects such as time management and work environment. All the variables found have a significant impact on employees work-life balance in different positive and negative relationships.

Keywords: *Work-life balance, Workload, Time Management, Work Environment.*

1. Introduction and Background

The relationship between individuals' employment and personal lives is complicated. The notion of achieving a harmonious balance between one's professional and personal life has gained significant attention in contemporary times. According to Clark (2000), work-life balance refers to the state of experiencing satisfaction and smooth functioning in both professional and personal domains, without encountering any conflicts between these roles. The concept of work-life balance pertains to individuals' capacity to exert control over the timing, location, and manner in which they engage in work-related activities. Achieving a suitable work-life balance is possible when an individual successfully fulfills their familial, occupational, and societal obligations. There is a significant amount of contemporary scholarly attention in the field of social sciences on the concept of work-life balance (Warren, 2004). The prevalence of work-life conflicts has been observed to increase in tandem with the growing obligations and pressures associated with work and personal duties. According to Fleetwood (2007), organizations that implement effective work-life balance policies and practices tend to achieve higher levels of financial success. Another definition supports the concept of work-life balance (WLB), which is characterized as a multi-dimensional construct encompassing various criteria including communication, health and safety, job security, promotions, pay and benefits, physical work environment, teamwork, autonomy, employees' perceptions of job content, participation in decision-making, support from colleagues and managers, and work-life balance itself (Demerdash, 2019).

In circumstances where achieving the appropriate balance between work and life, the hospital plays a crucial role. The prioritization of work-life balance is of utmost importance as it is critical in maintaining a state of overall well-being. Due to the concurrent execution of two discrete tasks, they need to exhibit good judgment to efficiently allocate and manage their time. The concept of work-life balance (WLB) refers to the capacity of nurses to attain and sustain equilibrium between their professional responsibilities and their personal lives beyond the workplace. The concept of work-life balance (WLB) is predicated on the recognition that individuals are faced with various responsibilities and commitments in both their personal and professional domains. Furthermore, this perspective is based on the premise that the pursuit of paid employment and personal time should not be perceived as conflicting objectives, but rather as mutually beneficial elements that contribute to a satisfying existence. Nevertheless, individuals may encounter difficulties in achieving a harmonious equilibrium between their professional and personal lives as a result of factors such as excessive job demands, insufficient self-regulation, and unpredictable work timetables. The primary focus of this study will identify the correlation between work-life balance (WLB) and the workloads, time management, and working circumstances experienced by nurses in public hospitals in Klang Valley.

The concept of work-life balance pertains to the equilibrium between professional and personal domains and is a matter of significance for employees in their commitment to the sustainability of an organization (Fukuzakiet; al., 2021). The concept of work-life balance is subject to varying perspectives among individuals or employees. It is considered a significant feature of human life. However, it poses considerable challenges in effectively managing work responsibilities, household duties, and other facets of life (Rangarajan, 2019). The healthcare industry is characterized by 24/7 working hours, which often leads to a conflict between professional and personal life. It is a facility that provides a range of medical services to patients, delivered by healthcare professionals such as doctors and nurses. Azeem and Akhtar (2014) emphasized the significant contribution of nurses to the overall performance of their respective organizations and the overall well-being of their families. Despite the extensive training programs undergone by nurses, patient complaints may still arise. Abdullah et al. (2018) have highlighted that hospitals may have difficulties if their personnel provide less than the expected service, resulting in consumer dissatisfaction. It will exert an influence on the performance and productivity of the health institution. This conflict contributes to the experience of stress among nurses, who frequently work overtime and under continuous pressure.

For that reason, it is important to maintain a harmonious balance between professional obligations and personal responsibilities to maintain one's physical and emotional well-being (Maiya, 2015). Given that a significant number of nurses encounter a repetitive nature in their job tasks, it is important to acknowledge that human limitations can impose constraints on their professional lives. The nursing profession entails working in demanding and high-pressure settings, thus requiring a significant emphasis on achieving a satisfactory work-life balance. Therefore, further research is needed to examine the correlation between workload, time management, and work environment in relation to work-life balance. Through comprehensive consideration of the above criteria, it is possible to ascertain the determinants of work-life balance (WLB) among nurses employed at public hospitals in Malaysia.

2. Literature Review

Work-Life Balances: There is continuous awareness of the interaction and correlation between an individual's personal and professional spheres. The task of achieving a balance between a profession and personal or familial existence can present challenges and exert an influence on an individual's satisfaction in their occupational and personal domains. This dilemma is particularly pertinent for nurses, who undertake multifaceted responsibilities in the realm of patient care. Employees and organizations are concerned about striking a good balance between work and personal commitments. Some evidence points to a work-life imbalance affecting individual and family health and well-being (Brough & Kalliath, 2008). According to Campbell (2000), work and home environments were incompatible, making work or family balance one of the most difficult concepts in the study of work and the study of families. As a result, improving their WLB is a critical issue because it is the foundation for quality of work life and overall life satisfaction among healthcare professionals. According to Prabhashani and Rathnayaka (2017), work-life balance is "correcting the working pattern" so that staff can take better advantage of their jobs and fit in better. Additionally, he asserted that the attainment of this objective over an extended period of time would lead to the realization of success and the establishment of sustainability.

Nurses perform a crucial part in enhancing the healthcare system of every given nation. The presence of female nurses is crucial to the proper functioning of the healthcare business. According to Kumari & De Alwis (2015), nurses play a significant role in ensuring the quality of healthcare services. Consequently, it is important for hospital administrators to consistently assess the work-life balance of nurses. Understanding work-life balance in its specific context refers to the security of personal, family, and work responsibilities as an individual. It implies that a person must consider equalizing responsibilities to achieve a good work-life balance. As a result, all of these must be equally attended to make an individual valuable in their life roles and society. As staff nurses, they perform multiple tasks or functions in educating other nurses. One of these functions is classroom-based instruction, in which staff nurses spend a significant amount of time trying to prepare for concept lectures. Another responsibilityis to supervise nursing students during their community and hospital-based learning experiences. Staff nurses must also make time to assess students' output (i.e., Test papers, case studies, etc.). They frequently experience under-pressure work and are finding it challenging to balance between professional and personal responsibilities. Work and family conflict increases when either job or

family roles are prominent to a person's self-roles; the more essential the job is to the individual, hence more work and time they will put into it.

Workload: In their study, Prabhashani and Rathnayaka (2017) proposed that it is important to understand that by significantly reducing workload, work-life balance can sometimes be improved. It is emphasized that a lesser workload will result in higher WLB. Kumari & De Alwis (2015) investigated the impact of nurse scarcity on job outcomes and discovered a positive relationship between nurse scarcity and workload. It also shows a significant positive relationship between workload and superiority. It indirectly conveys the adverse influence of workload on work-life balance. Aside from that, the survey results conducted by French et al. (2013) precisely indicated that the impact of workload on the private lives of members of both public and commercial service unions is 71.7%. Most of the members claim to struggle with having to balance their household or personal matters with work. According to 21.0%, this is always a problem. According to Bruggen (2015), a study was conducted to examine the effect of the burden on both qualitative and quantitative job performance. The study's findings show that the volume of work has an impact on employee performance at all levels, and businesses must quantify the effect to improve judgment ability. As a result, to improve employee effectiveness, the organization must compromise its workload.

Understaffing, heavy workloads, lengthy work hours, shift or inflexible work schedules, and job pressure are all common issues in the nursing industry around the world (Lee et al. 2015). Registered nurses are in short supply (RN–Registered Nurse). The RNs workforce in the United States is predicted to increase from 2.71 million nurses in 2012 to 3.24 million in 2022, a 19% increase; also, there is a predicted need for 525 000 substitute nurses in the workplace, resulting in a total of job vacancies for nursing staff due to growth and replacement to 1.05 million by 2022. (American Association of College of Nursing 2014). According to that figure, a nursing shortage is expected to broadcast across the United States between 2009 and 2030. Taiwan's nurse-to-population ratio (5.7 nurses per 1000 people) is lower than the OECD average of 8.6 nurses (Taiwan Ministry of Health and Welfare 2013). Given the severe shortage of staff nurses, retaining skilled and qualified nurses is critical. This is due to work overload and multitasking as two issues that healthcare industries face. The highly disproportionate nurse-to-patient ratio, according to Lin et al. (2013), can increase the average length of patient hospitalization, comorbidities, and patient mortality in severe cases. According to Chang and Lin (2016), the present healthcare professional proportion in Taiwanese healthcare centers is 1: 10, 1: 7 in all shifts in Japan, and 1: 4-5 for day shifts in the United States and Australia. According to a survey conducted by Community Practitioner (2013), only 49% of nurses in the United States were satisfied with their work-life balance, citing heavily loaded workloads as well as shift plans as reasons for their dissatisfaction.

Increased workload creates a stressful environment at work and reduces work-life balance (Greenglass et al, 2003). According to a survey conducted in the United Kingdom among members of public and commercial service unions, the adverse effects of working time and workload on holidays, social events, and family relationships have increased substantially between 2006 and 2013 French et al. (2013). This research provides support for the finding made by Amat et al. (2003) that work-life balance and workload are interconnected, particularly in developing nations.

The study by Ahsan et al. (2009) agreed with the results by demonstrating a favorable correlation between workload and work-life balance. The observed positive correlation indicates that there is a direct relationship between an individual's workload and the occurrence of conflict, suggesting that as workload increases, conflict also tends to increase. The workload is the most significant factor preventing people from achieving a work-life balance. Jones et al. (2007) stated that role overload is the level of stress that an employee experiences as a result of multiple duties and responsibilities (Zainuddin et al., 2015) discovered a negative correlation between workload and work-life balance. Increasing workloads, according to Kamal & Irwani (2018), can indeed contribute to the onset of burnout. Individual people who do not have the resources and assistance to completely recover from stress are more vulnerable to emotional collapse. According to Bruggen (2015), the workload toward work performance found respectively positive and negative consequences of stress, with mixed results (Gilad et al., 2008) as a moderate workload always enhances performance seeing as employees carry out their duties successfully (Sinniah et al., 2018). Based on these

findings, the researcher developed a hypothesis related to the workload of nurses in public health institutions to further investigate the result.
H1: There is a positive relationship between workload and work-life balance among nurses in public health institutions.

Time Management: Time management is a method of developing and employing processes and tools to obtain optimum overall effectiveness, efficiency, and productivity. It entails knowledge and understanding of a set of competencies such as goal setting and planning. It is also an effective utilization of time to accomplish the desired outcomes. The effective management and organization of time facilitate the expeditious completion of tasks with less effort while enabling the exploitation of opportunities. This practice is closely associated with administrative work, which entails a continual cycle of planning, analysis, and evaluation of all administrative activities conducted within the designated work hours daily. The primary objective is to optimize the allocation of available time towards the attainment of desired goals. Effective time management is achieved via meticulous planning, efficient organization of one's schedule, skillful implementation of strategies, and maintaining a proactive mindset toward minimizing time wastage.

The comprehension of time management principles and the strategic allocation of leisure time can significantly influence an individual's physical and psychological well-being (Trenberth, 2005). The act of granting oneself the freedom to determine how one allocates their time, taking into consideration a holistic outlook on life, rather than being compelled and limited by a specific societal position, has the potential to yield increased levels of contentment and a more enduring self-identity (Bresciani, Duncan, & Cao, 2010). The 80-20 rule, also referred to as Pareto's Principle, posits that a mere 20% of a given entity or factor consistently accounts for 80% of the outcomes or effects seen. For instance, a notable proportion of the products, specifically twenty percent, will have defects ranging from 70 to 80 percent. This principle elucidates how it can be implemented to proficiently oversee our time allocation and many facets of our existence. Time management is a strategic approach to effectively organizing and allocating our time in a manner that ensures the decisions we make are purposeful, productive, and advantageous to the various aspects and systems of our lives. According to Hashemzadeh et al. (2011), the establishment of culturally appropriate histories is considered a prerequisite for the effectiveness of managers and a means of enhancing the conditions necessary for organizational survival inside a given organization.

Nursing students who learn time management skills can work smarter rather than harder. This skill is essential for surviving the hectic day-to-day shift (Rosario, 2012). The amount of time a nursing member spends on any task in nursing development is essential for nursing managers to schedule and assign tasks (Munyisia, Yu, & Hailey, 2011). Nevertheless, although it may be easy to attribute events to others, the responsibility for managing one's own time ultimately lies with the individual. The utilization of time management and its associated benefits is crucial for individuals to effectively harness the advantages offered by science and technology as well (Hashemzadeh et al., 2011). Proficient time management skills enable individuals to optimize productivity and effectively utilize every hour in a given day. This requires optimizing the allocation of time throughout our day to efficiently fulfill all necessary responsibilities. Increased time management leads to greater productivity and reduced stress levels. The healthcare industry is definitely a challenging and mentally demanding task, expecting nurses to possess strong organizational skills. To achieve optimal outcomes, it is important to possess proficient skills in time management, delegation, and critical thinking.

A study conducted by Hashim et al. (2021) examined the relationship between time management and work-life balance among 108 employees at a private firm in Malaysia. The findings of the study revealed a statistically significant positive correlation between time management and work-life balance. On the other hand, a study among married Pakistani women professionals revealed that long work hours and rigid schedules increase the likelihood of female employees having work-family conflicts (Jostell & Hemlin, 2018; Khursheed et al., 2019). This finding confirms recent research findings that demonstrate a substantial beneficial relationship between Personal Time Management and work-life balance (Saad et al., 2022), thus, to further investigate the association of time management and work-life balance among nurses in public hospitals, this hypothesis is developed.

H2: There is a positive relationship between time management and work-life balance among nurses in public health institutions.

Work Environment: According to Mabona, (2022), a healthy work environment for nurses requires leadership, effective communication, teamwork and professional autonomy. Four themes emerged from the integrative literature review regarding a healthy work environment for nurses including the need for effective nursing leadership, effective communication as central to the enhancement of a healthy environment, effective teamwork as an integral part of a healthy work environment and the need for professional autonomy. Wellness is "the active process of becoming aware of and making choices toward a successful existence, both as individuals within society and the work environment". Wellness enhances physical, mental, and social well-being (Stoewen, 2016). On the other hand, Prabhashani and Rathnayaka (2017) stated that social support is important in promoting work-life balance programs because it can inspire or even dissuade staff from participating in work-life balance programs.

Perceptions of the workplace can encompass a range of favorable and negative evaluations. The presence of employee appreciation positively correlates with work attendance, while the absence of employee appreciation negatively correlates with work attendance. This statement can also be interpreted as a favorable sentiment that arises when individuals have satisfaction in their work environment, as demonstrated by their level of happiness while working. According to Milutinovic et al. (2012), nurse practitioners operate within a unique professional setting characterized by increased involvement in life-and-death scenarios, extended work hours, task rotation, and a supportive network of colleagues. Nurses often find themselves compelled to work additional hours beyond their regular shifts as a result of the inherent demands of their profession. Work overtime is necessary in the workplace because they are important and desirable to organizations in meeting demands, particularly in the health industry. Moreover, the fact that General Hospitals, there are simply too many patients who require care from time to time, and nurses are sometimes forcedto work a double shift to cover tasks when staff shortages occur.

A workplace relationship is crucial because it contributes to personal contact, which can lead to strong teamwork. A good relationship aids in the resolution of any problem because it fosters a positive attitude toward teamwork. In the 1970s, Robert Greenleaf observed that leaders have significant power because they can serve as role models in developing relationships among team members and also motivate them. This happens because a leader serves as a point of reference for followers. Aside from that, Brooks and Anderson (2004) stated that quality at the workplace can be achieved by fostering affiliation among colleagues, resulting in mutual trust and good communication among employees. This is because all employees want a quality and comfortable workplace, whereas every organization wants more output in comparison to less input, both of which people show a connection where it is necessary to establish a positive relationship between workers and the working environment. Thus, the third hypothesis is developed.
H3: There is a positive relationship between work environment and work-life balance.

3. Research Methodology

This research is a quantitative study that tries to investigate the correlation between workload, time management and work environment with employees work work-life balance. A list of population components from which the sample was drawn including the sampling frame. The sampling frame for this study was obtained from the management department of the general hospital in Klang Valley. Since the research is focused on nurses in the designated sample frame, the medical staff were targeted. Approximately 460 nurses were identified as the staff attached to the care ward. Based on Kerjie & Morgan, at least a number of 210 samples must be retrieved from the population. The individual nurses were targeted as the unit of analysis. Fortunately, a number of 276 questionnaires were completely answered. Purposive sampling from non-probability procedures was utilized because selecting units for inclusion in a sample is easier, faster, and less expensive. As a result, the researcherwould sporadically blast on WhatsApp and Telegram which can easily be accessed. These 460 targeted nurses at Hospital Tengku Ampuan Rahimah Klang were given access to an online survey created with Google Forms and a cover letter via email, WhatsApp, and Telegram. The questionnaire has various sections, including ones for measuring work-life balance, workload, time management, and demographic information. The necessary data were then displayed in documentation and statistics.

4. Results

To ensure the capacity of a measuring device to produce precise and dependable results, a reliability analysis is conducted. Cronbach's alpha will be employed to determine the dependability of the reliability analysis, indicating how strongly the items in a set are positively connected. The variables' level of internal variation will be higher if the coefficient is nearer 1.0. The result from the reliability test is shown in Table 1.

Table 1: Reliability Analysis

Reliability Statistics
Scale: Workload

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.876	.892	5

Reliability Statistics
Scale: Time Management

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.909	.902	10

Reliability Statistics
Scale: Work Environment

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.904	.905	10

According to the data presented in Table 1, Cronbach's alpha coefficient for each variable exceeds 0.8, indicating a high level of internal consistency and reliability for all items. The study's dependent variable, work-life balance, exhibits a Cronbach's alpha coefficient of 0.96. The study also examined the independent variables of workload, time management, and work environment among a sample of 276 respondents. The corresponding values for these variables were found to be 0.876, 0.909, and 0.904, respectively. Based on Lee-Cronbach Alpha (1951), the result demonstrates that all objects possess a high level of strength, indicating both good and excellent performance.

The outcome of the data analysis is accessible in this study by using the SPSS version 26 database. The use of analysis is to distinguish the factors that influence work-life balance among nurses in public hospitals. This research analysis is based on the section in the questionnaires.

Table 2: Correlations Analysis Correlations

Com_Workload			**com_time**	**com_workenv**	**com_wlb**
com_workload	Pearson Correlation	1	-.151*	-.056	-.115
	Sig. (2-tailed)		.012	.350	.028
	N	276	276	276	276
com_time	Pearson Correlation	-.151*	1	.344**	.479**
	Sig. (2-tailed)	.012		.000	.000
	N	276	276	276	276
com_workenv	Pearson Correlation	-.056	.344**	1	.182**
	Sig. (2-tailed)	.350	.000		.000
	N	276	276	276	276
com_wlb	Pearson Correlation	-.115*	.479**	.182**	1
	Sig. (2-tailed)	.028	.000	.000	
	N	276	276	276	276

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 presents a correlation analysis, indicating a moderate positive association ($r = .479$, $p < 0.05$) between time management and work-life balance. The correlation coefficient between work environment and work-life balance is $r = 0.182$, indicating a statistically positive but weak relationship at the $p < 0.05$ level. This finding demonstrates a fragile positive correlation between employees' work environment and their work-life balance. The correlation coefficient (r) between workload and work-life balance is -0.115, indicating a statistically negative but weak relationship ($p < 0.028$). This finding suggests a substantial association between these variables, characterized by a weak downward linear trend. In summary, the findings of this study indicate that the factors examined, namely time management and work environment, exhibit a positive correlation with work-life balance. However, it was observed that workload demonstrates a negative association with the dependent variable.

Table: 3 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.915[a]	.837	.836	5.58620

a. Predictors: (Constant), com_time, com_workload,com_workenv
a. Dependent Variable: com_all

Table: 4 Analysis of Variance

Sum of Model	Squares		DF	Mean Square	F	Sig.
1	Regression	43739.226	3	14579.742	467.215	.000[b]
	Residual	8487.933	272	31.206		
	Total	52227.159	275			

a. Dependent Variable: com_all
b. Predictors: (Constant), com_time, com_workload, com_workenv

The findings presented in Tables 3 and 4 indicate that the collective influence of the independent variables, namely workload, time management, and work environment, accounts for 83.7% of the observed variability in work-life balance. This is reflected by the coefficient of determination (R) which has a value of 0.837. These findings suggest that the combination of independent variables, namely workload, time management, and work environment, accounts for 83.7% of the variability observed in the dependent variable, which pertains to work-life balance. The research findings indicate that the independent factors of workload, time management, and work environment do not account for 16.3% of the variance in work-life balance. The F statistic is calculated to be 467.215, which exceeds the threshold value of 1. Additionally, the associated p-value is determined to be 0.000, suggesting a high level of statistical significance. Furthermore, the p-value is found to be less than the critical value of 0.05, further supporting the conclusion that the model is well-fitted. The regression model is of significant importance in explaining the relationship between work-life balance and its effects on workload, time management, and the work environment.

Table: 5 Coefficients of Every Model

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.042	3.328		.914	.362
	com_workload	.910	.110	.204	8.241	.000
	com_workenv	1.021	.062	.430	16.515	.000
	com_time	1.460	.056	.679	25.836	.000

a. Dependent Variable: com_all.

Based on Table 5, the beta coefficient (β) with the highest value is associated with the variable of time, specifically time management (β = 0.679, p = 0.000, p < 0.05). This implies that, when considering the variability explained by the other variables in the model, time exerts the most significant influence on the comprehension of work-life balance. The subsequent variable under consideration is the work environment. It is noteworthy that the work environment explains 43% of the variability seen in work-life balance (β = .43, p = 0.000, p < 0.05). The final variable under consideration is workloads, which demonstrates a statistically significant association with work-life balance (β = .204, p = 0.000, p < 0.05). The findings of this study indicate that several factors, namely workload, time management, and workplace environment, significantly impact work-life balance. These variables were shown to have a statistically significant work-life balance with a p-value of less than 0.05 (0.000).

Discussion: The primary objective of this study is to examine the correlation between workload and work-life balance among nurses employed in public hospitals. The Pearson Correlation Coefficient was employed to examine the probable association between the variables. The results of the initial objective indicate a statistically significant negative correlation between workload and work-life balance (r=-.115, p=.028, p<0.05). The analysis demonstrates a statistically significant weak negative correlation between workload and work-life balance. Based on the data, it is evident that an increase in workload has a negative impact on the work-life balance of nurses. This finding aligns with prior research indicating that nurses express an intention to leave their profession as a result of heavy workloads that negatively impact their ability to maintain a healthy work-life balance. According to the study conducted by Holland et al. (2019). An increased workload contributes to heightened levels of stress among employees (Kelly et al., 2019, Ching et al., 2020), diminishing their ability to maintain a satisfactory work-life balance. This finding aligns with the unfavorable outcome observed in the impact of working hours and workload on holidays, social events, and family relationships, which experienced significant growth from 2006 to 2013, as indicated by a survey conducted among members of public and commercial sector unions in the United Kingdom (French S, 2013).

The second objective of this study is to examine the correlation between nurses' time management and their ability to maintain a healthy work-life balance within the context of a public hospital. A favorable and significant correlation was observed between nurse time management and work-life balance at a public hospital in the Klang Valley. A correlation analysis was conducted to examine the potential relationship between the time management skills of nurses and their work-life balance. Based on the findings, a statistically significant positive correlation has been observed between the practice of time management and the achievement of work-life balance. (r= .479, p=0.000, p<0.05) This finding further supports the notion that effective time management positively impacts work-life balance according to the study conducted by Jamaluddin et al. (2022). The third purpose of this study is to investigate the correlation between the work environment and the work-life balance of nurses employed in public hospitals. Based on the findings, the results indicate a p-value of .000 which is less than 0.05, it may be concluded that there exists a statistically significant association between the work environment and work-life balance. The obtained data revealed a correlation coefficient of r = .182, with a p-value of 0.001, indicating statistical significance at the p < 0.05 level. The findings provided evidence for a moderate, positive correlation between the work environment of employees and their ability to maintain a satisfactory work-life balance. The results of this study are consistent with prior research, indicating that the family work environment has a substantial role in shaping the work-life balance of employees (Anila et al; 2016). The findings of this study suggest that the office environment has a positive impact on the performance of nurses as well as their work-life balance.

5. Managerial Implications and Recommendations

The findings indicate that the workload experienced by nurses in public hospitals has a significant impact on their work-life balance. The statement suggests that a significant increase in workload can negatively impact the balance between work and personal life. Despite the moderate and low association between time management and work environment, these factors have a favorable impact on employees' work-life balance. By effectively managing their time and cultivating a conducive work environment, employees can achieve a greater sense of equilibrium between their professional and personal domains. Hence, this study holds a significant contribution to the Malaysian Ministry of Health and all hospital administrative institutions as the authorized body to be responsible for overseeing and governing hospital operations. Through the

implementation of this study, hospital management will be able to strategically restructure and propose more effective approaches for the well-being of nursing staff. Employees who operate in a good, pleasant, and supportive workplace environment are likely to exhibit higher levels of motivation, make fewer errors, achieve greater production, and generate work of superior quality. Moyes, Shao, and Newsome (2008) described employee satisfaction as the level of contentment an individual experiences in relation to their employment role. Consequently, contemporary human resource managers engage in the assessment of personnel practices to align them with these requirements, aiming to enhance employee loyalty and thereby facilitate the efficient operation of a hospital. The significance of this lies in the fact that motivated nurses possess the ability to effectively execute their given duties, hence providing a distinct edge for hospital administration in terms of sustainability. This study holds significance for employees as it sheds light on the crucial role of the work-life balance aspect within the context of work-life. Employees who encounter challenges in a range of domains have the capacity to mitigate their stress levels and foster a state of well-being conducive to a healthy lifestyle. Furthermore, it has the potential to enhance an individual's health, overall sense of well-being, and job satisfaction.

Conclusion: When there is a negative correlation between time management and work-life balance, it indicates that the burden of employees has indeed had an impact on their ability to maintain a satisfactory balance between their work and personal lives. The first hypothesis is rejected. Although the research yielded only moderate and low levels of association, it provided support for the concept of a positive relationship between time management, work environment, and employees' work-life balance. This concluded that the second and third hypotheses were to be accepted. Therefore, the hospital as a healthcare institution should prioritize the employee's well-being issue in achieving a work-life balance between professional and personal commitments. Nurses are very important assets as the performance of each nurse significantly influences the overall efficiency of the hospital. To facilitate the attainment of a work-life balance that fosters a positive work environment inside hospitals, the human resources (HR) department of these institutions needs to engage in collaborative efforts. While it is true that a higher salary and other financial and non-financial benefits may contribute to sustaining a good work-life balance for employees, it is important to consider additional factors that might facilitate this balance. These factors include the provision of a convincing work environment, reduced workload, and the presence of well-equipped healthcare facilities that specifically address nursing-related concerns. The performance of nurses is subject to several factors, with the maintenance of a harmonious equilibrium between work and home responsibilities being seen as pivotal for achieving consistent levels of performance. The establishment of a work-life balance between professional and personal spheres enhances efficiency and augments levels of contentment within one's occupation. This phenomenon serves as a source of motivation for nurses, compelling them to assume their duties with heightened levels of responsibility and satisfying them with a feeling of fulfillment. This phenomenon facilitates the enhancement of the professional environment and fosters the establishment of interpersonal connections among nurses and their personal lives.

References

Kamal, H & Irwani, A. (2018). Stress, workload, time management and student performance. In: 2nd Conference on Technology & Operations Management (2ndCTOM), February 26-27, 2018, Universiti Utara Malaysia, Kedah, Malaysia.

Abdullah, N. & Rashid, R. & Lukman, N., Yusof, Y. & Annuar, M. (2018). Quality of Working Life among Nurses at a General Hospital in Malaysia. 10.2991/ebic-17.2018.52.

Amat, T. M., Fontaine, R. & Chong, S. C. (2003). Occupational stress among managers: A Malaysian survey. *Journal of Managerial Psychology,* 18(6), 622-628.

Anila, K. P. & Krishnaveni, V. (2016). Influence of Family Environment and Work Environment on Work-Life Balance among Women Employees. *International Journal of Management Research & Review*, 6(3), 341-347.

Bresciani, M. J., Duncan, A. J. & Cao, L. H. (2010). Embracing the Ambiguity: Twelve Considerations for Holistic Time Management. Institute of Education Science, ERIC Journal.

Brooks, B. & Anderson, M. (2004). Defining quality of nursing work life. *Nursing Economics,* 23, 319-26, 279.

Bruggen, A. (2015). An empirical investigation of the relationship between workload and performance. Management Decision, 53(10), 2377-2389. https://doi.org/10.1108/MD-02-2015-0063

Clark, S. C. (2000). Work/Family Border Theory: A New Theory of Work/Family Balance. *Human Relations*, 53(6), 747–770. https://doi.org/10.1177/0018726700536001

Eli, J., Lawrence, C., Deva, R. & James, R. (2007). The role of overload on job attitudes, turnover intentions, and salesperson performance, *Journal of Business Research*, 60(7), 663-671, https://doi.org/10.1016/j.jbusres.2007.02.014.

Esther, R., Greenglass, R. J. & Burke, K. A. M. (2003). Reactions to Increased Workload: Effects on Professional Efficacy of Nurses. *Journal of Applied Psychology*, 52(4). https://doi.org/10.1111/1464-0597.00152.

Esther, N. M., Ping, Y., David, H. (2011). How Nursing Staff Spend Their Time On Activities In A Nursing Home: An Observational Study. *Leading Global Nursing Research,* 67(9), 1908-1917

Eunhee, C., Douglas, M., Sloane, E. K, Sera, K., Miyoung, C., Young, Y., Hye, S. L. & Linda, H. (2015). Aiken, Effects of nurse staffing, work environments, and education on patient mortality: An observational study, *International Journal of Nursing Studies*, 52(2), 535-542, https://doi.org/10.1016/j.ijnurstu.2014.08.006.

Fleetwood, S. (2007). Why Work-Life Balance Now? *The International Journal of Human Resource Management*, 18, 387-400. 10.1080/09585190601167441.

Fukuzaki, T., Takeda, S., Iwata, N., Ooba, S. & Inoue, M. (2023). Commitment profiles among nurses: combinations of organizational commitment forms and work engagement, psychological distress, and turnover intention. *Ind Health,* 61(3), 232-236. doi: 10.2486/indhealth.2021-0237. Epub 2022 Mar 29. PMID: 35354696; PMCID: PMC10269838.

Hashim, S. & Masek, A., Mahthir, B., Rashid, A. & Nincarean, D. (2021). Association of Interest, Attitude and Learning Habit in Mathematics Learning Towards Enhancing Students' Achievement. *Indonesian Journal of Science and Technology,* 6, 113-122. 10.17509/ijost.v6i1.31526.

Hashemzadeh, G. R. & Khaksar, S. M. S., Nawaser, K, & Afshar, J. A. (2011). Technological dimension of customer relationship management. *Indian Journal of Science and Technology*, 4, 1565-1572. 10.17485/ijst/2011/v4i11/30288.

Jamaludin, A., Hashim N. H. & Zaini, A. (2022). The Relationship Between Workload, Time Management and Salary on Employee Work-Life Balance in A Private Company. *Journal of Positive School Psychology,* 6, 4591–4600.

Jostell, D. & Hemlin, S. (2018). After-hours teleworking and boundary management: Effects on work-family conflict. *Work*, 60(3), 475–483. doi:10.3233/wor-182748

Jui-Ying, F, Yi-Ting, C., William, S., Erdley, C. L., Ying-Ju C. (2013). Systematic Review of Effectiveness of Situated E-Learning on Medical and Nursing Education. *Worldview on Evidenced Based- Nursing Journal,* 10(3), 174-183.

Kalliath, T. & Brough, P. (2008). Achieving work–life balance. *Journal of Management & Organization*, 14, 224-226. 10.1017/S1833367200003230.

Kelly, L. A., Lefton, C. & Fischer, S. A. (2019). Nurse Leader Burnout, Satisfaction, and Work-Life Balance. *The Journal of Nursing Administration,* 49(9), 404-410, DOI: 10.1097/NNA.0000000000000784

Khursheed, A., Mustafa, F., Arshad, I. & Gill, S. (2019). Work-Family Conflict among Married Female Professionals in Pakistan. *Management Studies and Economic Systems*, 4(2), 123-130.

Linda, T. (2005). The role, nature and purpose of leisure and its contribution to individual development and well-being, *British Journal of Guidance & Counselling,* 33, 1, 1-6, DOI: 10.1080/03069880412331335849.

Mabona. J. F., van Rooyen. D. & Ten Ham-Baloyi, W. (2022). Best practice recommendations for healthy work environments for nurses: An integrative literature review. Health SA. doi: 10.4102/hsag.v27i0.1788. PMID: 35548062;

Maiya, U. (2015). A Study on Work Life Balance of Female Nurses With Reference To Multispecialty Hospitals, Mysore City. *Asia Pacific Journal Research,* 1(28).

Mearin, F., Lacy, B. E. & Chang L., et al. (2016). Bowel Disorders. *Gastroenterology,* -5085(16)00222-5. DOI: 10.1053/j.gastro.2016.02.031.

Milutinović, D. & Golubović, B. & Brkic-Jovanovic, N. & Prokeš, B. (2012). Professional Stress and Health among Critical Care Nurses in Serbia. *Arhiv za higijenu rada i toksikologiju,* 63, 171-80. 10.2478/10004-1254-63-2012-2140.

Nilufar, A, Zaini, A., David, Y. G. F. & Syed, S. A. (2009). A Study of Job Stress on Job Satisfaction among University Staff in Malaysia: Empirical Study. *European Journal of Social Sciences,* 8(1).

Nur Hawiah, H., Azahari, J. & Ahmad, F. A. Z. (2022), The Relationship Between Workload, Time Management and Salary on Employee Work-Life Balance in A Private Company. *Journal of Positive School Psychology*, 6(5), 4591–4600.

Oron-Gilad, T. & Szalma, J. & Stafford, S. & Hancock, P. (2008). The Workload and Performance Relationship in the Real World: A Study of Police Officers in a Field Shooting Exercise. *International journal of occupational safety and ergonomics: JOSE.* 14, 119-31. 10.1080/10803548.2008.11076757.

Pan, L. C., Chua, B. S. & Rosnah, I. (2020). The Role of Hindrance Stressor and Distress in Teachers' Work-Life Balance. Advances in Social Science, Education and Humanities Research. Proceedings of the International Conference on Psychological Studies. DOI 10.2991/assehr.k.210423.025.

Peter, H, Tse, L. T., Cathy, S. & Brian, C. (2019). The impact of perceived workload on nurse satisfaction with work-life balance and intention to leave the occupation, *Applied Nursing Research*, 49, 70-76, https://doi.org/10.1016/j.apnr.2019.06.001.

Robert, K. & Greenleaf. (1970). Leadership-A Journey into the Nature of Legitimate Power and Greatness by Robert K. Greenleaf (338pg, published by Paulist Press 1977)

Prabhashani, R. M. B. & Ratnayaka, R. M. (2017). Determinants of Work-Life Balance among Nurses: Empirical Evidence from Monaragala District General Hospital, Sri Lanka.

Rosario, P. D. (2012). Nursing Time Management Skills You Should Have | NurseTogether.com. All About Nurses, Nurse Communication, Nurse Community | Nurse Together. Retrieved from http://www.nursetogether.com/Lifestyle/Lifestyle- Article/itemid/3260.aspx#.UJ6pX-TqmyU

Saad, M., Jaafar, A. N., Azman Ong, M. H., Yulinda, E. & Muthu Kumarasamy, M. (2022). Managing Family and Work: The Search for the Ideal Work-life Balance. *Environment-Behavior Proceedings Journal.*

Safaa, M, D. (2019). The Influence of Work-life Balance on Quality Work Life and Life Satisfaction *among Head Nurses International Journal of Novel Research in Healthcare and Nursing,* 6(2), 1155-1174. www.noveltyjournals.com

Shammika, K. & De Alwis, A. (2015). The Nursing Shortage Impact on Job Outcome (The Case in Sri Lanka). *Journal of Competitiveness,* 7, 79-94. 10.7441/joc.2015.03.06.

Stoewen, D. L. (2016). Wellness at work: Building healthy workplaces. *Can Vet J,* 57(11), 1188-1190. PMID: 27807385; PMCID: PMC5081153.

Suguna, S, Ramesh, K., Moona, H. M., Vimala, K., Prem. K. N., Adam, A. Lee. A. K., Azeyan. A. & Che. S. L. Md L. (2018). An Investigation of the Job Performance of Administrative Staff in Government Hospitals, Malaysia. *International Journal of Business and Management*, 13(10), 1833-3850

Syed, A. & Akhtar, N. (2014). The Influence of Work-Life Balance and Job Satisfaction on Organizational Commitment of Healthcare Employees. *International Journal of Human Resource Studies,* 4, 10.5296/ijhrs.v4i2.5667.

Theodor, J. (2013). Stewart, Simon French, Jesus Rios, Integrating multi-criteria decision analysis and scenario planning—*Review and extension, Omega*, 41(4), 679-688. https://doi.org/10.1016/j.omega.2012.09.003.

Tracey, W. (2004). Working part-time: achieving a successful 'work-life' balance? *British Journal of Sociology,* 55(1), 99-122.

Uzma, K, Sana, S. & Muhammad, A. (2019). Importance of Ethical Decision Making; Application of James Rest Model. Saudi Journal of Nursing and Health Care. Middle East Publishers, Dubai, United Arab Emirates Journal homepage: https://scholarsmepub.com/sjnhc/

Zainuddin, S., Muhamad, A., Kahmis, M. H. & Mamat, N. (2015). Work-Life Balance in Relation to Workload Experience and Work-Life Program: A Study in a Government Ministry of Malaysia. *Journal of Business Management and Accounting*, 5, 37-55.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Supply Chain Risks, Green Supply Chain Management Practices and Organizational Performance: A Research Direction

Norzawani Ibrahim[1]*, Suheil Che Sobry[2], Nik Zirwatul Fatihah Ismail[3] &
Afif Zuhri Muhammad Khodri Harahap[4]
*[1]Faculty of Business and Management, Universiti Teknologi Mara Puncak Alam, Malaysia
[2]School of Technology Management and Logistics, Universiti Utara Malaysia, Malaysia
[3]Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Malaysia
[4]Faculty of Business and Management, Universiti Teknologi Mara, Cawangan Terengganu, Malaysia
nzawani@uitm.edu.my*, suheil_che@oyagsb.uum.edu.my, nikzirwatulfatihah@gmail.com,
afifzuhri@uitm.edu.my

Abstract: Supply chain disruptions, such as floods and unforeseen events, have historically caused severe economic and environmental consequences, emphasizing the need for risk mitigation strategies to improve organizational performance. The multi-dimensional nature of these risks necessitates comprehensive classification and identification to inform effective managerial decisions. This study reviews the role of GSCM practices as a strategic approach to mitigate supply chain risks and enhance economic and environmental performance. By examining existing research on supply chain risks, GSCM practices, and organizational performance, this study seeks to fill a gap in the literature, particularly in exploring the integration of GSCM practices into risk mitigation strategies. This study contributes by highlighting the intersection of supply chain risks, GSCM practices, and organizational performance, with a focus on the Malaysian manufacturing sector. Through a comprehensive review and analysis, this study aims to shed light on the role of GSCM practices in building resilient and sustainable supply chains.

Keywords: *Supply chain risks, green supply chain management practices, organizational performance, roles of strategy.*

1. Introduction and Background

Academics and researchers have conducted numerous studies and literature reviews about supply chain management, substantiating the positive impact of effective supply chain management on organizational performance (Alam, 2022; Mutuerandu, 2014; Salazar, 2012). With the escalating complexity of supply chains, the efficacy of supply chain management has emerged as a pivotal factor influencing organizational performance. The intricate flow of supply chain activities across multiple tiers of the supply network, concerning product movement, is projected to encounter potential supply chain risks that necessitate early-stage mitigation (Bassiouni et al., 2023). Consequently, organizations must be attuned to the diverse array of supply chain risks, encompassing both external facets (environmental risks, information) and internal dimensions (manufacturing risks, supply risks, demand risks), all of which can substantially and adversely impact organizational performance (Bassiouni et al., 2023; Gurtu & Johny, 2021; Hendrick & Singhal, 2005).

Furthermore, findings from a survey conducted by Marchese and Paramasivam (2013) reveal that, as per the Business Continuity Institute's 2011 survey, a staggering 85% of global supply chain-involved companies experienced at least one disruption within 12 months. Notably, the far-reaching consequences of supply chain disruptions were evident when over a thousand industrial facilities worldwide were adversely affected by severe floods in Thailand in October 2011 (Business Forward Foundation, 2014). Reflecting on history, the aftermath of the Bhopal oil spill in 1984, analyzed by Kleindorfer and Saad (2005), exemplified how supply chain risks can lead to economic losses in the chemical sector, causing direct environmental harm and consequential impacts. This cascade of effects resulted in reduced production and sales for the implicated companies (Business Forward Foundation, 2014), substantial costs associated with recovery from disruptions, diminished revenues, challenges in timely deliveries, amplified downtimes (Marchese & Paramasivam, 2013), and compromised environmental reputation (Mangla et al., 2015).

Recent scholarly discourse has notably spotlighted the dual focal points of supply chain risk and environmental outcomes (Rao & Goldsby, 2009; Freise & Seuring, 2015). In a notable progression, Freise and Seuring (2015) have undertaken an extension of their prior research on supply chain risk, transposing the

lens from a predominantly economic perspective to one encompassing environmental consideration. However, this transition remains relatively unexplored and calls for a more comprehensive investigation. Recognizing this analytical void, it becomes paramount for organizations to discern potential supply chain risks and ascertain an optimal approach harmonizing with the distinct supply chain activities while aligning with environmental preservation goals (Ibrahim et al., 2021; Kleindorfer & Saad, 2005).

Amid this evolving landscape, a series of studies have substantively illuminated the benefits ensuing from the integration of green supply chain management practices, elucidating their favorable impact on both economic performance and environmental stewardship (Kumar & Chandrakar, 2012; Samad et al., 2021). Eltayeb and Zailani (2009) proffer the perspective that the widespread adoption of green supply chain management practices within a corporate framework begets an environmentally conscious product image, procedural enhancements, technological amelioration, and systemic refinements. Moreover, the practice of green supply chain management represents a novel and sustainable approach to strategic development, concurrently advancing financial gains and environmental well-being through the attenuation of environmental risk and impact (Hajikhani et al., 2012).

In consequence, the embrace of green supply chain management practices is prognosticated to assume a pivotal role as a strategic imperative for organizations, adroitly addressing the nexus of environmental and economic challenges while concurrently ameliorating potential perturbations within the supply chain (Ibrahim et al., 2023; Nikbakhsh, 2009). As such, this study's overarching objective is to conduct a comprehensive review of green supply chain management practices, contextualizing them as a strategic hub for organizations to both mitigate supply chain vulnerabilities and bolster the tandem facets of economic and environmental performance. Furthermore, this inquiry extends its purview to encompass earlier investigations into supply chain risks and their interplay with organizational performance. Notably, this discourse remains pertinent in 2023, reflecting the dynamically evolving landscape of supply chain dynamics and risk management paradigms.

2. Literature Review

Developing Country of Southeast Asia: Developing countries in Southeast Asia have become integral players in the global economy, with their supply chain activities playing a pivotal role. As these countries encounter unique challenges and opportunities, understanding the landscape of SCM practices and supply chain risks is of paramount importance. For instance, Thailand country has faced several supply chain risks such as political instability. Thailand has experienced political unrest and changes in government, which can lead to uncertainty and disruptions in supply chain operations. Due to that, it has directly affected the economic performance of the organization in Thailand and globally. Frequent changes in regulations, trade policies, and customs procedures can impact import/export processes and logistics are also the risks experienced in Thailand (Yingvilasprasert et al., 2012).

Besides Thailand, Indonesia also experienced a few supply chain risks that disrupted the performance of the organization. Supply chain risks in Indonesia can stem from a variety of factors, including political, economic, environmental, and operational challenges. Indonesia's diverse geography, economy, and social landscape contribute to a range of potential risks that businesses operating in the country should consider. Indonesia is located in a seismically active region, making it prone to earthquakes and tsunamis that can damage infrastructure, disrupt transportation, and impact the production process (Karningsih et al., 2018).

Brunei is also one of the Southeast Asia countries that should be considered. Brunei is a small, wealthy country located on the northern coast of Borneo in Southeast Asia. Brunei's economy is heavily reliant on oil and gas exports. Fluctuations in global oil prices can impact the country's economic stability, which in turn can affect consumer demand, production, and supply chain activities (Ndah and Odihi, 2017).

Similar to Indonesia, the Philippines also presents a unique set of supply chain risks due to its geographical and socio-economic characteristics. While the country offers opportunities for business growth and investment, there are several potential risks that organizations should consider when operating in the Philippines. The country is situated along the Pacific Ring of Fire, making it prone to seismic activity that can

impact manufacturing facilities, logistics, transportation networks and supply chain networks (Haraguchi et al., 2015).

Vietnam has become an attractive destination for manufacturing and sourcing due to its growing economy, competitive labor costs, and strategic location. However, like any country, Vietnam also presents specific supply chain risks that businesses should be aware of. While Vietnam has a large and relatively low-cost labor force, certain industries and regions may experience shortages of skilled labor, potentially affecting production capacity. Strikes and labor disputes can disrupt supply chain operations and lead to production delays (Nguyen et al., 2020).

Malaysian Manufacturing Sector: The pivotal role of the manufacturing sector within the Malaysian economy is underscored by its substantial contributions to gross domestic product, employment rates, and external trade dynamics (Hooi, 2017; Lee & Jitaree, 2019). Serving as a prime driver of economic advancement, it presents significant employment avenues for Malaysians, aligning with the ambitious objective of attaining a high-income economy by 2020. The trajectory of Malaysia's manufacturing sector has been one of remarkable evolution and growth. Its origins in the late 1950s, characterized by rubber and tin manufacturing, have expanded to encompass diverse industries including oil palm, electrical and electronic, steel, and automobile sectors (Chang, 2012; Chang & Zach, 2019). The sector's rapid expansion underscores its integral role within the national economy.

However, alongside its economic significance, the global spotlight has increasingly turned towards environmental performance due to escalating concerns regarding climate change and global warming. Malaysia's manufacturing sector emerged as a dominant contributor to environmental protection expenditure in 2014, outpacing other sectors (Department of Statistics Malaysia, 2016). Studies have underscored the accountability of manufacturers for the environmental conduct of their suppliers, with supply chain operations identified as a key factor influencing environmental challenges (Tachizawa et al., 2015; Andersén et al., 2020; Wong et al., 2020).

This has prompted a proactive response from manufacturing entities worldwide, with over 40,000 companies, including more than 400 in Malaysia, adopting ISO 14001 certification, embracing environmental management systems, and integrating sustainable practices (Baxte & Srisaeng, 2021). Consequently, the manufacturing sector remains an indispensable pillar of Malaysia's economic framework, propelling growth, generating employment, and facilitating trade connections. In light of mounting environmental concerns, the sector grapples with the intricate task of harmonizing economic progress with ecological responsibility.

In response, manufacturing enterprises globally, including those within Malaysia, have embraced ISO 14001 and implemented comprehensive environmental management systems, aiming to strike a balance between economic advancement and environmental preservation.

ISO 14001 Certified Manufacturing Sector: Introduced in 1996 and subsequently revised in 2004, ISO 14001 was designed with the primary aim of enhancing environmental performance. This internationally recognized standard serves as a framework for Environmental Management Systems (EMS) and was formulated by an international non-governmental organization known as the International Organization for Standardization (ISO). The efficacy of ISO 14001 has been substantiated through successful implementation. Presently, over 171 countries advocate for organizations to attain ISO 14001 certification due to its demonstrated capability in mitigating the environmental impact of manufacturing and service-related operations. Additionally, the adoption of ISO 14001 can lead to operational enhancements within an organization. As asserted by Petroni in 2001, the effects of ISO 14001 on an organization can be interpreted as either advantageous or disadvantageous, contingent on the strategic direction established by the organization. Moreover, Hanfield et al. in 2005 underscored the comprehensive coverage of ISO 14001, encompassing all facets of a business, including the management of the supply chain, thereby fostering improved organizational performance, particularly concerning environmental considerations.

Supply Chain Risks: Companies worldwide are currently grappling with formidable challenges within their supply chains. These intricate supply chain predicaments encompass a spectrum of issues such as quality

concerns, safety hurdles, shortages in supplies, adherence to environmental regulations, security vulnerabilities, legal entanglements, and regulatory intricacies. Regrettably, these challenges cast a detrimental shadow upon the entire network of supply chain operations (Christopher, 2005), consequently exerting an adverse influence on overall organizational performance (Munyuko, 2015; Gurtu & Johny, 2021).

In essence, the term "supply chain risk" refers to unforeseen events that cast an unfavorable light on performance outcomes (Mangla et al., 2015; Vilko et al., 2014; Kleindorfer & Saad, 2005). Within the pages of the book "Supply Chain Risk: A Handbook of Assessment, Management, and Performance" by Zsidisin and Ritchie (2008), the authors eloquently underscore the multi-faceted nature of supply chain risk. Consequently, it becomes imperative to discern and categorize the precursors to supply chain risk, thus offering valuable insights for managerial decision-making (Ya-feng & Qi-Hua, 2009).

Green Supply Chain Management (GSCM) Practices: The concept of Green Supply Chain Management (GSCM) has been formulated and implemented in response to growing environmental concerns, shaping decision-making processes across all stages of the supply chain network. This approach commences with an organization's meticulous management of materials and logistics operations and extends through to the final post-consumer disposal phase (Handfield et al., 2005). According to Singh (2010), the essence of GSCM practice lies in fostering environmentally conscious actions among suppliers, manufacturers, retailers, and customers - all integral participants in the supply chain. The underlying rationale is threefold: firstly, to achieve cost savings; secondly, to diminish delivery times; and thirdly, to optimize production efficiency. Moreover, GSCM adoption promises to enhance overall market growth, bolster financial performance, and successfully meet the diverse needs of customers.

Recent articles continue to underscore the significance of GSCM as a pivotal strategy within contemporary supply chain management. For instance, an article entitled "Advancing Sustainability through Green Supply Chain Management," highlights how GSCM practices have gained considerable traction across diverse industries, driven by the imperative to reduce carbon footprints and promote ecological responsibility. By integrating eco-friendly considerations into each facet of the supply chain, organizations are witnessing tangible benefits, including reduced operational costs, streamlined processes, and enhanced reputation within environmentally conscious consumer segments. Furthermore, a study conducted by Habib et al. (2021) delves into the outcomes of implementing GSCM principles among major corporations. The research findings underscore the positive correlation between GSCM adoption and improved financial performance. Companies that prioritize environmental stewardship throughout their supply chains are not only fostering sustainability but are also reaping substantial economic rewards. This aligns with Singh's (2010) assertion that GSCM facilitates both ecological and economic gains. In sum, the adoption of Green Supply Chain Management practices has evolved into a pivotal paradigm, driven by a dual commitment to ecological preservation and operational excellence. As exemplified by ongoing research and contemporary articles, this approach transcends conventional supply chain operations, culminating in improved financial outcomes, heightened market growth, and an overarching ability to meet the dynamic needs of today's discerning consumers.

Yu et al. (2008) underscored the significance of Green Supply Chain Management (GSCM) practices, positioning them as a pivotal tool for the efficient utilization of energy resources while mitigating adverse environmental impacts across the entire supply chain spectrum. This notion finds validation in contemporary discourse, as evidenced by the research conducted by Mangla et al. (2015), which emphasizes the growing trend of companies embracing environmentally conscious practices within their supply chains. By doing so, these companies not only demonstrate a commitment to reducing their ecological footprint but also safeguard their business operations from potential disruptions stemming from environmental vulnerabilities.

In a nuanced departure from the conventional perspective of GSCM solely as an environmentally friendly endeavor, Kumar and Chandrakar (2012) introduce an alternative viewpoint. They shed light on GSCM practices being strategically harnessed for the pursuit of heightened profitability. This strategic utilization aligns with the evolutionary trajectory of environmental management, as elucidated by Beamon (1999) since the 1990s. The progression from mere risk management towards life cycle management represents a profound addition to environmental stewardship, underpinning the broader implications of GSCM adoption.

Building upon this foundation, Wu et al. (2011) discern the incorporation of life cycle assessment as a defining characteristic of GSCM, offering a systematic approach to address environmental ramifications at every stage of a product's life cycle. This holistic approach signifies an informed response to the ever-escalating environmental challenges intertwined with supply chain dynamics. As the nexus between GSCM and environmental risk gains prominence, Kumar and Chandrakar (2012) echo the emergent perspective of GSCM as an indispensable mechanism to mitigate environmental risks within the supply chain. In addition, a study by Abbas and Tong (2023) in the context of automobile firms in China stated that GSCM practices have a strategic role in enhancing the effectiveness of firm performance.

Drawing inspiration from Munyuko's (2015) advocacy for risk management approaches to fortify supply chain efficacy, the current study endeavors to augment organizational performance through the strategic integration of GSCM practices. By embracing GSCM as a potent tool, this research seeks to curtail supply chain risk, thereby enhancing operational resilience and fortifying the overall supply chain landscape. The relationship between the proposed study's objectives and the role of GSCM's strategic evolution is supported by Table 1, which shows a compilation of pertinent literature affirming GSCM's role as a strategic underpinning within the broader area of supply chain management.

Table 2: Roles of Strategy of Green Supply Chain Management Practices

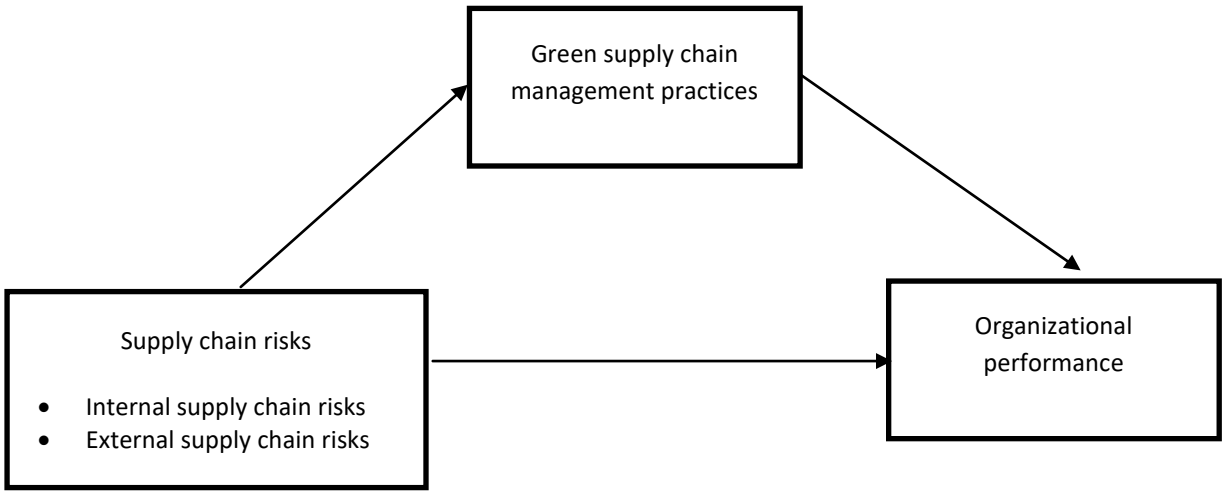
Author(s) & Year	Descriptions	Journal
Hajikhani et al. (2012)	GSCM, operating in a sustainable strategic role, embodies a sustainable approach to organizational growth within today's competitive landscape. This innovative method aims to secure concurrent financial and environmental advantages by mitigating environmental risks and impacts.	*Australian Journal of Basic and Applied Sciences*
Chen et al. (2010)	The GSCM from a strategic and decision-making perspective improves the firm's present performance.	*Industrial Engineering and Engineering Management (IEEM)*
Diabat and Govinden (2011)	Three important things that can be described as a green supply chain are environment, strategy and logistics.	*Resource, Conservation, and Recycling*
Green Jr. et al. (2012)	Effective implementation of GSCM practices, strategically integrated within operations and organization, can lead to the successful enhancement of both economic and environmental performance.	*Supply Chain Management: An International Journal*
Meera and Chitramani (2014)	GSCM practices are the revolution for the organization to foster win-win strategies to reduce environmental risk, improve environmental efficiency, and gain profit.	*International Journal of Scientific and Research Publications*
Abbas and Tong (2023)	Engineered with a strategic perspective, GSCM practices are tailored to empower companies to uphold streamlined processes and exert robust control across the supply chain.	*Sustainability*
Jell-Ojobor and Raha (2022)	GSCM strategically integrates environmental considerations into both forward and reverse logistics, achieving this through the implementation of a comprehensive set of environmental practices spanning the entire supply chain. The overarching objective is to strategically mitigate any potential adverse environmental effects.	*Business Strategy and The Environment*

Organizational Performance: The concept of organizational performance is extensively explored in academic literature due to its crucial role in the advancement of countries (Gavrea et al., 2011). Consequently, the interpretation of organizational performance varies and necessitates identification by researchers aligned with their study objectives. In response to the increasing complexity of organizational goals, contemporary performance assessment encompasses both financial and non-financial indicators, constituting a pivotal focus for continual enhancement. To contextualize this study's scope, it aligns with the performance measurement paradigm established in the field of GSCM. Drawing from Laosirihongthong et al. (2013), this study adopts a

performance measurement framework that centers on parameters such as cost reduction and profitability for gauging economic performance, while embracing metrics like emission reduction, hazard mitigation, and material usage to quantify environmental performance.

This study is underpinned by the natural resource-based view (NRBV) theory, whereby this theory is introduced by Hart (1995). According to Hart (1995), the NRBV theory explains environmentally oriented as a strategy for the organization to improve performance and achieve a competitive advantage. This theory highlights three interrelated strategies for instance sustainable development, pollution prevention, and product stewardship. In the context of the study, green supply chain management practices have been reviewed as a strategic role for sustainable development to reduce the risk in the supply chain and improve the firm performance. Drawing upon this theory, the relationship between supply chain risks, green supply chain management practices and organizational performance will be discussed through previous scholars. Hence, supply chain risks are highlighted as an independent variable, GSCM practices as a mediating variable, and organizational performance as a dependent variable as shown in Figure 1.

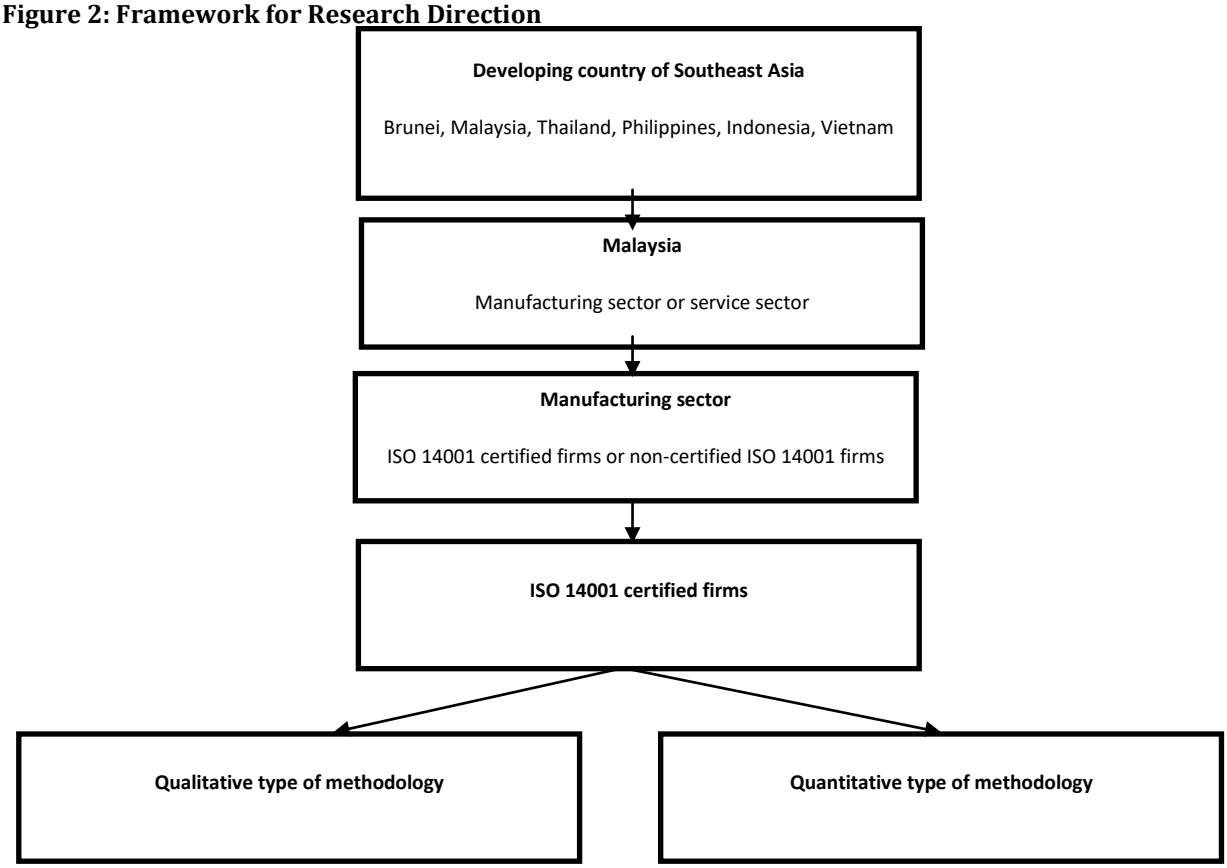
Figure 1: Proposed Research Framework



3. Methodology for Research Direction

This research, study focuses on supply chain management while green supply chain management (GSCM) practices have been reviewed as a potential strategy to reduce the risk in the supply chain. This research also used related keywords on the supply chain and limited the selection of articles that explain the issue of supply chain risk. The idea of this research continues since the risks in the supply chain among developing countries in South East Asia have risen and crippled the economic and environmental development such as the Tsunami incident and Covid-19 pandemic disturbing the movement of the product through multiple tiers. With this viewpoint, supply chain disruptions such as acute labor shortages, climate change, and global geopolitical tensions cost the Malaysian economy RM8.7 billion each year (News Straits Times, 2023) motivates this research to identify the supply chain risk issues in Malaysia. The connection between supply chain risks, GSCM practices and organizational performance brings the idea to concentrate on the manufacturing company in Malaysia which obtained ISO 14001 since this sector involves the supply chain activity, supply chain management, and also applied the environmental management system. The research direction of methodology will be continued to conduct using qualitative study or quantitative study. Figure 2 shows the framework for the research direction of this study.

Figure 2: Framework for Research Direction



Managerial Implications: The significance of Malaysia's manufacturing sector within the nation's economic framework cannot be overstated, as it actively bolsters GDP, employment opportunities, and external trade dynamics. Yet, this pivotal sector confronts formidable environmental hurdles, with the manufacturing industry emerging as the principal contributor to environmental protection expenditure in the country. Notably, the intricate interplay of supply chain operations has been pinpointed as a substantial driver of environmental challenges, accentuating the pressing necessity for enhanced environmental safeguarding within the industry.

In this vein, there exists a growing imperative to address environmental concerns and instigate protective measures across the manufacturing landscape. This has set the stage for forthcoming research endeavors that aim to explore the intricate relationship between these three pivotal constructs: the manufacturing sector's economic contributions, its environmental challenges, and the critical role of supply chain activities.

The proposed research direction envisions a comprehensive investigation into these interconnected dimensions, to unravel the intricate dynamics that underpin their interplay. By delving into the relationships between economic performance, environmental sustainability, and supply chain intricacies, this research seeks to contribute valuable insights into the complex landscape of the manufacturing sector's operations in Malaysia.

4. Conclusion and Recommendations

In conclusion, this paper emphasizes the importance of supply chain management in improving organizational performance and addresses the risks associated with supply chains. Supply chain risk, encompassing both internal and external dimensions, has been identified as a significant factor affecting organizational performance. Disruptions in the supply chain, such as environmental incidents, can lead to production and sales drops, increased costs, delivery problems, and damage to environmental reputation. To

mitigate these risks, GSCM practices have emerged as a strategic approach. GSCM practices involve considering environmental considerations at all stages of the supply chain and have been shown to have benefits in terms of economic, environmental, and overall organizational performance. By adopting GSCM practices, organizations can reduce environmental risks, improve processes and systems, and create an environmentally friendly product image. Utilizing the NRBV theory, the relationship between supply chain risks, green supply chain management practices and organizational performance is discussed and the proposed research framework also is developed.

There are a few limitations of this study. First, this study reviewed the overview of three variables which are supply chain risks, GSCM practices and organizational performance. Future research is recommended to explore the role of technology, such as blockchain, the Internet of Things (IoT), and artificial intelligence (AI), in mitigating supply chain risks and enhancing the adoption of GSCM practices. Second, this study is a review article that discusses the role of GSCM practices as a strategy that has the potential to mitigate supply chain risks and improve the performance of the organization. Future research can conduct a longitudinal study that tracks the implementation and impact of GSCM practices on organizational performance over an extended period. This could provide insights into the long-term benefits and challenges associated with sustainability initiatives within supply chains. Besides, future research can also compare the effectiveness of different GSCM practices across various industries and sectors which can investigate whether certain practices are more suitable for specific contexts and identify best practices for different organizational settings.

References

Abbas, H. & Tong, S. (2023). Green Supply Chain Management Practices of Firms with Competitive Strategic Alliances, A Study of the Automobile Industry. *Sustainability*, 15(3), 2156.

Alam, M. (2022). Supply Chain Management Practices and Organizational Performance in Manufacturing Industry. *South Asian Journal of Social Review*, 1(1), 42-52.

Andersén, J., Jansson, C. & Ljungkvist, T. (2020). Can environmentally oriented CEOs and environmentally friendly suppliers boost the growth of small firms? *Business Strategy and the Environment,* 29(2), 325-334.

Bassiouni, M. M., Chakrabortty, R. K., Hussain, O. K., & Rahman, H. F. (2023). Advanced deep learning approaches to predict supply chain risks under COVID-19 restrictions. *Expert Systems with Applications,* 211, 118604.

Baxter, G. & Srisaeng, P. (2021). An Assessment of Hotels and Resorts Use of the ISO 14001 *Environmental Management System as a Tool to Achieve Environmentally Sustainable Operations,* 3(2), 59-85.

Beamon, M. B. (1999). Designing the green supply chain. *Logistics Information Management*, 12(4), 332-342.

Business Forward Foundation. (2014). Severe weather and manufacturing in America: Comparing the cost of droughts, storms and extreme temperatures with the cost of new EPA standards. Retrieved from http://www.businessfwd.org/Severe Weather and Manufacturing in America.

Chang, H. J. & Zach, K. (2019). Industrialization and Development. Asian Transformations, 186.

Chien, M. K. (2014). Influences of Green Supply Chain Management Practices on Organizational Sustainable Performance. *International Journal of Environmental Monitoring and Protection*, 1(1), 12.

Christopher, M. (2005). Managing risk in the supply chain. Supply Chain Practice. *Logistics & Supply Chain Management,* 7(2), 4-21.

Eltayeb, T. K. & Zailani, S. (2009). Going green through green supply chain initiatives towards environmental sustainability. *Operations and Supply Chain Management,* 2(2), 93-110.

Freise, M. & Seuring, S. (2015). Social and environmental risk management in supply chains: a survey in the clothing industry. *Logistics Research,* 8(1), 1-12.

Gavrea, C., Ilies, L. & Stegerean, R. (2011). Determinants of organizational performance: the case of Romania. *Management & Marketing*, 6(2), 285.

Gurtu, A. & Johny, J. (2021). Supply Chain Risk Management: Literature Review. *Risks,* 9(1), 16.

Habib, M. A., Bao, Y., Nabi, N., Dulal, M., Asha, A. A. & Islam, M. (2021). Impact of strategic orientations on the implementation of green supply chain management practices and sustainable firm performance. *Sustainability*, 13(1), 340.

Hajikhani, M., Wahiza Binti Abdul Wahat, N. & Idris, K. B. (2012). Considering green supply chain management drivers, as a strategic organizational development approach, Malaysian perspective. *Australian Journal of Basic and Applied Sciences,* 6(8), 246–265.

Handfield, R., Sroufe, R. & Walton, S. (2005). Integrating environmental management and supply chain strategies. *Business strategy and the environment*, 14(1), 1-19.

Haraguchi, M. & Lall, U. (2015). Flood risks and impacts: A case study of Thailand's floods in 2011 and research questions for supply chain decision making. *International Journal of Disaster Risk Reduction*, 14, 256-272.

Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review,* 20, 986-1014.

Hendricks, K. B. & Singhal, V. R. (2005). An empirical analysis of the effect of supply chain disruptions on long-run stock price performance and equity risk of the firm. *Production and Operations Management*, 14(1), 35-52.

Hooi, L. W., & Leong, T. Y. (2017). Total productive maintenance and manufacturing performance improvement. *Journal of quality in maintenance engineering,* 23(1), 2-21.

Ibrahim, N., Razak, R. C., Abd Rahim, N. N., Abd, N. & Rashid, N. A. M. Y. (2023). Green Supply Chain Management Practices and Organizational Performance: The Role of Buyer-Supplier Relationship.

Ibrahim, N., Abdul Wahab, M. H. A. A., Zainuddin, A. Z., Mohd Masdek, N. R. & Abd Rahim, N. N. (2018). The conceptual model of supply chain risk, green supply chain management practices and organizational performance among Malaysian manufacturing sector. *ASEAN Entrepreneurship Journal (AEJ)*, 8(1), 29-40.

Karningsih, P. D., Anggrahini, D., Kurniati, N., Suef, M., Fachrur, A. R. & Syahroni, N. (2018). Mapping risks of Indonesian tuna supply chain. In IOP Conference Series: *Materials Science and Engineering*, 337 (1), 012035. IOP Publishing.

Kleindorfer, P. R. & Saad, G. H. (2005). Managing disruption risks in supply chains. *Production and operations management*, 14(1), 53-68.

Kumar, R. & Chandrakar, R. (2012). Overview of green supply chain management: operation and environmental impact at different stages of the supply chain. *International Journal of Engineering and Advanced Technology*, 1(3), 1-6.

Laosirihongthong, T., Adebanjo, D. & Tan, K. C. (2013). Green supply chain management practices and performance. *Industrial Management and Data Systems*, 113(8), 1088-1109.

Lee, C., & Jitaree, W. (2019). Structural change and urbanization: the case of Peninsular Malaysia. *Thailand and The World Economy,* 37(2), 26-38.

Mangla, S. K., Kumar, P. & Barua, M. K. (2015). Risk analysis in the green supply chain using fuzzy AHP approach: a case study. *Resources, Conservation and Recycling*, 104, 375-390.

Manuj, I. & Mentzer, J. T. (2008). Global supply chain risk management strategies. *International Journal of Physical Distribution & Logistics Management*, 38(3), 192-223.

Marchese, K. & Paramasivam, S. (2013). The Ripple Effect, How Manufacturing and Retail Executives View the Growing Challenge Of Supply Chain Risk. Deloitte Publication, New York.

Mutuerandu. M. K. (2014). Impact of supply chain management practices on organizational performance: A case study of Haco Industries Limited (Kenya). *Journal of business and management*, 16(4), 62-64.

Munyuko, C. W. (2015). Effects of supply chain risk management on organization performance: Case of Andy Forwarders Services Limited. *International Journal of Academic Research in Business and Social Sciences*, 5(3), 380-403.

Ndah, B. A. and Odihi, O. J. (2017). A systematic study of disaster risk in Brunei Darussalam and options for vulnerability-based disaster risk reduction. *International Journal of Disaster Risk Science,* 8, 208-223.

Nguyen, D., Nguyen, T., Nguyen, X., Do, T. & Ngo, H. (2022). The effect of supply chain finance on supply chain risk, supply chain risk resilience, and performance of Vietnam SMEs in global supply chain. *Uncertain Supply Chain Management,* 10(1), 225-238.

Nikbakhsh, E. (2009). Green supply chain management. Supply Chain and Logistics in National, International and Governmental Environment Contributions to Management Science, 195-220.

Rao, S. & Goldsby, T. J. (2009). Supply chain risks: a review and typology. *The International Journal of Logistics Management*, 20(1), 97-123.

Salazar, R. M. (2012). The effect of supply chain management processes on competitive advantage and organizational performance. Ohio: Air Force Institute of Technology.

Samad, S., Nilashi, M., Almulihi, A., Alrizq, M., Alghamdi, A., Mohd, S., Ahmadi, H. & Syed Azhar, S. (2021). Green Supply Chain Management Practices and Impact on Firm Performance: The Moderating Effect of Collaborative Capability. *Technology in Society*, 67(2), 101766.

Singh, S. (2010). Study of green supply chain management practices in the Indian Manufacturing Industries. Punjab: Ambedkar National Institute of Technology.

Tachizawa, E. M., Gimenez, C., & Sierra, V. (2015). Green supply chain management approaches: drivers and performance implications. *International Journal of Operations & Production Management, 35*(11), 1546-1566.

Vilko, J., Rumpu, A. & Koivuniemi, J. (2011). Risk management in supply chains: Information exchange, systemic motives and cognitive barriers. In Technology Management in the Energy Smart World (PICMET), *2011 Proceedings of PICMET',* 11, 1-9. IEEE.

Wong, C. Y., Wong, C. W., & Boon-itt, S. (2020). Effects of green supply chain integration and green innovation on environmental and cost performance. *International Journal of Production Research,* 58(15), 4589-4609.

Wu, K. J., Tseng, M. L. & Vy, T. (2011). Evaluation of the drivers of green supply chain management practices in uncertainty. *Procedia-Social and Behavioral Sciences,* 25, 384-397.

Ya-feng, L. & Qi-hua, X. (2009, May). A method of identifying supply chain risk factors. In Software Engineering, 2009. *WCSE'09. WRI World Congress*, 4, 369-373. IEEE.

Yingvilasprasert, M., Vilko, J. & Banonmyong, R. (2012). Supply chain risk perceptions in Thailand. In the 21st Annual IPSERA Conference.

Yu, W., Chavez, R., Feng, M. & Wiengarten, F. (2014). Integrated green supply chain management and operational performance. *Supply Chain Management: An International Journal*, 19(5/6), 683-696.

Zsidisin, G. A. & Ritchie, B. (2008). Supply Chain Risk: A Handbook of Assessment, Management, and Performance. International series in operations research & management science, ISOR 124, New York.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

A Study on the Causes of Work Stress among Malaysia Civil Defense Force (MCDF) Personnel

Khamarul Arifin Mohd Zainal Abidin, Maliza Delima Kamarul Zaman* & Shamsul Azren Mohd Shukur
Universiti Teknologi Mara, Puncak Alam, Malaysia
khamarul.arifin@gmail.com, *malizadelima@uitm.edu.my, shamsulshukur@uitm.edu.my

Abstract: Life in the modern world today is full of frustrations, demands and deadlines as stress has become a norm for many people. Since the harsh episode of the pandemic, stress is the normal physical response that disturbs our balance. Many experienced work-related ill health cases due to work-related stress, depression and anxiety. Therefore, work stress is inevitable. Work stress is increasing in Malaysia, especially since the pandemic and it continues to pose a major global health threat until now. Alarmingly, stress has become a modern epidemic and has influenced poor public health. Many past researches reviewed the prevalence of occupational stress and the causes of its prediction among the Malaysian population and found many occupational stress severe incidents. The Malaysian government mobilized the Malaysia Civil Defense Force (MCDF) for several responsibilities to save lives and properties. Based on the nature of MCDF work, stress is a major issue. There are many factors of stress; operational, organizational and lifestyle to name a few. Organizational stress highlights employees' attachment to the organization, operational stress highlights employees' experience doing the work, and lifestyle stress highlights individual ways of living. Therefore, the researchers attempt to examine the relationships between operational, organizational and lifestyle factors and the most influencing factor that may cause stress among a population of 180 personnel of MCDF, while carrying out their work assignments in Klang Valley.

Keywords: *Stress, Work-stress, Malaysia, Malaysia Civil Defense Force, Operational factor.*

1. Introduction and Background

According to Rom and Reznick (2016), the foundations of stress research in the 19th century were contributed by several scientific big names. In his book "The Origin of Species", Charles Darwin said that only those organisms capable of adapting to a changing environment will survive. This was further enhanced by Claude Bernard, who added that it is made possible if those organisms can keep the internal environment stable and constant. The first person to have introduced and formulated the Fight or Flight model of the stress response was Walter Bradford Cannon (Rom & Reznick, 2016). In May 1936, Hans Seyle wrote a landmark 'Letter to the Editor', entitled "A Syndrome produced by Diverse Nocuous Agents", which later became known as the General Adaptation Syndrome, or GAS (Selye, 1936).

Selye's argument was "Anything that causes stress endangers life unless it is met by adequate adaptive responses; conversely, anything that endangers life causes stress and adaptive responses" (O'Connor, Thayer & Vedhara, 2021). According to Dua (2019), when there is little stress, it can boost our motivation and ability to work well under pressure. But, if we constantly experience feelings of being overwhelmed and completely exhausted, it is essential to take action to rebalance our nervous system. Stress is a dynamic circumstance in which an individual is confronted with an opportunity, limitation, or demand connected to what he or she desires and for which the outcome is thought to be both unpredictable and crucial. The body's defenses kick in when we perceive a threat (Dua, 2019). It is now well established that stress can affect health directly, through autonomic and neuroendocrine responses, but also indirectly, through changes to health behaviors (Hill, Moss, Sykes-Muskett, Conner & O'Connor, 2018). Alarmingly, stress is recognized as a leading cause of long-term sickness in many countries around the globe, resulting in millions of working days lost (American Psychological Association, 2019).

A 'stress response' is the body's defenses kicking into high gear in a rapid, automatic process whenever we sense danger (Dua, 2019). When a worker's abilities do not match the demands of the job, it gives rise to harmful emotional and physical conditions, and stress is the response to those conditions (Okechukwu & Babatunde, 2021). A study by Yussof, Idris and Razak (2022), recommended conducting more research to find out the prevalence of mental health hazards such as stress, anxiety, and depression as well as ways to avoid them. According to them, workplace stress can negatively impact employees' quality of life,

productivity, and job performance (Yussof et al., 2022). This is agreed by Wijayanti and Fauzi (2020) that emphasized employee job stress negatively affects performance to a greater or lesser extent. Due to its negative effects, workplace stress needs to be researched as well as managed effectively.

Malaysia Civil Defense Force (MCDF): MCDF was tasked with several responsibilities by the Malaysian government. MCDF was part of the Compliance Operations Task Force, for monitoring and enforcing compliance with the standard operation procedures (SOPs) of the movement control order (MCO) throughout the country, either through roadblocks (Sekatan Jalan Raya/SJR) or inspections in public areas. MCDF was also tasked to coordinate the registration of persons under Surveillance (PUS) at all International Points of Entry (POE) and also lead the Quarantine Station Secretariat administering all quarantine stations during the pandemic (NADMA, 2020). MCDF was also part of the National Task Force, whose main objective is to coordinate security action plans and the containment of illegal entry of migrants at all entry points and border areas, whether by land, sea, or air (Krishnan, Yusof, Aman & Nagalan, 2021). MCDF was also tasked to assist the Welfare Department with humanitarian assistance, especially to the migrant worker and refugee population (Wahab, 2020).

MCDF during War Times: It means any measure that does not involve the use of weapons to face a hostile attack whether the measure is taken before, during or after the time of the enemy's attack (PRO Dept, 2022).

MCDF during Peace Times: It means any measure taken to protect life and property whether the measure is taken, before, during or after a disaster. Based on Act 221, it can be understood that Civil Defence functions in times of peace, times of war and times of disasters by taking any measures to save, protect and reduce the loss of life and damage to the property of civilians (PRO Dept, 2022).

The World Health Organization (WHO): The World Health Organization (WHO) reported that in 2019, an estimated 15% of working adults had some form of mental disorder. It also states that about 12 billion workdays are lost annually to depression and anxiety across the globe, which works out to a US$1 trillion (RM4.7 trillion) loss in productivity each year (WHO, 2022). In Malaysia, the result of a national survey shows that 29.2 percent, or one in three Malaysian adults aged 16 years and above, had displayed symptoms of having a mental health condition, compared to 11.2 percent of a similar survey in 2006 (Institute for Public Health, 2015). Alarmingly, the same survey showed that 10.1 percent of youths had attempted suicide with the states of Sabah, Kelantan, Kuala Lumpur and Sarawak having the highest prevalence of mental health conditions.

The Malaysian Context: The National Health and Morbidity Survey in 2019 shows that Malaysians experiencing some symptoms of depression amounted to half a million, spreading thinner the limited government facilities on mental health (Institute for Public Health, 2020). According to the National Strategic Plan for Mental Health 2020-2025 reported by the Ministry of Health (MOH), stressful life events and problems at work are some of the contributing risk factors to Major Depressive Disorder (MDD) progression in Malaysia (MOH, 2020). Employee stress is so prevalent in Malaysia that it is included as one of the action plans in the National Strategic Plan for Mental Health 2020-2025 in the form of training on mental health and work-life balance, involving multiple agencies such as the Ministry of Health, Rural and Regional Development Ministry, Ministry of Women, Family and Community Development, Department of Occupational Safety & Health Malaysia (DOSH), Malaysia's Social Security Organization (SOCSO), The Malaysian Trades Union Congress (MTUC), The Congress of Union of Employees in the Public and Civil Services Malaysia, abbreviated CUEPACS and other agencies, to not only employees, but also employers (MOH, 2020).

Problems at work have led to an increase in sicknesses, the fading of morals and human components, the daily emergence of new concerns, and the rise of job stress, which has been dubbed "the ailment of the century" (Panigrahi, 2016). Stress can affect health directly, either through neuroendocrine and autonomic responses, or indirectly via health behavior changes (Hill et al., 2018). It can also cause employees to have symptoms such as fatigue, hypertension, headaches, depression, and anxiety (Holden, Forester, Williford, & Reilly, 2019). In an assessment by Kassim, Ismail and Ismail (2018) published between 2008 and 2017 across

different databases using a search technique (ISI Web of Knowledge, PubMed, Scopus, Google Scholar), 6.0 percent to 71.7 percent of the population reported experiencing job stress.
There are many causes of stress researched by many scholars. One of the stressors is organizational stress. Organizational stress as the name suggests, is experienced by environmental demands on those who are attached to organizations. The attachment can be considered primarily or even directly (Fletcher, Hanton, & Mellalieu, 2006). Examples of organizational stress are work overload, under promotion, working long hours, job insecurity and tight deadlines. Personality and family problems can also trigger mental and physical illness in employees (Cooper & Marshal, 1976).

Another factor of stress is operational stress which originated from Royal Canadian Air Force medical officer Donald Reid in his article "Some Measures of the Effect of Operational Stress on Bomber Crews," published in 1974 (Richardson, Darte, Grenier, English, & Sharpe, 2008). Examples of operational stress include harsh working environments, forms of harassment, bullying, work conflict, trauma, danger, and loss of exposure. Operational stress also includes sleep disruption due to work and family issues such as marital problems, illnesses or death (Military Health System, 2021).

Lifestyle stress can be explained by the work of Sharifi-Rad, Kumar, Zucca, Varoni, Dini, Panzarini and Rajkovic (2020), in their study that found lifestyle such as smoking, alcohol consumption, adequate or inappropriate diet, exercise, training or untrained condition, does contribute to oxidative stress, which can affect muscle activity, ultimately contributing to skeletal muscle fatigue during strenuous exercise. Based on the understanding of the work nature of the MCDF personnel, who monitor, enforce compliance and coordinate the security of people during war and peace times, this research is undertaken to examine the relationships between operational, organizational and lifestyle causes of stress among MCDF personnel. Therefore, the study developed the research questions and research objectives as below:

The questions of this research are as follows: -
RQ1: Is there any relationship between operational causes and stress?
RQ2: Is there any relationship between organizational causes and stress?
RQ3: Is there any relationship between lifestyle causes and stress?
RQ4: What is the most significant factor that contributes to stress?

The objectives of this research are as follows: -
RO1: To examine the relationship between operational causes and stress.
RO2: To examine the relationship between organizational causes and stress.
RO3: To examine the relationship between lifestyle causes and stress.
RO4: To examine the most significant relationship that contributes to stress.

Definitions of Terms

Front-Liners: Essential services serviced by dedicated personnel in operation. These groups are working in different sectors such as healthcare, medicine, security, food, retail, and transport. These groups were collectively referred to as the "front-liners" (Buhat, Torres, Olave, Gavina, Felix, Gamilla &Rabajante, 2020).

Occupational Stress: The term "occupational stress" refers to stress that is connected to one's place of employment and is brought on by unforeseen obligations and responsibilities that don't fit with one's knowledge, abilities, or expectations and make it difficult to deal (Kassim et al., 2018).

Scope of Study: The scope of the study is focused on the personnel from the Malaysia Civil Defense Force in Klang Valley, operating from MCDF Kuala Lumpur District office, Jalan Padang Tembak, Kuala Lumpur.

Significance of this Study: This study is significant as it explores the causes that contribute to work stress for MCDF personnel. By doing so, it provides an insight into the management of MCDF, whether due attention needs to be given to these causes, and mitigate them, if necessary, to eliminate or reduce the stress level of their personnel. It also guides on the causes of stress. This will assist in understanding in allocation of tasks and activities in the organization.

2. Literature Review

Stress: The definition of job stress as defined by Shukla and Srivastava (2016) is the harmful physical and emotional responses that occur when role (job) requirements do not match with the employees' capabilities, resources, and needs. The organizational stress framework includes sources of work stress, for example, role conflict, role ambiguity, work overload, and role expectations. Stress experienced by the persons due to their role (job) in the organization is also known as occupational role stress. Moreover, occupational role stress and job stress are interchangeable terms (Shukla & Srivastava, 2016). Selye (1936) is considered the founder of modern stress research; there have been other stress theories by other researchers. One of the theories is the Transactional Model of Stress and Coping (TMSC) by Lazarus and Folkman (1984) which the researchers adopted as the underpinning theory. According to Lazarus and Folkman, stress arises "when individuals perceive that they cannot adequately cope with the demands being made on them or with threats to their well-being". This definition acknowledges the individual experience of stress as well as the importance of the wider contextual conditions (Mustafar, Hodgson, Lhussier, Forster, Carr, & Dalkin, 2020). According to Herman, Reunke and Eddy (2020), a key element of the TMSC theory is the focus on two types or levels of appraisals, namely primary and secondary, as a method of how an individual appraises a stressor.

Primary appraisal refers to how an individual assesses whether an event is a threat challenge or simply benign. Secondary appraisals refer to how that individual chooses to respond to the event including consideration of various coping options. The primary appraisals would directly affect the secondary appraisals. This in turn directly affects coping strategies that are selected and enacted, this would lead to physiological and emotional reactions to stress. This would ultimately influence the long-term impacts of stress on the individual (Herman et al., 2020). It was thought that a person's naive theories and generalized beliefs influence those consecutive evaluative stress appraisal processes (Montagna, Marksteiner & Dickhauser, 2021).

Operational Causes: Weaver, Landrigan, Sullivan, O'Brien, Qadri, Viyaran & Wang (2020), in their study, use 'working no extended duration shifts' as its baseline, an increase in the risk of adverse outcomes was recorded even when working 1 extended duration shift in a month; and this risk was further aggravated when working 5 or more extended duration. The study also showed that limiting shifts to less than 16 hours yielded an 18% reduction in attentional failures. The risk of infection for healthcare workers is directly increased by long-time exposure to large numbers of infected patients and it is also indirectly increased by the pressure of treatment, work intensity, and lack of rest (Wang, Zhou & Liu, 2020). According to Luyun (2022), under overwhelming conditions, frontliners are truthfully yearning to display their functional abilities. During the pandemic, most of them had gambled the risks of infecting their families and relatives, to carry out their roles and responsibilities. Infection control protocols were followed by them even when at home (Luyun, 2022).

Frontliners living in large epidemics were confronted with exceptional circumstances of working hours with sustained psychological tension and unexplained tiredness (Karlsson, 2020). According to Chua, Al-nsi, Kim, Wong and Han (2022), stress that produces the psychological response to job strain has been widely recognized as a response that may be explained by the environmental conditions of the workplace. A study on anesthesiologists' work pattern behavior by Gupta, Bajwa, Malhotra, Mehdiratta and Kakkar (2020) involves erratic work schedules, night shifts and long hours in the operation theatres and intensive care unit. Chronic fatigue, moodiness, trouble concentrating, fatigue, sleep deprivation, excessive worry, aggressive behavior, impaired vigilance, loss of appetite, mood swings, behavioral changes and poor work performance often are signs of stress (Gupta et al., 2020). Stogner, Miller, and McLean (2020), state that law enforcement personnel presumably face higher exposure to traumatic events.

The officers are likely to experience increased high-stress encounters with individuals suffering from mental health problems aggravated by fear of contagion, economic uncertainty, resource shortages, and isolation. First-liners are exposed to stress as they will be the first responders who have the responsibility for maintaining public safety, risk of exposure through interactions with the community, and the concern of exposing family members to the virus in the case of a pandemic (Stogner et al., 2020). A study by Florendo and Rabajante (2020) proves the effectiveness of using personal protective equipment (PPE) during the

pandemic creates a protection level that removes a substantial fraction of the risk faced by healthcare worker patients entering a given location at the same time, or the average number of encounters per hour, or the work exposure time. Although it is a known fact on the importance of PPE in the fight against the SARS-like pandemic that attacks the respiratory system, it was reported that its usage caused stress and exhaustion (Florendo & Rabajante, 2020).

According to the Centre for Disease Control (2020), providing care to others during the COVID-19 pandemic can lead to stress, anxiety, fear, and other strong emotions. How one copes with these emotions can affect his well-being, the care he gives to others while doing his job, and the well-being of the people he cares about outside of work. Frontline workers such as health care providers and first responders were identified as people who may respond more strongly to the stress of a crisis (Centre for Disease Control, 2020). In the study by Kang, Li, Hu, Chen, Yang, Yang and Wang (2020), during the harsh episode of the pandemic, medical workers in Wuhan have been facing enormous pressure, including a high risk of infection and inadequate protection from contamination, overwork, frustration, discrimination, isolation, patients with negative emotions, a lack of contact with their families, and exhaustion. The severe situation is causing mental health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger, and fear.

These mental health problems not only affect the medical workers' attention, understanding, and decision-making ability but could also have a lasting effect on their overall well-being. Protecting the mental health of these medical workers is thus important for control of the epidemic and their long-term health (Kang et al., 2020). According to Beckner, Conkright, Eagle, Martin, Sinnott, LaGoy, and Jabloner (2021), their study of the military has shown that approximately 80 to 85 percent of military accidents are the result of human error, due to fatigue and decreased cognitive performance, which in turn resulted in slower reaction times, reduced accuracy, lack of concentration, and poor logical reasoning.

It was also demonstrated that in areas of sustained attention and working memory, operational stress hurts cognitive performance (Beckner et al., 2021). The study by Li, Cheung and Sun (2019) identifies several sources of stress (stressors) in police work i.e., the complex and dangerous nature of the working environment, demanding job conditions, heavy workloads, and irregular shift work. A study by Akerstorm, Corin, Severin, Jonsdottir and Bjork (2021) has shown that multiple factors such as high job demands, low job control, low job support, effort-reward imbalance, typical working hours, poor psychosocial safety climate, bullying and role stress are some of the causes for employees' burnout or stress-related mental health problems. Therefore, H1 is hypothesized as follows:
H1: There is a significant relationship between operational causes and stress.

Organizational Causes: Stogner et al. (2020) found that mental health problems among law enforcement personnel are associated with a demanding work environment, agency culture and inconsistent shift scheduling. They, as many first responders, are subjected to altered patrolling routines, changes to shift schedules and work hours that drive workplace stress higher, especially during the COVID-19 pandemic. A study by Li et al. (2019) finds that several sources of stress (stressors) in the police force are poor communication between administrators and officers, unfair supervision, controversial performance ratings and weak supervisory support. Polinard, Ricks, Duke and Lewis (2022) state nurses acknowledged that it was an ongoing learning process for organizations, especially in the utilization and allocation of resources, in addition to frequent changes in policies and procedures. The consensus was that their ability to adapt to these changes was influenced by the leadership response to supply shortages, care complexities and uncertainties (Polinard et al., 2022).

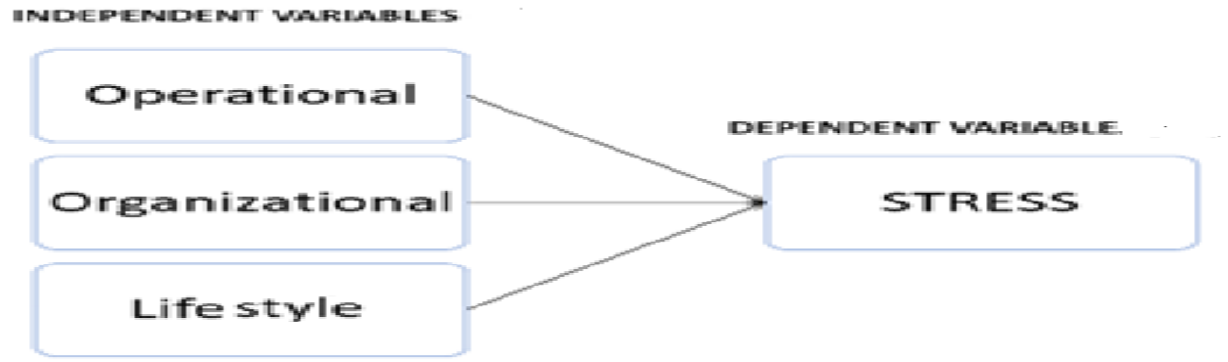
In the study by Cui, Jiang, SShi, Zhang, Kong, Qian and Chu (2021) among nurses, the causes of occupational stress, are caused by high expectations, lack of time, skills, and social support, which, in turn, causes anxiety, post-traumatic stress disorder (PSTD), distress, burnout and other psychological problems. Other common causes of stress and anxiety include the lack of an effective hospital management system, lack of training, uncertainty regarding COVID-19 treatment during the pandemic and care policies further exacerbate the situation. The study also found that mental health problems among law enforcement personnel are associated with a demanding work environment, agency culture and inconsistent shift scheduling. Therefore, H2 is hypothesized as follows:
H2: There is a significant relationship between organizational causes and stress.

Lifestyle Stress Causes: Having an unhealthy eating habit or an unbalanced lifestyle cannot be compensated by consuming superfoods (Sharifi-Rad et al., 2020). Di Renzo, Gualtieri, Pivari, Soldati, Attina and Cinelli (2020) state that COVID-19 brought about a sudden radical change to the lifestyle of the population, particularly in everyday behaviors. It is crucial to maintain a correct nutrition status, especially during instances when our immune system might need to fight back (Di Renzo et al., 2020). The study by Soares (2021) finds that adults reduced physical activity levels and increased sedentary times since the pandemic. The usage of spiritual practices, such as yoga, meditation, and other rest practices may have contributed to resilience and stress control, supporting response efficacy, and assisting in achieving a protective feeling from outside threats (Soares 2021). The findings of the research of Kraft, Maity, and Porter (2019) indicate that salespeople who practice a wellness lifestyle would have a high probability of displaying problem-solving tendencies rather than emotion-based avoidance tactics in coping with job stress.

Sherman, Williams, Amick, Hudson, and Messias (2020) emphasized that due to depression and anxiety associated with childcare issues, food insecurity, reduced access to routine medical care, symptoms ascribed to COVID-19, and lack of daily structure as a result of social isolation and re-adaptation of new norms, significantly elevated psychological distress. Adopting a healthy lifestyle is one of the stress management techniques (Dua, 2019). A study by Nair (2020) showed that older people are better able to handle illness fear and changes in lifestyle, which may be because they are more settled and have the probable ability to better accept crises. In a study by Shanahan, Steinhoff, Bechtiger, Murray, Nivette, Hepp and Eisner (2020), participants on average had responded that the COVID-19 crisis was somewhat disruptive to their lifestyle (i.e., daily routine, work, education, and family). Secondary consequences of the pandemic as major lifestyle and economic disruptions re-ensued associated with recurrent social standstill and economic decline were a common theme. Therefore, H3 is hypothesized as follows:
H3: There is a significant relationship between lifestyle and stress.

From the literature reviewed, the framework was developed as below:

Table 1: The Research Framework



Although we are no longer in the midst of the harsh episode of the pandemic, our lifestyles have changed tremendously since the beginning of the pandemic. The pandemic has brought different environments and perspectives in life. We value friends and family more than before; we work using technology and we self-learn many skills during the pandemic. However, we still experience stress due to work demands and the environment is not like we used to have. We also experience high job demand, low job supply and inflation. The MCDF personnel who are still on active duty are no exception. Due to the nature of their work and any work in a general era post-pandemic, stress is still unavoidable and needs to be managed. By knowing the factors that influence stress among MDCF personnel, stress is hoped to be managed properly to avoid further stress consequences.

3. Research Methodology

The researchers present in-depth discussion on the topics such as research design, population and sampling, questionnaire design, data collection and data analysis that will be used for this research. The process of

performing this study employs a quantitative approach, with clear instructions from the questions and the elaboration on them. Its purpose is to determine the link between the dependent variable and the independent variables, geared towards developing the research framework. Hypothesis testing will be used to test the theory with primary data as the source in which the researchers aimed to collect data through questionnaires.

Research Design: The process of performing this study employs a quantitative approach, with clear instructions from the question and the elaboration on it. Its purpose is to determine the link between the dependent variable and the independent variables, geared towards developing the research framework. Hypothesis testing is used to test the theory with primary data as the source in which the researcher collects data through questionnaires. This study will use a quantitative research method where it is based on the positivist inquiry conducted to collect numerical data which are then will be analyzed using statistical tests. The time horizon in this study is a cross-sectional design where data will be gathered just once, and it is sufficient to gain all the information required for this study. The study setting is a non-contrived setting where it will be conducted in the natural environment and all activities take place in a normal manner with very minimum researcher interference. The unit analysis of this study is the non-medical government front-liners namely personnel from MCDF in Klang Valley.

They were chosen above other agencies as they are carrying tasks almost similar to their counterparts from the medical fraternity. This study is a non-experimental design which is a correlational study design, defined as a quantitative method of research in which two or more quantitative variables from the same group of subjects are correlated to determine a relationship or covariation between the variables (Chuan, 2006). Statistical tests will be used to obtain a correlation coefficient (the value ranges from 0 to 1) and three estimations will be expected. First, if the relationship is significant, i.e., the probability value is smaller than 0.05 or $p<0.05$ (a pre-determined significant level for this study), then will be reported that there is a significant relationship between the variables. Second, this study will report the strength of the relationship, which is the bigger the correlation coefficient, the stronger the relationship between the variables. Third, if the correlation coefficient is positive, then this study will report that there is a relationship between the variables.

Population and Sample: The sample will be selected based on a stratified random sampling technique within the MCDF personnel in the Klang Valley area, operating from the MCDF Kuala Lumpur District office, Jalan Padang Tembak, Kuala Lumpur. According to Etikan and Bala (2017), sample stratification is employed when the population from which the sample is to be drawn does not have a homogeneous group of stratified sampling techniques, and it is generally utilized to obtain a representative of a decent sample. Stratified sampling divides the universe into several sub-populations that are individually more homogeneous than the total population (the differences between sub-populations are called strata) and select items are chosen from each stratum to generate a sample. Because each stratum is more homogeneous with the population, more precise estimates are generated from each stratum (Etikan & Bala, 2017).

In this research, the population will be divided into smaller groups according to their workstation in Klang Valley, where the research will invite everyone in the groups to participate. The questionnaire will be sent to the MCDF group WhatsApp and Telegram phone application. Social media will be used to gather the data in the form of Google form for ease of data collection and data analysis purposes. The scale to be used with a continuum as Likert's interval scales ranging from "1" as strongly disagree to "5" as strongly agree. The population consists of 180 MCDF personnel on duty in Klang Valley. The population is chosen to gauge the peak of the employees' work stress level. According to Krejcie and Morgan (1970), the sample size is 123.

Data Collection: The data collection for this study will be collected through primary data collection using survey techniques. A self-administered questionnaire for the quantitative data collection method will be used in this research. This study will use an online mode of data collection, and distribution via the link of social media. An online form survey is developed using the Google form website and the link will be disseminated through internet platforms such as WhatsApp and other social media platforms.

Questionnaire Design

Table 2: The Questionnaire Sources

No of items	Variable	Source
9	Stress	(Shukla & Srivastava, 2016) Development of a short questionnaire to measure an extended set of role expectation conflict, co-worker support and work-life balance: The new job stress scale
14	Operational stress	(Irniza et al., 2014) A Psychometric Properties of the Malay-version Police Stress Questionnaire
16	Organizational stress	(Irniza et al., 2014)
5	Lifestyle stress	(Irniza et al., 2014)

A questionnaire has been developed which includes 5 sections. The first section consisted of demographic information which covered the personal attributes of the respondent including gender, age, race, marital status, education, rank, length, of service and the location of duty. The questions were adapted from previous journals that related to this study by Shukla and Srivastava (2016) and Irniza, Emilia, Saliluddin and Isha (2014). Section A utilized multiple-choice questions. For subsequent sections, questions using a numerical 5-point Likert scale were employed (1 = strongly disagree; 5 = strongly agree) to examine how strongly the respondents agreed or disagreed with the statements. All the items in the questionnaires have been validated and adapted from related studies from the resources as shown in Table 2 above. Table 3 was developed based on the items included to measure the intended variables.

Table 3: Questionnaire Development

Part	Variable	Scale
Part A	Demographic (8 items) Gender Age Race Marital Status Education Level Rank How long have you been with your organization? Location of duty	Nominal Scale Ordinal scale
Part B	Dependent Variable: Stress (9 items) I have a lot of work and fear that very little time to do it. I feel so burdened that even a day without work seems bad. I feel that I never take a leave. Many people at my unit are tired of the organizational demand. My task makes me nervous The effect of my task on me is too high. Many times, my task becomes a big burden. Sometimes when I think about my task, I get a tight feeling in my chest. I feel guilty when I take a leave.	1 (strongly disagree) to 5 (strongly agree)
Part C	Independent Variable 1: Operational stress (16 items) I feel unequal sharing of work responsibilities. I experience perceived pressure to volunteer free time. There are constant changes in policy/legislation. I experienced the inconsistent leadership style of the superior. My leaders over-emphasized the negatives (e.g. supervisor evaluations,	1 (strongly disagree) to 5 (strongly agree)

public complaints). I have the feeling that different rules apply to different people (e.g., favoritism). My organization faces a lack of resources. I feel the need to be accountable for doing your job. I have excessive administrative duties. I am open to going for internal investigations. I have the feeling that I always have to prove myself to the organization. I have inadequate equipment. I have a lack of training on new equipment. If I am sick or injured my co-workers seem to look down on me. We face staff shortages. I have too much computer work.	
Independent Variable 2: Organizational stress (14 items) I feel like I am always on the job. I have work-related activities on days off (e.g., court and community events). I have overtime demands. I have traumatic events (domestic, death, injury and witness tragic accidents). I face occupational-related health issues (e.g., back pain, neck pain, joint pain). I am fatigued. My friends or family feel the effects of the stigma associated with your job. I have the risk of being injured on the job. I work alone at night. I have a lack of understanding from family and friends about my work. I receive negative comments from the public. I have to shift work. I am upholding a higher image in public. I have paperwork.	1 (strongly disagree) to 5 (strongly agree)
Independent Variable 3: Lifestyle (4 items) I have limitations in my social life. I am managing my social life outside work. I am eating healthily at work. I am making friends outside the job. I am finding time to stay in good physical condition (e.g., exercise)	1 (strongly disagree) to 5 (strongly agree)

Data Analysis: Quantitative is a phenomenon in which researchers collect numerical data and analyze the data using mathematical methods (Aliaga, 2000). Since this study will use a quantitative method, the suitable way to analyze the data from the questionnaire that will be collected is the Statistical Package for Social Science (SPSS) 28.0 Version Software for Windows. Correlation analysis will be used to examine this research question and to evaluate the relationships between dependent and independent variables based on the responses that will be received via the distribution of the questionnaire.

4. Conclusion

The researchers attempt to employ a quantitative technique, using primary data that will be obtained through an online survey. As a result, the five-point Likert scale was chosen as the data collection method. The sample will be acquired using the stratified sampling technique of probability sampling. The researchers plan to utilize the Statistical Package for the Social Science (SPSS) Version 28.0 for data processing. The objective of this paper is to examine the causes of work stress among MCDF personnel. The factors under study are operational, organizational and lifestyle that cause stress among a sample of 123 personnel of MCDF while

carrying out their work assignments in Klang Valley. The researchers conducted and completed the pilot test. This study is significant as it explores the causes that contribute to work stress among MCDF personnel. By doing so, it provides an insight into the management of MCDF, whether due attention needs to be given to these causes, and mitigate them, if necessary, to eliminate or reduce the stress level of the personnel. It also guides on the causes of stress. This will assist in understanding and allocating tasks and activities in this organization.

References

Akerstorm, M., Corin, L., Severin, J., Jonsdottir, I. H. & Bjork, L. (2021). Can Working Conditions and Employees' Mental Health Be Improved via Job Stress Interventions Designed and Implemented by Line Managers and Human Resources on an Operational Level? *International Journal of Environmental Research and Public Health*, 1-16.

Aliaga, M. &. (2000). Interactive Statics. Saddle River, 3-15.

American Psychological Association. (2019). Stress in America: Stress and Current Events. American Psychological Association.

Beckner, M. E., Conkright, W. R., Eagle, S. R., Martin, B. J., Sinnott, A. M., LaGoy, A. D. & Jabloner, L. R. (2021). Impact of simulated military operational stress on executive function relative to trait resilience, aerobic fitness, and neuroendocrine biomarkers. Physiology & Behavior, 1-13.

Buhat, C. H., Torres, M. C., Olave, Y. H., Gavina, M. A., Felix, E. O., Gamilla, G. B. & Rabajante, J. F. (2020, March 30). A mathematical model of COVID-19 transmission between frontliners and the general public. medRxiv.

Centre for Disease Control. (2020). Healthcare Personnel and First Responders: How to Cope with Stress and Build Resilience During the COVID-19 Pandemic. Retrieved from Centers for Disease Control and Prevention: https://www.cdc.gov/coronavirus/2019-ncov/hcp/mental-health-healthcare.html.

Chua, B.-L., Al-nsi, A., Kim, S., Wong, A. F. & Han, H. (2022). Examining airline employees' work-related stress and coping strategies during the global tourism crisis. *International Journal of Contemporary Hospitality Management*, 1-28.

Chuan, C. (2006). Sample Size Estimation using Krejcie and Morgan and Cohen Statistical Power Analysis a Comparison. *Jurnal Penyelidikan IPBL*, 7, 78-86.

Cui, S., Jiang, Y., SShi, Q., Zhang, L., Kong, D., Qian, M. & Chu, J. (2021). Impact of Covid-19 on Anxiety, Stress and Coping Styles in Nurses in–Emergency Departments and Fever Clinics: A Cross-Sectional Survey. Risk Management and Health Care Policy, 585-594.

Cooper, C. L. & Marshal, J. (1976). Occupational Sources of Stress: A Review of the Literature Relating to Coronary Heart Disease and Mental Ill Health. *Journal of Occupational Psychology,* 49, 11-28.

Di Renzo, L., Gualtieri, P., Pivari, F., Soldati, L., Attina, A. & Cinelli, G. (2020). Eating habits and lifestyle changes during COVID-19 lockdown: an Italian survey. Journal of Translational Medicine, 1-15.

Dua, K. (2019). Stress management: An overview. Journal of Pharmacognosy and Photochemistry, 1448-1452.

Etikan, I. & Bala, K. (2017). Sampling and Sampling Methods. *Biometrics & Biostatistics International Journal*, 5(6).

Fletcher, D., Hanton, S. & Neil, R. (2012). Scandinavian Journal of *Medicine and Science in Sports,* 22(4), 545-557.

Florendo Dy, L. & Rabajante, J. (2020). A COVID-19 Infection Risk Model for Frontline Health Care Workers. medRxiv.

Gupta, B., Bajwa, S., Malhotra, N., Mehdiratta, L. & Kakkar, K. (2020). Tough times and Miles to go before we sleep Corona warriors. *Indian J Anaesth*, 64(2), 42-46.

Herman, K. C., Reunke, W. M. & Eddy, C. L. (2020). Advances in understanding and intervening in teacher stress and coping: The Coping-Competence-Context Theory. *Journal of School Psychology*, 69-74.

Hill, D. C., Moss, R. H., Sykes-Muskett, B., Conner, M. & O'Connor, D. B. (2018). Stress and eating behaviors in children and adolescents: Systematic review and meta-analysis. Appetite.

Holden, S. L., Forester, B. E., Williford, H. N. & Reilly, E. (2019). Sport Locus of Control and Perceived Stress among College Student-Athletes. *International Journal of Environmental Research and Public Health*.

Institute for Public Health. (2015). National Health and Morbility Survey Vol. 2. Putrajaya: MOH.

Institute for Public Health. (2020). National Health and Morbidity Survey (NHMS) 2019. Putrajaya: MOH.

Irniza, R., Emilia, Z., Saliluddin, S. M. & Isha, A., N. (2014). A Psychometric Properties of the Malay-version Police Stress Questionnaire. Malays J Med Sci. (Jul-Aug), 42-50.

Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., Xiang Yang, B. & Wang, Y. (2020). The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. The Lancet, 7.

Karlsson, U. &. (2020). Covid-19: risks to healthcare workers and their families. BMJ.3944.

Kassim, M., Ismail, A. & Ismail, R. (2018). A review of occupational stress prevalence and its predictors among selected working populations in Malaysia. *Malaysian Journal of Public Health Medicine,* 18(2), 1-6.

Kraft, F. B., Maity, D. & Porter, S. (2019). The salesperson's wellness lifestyle, coping with stress and the reduction of turnover. Journal of Business & Industrial Marketing, 347-359.

Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.

Krishnan, T., Yusof, S., Aman, H. A. & Nagalan, S. (2021). The Role of National Task Force in Responding To Illegal Activities During Covid-19 Pandemic. *Jurnal Pengajian Umum Asia Tenggara,* 22, 224-237.

Lazarus, R. & Folkman, S. (1984). Stress, appraisal, and coping. Springer Publishing Company.

Li, J. C., Cheung, J. C. & Sun, I. Y. (2019). The impact of job and family factors on work stress and engagement among Hong Kong police officers. Policing: An International Journal, 284-300.

Luyun, J. L. (2022). Factors associated with Preventive Behavior of COVID-19 Frontliners in Cagayan: Using Health Belief Model. Journal of Positive School Psychology, 1504 - 1525.

Military Health System. (2021). This product is reviewed annually and is current until superseded. https://health.mil/Military-Health-Topics/Centers-of-Excellence/Psychological-Health-Center-of-Excellence/Psychological-Health-Readiness/Combat-and-Operational-Stress-Control/COSRs

Ministry of Health/MOH. (2020). National Strategic Plan for Mental Health 2020-2025. Kuala Lumpur: Ministry of Health, Malaysia.

Montagna, M., Marksteiner, T. & Dickhauser, O. (2021). The Effect of a Computerized Growth-Mindset Intervention on Teaching Students' Mindset and Cognitive Stress Appraisal. Frontiers in Education, 6.

Mustafar, J., Hodgson, P., Lhussier, M., Forster, N., Carr, S. & Dalkin, S. (2020). 'Everything takes too long and nobody is listening': Developing theory to understand the impact of advice on stress and the ability to cope. Plos One, 1-22.

NADMA. (2020). Entry and quarantine process person under surveillance (Pus). Kuala Lumpur: Govt of Malaysia.

Nair D R, R. V. (2020). Lifestyle and psychosocial stress during COVID-19 lockdown – an online survey. Kerala Journal of Psychiatry, 5-15.

O'Connor, D. B., Thayer, J. F. & Vedhara, K. (2021). Stress and Health: A Review of Psychobiological Processes. *Annual Review of Psychology*, 72, 663 - 688.

Okechukwu, C. & Babatunde, O. B. (2021). Work-Related Stress and the Relationship with the Health Belief Model among Medical Doctors in a Tertiary Hospital in Port-Harcourt, Nigeria. Journal of Education, Society and Behavioral Science, 10-21.

Panigrahi, A. (2016, Oct - Dec). Managing stress at the workplace. *Journal of Management Research and Analysis,* 3(4), 154-160.

Polinard, E. L., Ricks, T. N., Duke, E. & Lewis, K. A. (2022). Pandemic perspectives from the frontline - The nursing stories. Wiley, 1-14.

PRO Dept. (2022, Dec 16). Sejarah APM. Retrieved Jan 1, 2023, from Portal Rasmi Angkatan Pertahanan Awam Malaysia: https://www.civildefence.gov.my.

Richardson, D., Darte, K., Grenier, S., English, A. & Sharpe, J. (2008). Operational Stress Injury Social Support: A Canadian Innovation in Professional Peer Support. MacDonald Franklin OSI Research Centre. 34.

Rom, O. & Reznick, A. Z. (2016). The Stress Reaction: A Historical Perspective. Advs Exp. Medicine, Biology - Neuroscience and Respiration, 1-4. doi:10.1007/5584_2015_195

Selye, H. (1936). A syndrome produced by nocuous agents. Nature, 32.

Shanahan, L., Steinhoff, A., Bechtiger, L., Murray, A., Nivette, A., Hepp, U. & Eisner, M. (2020). Emotional distress in young adults during the COVID-19 pandemic: Evidence of risk and resilience from a longitudinal cohort study. Psychological Medicine, 1-10.

Sharifi-Rad, M., Anil Kumar, N. V., Zucca, P., Varoni, E., Dini, L., Panzarini, E. & Rajkovic, J. (2020). Lifestyle, Oxidative Stress, and Antioxidants: Back and Forth in the Pathophysiology of Chronic Diseases. *Frontiers in Physiology*, 11, 1-21.

Sherman, A., Williams, M., Amick, B., Hudson, T. & Messias, E. (2020). Mental health outcomes associated with the COVID-19 pandemic: Prevalence and risk factors in a southern US state. Psychiatry Research, 1-8.

Shukla, A. & Srivastava, R. (2016). Development of a short questionnaire to measure an extended set of role expectation conflict, coworker support and work-life balance: The new job stress scale. Cogent Business & Management, 1-19.

Soares, L. (2021). An Examination of the Impact of the COVID-19 Health Threat, Stress, and Social Isolation on Lifestyle Habits as Analyzed through the Protection Motivation Theory. UNF Graduate Theses and Dissertations, 1083.

Stogner, J., Lee Miller, B. & McLean, K. (2020). Police Stress, Mental Health, and Resiliency during the COVID-19 Pandemic. American Journal of Criminal Justice, 718–730.

Wahab, A. (2020). The outbreak of COVID-19 in Malaysia: Pushing migrant workers at the margin. Social Sciences & Humanities Open.

Wang, J., Zhou, M. & Liu, F. (2020). Reasons for healthcare workers becoming infected with novel coronavirus disease 2019 (COVID-19) in China. Journal of Hospital Infection.

Weaver, M., Landrigan, C., Sullivan, J., O'Brien, C. S., Qadri, S., Viyaran, N. & Wang, W. (2020). The Association Between Resident Physician Work-Hour Regulations and Physician Safety and Health. *The American Journal of Medicine*, 133(7), e343-e354.

Wijayanti, R. & Fauzi, H. (2020). Factors affecting the work stress of police officers: *A systematic review. Psychology Idea,* 18(2), 112-126.

WHO. (2022). World Health Statistics 2022. World Health Organization.

Yussof, K., Idris, S. M. & Razak, N., A. (2022). Self-Efficacy towards Health Risk among Graduates. *International Journal of Academic Research in Business and Social Sciences,* 12(1), 983-993.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Achieving A Competitive Advantage Supply Chain Management Practices and Responsiveness

Rosliniwati Muhammad[1] & *Shatina Saad[1&2]
[1]Faculty of Business and Management, Universiti Teknologi MARA, Shah Alam, Malaysia
[2]Arsyad Ayub Graduate Business School, Universiti Teknologi MARA, Shah Alam, Malaysia
2021562441@student.uitm.edu.my, shatinas@uitm.edu.my*

Abstract: Today's business environment is highly competitive and globalized, characterized by shorter product life cycles and demanding customers. As a result, supply chains must be responsive to changes in the marketplace to maintain and create a competitive advantage. While previous studies have acknowledged the advantages of effective supply chain management (SCM) in gaining a competitive edge, there remains a limited understanding of the implications of adopting various SCM practices. To address this gap, this conceptual study focuses on examining the relationship between SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) and both supply chain responsiveness and competitive advantage within the Malaysian timber industry. The study integrates the Resources Based View (RBV), Dynamic Capabilities theory, and Natural Resource-Based View (NRBV) theory.

Keywords: *Supply Chain Management Practices, Supply Chain Responsiveness, Competitive Advantage, Malaysian Timber Industry.*

1. Introduction and Background

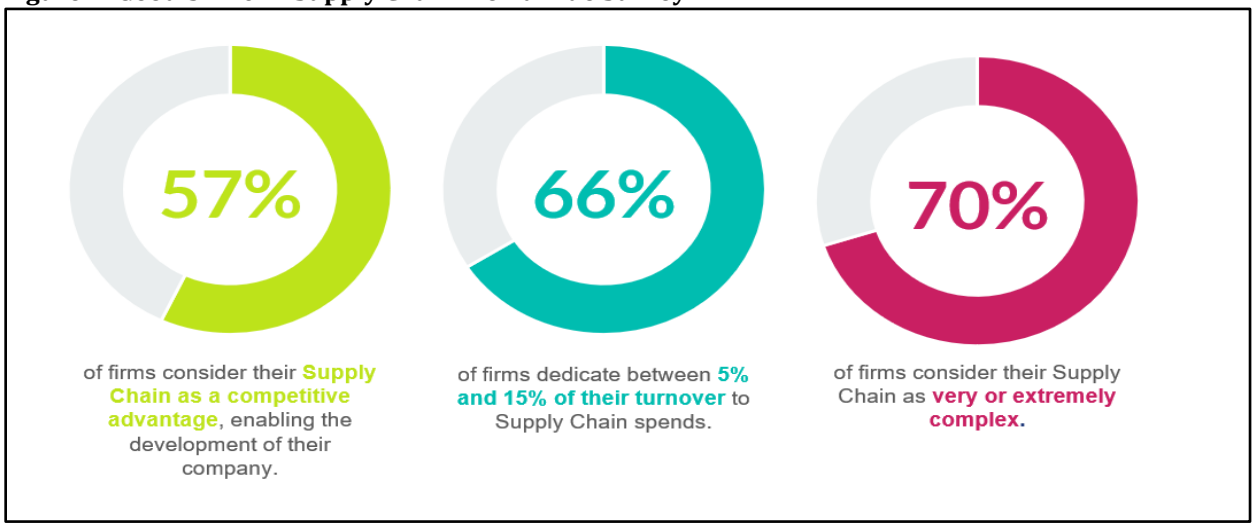
Modern company has undergone a tremendous transformation as a result of factors like supply chain network complexity, globalization, rapidly improving technology, and shorter product lifespans. In addition, shifting consumer preferences for innovative, affordable, fast-responding, and high-quality goods and services have intensified the need for company leaders and their supply chains to respond swiftly and decisively to preserve competitiveness on a local and international scale (Asamoah et al., 2021). Supply chain responsiveness refers to the ability of the supply chain to purposefully and promptly respond to consumer requests or changes in the marketplace (Gunasekaran et al., 2008; Nooraie, 2017). According to Kaviyani-Charati et al. (2022), companies that can adjust their strategies in response to changing demands and variances are well-positioned for success. This claim is supported by a study conducted by Nenavani and Jain (2023), which also makes an important argument regarding the importance of supply chain responsiveness in overcoming the challenges posed by uncertainty. The study found that supply chain responsiveness can act as a mitigating factor, reducing the adverse effects of supply network uncertainty on operational performance. Another study by Wu et al. (2017) reported that developing responsiveness capabilities drives businesses toward differentiation and gives them a competitive advantage. Companies that are responsive to market changes can swiftly adjust their business operations and processes, communicate information across organizational boundaries, and embrace new product and process technologies ahead of their competitors (Singh, 2015). Moreover, firms with higher levels of responsiveness are perceived as being better equipped to handle change, respond to unanticipated events with efficiency, and be well-prepared (Ahmed et al., 2019). Individual businesses now compete as supplier chains rather than as independent entities in the current global competitive landscape. Thus, to gain an advantage over the competition, responsiveness from all points of the chain of supply is crucial.

Previously, researchers have uncovered several contributing factors that have the greatest impact on supply chain responsiveness as well as competitive advantage. Among these factors, the implementation of supply chain management (SCM) practices stands out as a vital recommendation. According to Singh and Verma (2018), supply chain management is a collection of strategies used to effectively integrate manufacturers, suppliers, warehouses, and retail locations so that goods are produced and distributed in the appropriate quantities, at the appropriate times, and to the appropriate locations to reduce system-wide costs while satisfying service level requirements. Encouraging enhanced performance among suppliers, manufacturers, distributors, and customers, SCM is a strategic strategy that emphasizes whole business-process excellence. SCM has evolved into a critical function for adapting to shifting market conditions and maintaining

competitiveness on the international stage. This is achieved by combining methods that cover the upstream and downstream aspects of the supply chain.

SCM practices have garnered widespread recognition as essential instruments for enhancing responsiveness and maintaining a competitive edge in a highly competitive market. Companies that understand the potential of supply chain management position themselves effectively and differentiate themselves from their competitors. A substantial amount of research has conclusively shown that effective SCM is a strategic strategy for gaining a competitive advantage and enhancing organizational performance. The findings of the studies by (Baqleh & Alateeq, 2023; and Cahyono et al., 2023) revealed that higher levels of SCM practices can result in an increased competitive advantage and improved organizational performance. Meanwhile, other studies by (Qrunfleh & Tarafdar, 2013; Sukati et al., 2012; Tarafdar & Qrunfleh, 2017) showed that a supplier relationship supports the cooperative production of novel, distinctive, and affordable commodities. Furthermore, Nimeh et al. (2018) found that strong customer relationships enhance delivery, quality, and flexibility. Sharing knowledge enhances quality, affordability, dependability of supply, product innovation, and speed to market Thatte et al. (2013). Rahman (2018) found that by preventing potential waste, postponement activities reduce the "bullwhip" impacts. Global businesses also highly value the contribution of SCM. According to a survey conducted by GEODIS (2017), 57% of companies think effective SCM gives them a competitive advantage, as illustrated in Figure 1.

Figure 1: Geodis – 2017 Supply Chain Worldwide Survey



Source: Geodis (2017).

Despite the scholars have recognized that effective SCM can lead to multiple benefits for business success, the literature on this topic is limited, and there is a lack of understanding regarding the implications of adopting and diffusing various SCM practices. According to a survey conducted by Alahmad (2021), there are worries that upper management may not fully comprehend how various SCM techniques affect supply chain performance and which practices have the biggest impacts. Additionally, research on the connection between SCM techniques and competitive advantage has yielded mixed results. While some studies such as those by Khanal & Tamang (2017), Sukati et al. (2012), and Thatte et al. (2013) have demonstrated that SCM practices have a positive impact on firm competitive advantage, other studies such as those by Banerjee & Mishra (2017) and Latunreng & Nasirin (2019), have found no relationship between information sharing and supply chain responsiveness. Consequently, further studies are needed to validate and establish this relationship. Additionally, the unique challenges in the Malaysian timber industry, such as bulky sizes, heavy, complex, and crafted nature products (Moore, 2022), and frequently geographically diversified manufacturing locations, present a complex set of supply chain obstacles that require optimized operations to achieve efficiency.

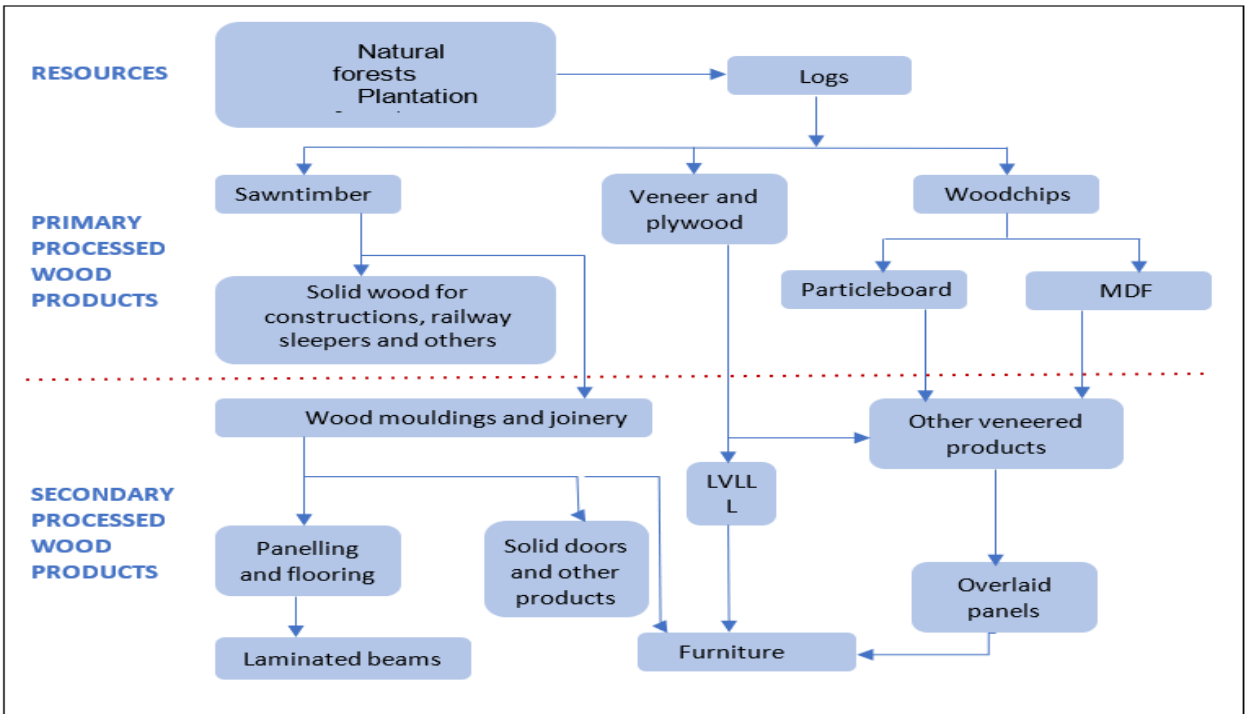
Therefore, this study seeks to fill this research gap and aims to achieve two main objectives: first, to examine the relationship between SCM practices (strategic supplier partnership, customer relationship, information

sharing, and postponement) and supply chain responsiveness in the timber industry in Malaysia, and second, to examine the relationship between SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) and competitive advantage in the timber industry in Malaysia. By examining these aspects, the study seeks to contribute valuable insights to the understanding of SCM's role and its impact on competitive advantage for Malaysian timber firms.

2. Literature Review

Malaysian Timber Industry SCM: The timber industry in Malaysia has grown significantly over the past few decades and has grown to be an important global business. Over the past 20 years, this sector has been a key factor in Malaysia's economic growth. The business produces a wide range of commodities, including sawn wood, veneer, panel goods (including plywood, particleboard, chipboard, and fiberboard), moldings, builder joinery and carpentry (BJC), furniture, and furniture components. (Wood-Based and Furniture, 2021). Malaysian companies are largely in the industry, with small and medium-sized enterprises accounting for approximately 80–90% of these businesses (Overview of Timber Sector of Malaysia, 2021). According to the Malaysian Timber Industry Board's report, nearly 193,000 people are employed directly or indirectly across the industry's supply chain (MTIB, 2021). As of 2020, there were a total of 1,901 timber mills located throughout Malaysia, with 1,565 located on the peninsula, 236 in Sarawak, and 100 in Sabah, as per the same report. In 2022, Malaysian timber product exports totaled RM25.212 million, with wooden furniture contributing 44.2 percent, plywood 13.2 percent, sawn timber 10.6 percent, BJC 5.5 percent, logs 3.7 percent, and molding 3.7 percent of the figure (MTIB, 2023). According to the report, the top five Malaysian timber export markets are America, Europe, Asia, Africa, and Oceania/Pacific with export values of RM8,479.37 million, RM2,216.30 million, RM12,903.28 million, RM333.38 million, and RM1,279.69 million, respectively.

Figure 2: Timber Supply Chain



Source: NEPCon (2016).

As depicted in Figure 2, the Malaysian timber supply chain is a complex and varied system that incorporates several interconnected stages, each contributing to the manufacture of a variety of wood products (NEPCon, 2016). In the upstream activities, the process begins with the extraction of timber from Malaysia's rich and diverse forests. Once harvested, the logs are transported to processing facilities, where they are subjected to a variety of treatments. This involves the debarking, cutting, and shaping to produce primary products

including sawn timber, veneer, plywood, woodchips, solid wood, particle board, and MDF (Medium-Density Fiberboard). These primary products are then moved to the downstream segment of the supply chain, where they are subjected to secondary manufacturing processes to add value and transform them into a diverse range of completed products, such as high-quality furniture, flooring, panels, doors, and various other items for both local and international markets.

This supply chain structure highlights the relationships between different sub-sectors. The effectiveness of operations, product quality, profitability, and customer satisfaction can all suffer greatly from any disruptions in the global supply chain. Uncertainty in the availability of raw materials, demand changes, market volatility, the political environment, and transportation all has extremely detrimental impacts. The company must connect its decisions with those made within its chain of customers and suppliers to implement SCM in the timber industry. This procedure calls for the organization to manage its relationships with both its customers and suppliers effectively. Therefore, Hoogstra-Klein and Meijboom (2021) suggest that careful management of the wood product supply chain is necessary for designing an effective model for supply chain design. It is critical to enhance the connectivity and efficiency between value chain actors, such as forest owners, wood dealers, wood manufacturers, and end consumers (Saadun, 2022). Thus, the right set of SCM practices for timber organizations ought to be considered, and data aggregation techniques for the extensive data set should be employed.

Competitive Advantage: Li et al. (2006) refers to competitive advantage as an organization's ability to create a defensible position over its competitors. According to Thatte and Agrawal (2017), a company's competitive advantage comprises distinctive competencies that set them apart from rivals and provide them an edge in the market. The study of competitive advantage has received a lot of research interest due to current worries about the better performance levels of businesses in today's changing market. Thatte (2007) asserts that the development of great capabilities has given rise to competitive advantage, which is used to produce customer value and obtain cost and/or differentiation advantages, resulting in market share and profit performance. Prior researchers cited price/cost, quality, dependability of delivery, speed to market, and product innovation as significant competitive capabilities (Li et al., 2005; Sukati et al., 2011; Thatte et al., 2013; Thatte & Agrawal, 2017; Vokurka et al., 2002). On the other hand, Khanal and Tamang (2017) included additional competitive factors such as safety, flexibility, labeling, packaging, insurance, and documentation. Meanwhile, Al-tarawneh (2020) employs cost-based advantage, product-based advantage, and service-based advantage as competitive advantage constructs. Based on the above literature, the five dimensions of competitive advantage capabilities chosen for this study are price/cost, quality, delivery dependability, product innovation, and time to market.

Supply Chain Responsiveness: Responding to market shifts is critical to a company's success in today's turbulent market. Supply chain responsiveness refers to the supply chain's ability to adapt swiftly and effectively to client requests or changes in market dynamics (Gunasekaran et al., 2008; Nooraie, 2017). Thatte and Agrawal (2017) emphasize the importance of an organization's ability to quickly manufacture products to meet changing customer expectations, including changes in product volume, mix, product variations, and new product launches. According to Yu et al. (2018), a responsive supply chain may aid manufacturers in better comprehending and responding to consumer demands, enabling them to provide customers with more value at the most affordable price. Previous studies have shown that being responsive offers major advantages for firms, including shortened cycle times, increased profitability, and transportation efficiency (Omoruyi & Akuoma, 2020; Singh et al., 2015; Singh & Sharma, 2014). To meet customer demands, every link in the supply chain must be able to provide the good or service on time and reliably. Thatte (2007) classified supply chain responsiveness into three dimensions: (1) operational system responsiveness, (2) logistic process responsiveness, and (3) supplier network responsiveness. Operational system responsiveness measures how fast a company adapts to changes in the volume and mix of the products that consumers need, as well as how quickly a company reacts to urgent customer demands (Asamoah et al., 2021). Logistic process responsiveness refers to a company's capacity to adapt its outbound transportation, distribution, and warehousing systems to changes in customer demand (Thatte & Agrawal, 2017). Meanwhile, supplier network responsiveness enhances the ability of a firm to swiftly introduce new products in response to customer needs (Sukati et al., 2012). Therefore, the supply chain responsiveness variable in this study covers operating system responsiveness, logistic process responsiveness, and supplier network responsiveness, as

employed by previous researchers (Khanal & Tamang, 2017; Omoruyi & Akuoma, 2020; Sukati et al., 2012; Thatte, 2007; Thatte et al., 2013).

SCM Practices: Tarigan et al. (2019) define SCM practices as a practical activity carried out by businesses throughout the supply chain flow to improve their performance. The practices included operational functions and major activities in the company that affect the effectiveness and efficiency of the supply chain (Sandhu et al., 2013). A well-designed supply chain performance assessment system should take into account not just the focal firm's capabilities and performance traits, but also those of its supply chain partners. These procedures essentially involve the upstream and downstream segments of the supply chain, which are focused on suppliers and customers, respectively. Jie and Gengatharen (2019) identified lean, customer relationship management, strategic alliances, information sharing among partners, and information sharing quality. Meanwhile, Al-Shboul et al. (2018) classified seven main SCM techniques, including supplier flexibility, supplier collaboration, internet technology, customer focus, quality management, lean manufacturing, and integrated internal integration. Whereas Khalil et al. (2019) considered supplier strategic alliances, lean techniques, innovation, information-sharing levels, and quality as essential variables in the SCM approach. Additionally, postponement is acknowledged as a significant SCM practice that influences business performance (Nouri et al., 2020; Qrunfleh & Tarafdar, 2013; Tarafdar & Qrunfleh, 2017). Collectively, the literature discusses SCM approaches from a variety of angles with the underlying objective of improving organizational performance. After a thorough analysis and synthesis, it was discovered that strategic supplier partnerships, customer interactions, information sharing, and postponement were the SCM methods that previous studies employed the most frequently. As a result, these four practices were chosen for investigation in this study.

Previous empirical studies (Sukati et al., 2011, 2012; Thatte et al., 2013) have demonstrated the significant role of strategic supplier partnerships, customer relationships, information sharing, and postponement in enhancing supply chain responsiveness. Strategic supplier partnerships have been proven to facilitate the development of differentiated, creative, and cost-effective goods (Qrunfleh & Tarafdar, 2013; Sukati et al., 2012; Tarafdar & Qrunfleh, 2017). Responsive suppliers can provide raw materials and components promptly and reliably, enhancing manufacturing processes and ensuring on-time delivery (Asamoah et al., 2021). As such, organizations that aim to maximize their customer value and profits should put extra effort into building strong supplier partnerships (Rana, 2020). Additionally, Thatte et al. (2013), research indicates that a well-managed customer relationship can decrease uncertainty and lead time, improving the responsiveness of the supply chain. According to research by (Nimeh et al., 2018), close customer interactions increase the organization's overall responsiveness by enhancing quality, flexibility, and delivery performance. To improve responsiveness, the Williams et al. (2013) study also shows that supply chain managers frequently look for information that offers more visibility into factors driving both supply and demand.

The improvement of relationships and interactions between supply chain partners depends strategically on information exchange (Hasibuan et al., 2020). Through sharing information with upstream parties, firms can improve their planning, reduce their inventory, prevent stockouts, and ensure more accurate and timely supplier deliveries (Thatte et al., 2009). Additionally, Mbhele (2016) highlights the positive impact of, real-time information sharing in encouraging better communication and improved supply chain coordination, leading to enhanced connectivity, responsiveness, and agility, while also mitigating the bullwhip effect. However, the studies by (Banerjee & Mishra, 2017; Latunreng & Nasirin, 2019) found no link between information sharing and supply chain responsiveness. Apart from that, the postponement strategy has served as a tool to integrate customer demand into manufacturing operations by incorporating new trends like customization, digitalization, modularization, standardization, and the formation of an interconnected supply chain (Moradlou & Backhouse, 2016). It has been established that postponement significantly affects the effectiveness of supply chain operations (Jiang et al., 2018). As a result, it is hypothesized that:
H1: SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) have a significant effect on supply chain responsiveness.

On the other hand, SCM practices were also found to have a significant effect on a firm's competitive advantage. Numerous recent studies have demonstrated the strong link between strategic supplier partnerships and competitive advantage (Abdali et al., 2018; Dumitrache et al., 2016; Keawkunti et al., 2020;

Prabusankar, 2017; Quynh & Huy, 2018) as well as performance (Al-Shboul et al., 2017; Gandhi et al., 2017; Reklitis et al., 2021). Collaboration on innovation and information exchange within the supplier-buyer relationship have been identified as important aspects of gaining a competitive advantage (Jha et al., 2021; Mabrouk, 2020). Additionally, Thongrawd et al. (2020), state that maintaining long-term customer relationships is critical in today's corporate landscape. Firms can better understand their consumers' interests and loyalty by acquiring reliable customer information, resulting in optimized operations and accurate demand prediction (Bhat & Darzi, 2016). Latunreng and Nasirin (2019) observed that strong customer relationships assist organizations in being more agile in generating various products quickly and adapting to the specific needs of their target customers.

Furthermore, a recent study by Baah et al. (2021) highlighted the significant impact information sharing has on supply chain visibility, collaboration, agility, and competitiveness. Focused businesses may swiftly resolve issues with pricing, quality, and quantity by exchanging knowledge with supply chain partners, meeting customer expectations and adapting to market changes (Feizabadi et al., 2019). Fornah and Nyoman Pujawan (2020) identify critical practices such as advising suppliers in advance of impending changes that may harm their relationship and communicating information with them about basic business activities. In addition, the study by Rahman (2018) discovered that the implementation of postponement has produced several advantages, such as increased service levels, decreased inventory holding costs, shortened lead times for customers, and quicker deliveries. In certain manufacturing settings, the postponement strategy, specifically the made-to-forecast hybrid technique, has proven to deliver a major competitive advantage (Akinc & Meredith, 2015). Chiu et al. (2016) showed that employing the postponement technique, in conjunction with component commonality and quality assurance, results in cost reductions and shorter cycle times. Therefore, it is hypothesized that:

H2: SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) have a significant effect on competitive advantage.

3. Research Methodology

This study is hypothesis testing research since it attempts to test the hypothesis developed based on previous research in the context of the timber industry in Malaysia. Many studies conducted earlier have proven the effect of SCM practices on firm performance. According to Golicic et al. (2005), a quantitative approach is frequently selected to test the theory in a fresh study environment when the phenomenon of interest has been extensively characterized and recorded through prior research. It enables researchers to formulate a formal theory by looking at the "big picture" to generate a more comprehensive explanation of the phenomenon. All Malaysian timber enterprises make up the study's population, and MTIB-registered Malaysian wood-based businesses served as the sample frame (MTIB, 2022). As of January 2021, the list reveals 849 active wood-based businesses. To choose companies from the sampling frame, the researcher used the stratified random sampling technique. According to Kotzab et al. (2005), the survey strategy enables the efficient collection of large amounts of data. Most frequently, questionnaires are used to collect uniform data that can be easily compared by researchers.

Particularly when a significant number of elements from diverse geographic regions are to be reached, the development of the questionnaire and the selection of relevant questionnaire items are crucial. Saunders et al. (2016) claim that the questionnaire design has an impact on the response rate, reliability, and validity of the data. As such, it must be carefully constructed to be a reliable data-collection tool. Sekaran and Bougie, (2016) stress three areas to concentrate on while constructing the questionnaire to minimize bias in the study. It first relates to how the questions are phrased, then to how the variables will be categorized, and lastly to the overall look of the questionnaire. To assign numbers to object characteristics, a scale is necessary. A scale is a method that separates people depending on how they differ from one another on the research variable. Scaling requires creating a continuum for each instrument used. The interval scale will be used in this study to assess respondents' opinions and perceptions. Each instrument is graded on a seven-point Likert scale to achieve accurate results. The labels are anchored by 1= Very strongly disagree, 2 Strongly Disagree, 3 Disagree, 4= Neutral, 5 Agree, 6 Strongly Agree, and 7= Very Strongly Agree.

The validity and reliability of an empirical investigation are also determined by the right formulation of measuring items for a construct. Substance validity, which argues that the measurement items in an instrument should predominantly reflect the substance of a construct, is the primary condition for a good measure (Thatte, 2007). For each construct, the study's first set of questions was derived from previous research. Then an expert and a potential respondent will both validate its contents. During these procedures, the necessary revisions will be made, and the viability of conducting the study will be established. The surveys will then be given out to the selected respondents by the supplied sample frame. According to Saunders et al. (2016), structured observation, structured interviews, and self-administered questionnaires are the three survey methods that are most frequently used to collect quantitative data. An electronic or online questionnaire is determined to be the most acceptable approach for the present study due to time and financial constraints. After collecting the data, it will be analyzed initially using SPSS software, followed by the PLS-SEM method to conclude.

4. Theoretical and Managerial Implications

This study provides substantial theoretical contributions by studying the Resource-Based View (RBV) theory in the context of SCM and its impact on supply chain responsiveness and competitive advantage in the Malaysian timber sector. It extends RBV by including the Natural Resource-Based View (NRBV) to address environmental concerns and encourage sustainable practices. The study also incorporates the Dynamic Capabilities Theory, emphasizing the significance of supply chain responsiveness for adaptability and proactive resource adjustment. The findings provide useful insights for refining SCM practices and increasing the competitive advantage of Malaysian timber enterprises, laying the groundwork for future study in this field.

From a managerial standpoint, the study assists both strategists and communities in the forestry business. It introduces new techniques and technologies to aid and promote effective supply chain management. Supply chain managers can obtain a better grasp of the tools and operational practices used by businesses, allowing them to evaluate initiatives for broader SCM adoption. Finally, this study enables the timber industry to improve its supply chain relationships and strategic decision-making, resulting in improvements and long-term benefits.

5. Conclusion

This concept paper examines SCM procedures, the responsiveness of the supply chain, and the competitive advantage of the Malaysian timber sector. To strengthen the firm's competitive edge, it merges the activities on the upstream and downstream ends of the supply chain. Future studies on SCM and competitiveness in the lumber industry will build on the findings of this paper. For managers, it offers helpful information that will help them make wiser choices and raise the performance of the sector as a whole. The ultimate objective is to comprehend how SCM procedures might assist Malaysia's timber sector in becoming more effective and prosperous.

References

Abdali, M. F., Hussain, A. N. & Atiyah, A. G. (2018). Supply Chain Management Practices and Its Role in Achieving Competitive Advantage an Analytical Study of the Views of a Sample of Texture Factory Managers in Iraq/Nasiriya. *Journal of Advanced Research in Dynamical and Control Systems*, 10(11).

Ahmed, W., Najmi, A., Mustafa, Y. & Khan, A. (2019). Developing model to analyze factors affecting firms' agility and competitive capability: A case of a volatile market. *Journal of Modelling in Management*, 14(2), 476–491. https://doi.org/10.1108/JM2-07-2018-0092

Akinc, U. & Meredith, J. R. (2015). Make-to-Forecast: Customization with Fast Delivery. *International Journal of Operations and Production Management*, 35(5), 728–750. https://doi.org/10.1108/IJOPM-12-2012-0567

Al-Shboul, M. A., Barber, K. D., Garza-Reyes, Arturo, J., Kumar, V. & Reza, A. (2017). The Effect of Supply Chain Management Practices on Supply Chain and Manufacturing Firms' Performance. In *Journal of Manufacturing Technology Management*, 28(5). https://doi.org/10.1108/JMTM-11-2016-0154

AL-Shboul, M. A., Garza-Reyes, J. A. & Kumar, V. (2018). Best Supply Chain Management Practices and High-Performance Firms: The Case of Gulf Manufacturing Firms. *International Journal of Productivity and Performance Management*, 67(9). https://doi.org/10.1108/IJPPM-11-2016-0257

Al-tarawneh, R. T. (2020). Sustainable Supply Chain Responsiveness Impact of Strategies Competitive Advantage in Jordanian Pharmaceutical Companies. *European Journal of Business and Management*, 12(26), 14–22. https://doi.org/10.7176/ejbm/12-26-02

Alahmad, Y. Y. (2021). The Relationship between Supply Chain Management Practices and Supply Chain Performance in Saudi Arabian Firms. *American Journal of Industrial and Business Management*, 11(01), 42–59. https://doi.org/10.4236/ajibm.2021.111004

Asamoah, D., Nuertey, D., Agyei-Owusu, B. & Akyeh, J. (2021). The effect of supply chain responsiveness on customer development. *International Journal of Logistics Management*. https://doi.org/10.1108/IJLM-03-2020-0133

Baah, C., Opoku Agyeman, D., Acquah, I. S. K., Agyabeng-Mensah, Y., Afum, E., Issau, K., Ofori, D. & Faibil, D. (2021). Effect of Information Sharing in Supply Chains: Understanding the Roles of Supply Chain Visibility, Agility, Collaboration on Supply Chain Performance. *Benchmarking*. https://doi.org/10.1108/BIJ-08-2020-0453

Banerjee, M. & Mishra, M. (2017). Retail Supply Chain Management Practices in India: A Business Intelligence Perspective. *Journal of Retailing and Consumer Services*, 34, 248–259. https://doi.org/10.1016/j.jretconser.2015.09.009

Baqleh, L. A. & Alateeq, M. M. (2023). The Impact of Supply Chain Management Practices on Competitive Advantage: The Moderating Role of Big Data Analytics. *International Journal of Professional Business Review*, 8(3), 1–22. https://doi.org/10.26668/businessreview/2023.v8i3.679

Bhat, S. A. & Darzi, M. A. (2016). Customer Relationship Management: An Approach to Competitive Advantage in the Banking Sector by Exploring the Mediational Role of Loyalty. *International Journal of Bank Marketing*, 34(3), 388–410. https://doi.org/10.1108/IJBM-11-2014-0160

Cahyono, Y., Purwoko, D., Koho, I. R., Setiani, A., Supendi, Setyoko, P. I., Sosiady, M. & Wijoyo, H. (2023). The role of supply chain management practices on competitive advantage and performance of halal agroindustry SMEs. *Uncertain Supply Chain Management*, 11(1), 153–160. https://doi.org/10.5267/j.uscm.2022.10.012

Chiu, S. W., Kuo, J. S., Chiu, V. & Peter Chiu, Y. S. (2016). Cost Minimization for a Multi-Product Fabrication-Distribution Problem with Commonality, Postponement, and Quality Assurance. *Mathematical and Computational Applications*, 21(3). https://doi.org/10.3390/mca21030038

Dumitrache, C., Kherbach, O., Marian Liviu, M. & Amine, G. (2016). Supply Chain Management as a Source for Competitive Advantages of Small and medium-sized Manufacturing Enterprises. International Business Information Management Association.

Feizabadi, J., Maloni, M. & Gligor, D. (2019). Benchmarking the Triple-A Supply Chain: Orchestrating Agility, Adaptability, and Alignment. In *Benchmarking: An International Journal*, 26(1). https://doi.org/10.1108/BIJ-03-2018-0059

Fornah, H. A. & Nyoman Pujawan, I. (2020). Assessing Supply Chain Practices and How They are Perceived to Impact Performance of Firms in Sierra Leone: A Case Study in a Telecommunication Company (Sierratel). *IOP Conference Series: Materials Science and Engineering*, 847(1). https://doi.org/10.1088/1757-899X/847/1/012095

Gandhi, V. A., Shaikh, A. & Sheorey, P. A. (2017). Impact of Supply Chain Management Practices on Firm Performance: Empirical Evidence from a Developing Country. *International Journal of Retail & Distribution Management*, 45(4), 1–23.

Golicic, S. L., Davis, D. F. & McCarthy, T. M. (2005). A Balanced Approach to Research in Supply Chain Management. Research Methodologies in Supply Chain Management: In Collaboration with Magnus Westhaus, 15–29. https://doi.org/10.1007/3-7908-1636-1_2

Gunasekaran, A., Lai, K., hung. & Edwin Cheng, T. C. (2008). Responsive Supply Chain: A Competitive Strategy in A Networked Economy. *Omega: The International Journal of Management Science*, 36(4), 549–564. https://doi.org/10.1016/j.omega.2006.12.002

Hasibuan, M., Hakimah, Y., Linda, A., Harahap, N. H., Maharani, F., Nusantara, U. G. & Tridinanti, U. (2020). Information Sharing, Joint Reward System, leadership Style and Supply Chain Responsiveness : Mediating role of Cross-Functional Coordination. *Systematic Reviews in Pharmacy: A Multifaceted Review Journal in the Field of Pharmacy Information*, 11(4), 731–738.

Hoogstra-Klein, M. A. & Meijboom, K. (2021). A qualitative exploration of the wood product supply chain – investigating the possibilities and desirability of an increased demand orientation. Forest Policy and Economics, 133. https://doi.org/10.1016/j.forpol.2021.102606

Jha, A., Sharma, R. R. K., Kumar, V. & Verma, P. (2021). Designing Supply Chain Performance System: A Strategic Study on Indian Manufacturing Sector. *Supply Chain Management*, 27(1), 66–88. https://doi.org/10.1108/SCM-05-2020-0198

Jiang, S., Lu, C. W., Zhang, S. & Ma, Q. (2018). Coordinated Optimization of Slope Water Treatment Machinery Supply Chain in Open-Pit Mine Based on Flexsim Simulation. Paper Asia, 1.

Jie, F., & Gengatharen, D. (2019). Australian Food Retail Supply Chain Analysis. *Business Process Management Journal*, 25(2), 271–287. https://doi.org/10.1108/BPMJ-03-2017-0065

Kaviyani-Charati, M., Ghodsypour, S. H. & Hajiaghaei-Keshteli, M. (2022). Impact of adopting quick response and agility on supply chain competition with strategic customer behavior. *Scientia Iranica*, 29(1E), 387–411. https://doi.org/10.24200/sci.2020.53691.3366

Keawkunti, B., Phawitpiriyakliti, C., Saisama, C. & Sangma, W. (2020). The Relationship Between Supply Chain Management and Organization Performance: A Case Study. *Journal of Security and Sustainability Issues*, 9(4), 1349–1361. https://doi.org/10.9770/JSSI.2020.9.4(20)

Khalil, M. K., Khalil, R. & Khan, S. N. (2019). A Study on the Effect of Supply Chain Management Practices on Organizational Performance with the Mediating Role of Innovation in SMEs. *Uncertain Supply Chain Management*, 7(2), 179–190. https://doi.org/10.5267/j.uscm.2018.10.007

Khanal, P. & Tamang, G. (2017). Supply chain management practices: A study of freight forwarders in Nepal. *Pertanika Journal of Social Sciences and Humanities*, 25(3), 1473–1488.

Kotzab, H., Seuring, S., Müller, M. & Reiner, G. (2005). Research Methodologies in Supply Chain Management: In Collaboration with Magnus Westhaus. Research Methodologies in Supply Chain Management: In Collaboration with Magnus Westhaus, October 2014, 1–619. https://doi.org/10.1007/3-7908-1636-1

Latunreng, W. & Nasirin, C. (2019). Competitive Advantage: Exploring the Role of Partnership with Suppliers, Customer Relationship and Information Sharing as Antecedents. *International Journal of Supply Chain Management*, 8(6).

Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S. & Subba Rao, S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega*, 34(2), 107–124. https://doi.org/10.1016/j.omega.2004.08.002

Li, S., Rao, S. S., Ragu-Nathan, T. S. & Ragu-Nathan, B. (2005). Development and Validation of a Measurement Instrument for Studying Supply Chain Management Practices. *Journal of Operations Management*, 23(6), 618–641. https://doi.org/10.1016/j.jom.2005.01.002

Mabrouk, N. & Ben. (2020). Interpretive Structural Modeling of Critical Factors for Buyer-Supplier Partnerships in Supply Chain Management. *Uncertain Supply Chain Management*, 8(3), 613–626. https://doi.org/10.5267/j.uscm.2020.2.002

Mbhele, T. P. (2016). Decoupling Paradigm of Push-Pull Theory of Oscillation in the FMCG Industry. *South African Journal of Business Management*, 47(2), 53–66. https://doi.org/10.4102/sajbm.v47i2.60

Moore, K. (2022). How Furniture Brands And Manufacturers Are Coping With Ongoing Supply Chain Strain. Forbes. https://www.forbes.com/sites/kaleighmoore/2022/05/16/how-furniture-brands-and-manufacturers-are-coping-with-ongoing-supply-chain-strain/?sh=57ef486d7f22

Moradlou, H. & Backhouse, C. J. (2016). A Review of Manufacturing Re-Shoring in the Context of Customer-Focused Postponement Strategies. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, 230(9). https://doi.org/10.1177/0954405415623486

MTIB. (2021). The Wood Industry In Malaysia and the Need For Human Capital.

Nenavani, J. & Jain, R. K. (2023). Uncertainty, responsiveness and operational performance in the supply chain: A conceptual study using contingency theory approach. *International Journal of Services and Operations Management*, 45(2), 207–231.

Nimeh, H. A., Abdallah, A. B. & Sweis, R. (2018). Lean Supply Chain Management Practices and Performance: Empirical Evidence from Manufacturing Companies. *International Journal of Supply Chain Management*, 7(1), 1–15.

Nooraie, S. V. R. (2017). Mitigating Supply and Demand Risk of Disruption Through Trade-Off Among Risk, Cost and Supply Chain Capabilities. In *Solid State Ionics*, 2(1).

Nouri, B. A., Saebnia, S. & Foladi, E. (2020). Effect of Lean and Agile Supply Chain Strategies on Supply Chain Responsiveness and Firm Performance: The Mediating Role of Postponing Order and Strategic. *Industrial Management Perspective*, 10(4), 65–89. https://jimp.sbu.ac.ir/index.php/jmbsp/about/article_87591.html?lang=en

Omoruyi, O. & Akuoma, E. (2020). The influence of supply chain management on the performance of small to medium enterprises in southern Gauteng. *International Journal of Economics and Finance Studies*, 12(1), 172–188. https://doi.org/10.34109/ijefs.202012111

Overview of the timber sector of Malaysia. (2021). Timber Portal Trade. https://www.timbertradeportal.com/en/malaysia/79/timber-sector#section-0

Prabusankar, R. (2017). Impact of Supply Chain Management Practices on Competitive Advantage of Small Manufacturing Firms in Coimbatore District. *International Journal of Mechanical Engineering and Technology*, 8(10), 836–843.

Qrunfleh, S. & Tarafdar, M. (2013). Lean and agile supply chain strategies and supply chain responsiveness: The role of strategic supplier partnership and postponement. *Supply Chain Management: An International Journal*, 18(6). https://doi.org/10.1108/SCM-01-2013-0015

Quynh, D. V. X. & Huy, N. H. (2018). Supply Chain Management Practices, Competitive Advantages and Firm Performance: A Case of Small and Medium Enterprises (SMEs) in Vietnam. *Journal of Modern Accounting and Auditing*, 14(3), 136–146. https://doi.org/10.17265/1548-6583/2018.03.004

Rahman, M. Z. (2018). Segmenting Supply Chain Process for Optimal Performance by Adopting Postponement: A Randomized Trial. *International Journal of Supply Chain Management*, 7(2), 43–51.

Rana, S. M. S. (2020). Supply chain drivers and retail supply chain responsiveness: Strategy as moderator. *International Journal of Management Practice*, 13(1). https://doi.org/10.1504/IJMP.2020.104066

Reklitis, P., Sakas, D. P., Trivellas, P. & Tsoulfas, G. T. (2021). Performance Implications of Aligning Supply Chain Practices with Competitive Advantage: Empirical Evidence from the Agri-Food Sector. *Sustainability*, 13(16), 8734.

Saadun, N. (2022). Value Chain Analysis : What Entrepreneurs in Wood-Based Industry. Faculty of Forest and Environment, 9–11.

Sandhu, M. A., Helo, P. & Kristianto, Y. (2013). Steel Supply Chain Management by Simulation Modelling. *Benchmarking: An International Journal*, 20(1), 45–61. https://doi.org/10.1108/14635771311299489

Saunders, M., Lewis, P. & Thornhill, A. (2016). Research Methods for Business Students. In *Pearson Education*.

Sekaran, U. & Bougie, R. (2016). Research Methods for Business: A Skill Building Approach (7th ed.). United States: John Wiley & Sons, Inc.

Singh, D. & Verma, A. (2018). Inventory Management in Supply Chain. *Materials Today: Proceedings*, 5(2), 3867–3872. https://doi.org/10.1016/j.matpr.2017.11.641

Singh, M. P., Chandran, C., Sarwa, A., Kumar, A., Gupta, M., Raj, A. & Ratho, R. K. (2015). Outbreak of Chickenpox In A Union Territory of North India. *Indian Journal of Medical Microbiology*, 33(4). https://doi.org/10.4103/0255-0857.167335

Singh, R. K. (2015). Modeling of critical factors for responsiveness in the supply chain. *Journal of Manufacturing Technology Management*, 26(6), 868–888. https://doi.org/10.1108/JMTM-04-2014-0042

Singh, R. K. & Sharma, M. K. (2014). Selecting Competitive Supply Chain Using Fuzzy AHP and Extent Analysis. *Journal of Industrial and Production Engineering*, 31(8), 524–538. https://doi.org/10.1080/21681015.2014.999723

Sukati, I., Abdul Hamid, A. B., Baharun, R., Hon Tat, H. & Said, F. (2011). An Investigation of the Relationship Between Supply Chain Management Practices And Competitive Advantage Of The Firm. *Contemporary Marketing Review*, 1(4).

Sukati, I., Bakar, A., Holloway, R., Bakar, A. & Hamid, A. (2012). Competitive Advantage through Supply Chain Responsiveness and Supply Chain Integration Service Quality Measurements View project Gen Y behavior, Content Analysis of social media V ... Competitive Advantage through Supply Chain Responsiveness and Supply. *International Journal of Business and Commerce*, 1(7), 01–11.

Tarafdar, M. & Qrunfleh, S. (2017). Agile supply chain strategy and supply chain performance: complementary roles of supply chain practices and information systems capability for agility. *International Journal of Production Research*, 55(4), 925–938. https://doi.org/10.1080/00207543.2016.1203079

Tarigan, Z. J. H., Siagian, H. & Bua, R. R. (2019). The Impact of Information System Implementation to the Integrated System for Increasing the Supply Chain Performance of Manufacturing Companies. *IOP Conference Series: Materials Science and Engineering*, 473(1). https://doi.org/10.1088/1757-899X/473/1/012050

Thatte, A. A. (2007). Competitive Advantage of a Firm through Supply Chain Responsiveness and SCM Practices. The University of Toledo.

Thatte, A. A., Agrawal, V. & Muhammed, S. (2009). Linking Information Sharing and Supplier Network Responsiveness with Delivery Dependability of a Firm. *Journal of Applied Business Research*, 25(3), 37–56. https://doi.org/10.19030/jabr.v25i3.1025

Thatte, A. A., Rao, S. S. & Ragu-Nathan, T. S. (2013). Impact of SCM practices of a firm on supply chain responsiveness and competitive advantage of a firm. *Journal of Applied Business Research*, 29(2), 499–530. https://doi.org/10.19030/jabr.v29i2.7653

Thatte, A. & Agrawal, V. (2017). Exploring Supply Chain Responsiveness Effects on Competitive Advantage of a Firm. *Journal of International Academy of Business Disciplines*, 4(3).

Thongrawd, C., Ramanust, S., Narakorn, P. & Seesupan, T. (2020). Exploring the Mediating Role of Supply Chain Flexibility and Supply Chain Agility Between Supplier Partnership, Customer Relationship Management and Competitive Advantage. *International Journal of Supply Chain Management*, 9(2).

Vokurka, R. J., Zank, G. M. & Lund, C. M. (2002). Improving Competitiveness Through Supply Chain Management: A Cumulative Improvement Approach. *Competitiveness Review*, 12(1), 14–25. https://doi.org/10.1108/eb046431

Williams, B. D., Roh, J., Tokar, T. & Swink, M. (2013). Leveraging Supply Chain Visibility for Responsiveness: The Moderating Role of Internal Integration. *Journal of Operations Management*, 31(7–8), 543–554. https://doi.org/10.1016/j.jom.2013.09.003

Wood-Based and Furniture. (2021). MIDA. https://www.mida.gov.my/industries/manufacturing/wood-based-and-furniture/

Wu, K. J., Tseng, M. L., Chiu, A. S. F. & Lim, M. K. (2017). Achieving competitive advantage through supply chain agility under uncertainty: A novel multi-criteria decision-making structure. *International Journal of Production Economics*, 190, 96–107. https://doi.org/10.1016/j.ijpe.2016.08.027

Yu, W., Chavez, R., Jacobs, M. A. & Feng, M. (2018). Data-driven supply chain capabilities and performance: A resource-based view. *Transportation Research Part E: Logistics and Transportation Review*, 114, 371–385. https://doi.org/10.1016/j.tre.2017.04.002

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Nexus between Government Assistance and Savings: Preliminary Analysis of Households in Malaysia

Nurul Syifaa Mohd Shakil[1*], Nur Azirah Zahida Mohamad Azhar[1], Norashida Othman[1], Ahmad Zuhairi Zainuddin[2], Lucky Rachmawati[3], Tony Seno Aji[3], Hendry Cahyono[3]
[1]Department of Economics and Financial Studies, Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam Campus, Selangor, Malaysia
[2]Department of Entrepreneurship and Marketing Studies, Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam Campus, Selangor, Malaysia
[3]Economics Study Program, Faculty of Economics and Business, Universitas Negeri Surabaya, Indonesia
*nurulsyifaa@uitm.edu.my

Abstract: This preliminary study investigates the relationship between government assistance and household savings. This study sought to understand the impact of government support on individuals' ability to save money. The study aimed to shed light on whether government assistance programs directly influence households' savings habits. Data were collected from 25 representative sample households, which include their income, expenses, savings, and participation in government assistance programs. The study also examined how much money households could save regularly. The study suggested a significant correlation, between government assistance and household savings. Families that received some form of government support demonstrated a lower propensity to save than those who did not receive assistance. This trend was consistent across different income brackets and demographic groups. The researchers proposed several potential reasons for this relationship. There can be several reasons for this negative relationship. First, increased government assistance may alleviate financial strain and provide immediate relief for individuals or households, reducing the urgency or perceived need to save for future expenses or emergencies. Second, some government assistance programs may have income limits or asset tests that discourage or restrict saving behavior. It is important to note that this study was preliminary, and further research is necessary to establish a more robust understanding of the relationship between government assistance and household savings. Future studies could delve into the long-term effects of government support on savings behavior and investigate the specific mechanisms through which assistance programs influence savings habits. The preliminary findings suggest a negative association between government assistance and household savings. It emphasizes the importance of further exploring this relationship to understand household financial well-being comprehensively.

Keywords: *Households Savings; Financial Assistance; Government; Malaysia.*

1. Introduction and Background

The term "government assistance," which also encompasses "social welfare" and "public assistance," refers to a wide range of government-run initiatives aimed at assisting low-income individuals and families. The term "assistance programs" can refer to both monetary (such as cash payments or subsidies for essential goods and services) and non-monetary (such as food, medical, and housing support) forms of support (Aubry, et al., 2020).

Aid from the government is meant to help those who, for economic, social, or health reasons, are unable to provide for themselves and their families (Sano, et al. 2021). Depending on the nature of the program and the requirements of the individual or family receiving aid, this support may be either short-term or long-term.

The Malaysian government assists in a variety of areas, including healthcare, education, finance, housing, and social welfare. Government assistance includes the operation of public healthcare facilities, such as hospitals and clinics, which provide citizens with affordable medical care. In addition, it provides subsidies and financial assistance to those in need of costly treatments. The government provides free primary and secondary education to all citizens, including those who are not Malaysian residents. It also provides financial aid and scholarships for postsecondary education, particularly for students from low-income families.

In addition, the government offers several financial assistance programs, including the Bantuan Prihatin Rakyat (BPR) cash aid for low-income households, the Kumpulan Wang Amanah Pelajar (KWAP) education

loan for university students, and the 1Malaysia People's Aid (BR1M) program for individuals in need. The government provides low-income families with affordable housing through programs such as the People's Housing Programme (PPR) and the Rumah Mesra Rakyat (RMR) scheme. In addition, the government has several programs that provide social assistance to vulnerable groups, such as the elderly, orphans, and the disabled. The Bantuan Khas Sarawakku Sayang (BKSS) cash assistance program, the e-Kasih social welfare system, and the Permata Kurnia program for the disabled are examples of these programs.

Even though the Malaysian government's financial aid programs can help those in need, they are not without drawbacks. Some people or families may come to rely on financial aid from the government rather than making efforts to become self-sufficient, which is one of the problems with welfare programs. Because of this, some people or places may receive more money from these programs than others. As a result, people may feel wronged, and economic and social disparities may widen. Providing financial aid can be costly for the government in terms of both time and money. In the long run, if the number of people in need increases, the government may have to spend a lot of money on these programs. This can cause budget deficits and economic difficulties. Some people may attempt to take advantage of financial aid programs by filing false claims or otherwise engaging in fraudulent activity to receive funds. Some people may feel uneasy about asking the government for help with their finances because of the stigma associated with receiving aid. Unfortunately, this can make it difficult for some people to get the help they require. This paper aims to identify the dependency culture of households towards government financial assistance.

2. Literature Review

Government Assistance and Financial Outcome: It is undeniable that receiving government assistance can assist low-income families in reducing unpaid medical bills, improving credit scores, increasing available credit, and reducing excessive credit spending (Brevoort et al., 2017; Miller et al., 2018). Medicaid improved financial well-being by lowering medical bills, according to Brevoort et al. (2017) and Miller et al. (2018). Aside from Medicaid, government assistance can help reduce the negative effects of unexpected financial events (e.g., income drop, loss of job, sickness of family members, etc.). Receiving government assistance, on the other hand, can lead to misunderstandings and frustration when individuals attempt to manage their finances (Marlowe et al., 1996; Lee et al., 2023). For example, while government assistance can help with groceries or utility bills, it does not provide additional financial resources. Individuals who have little control over their financial situation may become discouraged and lack the motivation to properly manage their finances (Brüggen et al., 2017).

Many government assistance programs have income and asset requirements. Because of these constraints, families and individuals are unable to save money or increase assets without risking losing government benefits, and positive financial behaviors such as saving are hampered (O'Brien, 2008; Pirog et al., 2017). Those receiving government assistance may lack access to the necessary financial education and management skills to improve their financial well-being. Previous research has found that failing to meet one's own financial expectations reduces one's financial satisfaction (Brüggen et al., 2017; Burcher et al., 2018).

Financial Behaviour, Financial Experience and Financial Satisfaction: The relationship between financial behaviors and financial satisfaction is an important area of research in the field of personal finance. Financial satisfaction (also known as financial well-being or financial health) is defined as being satisfied with one's current financial situation and level of debt, or having financial security and financial freedom of choice (Aboagye & Jung, 2018; Brüggen et al., 2017; Garcia-Mata & Zeron-Felix, 2022; Greenberg & Hershfield, 2019; Joo & Grable, 2004). Financial satisfaction is determined by an individual's perception of their financial situation, taking into account their financial diversity in terms of income, assets, debt management, financial security, and other factors (Greenberg & Hershfield, 2019). Healthy financial behaviors are frequently used to achieve financial satisfaction. Having an emergency fund, a retirement fund, monitoring one's credit, and debt management are all examples of healthy financial behaviors. Unhealthy financial behaviors, on the other hand, such as spending more than one earns, having overdrawn bank accounts, carrying a credit card balance, or making late payments, have been shown to reduce individuals' financial well-being and satisfaction (Xiao et al., 2014).

Previous research has found a strong link between financial knowledge and financial behavior (Coskuner, 2016; Perry & Morris, 2005; Robb & Woodyard, 2011; Xiao et al., 2014). Previous research has found strong links between financial knowledge and both short- and long-term financial behaviors (Delgadillo & Lee, 2021; Henager & Cude, 2016). Previous research has also distinguished between the impact of subjective and objective financial knowledge on financial behaviors. Confidence is a common definition of subjective financial knowledge (Atlas et al., 2019). The combination of financial competence, mathematical ability, and understanding of financial matters is defined as objective financial knowledge (Lind et al., 2020). Both subjective and objective financial knowledge can influence financial behavior and are strong predictors of financial well-being and satisfaction (Lind et al., 2020).

Previous research has looked at the link between financial behaviors, financial satisfaction, and other moderating factors. Individuals' financial behaviors and overall financial well-being are influenced by financial education, whether taught at home or in a formal classroom, personal financial expectations, and standard of living (Brüggen et al., 2017; Burcher et al., 2018). Overspending and having student loans or mortgage debt have been shown to reduce financial satisfaction (Aboagye & Jung, 2018).

Negative financial experiences are another factor that can influence financial satisfaction. An adverse financial experience is defined as a current event or situation over which one has no control, such as a loss of income, inability to pay bills, or having too much debt (O'Neill et al., 2006; Stumm et al., 2013). In contrast to financial behaviors, the individual has no control over the situation and must instead attempt to adjust financially during or after the adverse experience. Previous research has discovered that unexpected financial experiences had a significant impact on financial satisfaction both during and after the 2007-2009 recession (Hunter & Heath, 2017; Kim et al., 2017; Shin & Kim, 2018). Individuals' financial behaviors were found to be associated with adverse financial experiences by Stumm et al. (2013), whereas Bisgaier and Rhodes (2011) linked adverse financial experiences to individuals' financial satisfaction. Based on previous research, financial behaviors and financial experiences should be investigated concurrently to better understand individuals' financial satisfaction.

Role of Government Assistance: Individuals and families who are struggling financially or who are unable to meet their fundamental requirements can benefit from the support that is made available through financial assistance programs run by the government. The purpose of various assistance programs run by the government is to act as a safety net for disadvantaged groups of people and to encourage greater economic and social equality within the community (Friedline et al., 2021)

Through the provision of support to individuals and families with lower incomes, financial assistance programs run by the government can contribute to the alleviation of poverty. This assistance may be used to help cover essential costs, such as those associated with housing, food, and medical care. Individuals and households that are struggling financially as a result of unemployment, disability, or any number of other factors are eligible to receive assistance from the government in the form of financial assistance programs (Sheikh Dawood & Khoo, 2016). This safety net has the potential to assist in preventing individuals and families from sinking into a deeper level of poverty or from becoming homeless. By providing support to individuals and households who may face systemic barriers to employment, education, or healthcare, government financial assistance programs can help promote greater social and economic equality within society. This can be accomplished through the provision of assistance. The provision of financial support by the government to individuals and households, which may then spend the money on goods and services, thereby creating demand and providing support to businesses, is one method that can help stimulate the economy and contribute to the growth of the economy. During times of economic instability, such as recessions or natural disasters, individuals and households can find stability through the use of government financial assistance programs.

Relationship between Government Assistance and Household Savings: The relationship between government assistance and household savings is complex and context-dependent, as evidenced by mixed findings from studies. While some research suggests positive effects, such as enhancing financial security and promoting overall savings activities, other studies find negative associations or disincentives to save. For instance, a study by Kim and Wilmarth (2016) using the 2010 and 2013 Survey of Consumer Finances

indicates a positive link between government assistance and meeting debt-to-income ratio guidelines, highlighting the role of assistance in improving the financial security of low-income households. Furthermore, government subsidization has been shown to heavily influence participation in savings activities, extending beyond eligible households and contributing to overall savings behavior (Borsch-Supan, 1991). Similarly, government payments designed to reduce income variability have been found to account for a significant share of wealth accumulation for farm households (Mishra, et al., 2012).

However, it is important to consider potential disincentives to save associated with government grants. Some studies suggest that grants may sustain consumption levels while discouraging savings during working years (Ting & Kollamparambil, 2015). Additionally, higher government expenditure has been linked to lower domestic savings in certain contexts, such as South Africa (Odhiambo, 2007). These findings imply that the relationship between government assistance and household savings is influenced by various factors and can vary across different socioeconomic environments.

It is also worth noting that the impact of government assistance on household savings is influenced by other factors, including income shocks and wealth disparities. Changes in savings behavior have been observed to be negatively related to income shocks, particularly affecting low-wealth households (Stillmen, 2021). Furthermore, the usage of savings products, loans, and insurance by households is influenced by factors such as risk assessment and past exposure to shocks (Steiner, et al., 2009). These additional factors highlight the multifaceted nature of the relationship between government assistance and household savings.

Overall, the relationship between government assistance and household savings is intricate and influenced by a range of factors. It is important to consider these factors and the specific context when analyzing the effects of government assistance on savings behavior, as the outcomes can vary and have important implications for financial well-being and policy considerations.

3. Research Methodology

This study is conducted on households in Malaysia. The questionnaire is developed to capture the income, asset ownership as well and savings of the households and the government assistance received by them. The questionnaire is distributed online via Microsoft Forms. The questionnaire is divided into three sections. The first section gathered information on the household's socio-demographic profile. The second section is on the household's income, savings and expenditure while in the third section, the household's information on their basic amenities is being collected. The study focuses on a sample of households in Malaysia. A total of 365 samples will be collected for this study.

A pilot study of 25 households is conducted to determine whether the questionnaire is suitable to use. The pilot study is conducted among students and staff of UiTM Puncak Alam. The Cronbach Alpha analysis confirmed the validity of the questionnaire. The Cronbach Alpha is at 0.60, which shows that the questionnaire is valid.

Correlation Model: Correlation is a statistical measure that shows the degree of linear relationship between two variables. It indicates how well the changes in one variable can be predicted by changes in another variable. The correlation coefficient, denoted by "r," ranges between -1 and 1.

- If "r" is close to +1, it indicates a strong positive correlation, meaning that as one variable increases, the other tends to increase as well.
- If "r" is close to -1, it indicates a strong negative correlation, meaning that as one variable increases, the other tends to decrease.
- If "r" is close to 0, it indicates a weak or no linear relationship between the two variables.

The correlation coefficient can be calculated using the following equation:

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

Where:

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

The numerator of the equation calculates the sum of the product of the differences between each data point and its respective mean for both variables. The denominator calculates the product of the square roots of the sum of the squared differences from the means for each variable.

4. Results

Table 1: Demographic Profile

	Federal Government Assistance (%)		
	No Assistance	**With Assistance**	**Total**
Cash savings			
No savings	12	4	16
Have Savings	68	16	84
Total	80	20	100
Gold Savings			
No savings	36	12	48
Have Savings	44	8	52
Total	80	20	100
Investment Savings			
No savings	24	0	24
Have Savings	56	20	76
Total	80	20	100

The table presents the percentage of federal government assistance received based on different types of savings in terms of cash, gold, and investment.

When examining Cash Savings, it becomes apparent that 16% of individuals are without any savings, rendering them ineligible for government assistance. On the other hand, a significant majority of 84% have managed to accumulate savings. Within this group, 16% are fortunate enough to receive government assistance, highlighting the valuable support provided to a portion of savers.

Turning our attention to Gold Savings, nearly half of the participants (48%) do not possess any gold savings, resulting in their exclusion from government assistance programs. However, the remaining 52% have invested in gold; among them, 8% receive government assistance, underscoring the select group that benefits from such support.

Shifting our focus to Investment Savings, it is worth noting that 24% of individuals have not embarked on any investment endeavors and thus do not qualify for government assistance in this area. Nonetheless, the remaining 76% have taken strides to build investment savings, and out of this cohort, a notable 20% receive government assistance, highlighting the aid extended to a significant proportion of investors.

Considering all three types of savings, it is evident that 20% of individuals across the board receive government assistance. This assistance serves as a crucial lifeline for those in need. Conversely, the remaining 80% navigate their financial journeys without government support, reflecting a diverse range of financial circumstances and self-sufficiency within the study group.

Table 2: Correlation between Federal Assistance and Savings

	Federal Assistance
Federal Assistance	1
Cash Savings	-0.0546
Gold Savings	-0.1201
Investment Savings	0.281

A negative relationship between government assistance and savings indicates that as government assistance increases, households tend to save less or have lower levels of savings. In simpler terms, there is an inverse correlation between the two variables. When individuals or households receive more government assistance, they may become more reliant on that support to meet their financial needs, leading to a reduced capacity or motivation to save money.

There are several reasons for this negative relationship. Firstly, increased government assistance can alleviate financial strain and provide immediate relief for individuals or households, reducing the urgency or perceived need to save for future expenses or emergencies. Secondly, certain government assistance programs may have income limits or asset tests that discourage or restrict saving behavior. For example, eligibility for certain welfare programs may decrease or cease altogether if a household's savings exceed a certain threshold.

However, it is important to note that a negative relationship between government assistance and savings does not necessarily imply causation. Other factors, such as individual financial behaviors, economic conditions, or the design of specific assistance programs, may also contribute to this relationship. Additionally, the negative relationship observed in one study or context may not hold universally and can vary depending on various factors, including the specific type and duration of government assistance being provided.

Further research is necessary to gain a better understanding of the complexities and underlying reasons behind the negative relationship between government assistance and savings. This would involve considering different types of assistance programs, examining the socioeconomic characteristics of the households involved, and exploring the long-term effects of government support on saving behaviors.

Government assistance programs are essential for meeting basic needs, poverty alleviation, economic stability, social equity, temporary or emergency support, long-term benefits, and inadequate income. These programs provide support for essentials such as food, housing, healthcare, and education, particularly for those who are economically disadvantaged or facing temporary financial hardships. They also help to reduce the income gap, improve living standards, and provide a safety net for individuals and families who are at risk of falling into poverty or experiencing extreme financial distress. However, the negative relationship between government assistance and savings may be influenced by various factors, such as program design, income thresholds, and economic conditions. Therefore, the provision of government assistance is still essential to ensure the well-being of individuals and households who rely on it for their basic needs and to support broader social welfare objectives.

5. Conclusion

In conclusion, the inverse correlation between financial aid and savings in Malaysia indicates that those who receive financial assistance tend to save less or have lower levels of savings. This discovery suggests that the mere provision of financial assistance may not result in increased savings behavior among recipients.

Several factors could account for this negative relationship. Firstly, financial assistance programs in Malaysia may prioritize immediate consumption needs and offer relief for individuals or households facing financial difficulties, leaving fewer resources available for saving. Additionally, program design features, such as income thresholds or asset limits, may discourage or limit saving behavior among recipients.

It should be noted that this conclusion is specific to the context of Malaysia and may not hold universally. The Malaysian socio-economic landscape, cultural norms, and specific characteristics of financial assistance programs in the country could contribute to the observed negative relationship.

To gain a deeper understanding of the implications of the negative relationship between financial assistance and savings in Malaysia, it is essential to consider additional factors, such as the influence of cultural attitudes towards saving, access to financial education, and the effectiveness of existing financial assistance programs. Moreover, exploring potential policy interventions or program modifications that promote saving behavior among recipients could be beneficial in addressing the observed negative relationship and enhancing long-term financial well-being.

Acknowledgment: This study is funded by Visibility Grant Recipients 2022, Internal Grant, Faculty of Business and Management Universiti Teknologi MARA: 600-TNCPI 5/3/DDF (FPP) (010/2022).

References

Aboagye, J. & Jung, J. Y. (2018). Debt holding, financial behavior and financial satisfaction. *Journal of Financial Counselling and Planning*, 29(2), 208–217. https://doi.org/10.1891/1052-3073.29.2.208.

Atlas, S. A., Lu, J., Micu, P. D. & Porto, N. (2019). Financial knowledge, confidence, credit use, and financial satisfaction. *Journal of Financial Counselling and Planning*, 30(2), 175–190.

Aubry, T., Blosh, G., Brcic, V., Saad, A., Magwood, O. & Pottie, K. (2020). Effectiveness of permanent supportive housing and income assistance interventions for homeless individuals in high-income countries: a systematic review. *The Lancet,* 6(5), 342-360.

Brevoort, K., Grodzicki, D. & Hackmann, M. (2017). Medicaid and financial health. National Bureau of Economic Research.http://www.nber.org/papers/w24002

Brüggen, E., Hogreve, J., Holmlund, M., Kabadayi, S. & Löfgrene, M. (2017). Financial well-being: a conceptualization and research agenda. *Journal of Business Research*, 79, 228–237.

Bisgaier, J. & Rhodes, K. V. (2011). Cumulative adverse financial circumstances: Associations with patient health status and behaviors. *Health & Social Work*, 36(2), 129–137.

Burcher, S., Serido, J., Danes, S., Rudi, J. & Shim, S. (2018). Using the expectancy-value theory to understand emerging adult's financial behavior and financial well-being. *Society for the Study of Emerging Adulthood*, 9(1), 1–10. https://doi.org/10.1177/2167696818815387.

Coskuner, S. (2016). Understanding factors affecting financial satisfaction: the influence of financial behavior, financial knowledge, and demographics. *Imperial Journal of Interdisciplinary Research*, 2(5), 377–385.

Delgadillo, L. M. & Lee, Y. G. (2021).Association between financial education affective and cognitive financial knowledge, and financial behavior. *Family and Consumer Sciences Research Journal*, 50(1), 59–75.

Friedline, T., Chen, Z. & Morrow, S. P. (2021). Families' Financial Stress & Well-Being: The Importance of the Economy and Economic Environments. *Journal of Family Economics Issue,* 42(1), 34-51.

Greenberg, A. E. & Hershfield, H. E. (2019). Financial decision making. *Consumer Psychology Review*, 2(1), 17–29.

Henager, R. & Cude, B. J. (2016). Financial literacy and long-and short-term financial behavior in different age groups. *Journal of Financial Counselling and Planning*, 27(1), 3–19.

Hunter, J. & Heath, C. (2017). The relationship between credit card use behavior and household well-being during the great recession: implications for the ethics of credit use. *Journal of Financial Counselling and Planning*, 28(2), 213–224. https://doi.org/10.1891/1052-3073.28.2.213.

Joo, S. & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues*, 25, 25–50.

Kim, K. & Wilmarth, M. (2016). Government Subsidies and Household Debt Burden after the Great Recession. Journal of Family and Economic Issues. https://doi.org/10.1007/S10834-016-9492-5.

Lee, Y. G., Hales, E. & Kelly, H. H. (2023). Financial Behaviours, Government Assistance and Financial Satisfaction. *Social Indicators Research,* 166, 85-103.

Lind, T., Ahmed, A., Skagerlund, K., Strömbäck, C., Västfjäll, D. & Tinghög, G. (2020). Competence, confidence, and gender: the role of objective and subjective financial knowledge in household finance. *Journal of Family and Economic Issues*, 41(4), 626–638.

Marlowe, J., Godwin, D. & Maddux, E. (1996). Barriers to effective financial management among welfare recipients. *Advancing the Consumer Interest*, 8(2), 9–13.

Miller, S., Hu, L., Kaestner, R., Mazumder, B. & Wong, A. (2018). The ACA Medicaid expansion in Michigan and financial health. National Bureau of Economic Researchhttp://www.nber.org/papers/w25053

Mishra, A., Uematsu, H. & Powell, R. (2012). Precautionary Wealth and Income Uncertainty: A Household-Level Analysis. Journal of Applied Economics. https://doi.org/10.1016/S1514-0326(12)60015-4.

O'Brien, R. (2008). Ineligible to save? Asset limits and the saving behavior of welfare recipients. *Journal of Community Practice*, 16(2), 183–199.

O'Neill, B., Prawitz, A., Sorhaindo, B., Kim, J. & Garman, E. (2006). Changes in health, negative financial events, and financial distress/financial well-being for debt management program clients. *Journal of Financial Counselling and Planning*, 17(2), 46–63.

Ozieblowski, B. (2018). Changes in Household Savings in 2005-2017. Zeszyty Naukowe Politechniki Częstochowskiej Zarządzanie. https://doi.org/10.17512/ZNPCZ.2018.4.27.

Odhiambo, N. (2007). The determinants of savings in South Africa: an empirical investigation. African Finance Journal.

Perry, V. G. & Morris, M. D. (2005). Who is in control? The role of self-perception, knowledge, and income in explaining consumer financial behavior. *Journal of Consumer Affairs*, 39(2), 299–313.

Pirog, M., Gerrish, E. & Bullinger, L. (2017). TANF and SNAP asset limits and the financial behavior of low-income households https://www.pewtrusts.org/~/media/Assets/2017/09/%20TANF_and_SNAP_Asset_ Limits_and_the_Financial_Behavior_of_Low_Income_Households.pdf

Garcia-Mata, O. & Zeron-Felix, M. (2022). A review of the theoretical foundations of financial well–being. *International Review of Economics,* 69,145–176. https://doi.org/10.1007/s12232-022-00389-1

Greenberg, A. E. & Hershfield, H. E. (2019). Financial decision making. *Consumer Psychology Review*, 2(1), 17–29.

Robb, C. & Woodyard, A. (2011). Financial knowledge and best practice behavior. *Journal of Financial Counselling and Planning*, 22(1), 60–70.

Sano, Y., Mammen, S. & Houghten, M. (2021). Well-Being and Stability among Low-income Families: A 10-Year Review of Research. *Journal of Family Economics Issues,* 42, 107-117.

Singh, I., Singh, J. & Baruah, A. (2020). Income and Employment Changes under COVID-19 Lockdown: A Study of Urban Punjab. Millennial Asia. https://doi.org/10.1177/0976399620957630.

Sheikh Dawood, S. R. & Khoo, S. L. (2016). Poverty eradication, government role and sustainable livelihood in rural Malaysia: An empirical study of community perception in northern Peninsular Malaysia. *Malaysia Journal of Society and Space,* 12(8), 61-70.

Shin, S. H. & Kim, K. T. (2018). Perceived income changes, savings, motives, and household savings. *Journal of Financial Counselling and Planning*, 29(2), 396–409. https://doi.org/10.1891/1052-3073.29.2.396.

Stillman, S. (2001). The Response of Consumption in Russian Households to Economic Shocks. Institutional & Transition Economics eJournal. https://doi.org/10.2139/ssrn.290925.

Steiner, S., Giesbert, L. & Bendig, M. (2009). Savings, Credit and Insurance: Household Demand for Formal Financial Services in Rural Ghana. Banking & Financial Institutions. https://doi.org/10.2139/ssrn.1341550.

Stumm, S., O'Creevy, M. & Furham, A. (2013). Financial capability, money attitudes, and socioeconomic status: risks for experiencing adverse financial events. *Personality and Individual Differences*, 54(3), 344–349. https://doi.org/10.1016/j.paid.2012.09.019.

Xiao, J. J., Chen, C. & Chen, F. (2014). Consumer financial capability and financial satisfaction. *Social Indicators Research,* 118(1), 415–432. https://doi-org/10.1007/s11205-013-0414-8

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Monetary Policy, Macroeconomic and Anomalies Interactions Post COVID in Developed and Eastern European Stock Markets

Zetty Zahureen Mohd Yusoff[1*], Nur Zahidah Bahrudin[1] & Ani Wilujeng Suryani[2]
[1]Faculty of Business and Management, Universiti Teknologi MARA (UiTM), Puncak Alam, Selangor, Malaysia
[2]Faculty of Economics and Business, Universitas Negeri Malang, Jawa Timur, Indonesia
*zetty@uitm.edu.my, zahidah1002@uitm.edu.my, ani.suryani@um.ac.id

Abstract: The purpose of this study is to examine the crucial factors amongst monetary policy and macroeconomic variables that spike the anomalies momentum on stock markets post-COVID-19 pandemic in selected Developed and Eastern European countries. This study uses panel data to measure the cross interactions of five stock exchanges based on unprecedented recovery in the European stock markets that yield astonishingly higher returns post-COVID-19, believed to be due to a perfect adoption of monetary policies (Exchange and Inflation Rates) and macroeconomic factor (Economic Growth) from January 2017 to December 2022. Findings suggest that the Exchange Rate and Economic Growth of the country are positively significant in influencing the Stock Market Performance in European stock markets. Additionally, the Inflation Rate surprisingly is negatively related to Stock Market Performance. Furthermore, local and foreign investors prefer to invest in a country that has a great adoption of monetary policies (stable Exchange Rate and lower Inflation Rates) as well as macroeconomic variables (resilient Economic Growth) for post COVID-19 economic landscape. For practical implications, the study suggests that the stock market performance, exchange rate, inflation rate, and economic growth of the country should be maintained and improved to attract fund inflows from local and foreign investments. To the best of the authors' knowledge, this study is the first that examines the anomalous market momentum effect post-COVID-19 pandemic focusing on aspects, monetary policy, and macroeconomic variables. The momentum effect investing strategies that provide abnormal returns in different stock markets truly existed.

Keywords: *Anomalies, Efficient Market Hypothesis, Momentum Effect, COVID-19, Monetary Policy, Macroeconomic, Stock Market Performances.*

1. Introduction and Background

Market Anomalies refer to the occurrences or trends in the financial markets that act differently from the financial theory of the Efficient Market Hypothesis (EMH) (Sharma & Kumar, 2020). Anomalies imply that there are chances for investors to take advantage of pricing inefficiencies and generate abnormal returns (Bouattour & Martinez, 2019). Simply, the EMH is the information-reflecting share price hypothesis which contends that markets are efficient and all available information is promptly reflected in asset prices. Hence, no retail or institutional investors can buy discounted shares or even sell shares for inflated prices because based on EMH theory, equities will always trade at their fair value on exchanges (Xu, 2023). A traditional finance theory considers rational investors might also find it difficult to outperform the market even through skilled stock selection or perfect market timing (Kamoune & Ibenrissoul, 2022). The only chance for an investor to earn an abnormal return is by investing in a riskier financial asset.

A study by Zhang and Zheng (2015) added that rational investors can gain benefits created by irrational ones when deciding to buy or sell shares in the security market, while other several empirical types of research and abnormal phenomena like the *Momentum Effect* (Kim & Lee, 2018; Safdar, 2020; Singh et al., 2022), *Winner-Loser Effect* (Loang & Ahmad, 2022; Supriya & Raj Singh, 2017), *Friedman-Savage Puzzle* (Friedman & Savage, 1948; Rabin & Thaler, 2001), and *Riddle of Bonus Effect* (Al-Jaifi, 2017) are among the well-known market anomalies. Moreover, even major economic agents such as households (individuals), firms, governments, and Central Banks are no longer to be assumed as rational investors because they are also normal human beings, which will be dealt with a mix of emotional responses, overconfidence, loss aversion, confirmatory and outcome bias, as well as hindsight bias that may cause the emergence of behavioral finance (Fieger, 2017).

One of the popular market anomalies is the Momentum Effect, but it goes against the EMH's contention that historical prices should not be utilized to forecast future prices. The presence of these momentum anomalies, however, indicates the persistence of the trends could signal the risk takers among the traders and investors to potentially gain abnormal profit from it (Cattlin, 2018). Shares that have experienced a positive return (outperform) in the past most likely will experience a positive return in the future, and shares that have experienced a negative return (underperform) in the past most likely will experience a negative return in the future. The changes in the share prices will be continuously repeated, and this phenomenon is known as the Anomalous Market Momentum Effect (Salur & Ekinci, 2023).

Several anomalous markets exist not only in the United States but also in Canada and some parts of the European countries such as Germany, France, and the United Kingdom according to Lu et al. (2017). The Coronavirus Disease 2019 (COVID-19 hereafter) was first discovered in Italy in mid-February 2020. As the article is written, there are about 38.4 million, 4.8 million, 3.41 million, 6.08 million, and 4.64 million COVID-19 confirmed cases were reported in Germany, Belgium, Denmark, Austria, and the Czech Republic, respectively. Despite strict lockdown procedures such as Movement Control Orders (MCOs) domestically, closing international borders, and any other precaution measures that have been taken around the globe to minimize the virus spread, total death tolls have accumulated to 6,951,677 as of July 26, 2023 (WHO, 2023).

The COVID-19 pandemic's emergency status has been prolonged for more than three years and after the 15th Meeting, the WHO's International Health Regulations Emergency Committee on May 5, 2023 "announced that COVID-19 is no longer a public health emergency of international concern" (Rice, 2023). The World Health Organization or WHO, which acts as a specialized agency of the United Nations (UN) has taken responsibility for international public health. Recently, Dr. Tedros Adhanom Ghebreyesus, the WHO Director-General has notified that during this endemic phase, many people are adjusting back to their normal lives, and the same goes with investing activities just before the COVID-19 attack. Now, the disease is no longer considered as a global health threat.

Figure 1: Stock Market Indices for Developed and Eastern Europe Economies



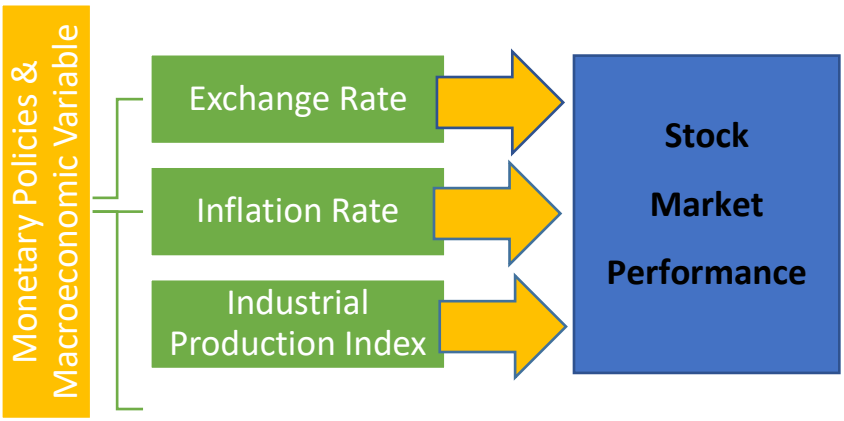
This study aims to bridge the gap between anomalous momentum effects and post-COVID-19 pandemic in the European financial market. What makes European financial markets resilient to the downside risk although it has been struck by devastating effects caused by the COVID-19 threat? This question remains unanswered. A long time ago, Jegadeesh and Titman (1993) claimed that "momentum investing strategies provide abnormal returns in different stock markets" existed. This statement leads to an ongoing debate on its existence in the search for an explanation for the profitability of momentum strategies post-COVID-19. As the literature has not come to a consensus, this study will analyze five (5) European stock markets with datasets comprising both *Developed Europe* (represented by Germany, Belgium, and Denmark) and *Eastern Europe* (represented by Austria and Czechia). In a nutshell, the study will look through the dynamics and trends of the stock market indices starting from January 2017 until December 2022, in which data covered before the outbreak of the pandemic (pre), the outbreak of the pandemic (during), and after the outbreak of the pandemic (post) COVID-19 phases. The study intends to emphasize that the unprecedented recovery in the European stock markets that yielded astonishingly higher returns post-COVID-19 has been due to a perfect adoption of monetary policies by the Government (such as Exchange Rate and Inflation Rate) and macroeconomic variables that represent a reasonable growth in the economy with Industrial Production Index (IPI) being taken as a yardstick.

The IPI is a proxy to measure Economic Growth in the country. It is hypothesized that any increase in growth rate will directly increase the stock index or performance (Hashmi & Chang, 2023). Meanwhile, the currency Exchange Rate is used to measure the currency rates between the two countries. It is hypothesized that with any increase in the real exchange rate of the domestic currency, foreign goods will be relatively cheaper, however, domestic goods will be relatively more expensive (Neifar & Gharbi, 2023). Finally, the CPI is a proxy to measure the Inflation Rate in the country. It refers to the overall increase in prices and the cost of living that will also cause a loss of purchasing power. This can be hypothesized that any increases in the inflation rate will directly decrease the stock index or performance (Chiang, 2023). In summary, IPI and Exchange Rate have a positive influence on Stock Market Performance while CPI has a negative influence on Stock Market Performance.

The association between Exchange Rate, Inflation Rate, and Economic Growth with a Stock Return (performance) has created significant academic discussion in both theoretical and empirical literature. Nevertheless, the literature is still inconclusive about the true association between those variables when it relates to the momentum effect post-COVID-19. Investors believe that Monetary Policy and Macroeconomic variables have a great influence on economic events and cause volatility in stock prices. This implies that both Monetary Policies and Macroeconomic Variables may also influence investors' investment decisions, and this will motivate the researchers to investigate the relationships between Stock Market Performance, Monetary Policy, and Macroeconomic Variables.

Based on Figure 2, the researchers focused on currency Exchange Rate (*ER*), Inflation Rate (*CPI*), and Industrial Production Index (*IPI*), which represent monetary policies and macroeconomic factors that act as constructs in affecting Stock Market Performance (stock indices). This study has become crucial recently for academicians, practitioners, and policymakers.

Figure 2: Conceptual Framework for Stock Market Performance



2. Literature Review

Market efficiency is a standard finance theory that has become a model of market behavior and has been accepted by many academicians since the 1970s (Dhankar & Maheshwari, 2016). Market efficiency will be achieved when security prices reflect relevant information (Patil & Rastogi, 2019). The faster new information is reflected in security prices, the more efficient the market will be (Woo et al., 2020). Thus, it will be difficult for investors to obtain abnormal returns through stock trading transactions (Lu et al., 2021). Several situations must be met to achieve market efficiency (Ying et al., 2019), such as many investors trying to maximize profits, and all market participants can obtain information at the same time in an easy way. The information provided is random, investors react quickly to new information so that security prices will change according to actual conditions. By having well-informed investors in the securities market, investments will be appropriately priced when all available information is reflected in the share price (Fama, 1991). Market inefficiency, on the other hand, is a theory used to explain a momentum effect. Arguably, all

available information is not promptly reflected in share prices, hence it opens wide doors to the market participants for effective trading based on historical share prices.

Investor behavior is a tool that can explain the Momentum Effect (Singh et al., 2022). Theoretically, investors often do not react to newly available information and this scenario prevents the share prices from fluctuating very rapidly (Haddad et al., 2021). Consequently, shares with good news will attract more investors' interest and will cause a further price increase. A self-reinforcing cycle will take place in which a strong momentum will attract more investors and rise in share price, on the other hand, a weak momentum will increase the selling pressure and decline in share price (Sawitri & Astuty, 2018).

The first factor, the currency Exchange Rate (*ER*) may have an impact on market anomalies (Sharma et al., 2019). For instance, a positive market momentum will attract foreign investors to invest in a domestic share market and thus demand for the local currency will increase (Tian et al., 2021). However, a negative market momentum will cause foreign investors to lose their confidence in a domestic share market and hence demand for the local currency will drop (Moradi et al., 2021). A decrease in demand for local currency may cause the exchange rate to decline against other currencies (Dahlquist & Hasseltoft, 2020).

Generally, the International Fisher Effect (IFE) theory posits a relationship between nominal interest rates, inflation rates, and exchange rates (Sumner, 2022). This economic theory was developed by Irving Fisher, a U.S. economist who states that the difference between the nominal interest rates in two countries is directly proportional to the changes in the exchange rate of their currencies at any given time (Şen et al., 2020). It can be hypothesized that the variations in exchange rates might impact investment returns (CFI Team, 2022). For instance, if two countries have nominal interest rates that are different from one another, investors will choose to invest in the nation with the higher rate of interest (since it is proportionate to a higher ER) to maximize their gains. Thus, when it comes to stock returns, fluctuations in exchange rates may influence how much investors who own stocks with different currency values can make. When an investor holds stocks denominated in a different currency, any fluctuations in the ER between that currency and their home currency will impact the overall return on investment (Gavriilidis & Kgari, 2016). Development of hypotheses will be based on the main research objective which is to determine the relationship between monetary policy and macroeconomic variables (i.e., ER, CPI, and IPI) and stock market indices (based on individual country) and the following individual hypothesis is formed.
H_1: *ER* has a positive influence on stock market index during anomalous market momentum post-COVID-19.

The second factor, Inflation Rate (*CPI*) may also have an impact on market anomalies. For instance, a positive asset momentum will reflect a robust economic performance as well as an investor's confidence (Malyshenko et al., 2019). During inflation with CPI as a proxy, prices of goods and services often increase due to an increase in consumer spending, while the financial institution will directly increase the domestic interest rate (high cost to the investors) (Olusola et al., 2022). The investors' wealth depends on the success of the stock market, but inflation develops investor's herding behavior such as a lack of confidence in the domestic stock market (Rasool & Ullah, 2020). Consequently, a high inflation scenario may result in lower corporate earnings, which may hurt stock return, hence stock performance (Lintner, 1975; Nelson, 1975). Negative asset momentum will reflect a sign of uncertainty or an economic downturn (Chiang, 2022). According to Ceyda Oner, a Deputy Division Chief in the IMF's Finance Department, during deflation, the prices of goods and services often reduce due to lower demand, in this negative trend will cause the CPI to decline (IMF, 2023).

Based on new Keynesian Factors, incorporating the two factors such as shocks to inflation targets and the external finance premium into asset pricing models will able to explain the size, value, and momentum premiums observed in the cross-sectional variability in stock returns (Cho, 2013). Traditional Keynesian Theory posits a negative relationship between inflation and stock market performance (Ogujiuba & Cornelissen, 2020). Feldstein (1980) supports this theory and claims that the tax system diminishes stock gains while boosting inflation. This is because a rise in the inflation rate will harm investment in the stock market (Huy et al., 2021). Simply put, monetary policy shocks can affect stock returns through the inflation and interest rate channels (Klein & Linnemann, 2023). For instance, during inflation banks will increase borrowing costs, hence it can reduce the quantity of funds demanded for investment, lack of current

consumption, and finally, it leads to a decrease of economic activity (Asimakopulos, 2020). As a conclusion, the changes in interest rates due to inflation can create an adverse effect on real share price and hence its performance.

H_2: *CPI* has a negative influence on stock market index during anomalous market momentum post-COVID-19.

The third factor, steady Economic Growth (*IPI*) may also influence market anomalies (Dodig, 2020). For instance, a positive market momentum will reflect a favorable business environment and corporate confidence (Dai et al., 2022). During the economic boom, the business grew steadily with the increase in demand for its manufacturing operations (Singh et al., 2020). Therefore, the level of economic growth with industrial production index, IPI as a proxy will rise because of the market uptrend (Shahzad et al., 2021). In contrast, a negative market momentum or slowdown in economic growth will reflect a sign of economic instability (Ali & Joshi, 2022). During economic instability, businesses may be forced to reduce their output levels in response to a lower demand. Consequently, this negative momentum will cause the IPI to decline too (Jan et al., 2022).

According to Keynesian theory, positive economic growth and stock gains are interrelated (Amitrano & Vasconcelos, 2019). This theory affirms that economic regulation by the government can assist in maintaining financial stability, prevent severe downturns, lessen the impact of economic shocks, and foster financial market stability (Parui, 2022). During a bad economy, the theory accentuates by increasing government expenditure, executing monetary easing, and enacting a fiscal stimulus initiative to foster economic expansion. These will have a beneficial effect on stock returns and performance (Liang & Silber, 2020). When businesses can make more money, it will indirectly raise stock prices and profits for investors. Maintaining this overall consistency may help boost stock returns (Commendatore et al., 2003).

H_3: *IPI* has a positive influence on stock market index during anomalous market momentum post-COVID-19.

3. Research Methodology

This article forms part of a major study regarding the influence of Monetary Policy and Macroeconomic Variables on the performance of the European stock markets post-COVID-19. Five regions from Developed and Eastern Europe namely Germany, Belgium, Denmark, Austria, and Czechia (Czech Republic) constituted the study. *German* stock index is the DAX (Deutscher Aktienindex) consisting of the 40 major German blue-chip companies trading on the Frankfurt Stock Exchange. *Belgium* stock index, the BEL20 is the benchmark stock market index of Euronext Brussels that tracks the performance of the 20 most capitalized and liquid stocks traded in the Belgium Stock Exchange. *Denmark* stock index, the OMX Copenhagen Index is a market value-weighted index that consists of 20 most-traded stocks in the Copenhagen Stock Exchange. *Austria* stock index, the ATX (Austria Traded Index) is the main stock index of the country that is made up of 20 of the largest listed companies on the Vienna Stock Exchange. The *Czechia* stock index, the PX, is the official index that is made up of the most liquid blue chips of the Prague Stock Exchange.

This study attempts to examine the relationship between ER, CPI, IPI, and Stock Market Indices in Developed and Eastern European economies. The data utilized in this study were sampled monthly over the period from January 2017 to December 2022. The sample size of the study consisted of stock market indices monthly from two years before the outbreak of the pandemic (23 months: January 2017 until November 2019), the outbreak of the pandemic (29 months: December 2019 until May 2022), and after the outbreak of the pandemic (7 months: June 2022 to December 2022). Stock Market Indices were sourced from Germany, Belgium, Denmark, Austria, and Czechia Stock Exchange online publications while ER, CPI and IPI that are hypothesized to influence stock indices (return and performance) were obtained from the FRED of Federal Reserve. For the Regression Model, the dependent variable was the stock index and independent variables such as ER, CPI, and IPI, were used the model has been constructed as follows, $Y = \alpha + \beta X1 + \beta X2 + \beta X3 + \varepsilon t$

Where Y is considered as the Stock Market Index, X1 denoted ER, X2 denoted CPI, and X3 denoted IPI. It is considered as $\alpha = 0.05$ which indicates the P value is between 0.01 to 0.05. There 95% confidence level was expected.

4. Results and Discussion

In this section, the Descriptive Analysis, Multicollinearity Procedure, and Static Panel Data results are presented. The results of the Descriptive Statistics of the variables utilized in this model are displayed in Table 1. The mean of the Stock Index (SI) indicates 116.22 with a median of 110.25. Meanwhile, the maximum amount of stock market performance is 199.64 and the lowest amount is 68.48. On the other hand, the mean and median for Exchange Rate (ER) are USD99.87 and USD99.55, respectively. The maximum ER for five selected European countries is USD117.30 with the minimum amount of USD90.91. Another variable, which is CPI represents the Inflation Rate and shows that the mean and median amounts are 108.76 and 106.61, respectively. Meanwhile, the maximum and minimum amount of CPI is 138.50 and 100.30. The final variable is IPI with a mean of 100.97 and median of 110.64. In addition, the maximum and minimum IPI is 150.10 and 71.10, respectively. The total number of observations for this Panel Data is 360 months.

Table 1: Descriptive Statistics

VARIABLE NAMES	SI	ER	CPI	IPI
Mean	116.2203	99.879	108.765	110.9763
Median	110.2545	99.550	106.6089	110.6408
Maximum	199.6418	117.300	138.5000	150.100
Minimum	68.47787	90.910	100.3000	71.105
Skewness	1.153391	2.742193	1.8721	0.085694
Kurtosis	4.327382	14.45808	6.9171	4.4157
Observations	360	360	360	360

Notes: SI, a monthly index response is a hypothetical portfolio representing a segment of the financial market (Stock Market Index); ER (Exchange Rate) over USD, is the rate at which one currency will be exchanged for another currency based on one US dollar; CPI is the most well-known indicator of Inflation that measures the percentage change in the price of a basket of goods and services consumed by households; IPI is a statistical instrument used to monitor the monthly trends in country's industrial activity.

Table 2 below presents the Variance Inflation Factors (VIF) results, which show that all independent variables have scored less than 10. This indicates that there is no multicollinearity problem exists among the independent variables.

Table 2: Result of Multicollinearity Procedure using VIF

Variable Names	Centered VIF
ER	1.67
CPI	1.93
IPI	1.22
Mean VIF	**1.61**

Table 3: Static Panel Data Results

Dependent Variable: Stock Index (SI)	
Independent Variables:	
Exchange Rate (**ER**)	0.903259*
Inflation Rate (**CPI**)	-0.495333*
Economic Growth (**IPI**)	0.912474***
R-squared (R^2)	0.109355
F-statistic (F-stat)	14.57018***
Observations (Obs)	360

Note: The signs ***, **, and * indicate the result is statistically significant at the 1%, 5% and 10% levels, respectively.

Based on the Static Panel results presented in Table 3, ER (Currency Exchange Rate), CPI (Consumer Price Index), and IPI (Industrial Production Index) demonstrate a significant relationship with Stock Market Performance. Specifically, the currency Exchange Rate (ER) has a *positive* and significant impact in explaining

the Stock Market Performance at a 10% significant level. It indicates that when the currency is in a stable condition, it can have positive implications for the stock market. The reason is that a stable currency will increase the confidence level of domestic and foreign investors, businesses, and consumers. Therefore, it contributes to the more resilient performance of the stock market. In addition, after COVID-19 hit worldwide, foreign investors are likely focused on investing in countries with a stable currency Exchange Rate which could reduce currency depreciation and boost the demand for domestic stocks. This result is aligned with studies by Lakshmanasamy (2021), Tian et al. (2021), and Dahlquist and Hasseltoft (2020) in which the preference for domestic financial assets (stocks) will decline over those in foreign currencies denominations due to the depreciation of domestic currency that forces the funds to leave the country. It has been proven that local investors are encouraged to increase investments in domestic stocks when asset prices are on the uptrend, they believe this scenario will increase the demand for a domestic currency hence, boost the sale of stocks internationally (Suriani et al., 2015; Wong, 2022). Large demand for domestic currency is believed to invite more participation among international investors in the domestic stock market. Therefore, Hypothesis One (H_1) fails to be rejected, thus ER has a *positive influence on the Stock Market Index* during anomalous market momentum post-COVID-19.

Indeed, the second highlighted variable, the CPI (Inflation Rate) showing a *negative* and significant impact on stock market performance is an interesting finding. Specifically, the Inflation Rate (CPI) has a *negative* and significant impact in explaining the Stock Market Performance at a 10% significant level. Generally, when inflation hits certain countries, it erodes the lower level of purchasing power among consumers, where they can just get less good with the same amount of money from years ago. Therefore, it will lead to a lower spending pattern among consumers and will have an impact on the revenue as well as the performance of the company's stock price. However, a finding by Chiang (2023) based on data from 12 advanced countries (i.e., the US and 11 other global markets) indicated that real stock returns are negatively correlated with equity market volatility, which indirectly is positively correlated with inflation. Our results are consistent with Tripathy (2011), which finds a substantial correlation between inflation and the Indian stock market (BSE Sensex) using weekly data ranging from 2005 until 2011. More research reveals the adverse effects of inflation on stock market performance (Asimakopulos, 2020; Chiang, 2022; Huy et al., 2021; Ogujiuba & Cornelissen, 2020; Olusola et al., 2022; Rasool & Ullah, 2020), and in specific a study by Uwubanmwen and Eghosa (2015) in Nigerian stock exchange and by Qamri et al. (2015) in Karachi stock exchange. In addition, Lee and Brahmasrene (2018) found the short-term detrimental effect of inflation on the Korean stock exchange. Therefore, Hypothesis Two (H_2) of CPI has a *negative influence on the Stock Market Index* during anomalous market momentum post-COVID-19 fails to be rejected.

The third indicator that gives a positive and significant relationship with stock performance is Economic Growth, proxy by IPI. Specifically, Economic Growth has a *positive* and significant impact in explaining the Stock Market Performance at a 1% significant level. This positive impact explains that when the economies of countries are growing at a healthy rate, this condition can attract more investors and will directly strengthen the stock performance of the companies of those countries, especially in Developed and Eastern Europe. As economic growth is interconnected between countries, the momentum of the stock market performance of one country will be influenced by the economic growth of the other countries, which means international trade and investment flows can impact the companies' revenues and earnings, hence affecting stock market performance. Moreover, Endogenous Growth Theory states that a thriving stock market may encourage capital mobilization that will support long-term economic growth. According to Marques (2013), even a small economy in Portuguese compared to other European nations aspired to invest as shown by a causal and positive relationship between economic growth and stock market expansion. This has proven that stronger economic growth will contribute to a stronger stock market performance (Amitrano & Vasconcelos, 2019; Liang & Silber, 2020; Parui, 2022; Shahzad et al., 2021; Singh et al., 2020), and vice versa (Alawin et al., 2018). As a result, Hypothesis Three (H_3) of IPI has a *positive influence on the Stock Market Index* during anomalous market momentum post-COVID-19 fails to be rejected.

5. Managerial Implications and Recommendations

The performance of the stock or equity market is vital in determining the growth and development of countries. Investors or foreign direct investment (FDI) will tend to lend their investment in countries that are

resilient and stable to get better returns. As the three important key variables considered in this study, which are ER, CPI and IPI indicated to have a significant impact on the Stock Market Performance, it shows that the investors are more interested in parking their funds in countries that have strong Currency Rate, lower Inflation Rate as well as higher Economic Growth. Hence, the economic policy of the countries should strengthen these important key indicators to encourage more investors and create a healthy investment environment.

Conclusion: Drawing from the findings, this study has shed light on the crucial factors that influence the momentum of stock market performance after the global economy was hit by the COVID-19 pandemic. The findings from the Static Panel Data reveal that all selected variables (ER, CPI and IPI) significantly impact the Stock Market Performance of five European countries despite varying directions of the impact. Consequently, all the hypotheses (H_1, H_2, and H_3) based on this study failed to be rejected when the results showed that Exchange Rate (ER) and Economic Growth (IPI) are positively significant while Inflation Rate (CPI) is negatively significant in influencing the Stock Market Performance of five countries from Developed and Eastern Europe namely Germany, Belgium, Denmark, Austria, and Czechia. Critically, the finding of this study concludes that investors are more interested and dare to lend their funds to countries that have robust Exchange Rates, lower Inflation Rates, as well as healthy Economic Growth. Logically, the countries that fulfill the criteria of having a great combination of effective Monetary Policies and efficient Macroeconomic Variables will give a positive reflection and look more appealing for investors to park their funds in the stock exchanges for a longer period, especially in the post-COVID-19 economic landscape. Furthermore, this study can be extended by future researchers, in terms of evaluating the market volatility and the risk factors that can contribute to investor interest in the stock market as well as adding other microeconomic factors in the analysis as the stock market is a complex and dynamic system that influenced by various factors.

References

Al-Jaifi, H. A. (2017). Ownership Concentration, Earnings Management and Stock Market Liquidity: Evidence from Malaysia. *Corporate Governance: The International Journal of Business in Society*, 17(3).

Alawin, M., Ali, A. T. & Merza, E. (2018). The Relationship between Economic Growth and Stock Market. *International Journal of Advances in Management and Economics*, 7(5).

Ali, S. A. & Joshi, S. (2022). The Effect of Domestic Slowdown on Momentum Profitability: Evidence from The Indian Market. *International Journal of Multidisciplinary Innovative Research,* 2(1).

Amitrano, C. R. & Vasconcelos, L. (2019). Income Distribution, Inflation and Economic Growth: A Post-Keynesian Approach. *Panoeconomicus*, 66(3).

Asimakopulos, A. (2020). Kalecki and Keynes on Finance, Investment and Saving. In Investment, Employment and Income Distribution. Routledge

Bouattour, M. & Martinez, I. (2019). Efficient Market Hypothesis: An Experimental Study with Uncertainty and Asymmetric Information *Finance Contrôle Stratégie*, 22(4).

Cattlin, B. (2018). What are Market Anomalies? [Source: Bloomberg]. 1. Retrieved 24 July 2023, from

CFI Team. (2022). What is the International Fisher Effect (IFE)? Retrieved 30 July 2023, from

Chiang, T. C. (2022). The Effects of Economic Uncertainty, Geopolitical Risk and Pandemic Upheaval on Gold Prices. Resources Policy, 76.

Chiang, T. C. (2023). Real Stock Market Returns and Inflation: Evidence from Uncertainty Hypotheses. Finance Research Letters, 53.

Cho, S. (2013). New Return Anomalies and New-Keynesian ICAPM. *International Review of Financial Analysis*, 29(1).

Commendatore, P., Acunto, S., Panico, C. & Pinto, A. (2003). Keynesian Theories of Growth In.

Dahlquist, M. & Hasseltoft, H. (2020). Economic Momentum and Currency Returns. *Journal of Financial Economics*, 136(1).

Dai, Z., Li, T. & Yang, M. (2022). Forecasting Stock Return Volatility: The Role of Shrinkage Approaches in a Data-Rich Environment *Journal of Forecasting*, 41(5).

Dhankar, R. & Maheshwari, S. (2016). Behavioral Finance: A New Paradigm to Explain Momentum Effect. SSRN Electronic Journal, 1-6.

Dodig, A. (2020). Relationship Between Macroeconomic Indicators and Capital Markets Performance in Selected Southeastern European Countries. *Zagreb International Review of Economics and Business*, 23(2), 55-88.

Fama, E. F. (1991). Efficient Capital Markets: II. *The Journal of Finance*, 46(5).
Feldstein, M. (1980). Inflation and the Stock Market. *The American Economic Review*, 70(5).
Fieger, J. (2017). Behavioral Finance and Its Impact on Investing [Senior Thesis]. 43. Retrieved 24 July 2023.
Friedman, M. & Savage, L. J. (1948). The Utility Analysis of Choice Involving Risk Journal of Political Economy 56.
Gavriilidis, K. & Kgari, L. M. (2016). Chapter 2 - Stock Returns and Inflation: The Case of Botswana. In P. Andrikopoulos, G. N. Gregoriou, & V. Kallinterakis (Eds.), Handbook of Frontier Markets (pp. 27-38). Academic Press.
Haddad, V., Huebner, P. & Loualiche, E. (2021). How Competitive is the Stock Market? Theory, Evidence from Portfolios, and Implications for the Rise of Passive Investing. *Social Science Research Network* (SSRN).
Hashmi, S. M. & Chang, B. H. (2023). Asymmetric Effect of Macroeconomic Variables on the Emerging Stock Indices: A Quantile ARDL Approach. *International Journal of Finance & Economics*, 28(1).
Huy, D. T. N., Nhan, V. K., Bich, N. T. N., Hong, N. T. P., Chung, N. T. & Huy, P. Q. (2021). Impacts of Internal and External Macroeconomic Factors on Firm Stock Price in an Expansion Econometric Model: A Case in Vietnam Real Estate Industry. Data Science for Financial Econometrics.
IMF. (2023). Inflation: Prices on the Rise Finance & Development 30-31. Retrieved 29 July 2023, from
Jan, N., Li, Z., Xiyu, L., Farhan Basheer, M. & Tongkachok, K. (2022). Pre- and Post-COVID-19: The Impact of the Pandemic and Stock Market Psychology on the Growth and Sustainability of Consumer Goods Industries. Frontiers in Psychology, 13.
Jegadeesh, N. & Titman, S. (1993). Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency. *The Journal of Finance*, 48(1).
Kamoune, A. & Ibenrissoul, N. (2022). Traditional Versus Behavioral Finance Theory. *International Journal of Accounting, Finance, Auditing, Management and Economics,* 3(2), 282-294.
Kim, C. & Lee, C. (2018). Market Liquidity and Momentum Profits: Evidence from the Korean Stock Market. *Journal of Derivatives and Quantitative Studies*, 26(4).
Klein, M. & Linnemann, L. (2023). The Composition of Public Spending and the Inflationary Effects of Fiscal Policy Shocks. *European Economic Review*, 15(5).
Lakshmanasamy, T. (2021). The Relationship Between Exchange Rate and Stock Market Volatilities in India: ARCH-GARCH Estimation of the Causal Effects. *International Journal of Finance Research,* 2(4), 244-259.
Lee, J. W. & Brahmasrene, T. (2018). An Exploration of Dynamical Relationships between Macroeconomic Variables and Stock Prices in Korea. *The Journal of Asian Finance, Economics and Business*, 5(3), 7-17.
Liang, Z. & Silber, M. (2020). An Overview of the Evolution of Modern Macroeconomic Theories. *Journal of Student Research*, 9(2).
Lintner, J. (1975). Inflation and Security Returns *The Journal of Finance*, 30(2).
Loang, O. K. & Ahmad, Z. (2022). Market Overreaction, Firm-Specific Information and Macroeconomic Variables in US and Chinese Markets During COVID-19. *Journal of Economic Studies*, 49(8).
Lu, R., Hoang, V. & Wong, W.-K. (2021). Do Lump-Sum Investing Strategies Outperform Dollar-Cost Averaging Strategies? *Studies in Economics and Finance*, 38(3).
Lu, X., Stambaugh, R. F. & Yuan, Y. (2017). Anomalies Abroad: Beyond Data Mining. In N. B. o. E. R. (NBER) (Ed.), NBER Working Paper (pp. 48). Massachusetts Avenue Cambridge
Malyshenko, K., Malyshenko, V., Ponomareva, E. Y. & Anashkina, M. (2019). Analysis of the Stock Market Anomalies in the Context of Changing the Information Paradigm *Eastern Journal of European Studies*, 10(1).
Moradi, M., Appolloni, A., Zimon, G., Tarighi, H. & Kamali, M. (2021). Macroeconomic Factors and Stock Price Crash Risk: Do Managers Withhold Bad News in the Crisis-Ridden Iran Market? *Sustainability*, 13(7).
Neifar, M. & Gharbi, L. (2023). Stability and Insolvency Sensitivity to Tunisian Bank Specific and Macroeconomic Effects. *Journal of Islamic Accounting and Business Research*, 14(2).
Nelson, C. R. (1975). Inflation and Rates of Return on Common Stocks. *The Journal of Finance*, 31(2).
Ogujiuba, K. & Cornelissen, M. (2020). Macroeconomic Theory and Unemployment: A Comparison between the Keynesian and New Classical Model: Array. *Acta Universitatis Danubius. Œconomica*, 16(2).
Olusola, B. E., Chimezie, M. E., Shuuya, S. M. & Addeh, G. Y. A. (2022). The Impact of Inflation Rate on Private Consumption Expenditure and Economic Growth: Evidence from Ghana *Open Journal of Business and Management*, 10(4).
Parui, P. (2022). Government Expenditure and Economic Growth: A Post-Keynesian Analysis. In Capitalism: An Unsustainable Future? Routledge.

Patil, A. C. & Rastogi, S. (2019). Time-Varying Price–Volume Relationship and Adaptive Market Efficiency: A Survey of the Empirical Literature. *Journal of Risk and Financial Management*, 12(2).

Qamri, G. M., Abrar, M. & Akram, F. (2015). The Impact of Inflation on Stock Prices: Evidence from Pakistan. *Microeconomics and Macroeconomics*, 3(4), 83-88.

Rabin, M. & Thaler, R. H. (2001). Anomalies: Risk Aversion. *Journal of Economic Perspectives,* 15(1).

Rasool, N. & Ullah, S. (2020). Financial Literacy and Behavioural Biases of Individual Investors: Empirical Evidence of Pakistan Stock Exchange. *Journal of Economics, Finance and Administrative Science*, 25(50), 261-278.

Rice, A. (2023). WHO Says COVID-19 Health Emergency is Over as Mortality Rates Reach All-time Low. Medical News Today.

Safdar, I. (2020). Decoupling Stock Price Momentum from Accounting Fundamentals. *Pacific Accounting Review*, 32(4).

Salur, B. V. & Ekinci, C. (2023). Anomalies and Investor Sentiment: International Evidence and the Impact of Size Factor. *International Journal of Financial Studies,* 11(49).

Sawitri, N. N. & Astuty, P. (2018). Market Anomalies and Effect on Returns. *European Research Studies Journal,* 21(2).

Şen, H., Kaya, A., Kaptan, S. & Cömert, M. (2020). Interest Rates, Inflation, and Exchange Rates in Fragile EMEs: A Fresh Look at the Long-Run Interrelationships. *The Journal of International Trade & Economic Development*, 29(3), 289-318.

Shahzad, S. J. H., Hurley, D. & Ferrer, R. (2021). US Stock Prices and Macroeconomic Fundamentals: Fresh Evidence Using the Quantile ARDL Approach *International Journal of Finance & Economics*, 26(3).

Sharma, A. & Kumar, A. (2020). A Review Paper on Behavioral Finance: Study of Emerging Trends. *Qualitative Research in Financial Markets*, 12(2), 137-157.

Sharma, S. S., Phan, D. H. B. & Narayan, P. K. (2019). Exchange Rate Effects of US Government Shutdowns: Evidence from Both Developed and Emerging Markets *Emerging Markets Review,* 40, 40.

Singh, D., Sharma, D., Soni, S. L., Sharma, S., Kumar Sharma, P. & Jhalani, A. (2020). A Review of Feedstocks, Production Processes, and Yield for Different Generations of Biodiesel. Fuel, 262.

Singh, S., Walia, N., Bekiros, S., Gupta, A., Kumar, J. & Mishra, A. K. (2022). Risk-managed Time-Series Momentum: An Emerging Economy Experience. *Journal of Economics, Finance and Administrative Science*, 27(54).

Sumner, S. (2022). Whither Monetarism? *Economic Affairs*, 42(2).

Supriya, M. & Raj Singh, D. (2017). Momentum Anomaly: Evidence from the Indian Stock Market. *Journal of Advances in Management Research*, 14(1).

Suriani, S., Kumar, M. D., Jamil, F. J. & Muneer, S. (2015). Impact of Exchange Rate on Stock Market International Journal of Economics and Financial Issues 5(Special).

Tian, M., Li, W. & Wen, F. (2021). The Dynamic Impact of Oil Price Shocks on the Stock Market and the USD/RMB Exchange Rate: Evidence from Implied Volatility Indices. *The North American Journal of Economics and Finance*, 55, 1-21.

Tripathy, N. (2011). Causal Relationship between Macro-Economic Indicators and Stock Market in India. *Asian Journal of Finance and Accounting*, 3(1).

Uwubanmwen, A. & Eghosa, I. L. (2015). Inflation Rate and Stock Returns: Evidence from Nigerian Stock Market. *International Journal of Business and Social Science*, 6(11).

WHO, W. H. O. (2023). WHO Coronavirus (COVID-19) Dashboard in Situation by Region, Country, Territory & Area. Geneva, Switzerland

Wong, H. T. (2022). The Impact of Real Exchange Rates on Real Stock Prices. *Journal of Economics, Finance and Administrative Science*, 27(54), 262-276.

Woo, K.-Y., Mai, C., McAleer, M. & Wong, W. K. (2020). Review on Efficiency and Anomalies in Stock Markets. *Economies*, 8(1), 51.

Xu, S. (2023). The Impact of Behavioral Bias on Investment Decision-Making. *Highlights in Business, Economics and Management*, 15, 194-202.

Ying, Q., Yousaf, T., Ain, Q. U., Akhtar, Y. & Rasheed, M. S. (2019). Stock Investment and Excess Returns: A Critical Review in the Light of the Efficient Market Hypothesis. *Journal of Risk and Financial Management*, 12(2), 22.

Zhang, Y. & Zheng, X. (2015). A Study of the Investment Behavior Based on Behavioral Finance. *European Journal of Business and Economics*, 10(1), 1-5.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Influence of Digital Marketing on Consumer Behavior in the Context of Online Shopping in the Klang Valley, Malaysia

Ahmad Zuhairi Zainuddin[1*], Luqman Nulhakim Bin Sulaiman[2], Muhamad Fadzil Bin Malek[2], Muhammad Qusyairi Binn Zamri[2] & Norzawani Ibrahim[1]
[1]Universiti Teknologi MARA, Malaysia
[2]Malayan Banking Berhad, Malaysia
*ahmadzuhairi@uitm.edu.my, luqman.so@maybank.com, mfadzil@maybank.com, q.zamri@maybank.com, nzawani@uitm.edu.my

Abstract: The contemporary business landscape has undergone significant transformations, resulting in a highly competitive atmosphere. The onset of the second wave of digitization and technological innovation occurred in the early 2010s, and the COVID-19 pandemic further amplified its momentum. The second wave pertains to digitalizing the industrial sector, encompassing several aspects such as digital manufacturing, data-driven healthcare, intelligent buildings, and smart cities (World Economic Forum, 2021). Digital marketing has emerged as a highly prevalent marketing strategy organizations employ, mainly through social media platforms and email marketing techniques. Social media and email marketing are potent strategies for cultivating consumer engagement. This engagement plays a crucial role in influencing the frequency of customers' intent to make purchases. Furthermore, these marketing methods are characterized by their user-friendly nature and resilience. Digital marketing technologies provide organizations with a convenient means to effectively promote their products and foster customer relationships at a reduced cost, resulting in heightened sales volume. This study investigates the relationship between digital marketing, consumer engagement, and purchase intention within the Klang Valley region. The primary objective is to optimize the utilization of the study findings by obtaining theoretical validation of the relationship between the variables and selecting the most suitable implications that contribute to identifying the influence of digital marketing on consumer engagement and purchase intention.

Keywords: *Digital Marketing, Consumer Behavior, Online Shopping, Customer Experience, Malaysia.*

1. Introduction and Background

Digital marketing refers to the strategic promotion and advertisement of goods or services utilizing digital technology, mainly on the Internet, but also encompassing mobile devices, display advertising, and other digital platforms (Desai, 2019). A study conducted in 2020 by Akter et al. provided a subsequent definition of digital marketing as the strategic approach employed to advertise and sell items and services by utilizing digital distribution channels, such as smartphones, digital computers, and other digital devices.

Before the emergence of digital marketing, customers were mostly exposed to traditional mass media channels for advertising. This traditional advertising medium encompassed television, radio, newspapers, magazines, billboards, and similar platforms. Social media and email marketing are widely recognized as the most prevalent digital marketing methods globally. Email marketing is often regarded as one of the most highly regarded tools in digital marketing. According to a study conducted by Nawaz and Kaldeen (2020), email marketing is a strategy that focuses on engaging clients who are receptive to promotional offers. Consumers who provide authorization for email marketing are inclined to have more excellent buy intentions. The impact of social media on client interaction is evident.

Following the exponential expansion of technology, digital marketing exhibits boundless prospects for growth. According to Mkvizu (2019), the field of digital marketing offers various prospects, namely in social media marketing, content marketing, and mobile marketing. The internet has become a valuable tool for Generation X buyers since it enables them to utilize several devices simultaneously, engage in logical thinking, and multitask while purchasing, as mentioned in Akter and Sultana (2020).

In contrast, online shopping entails directly acquiring items from a seller, bypassing any intermediaries. It can also be described as the practice of engaging in commercial transactions, including the purchase and sale of things through the Internet (Daroch et al., 2021).

In essence, electronic commerce is a digital platform that enables consumers to engage in direct transactions with sellers, facilitating the acquisition of goods or services via the Internet (Prebreza & Shala, 2021). Online shopping is widely recognized as a highly convenient and efficient transaction method, primarily attributed to today's increasingly busy lifestyles. This situation has prompted enterprises to establish brand recognition and engage with their intended consumers to promote and distribute their goods and services. Akter and Sultana (2020) conducted a study that proved that digitalization has facilitated the ability to connect with customers worldwide, regardless of geographical location.

Research on consumer behavior plays a crucial role in aiding marketers to adjust their strategies to address customer wants and effectively sustain a competitive edge (Davis et al., 2021). Currently, internet retailers need to comprehensively understand the brands, assortment, and caliber of products they provide (Daroch et al., 2021).

Online shoppers have shown a heightened inclination to interact with brands actively and intellectually. Moreover, it was found that online retail customers exhibit higher levels of cognitive engagement compared to their offline counterparts, suggesting that they allocate more time to deliberate and acquire knowledge about the brand (Bowden et al., 2021).

Problem Statement: The advent of digital marketing is gradually displacing conventional advertising methods (Tobi, et al., 2020), although the research found that despite the numerous advantages of online advertising and sales compared to conventional types of commerce, however Malaysian population, particularly the older generation, has not yet embraced this technology in their everyday purchasing and selling endeavors. On the contrary, those previously involved in online commerce exhibit diminished enthusiasm compared to their previous state (Hasan et al., 2022). Whether positive or destructive feedback provided by customers can significantly influence their decision-making process when engaging in online buying (Komal, 2021).

The advent of digital marketing has significantly influenced consumer perceptions and behaviors in the context of making purchase decisions. Presently, consumers are allocating their financial resources towards acquiring goods and services mainly through mobile devices, driven by the desire for enhanced convenience. Over time, the impact of digital marketing on customers' attitudes toward online buying has been substantial. However, several consumers still opt not to utilize Internet platforms for their shopping needs.

The effectiveness of a company's digital transformation initiatives has come under significant scrutiny considering the Covid-19 outbreak. Sampe (2022) posits that the endurance of micro, small, and medium enterprises (MSMEs) in the face of the COVID-19 pandemic can be enhanced through the practical application of digital marketing expertise acquired through participation in seminars, training sessions, and discussion shows. According to the research conducted by Park (2022), it is indicated that the growing prevalence of digital surveillance gives rise to apprehensions over the potential erosion of privacy. The research warns that individuals who make impulsive judgments with their data may unintentionally jeopardize their privacy in exchange for instant satisfaction, ultimately resulting in inactivity.

Significance of Study: Following the report of the World Economic Forum (Schwab & Zahidi, 2020), the governance of digitalization encompasses three significant problems, one of which pertains to the imperative of fostering transparency in the use of artificial intelligence, also referred to as trustworthiness. This aspect is a significant issue that will be the primary focus of this research, as it pertains to the behavior of consumers engaging in online purchasing and their willingness to provide personal data inside the system.

According to Komal (2021), the feedback provided by customers, whether favorable or adverse, can significantly influence their decision-making process regarding online shopping. This issue concerns the credibility of digital marketing about the online sale of products and the information sellers provide regarding their items.

In the context of digital marketing security, the reputation and credibility of a company's brand can be significantly compromised by a single unfavorable customer experience resulting from a cybersecurity

incident. This occurrence can broadly impact the brand's overall perception (Chambers, 2021). This study examines the potential influence of digital marketing security on consumer online purchase behavior. The prevalence of online shopping adoption among consumers exhibits a consistent upward trend annually. According to Venkatesh (2022), the primary factors influencing online shopping include congruence, impulse buying behavior, value consciousness, risk perception, local shopping preferences, shopping delight, and browsing enjoyment.

2. Literature Review

According to Cambridge Dictionary (online), consumer refers to a person who buys goods or services for their use, while online refers to online products, services, or information that can be bought or used on the internet. In general, people widely know that shopping refers to an action when we buy things. As for behavior, according to Cambridge Dictionary (online); it refers to the way that someone behaves. "Online consumer behavior" describes the process of online shopping from a consumer's perspective. It is often described as the study of trends, including the influence of online advertising, consumer willingness to click on links, and the prevalence of comparison shopping (Mitchell, 2023). Shaouf et al. (2016) mentioned that online buying intentions have become key elements influencing the usefulness of online impetuses. It is supported by Martins et al. (2019), stating that shopping behavior/purchase intention is the basis of demonstrating buying behavior that led to the world's current customer behavior undergoing enormous and essential changes.

In the current digital world, consumers are more empowered, demanding, and satisfied (Akter& Sultana, 2020). Consumer behavior is characterized as investigating how, what, when, and why people purchase. It describes the purchasing procedure for anyone willing to purchase, including individuals, households, groups, or organizations (Tobi et al., 2020). There are numerous studies on consumers' impulsive online purchases now. However, most consumers will look at cultural differences, distance, anticipated remorse, product type, price promotion, online store image, and consumer traits. Some people also consider the variety of products or whether they buy for themselves, close friends, or family members (Wu & Chen, 2019). There is a strong connection between purchase intention and online shopping behavior (Lim et al., 2016). Impulsiveness is a dominant predictor of purchase completions, and risk moderates the power of impulsiveness in predicting purchase completions significantly (Rejikumar & Asokan-Ajitha, 2021).

Time pressure and choice overload significantly influence the consumer purchasing decision. For instance, when customers are presented with many items/ options, for example, online shopping, but without time pressure, there is a higher tendency for them to postpone their purchasing decision, indicating a certain level of doubt or confusion regarding the attributes of the product and their worth (Basso et al., 2019).
H1: There is an effect of digital marketing security on consumer online shopping behavior.

Security is a vital consideration in the realm of online commerce. According to the Cambridge Dictionary (online), the term "security" pertains to safeguarding individuals, structures, institutions, or nations from potential risks such as criminal activities or hostile actions originating from foreign entities. Conversely, the Merriam-Webster Dictionary (online) defines "security" as the attribute or condition of being free from danger or harm. The concept of protecting consumers' sensitive information from unauthorized disclosure during electronic transactions is commonly referred to as security (Prebreza & Shala, 2021). While numerous websites assert to provide security and privacy, they often lack comprehensive explanations of the robustness of their transaction and data protection measures (Ali et al., 2016).

Customers often prioritize gathering information about the shop as a precautionary measure, given that online purchases commonly involve the use of debit or credit cards for payment (Wu & Chen 2019). The role of perceived risk is crucial in the escalation of instability within the online shopping landscape and continues to be a significant barrier to the widespread adoption of online shopping in Egypt (Aref & Okasha, 2020). Nonetheless, the younger consumers' purchase intention was not significantly affected by the perceived danger. This assertion is substantiated by a discovery made by Muda et al. (2016) in their investigation of Generation Y. The majority of participants expressed awareness of the potential risks inherent in engaging in

online transactions. However, it has been suggested that this issue can be mitigated by conducting thorough research and evaluating the offerings of different sellers before making a purchase.

According to a study conducted by Daroch et al. (2021), it was shown that consumers exhibit reluctance to disclose their personal information due to their perception of online purchasing being riskier compared to traditional shopping. Online shopping is sometimes regarded as less secure compared to traditional shopping, and the available product information may not be adequate for making informed purchasing decisions. The enhancement and use of advanced technology have led to a substantial improvement in the security of the online shopping environment in Malaysia. Banks offer digital certificates to users as a means of augmenting the security of their transactions. In Malaysia, online vendors also provide an additional payment method known as cash-on-delivery (Muda et al., 2016). To mitigate the risks connected with online purchasing, electronic merchants must implement robust site security measures and effectively communicate these measures to customers. This can be achieved through various means, such as prominently displaying information regarding consumer rights and the return policy on the retailer's website (Aref & Okasha, 2020).
H2: There is an effect of digital marketing credibility on consumer online shopping behavior.

According to the Cambridge Dictionary (online), credibility pertains to the quality or characteristic of being deemed, trustworthy or believable. Similarly, in the context of online digital marketing, credibility can be defined as the extent to which it is deemed reliable and trustworthy. Meanwhile, Merriam-Webster Dictionary (online) (Culpepper, 2000), credibility is defined as the attribute or capacity to evoke belief. Two major disadvantages of online purchasing are the absence of physical interaction with the product and the inability to make payments directly to the sellers. The utilization of diverse marketing instruments unquestionably provides online consumers with accurate information, augments their capacity to make well-informed judgments regarding their purchases, and reduces the incidence of grievances (Komal, 2021). The quality of goods and services offered has a beneficial impact on customer satisfaction in the context of Internet purchasing. Perceived product quality refers to the evaluative judgment made by consumers regarding the overall excellence or superiority of a product (Prebreza & Shala, 2021).

Companies must demonstrate a willingness to allocate resources toward enhancing their brand image since research has shown that the perceived reputation of online sellers has a noteworthy and statistically significant influence on customers' inclination to engage in online purchases (Muda et al., 2016). Prospective consumers have the opportunity to peruse feedback from both the general public and past buyers before reaching a decision. Therefore, it can be inferred that online merchants who establish a robust reputation can attract a greater volume of visitors to their virtual storefronts.

In addition, it has been observed that sellers who actively participate in corporate social responsibility initiatives are perceived to possess a favorable reputation in contrast to those who prioritize profit maximization as their primary objective (Muda et al., 2016).

Consumers tend to exclusively engage in transactions with reputable online retailers after doing price comparisons and ensuring the provision of guarantees or warranties on the purchased goods (Daroch et al., 2021). According to Hamouda (2021), both affective and cognitive elements of user experience have a positive and considerable influence on users' purchase intention. Based on the findings of Purwanto (2022), it has been established that digital marketing exerts a favorable and substantial impact on purchasing decisions. Moreover, the presence of brand image as a moderating variable has the potential to enhance or amplify the influence of digital marketing factors on purchasing decision variables.
H3: There is an effect of digital marketing trustworthiness on consumer online shopping behavior.

According to Davis et al. (2021), the perception of trustworthiness among consumers is influenced by the absence of any discernible disparity in product quality, regardless of whether the product is purchased through online or offline channels. According to a study conducted by Hasan et al. (2022), the assessment of risk by consumers plays a crucial role in their decision-making process regarding online purchases. Individuals need to possess awareness of a multitude of hazards, including aspects such as quality, security, and various other considerations. Moreover, when considering the perspective of the consumer, it may be argued that e-commerce transactions entail a greater degree of risk compared to purchases made in

traditional brick-and-mortar stores (Ali et al., 2016). Complaints are unlikely to arise when the product aligns with the consumer's quality standards and expectations. However, the presence of complaints becomes probable when the product fails to match the criteria (Komal, 2021).

The reluctance of consumers to engage in online purchasing can be attributed to factors such as limited information, negative prior experiences, and the absence of monthly installment choices provided by certain online shops (Daroch et al., 2021). According to Bowden and Mirzaei (2021), marketers should strive for consumer engagement by implementing "participative" events and promotions. This approach is effective because customers tend to exhibit higher levels of brand involvement when they have a sense of personal connection and belonging, leading to a rise in trust.

The purchase intention of customers was found to be influenced by their perception of their social networks, including relatives, friends, and media, as indicated by studies conducted by Lim et al. (2016) and Aref & Okasha (2020). According to Muda et al. (2016), the inclination of Generation Y to engage in online shopping is influenced by their heightened perception of trust towards online retailers. Nevertheless, the study conducted by Lim et al. (2016) found no substantial correlation between the perceived usefulness and online shopping behavior of university students.

This assertion is corroborated by a prior investigation conducted by Bowden and Mirzaei (2021), which posited that online brand communities exert a substantial and augmenting influence on the association between self-brand connections and engagement. The findings of Hawaldar et al. (2022) demonstrate a significant correlation between digital media and sales, indicating that outbound marketing strategies, particularly word-of-mouth promotion, play a crucial role in establishing a brand's image as it proliferates across various social media platforms.

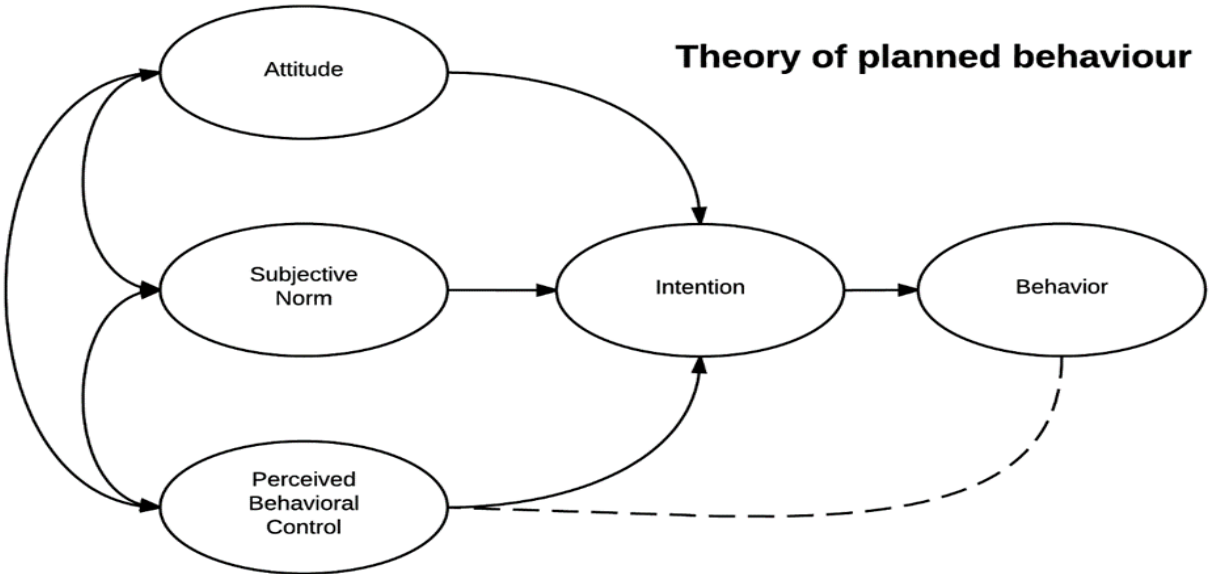
According to Fahmi et al. (2022), the research findings indicate that utilizing email and social media marketing, along with search engine optimization, presents numerous prospects for hospitals to establish connections with patients. Furthermore, it is emphasized that healthcare organizations must fulfill this requirement and recognize the significance of staying abreast of marketing trends and current promotions to cultivate a global brand image for the future.
H4: There is an effect of consumer intention on consumer online shopping behavior.

Based on the study by (Pena-Garcia et al., 2020) in the context of online consumer behavior in Columbia and Spain stated that consumer intention is the degree to of consumers are willing to purchase products using online shopping. Examining purchase intentions can serve as a method for evaluating the introduction of a novel distribution channel. This approach aids managers in ascertaining the viability of the concept for additional refinement and assists in making informed choices regarding the specific geographical markets and consumer segments that should be focused on via this channel. As outlined by Ajzen (1991), consumer intentions serve as a gauge of the degree to which individuals are inclined to engage in a specific action, which, within the scope of this study, pertains to online purchasing behavior. Previous studies have revealed that the absence of intent to make online purchases constitutes a primary obstacle to the advancement of e-commerce. Scholars like Lim et al. (2016) emphasize the necessity for further investigation into both online purchase intentions and actual online purchase behaviors. Building upon these insights, the initial research hypothesis of this study delves into examining the impact of online purchase intentions on consumer purchase behavior (Pena-Garcia et al., 2020).

Theory of Planned Behavior (TPB): As stated by LaMorte (2022), the initial conceptual framework that emerged was the Theory of Reasoned Action in 1980, which aimed to forecast an individual's desire to partake in a certain action within a specific temporal and spatial context. Subsequently, this theory underwent further development and transformation, leading to the emergence of the Theory of Planned action (TPB). The primary objective of the theory was to provide an explanatory framework including all behaviors that individuals are capable of self-regulating. The primary determinant is behavioral intention, which is determined by the individual's attitude towards the perceived probability of the anticipated outcome, as well as their subjective judgment of the associated risks and advantages.

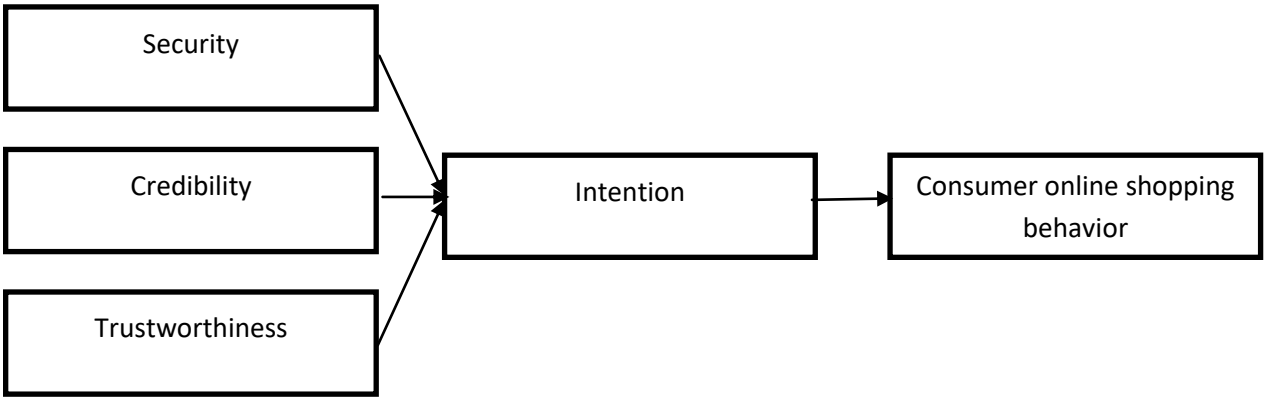
This study examines individuals' inclination to engage in activities that they perceive as advantageous, while also considering the level of danger they are willing to bear. Therefore, individuals can strategize whether they should engage with or experiment with novel concepts acquired and observed through online digital marketing. According to LaMorte (2022), the theory has certain limitations. For instance, it assumes that an individual who exhibits the desired behavior has had access to the necessary opportunities and resources for success, irrespective of their intention. However, the theory fails to consider other variables that contribute to behavioral intention and motivation, including fear, threat, mood, and past experiences. Therefore, consumers may prefer digital marketing strategies that offer them a sense of security, confidence, trustworthiness, and ease of adaptation. Consequently, this will lead to a rise in web traffic and the acquisition of a larger consumer base.

Figure 1: Theory of Planned Behavior



Research Framework: Based on the theoretical background and review of the previous literature, the conceptual model of this study is developed to examine the relationships among the security, credibility, trustworthiness towards intention and the on consumer online shopping behavior by consumer intention. Figure 2 presents the research model.

Figure 2: Research Framework Model



3. Research Methodology

Quantitative research plays a crucial role in the identification of underlying explanations for hypotheses by collecting data to explore novel notions for further investigation (Creswell, 2013). Questionnaire-based quantitative research is commonly employed for hypothesis evaluation. In this technique, data is collected by predictive methods, which enable the acquisition of statistical information and the examination of numerical correlations among participants (Creswell, 2013). This study employs numerical measures and statistical analysis, indicating the utilization of quantitative research methodology. Questionnaires will be employed as a means of gathering quantitative data. This methodology enables the examination of a substantial cohort, thus facilitating the formulation of inferences based on the samples under investigation.

Based on the stated research objectives, the primary purpose of this study is to examine the correlation between the independent variables (security, credibility, trustworthiness, and adaptability) and the dependent variable (consumer online buying behavior). This study will utilize descriptive research as it seeks to uncover the causal relationships between the variables. Descriptive research is a form of conclusive research that aims to provide a comprehensive understanding of a particular situation by the collection of information and analysis of relevant samples. Its primary objective is to characterize the phenomena under investigation and develop a coherent representation of the observed events.

The target population refers to the specific group of individuals that researchers have identified and selected to conduct their research (Zikmund, et al., 2013). To enhance the reliability and accuracy of the findings about the association between independent variables (IVs) and dependent variables (DVs), the researchers must identify and select a sizable and targeted population, from which a representative sample may be drawn to gather data. The primary aim of this study is to examine the many factors that have influenced the online buying behaviors of consumers residing in the Klang Valley region. Consequently, our focus is directed at all individuals who now reside in the Klang Valley region and possess access to an internet connection. The questionnaire is disseminated to the participants possessing these specific attributes.

The sampling location is located inside the Klang Valley region, The Klang Valley region, which is home to around 9 million residents, has been selected as the primary sampling site for the research study.

The primary objective of this research is to examine the population of individuals living in the Klang Valley area who have access to financial means. This includes various groups such as government employees, private sector employees, self-employed individuals, and students. A sample size of 100 persons has been selected to partake in the researcher survey through the completion of a questionnaire. According to Sekaran (2003), A sample size ranging from greater than 30 to less than 500 is generally considered suitable for most research endeavors.

Convenience sampling is a method that may be utilized to efficiently and effectively gather a significant number of completed questionnaires. This approach leverages the benefits of saving time and reducing costs by targeting varied populations for questionnaire delivery. Therefore, the current study has chosen to utilize convenient non-probability sampling instead of probability sampling.

The research will employ a survey instrument for data collection purposes. Sekaran and Bougie (2013) argue that the utilization of the questionnaire approach is warranted due to its ability to enhance the respondents' understanding of the study's aims. The content of the surveys will be developed by incorporating the findings and insights of previous researchers. The study will employ a Likert scale with a range of 1 to 5. The scale will be interpreted as follows: a score of 1 will indicate "strongly disagree," a score of 2 will indicate "disagree," a score of 3 will indicate "neither agree nor disagree," a score of 4 will indicate "agree," and a score of 5 will indicate "strongly agree." The scale will be utilized to produce a series of response alternatives for the provided statement.

The statistical software SPSS 22 will be employed for demographic analysis, with a specific emphasis on descriptive statistics, to carry out data analysis. The present study will entail an analysis of the frequency distribution, means, and standard deviation of the business profile. The examination of the data in this

research will be carried out using structural equation modeling (SEM). The examination of data reliability and validity for each variable will be carried out by Structural Equation Modelling (SEM). The statistical method known as Structural Equation Modelling (SEM) is highly suitable for performing research that involves prediction, hypothesis formation, theory construction, theory testing, and theory confirmation, as outlined by Hair et al. (2019).

Pilot Test: A pilot test was conducted by using a survey method to 30 respondents from the targeted population. The reliability test was conducted through Statistical Package for Social Science (SPSS) to reach Cronbach's alpha value for each variable. Based on the analysis, the value of Cronbach's alpha for this study of each variable is greater than 0.6 showing a high internal consistency. The value of Cronbach's alpha is listed in the following table.

Table 1: Result of Reliability Analysis

VARIABLES	DIMENSION	NUMBER OF ITEMS	CRONBACH'S ALPHA*
Independent variable	Security	5	0.616
	Credibility	5	0.630
	Trustworthiness	5	0.716
Mediating variable	Intention	5	0.796
Dependent variable	Consumer Online Shopping Behaviour	5	0.685

4. Conclusion

In summary, the present study has empirically demonstrated that all the digital advertising elements examined in emerging markets have been found to have either direct or indirect effects on purchase intention. Hence, marketers operating in emerging regions must consider these aspects while executing advertising digitally. By doing so, they can effectively enhance customers' buy intention, thereby increasing the likelihood of purchase (Martins et al., 2019). The research findings highlight the significant influence of credibility on purchase intention, emphasizing the importance for practitioners to acknowledge and address this relationship.

Therefore, marketers must prioritize the credibility of their advertising messaging when developing advertising programs in emerging markets. The findings of the study also hold significance for digital marketers operating in emerging markets. The developers should prioritize enhancing the algorithms utilized in the advertising tools provided to users. These tools should possess the capability to assist users in generating advertisements that are both engaging and instructive, while also being highly credible and less bothersome to clients. In addition, developers must effectively utilize their database to provide advertising recommendations that align with user preferences. This strategic approach aims to enhance buy intention by delivering targeted advertisements.

Nevertheless, it is crucial to consider that the collection of customer data should be conducted within reasonable limits to prevent the emergence of privacy concerns. Failure to do so may result in negative consequences such as a decline in credibility and attitude towards advertising, which are two variables that have been identified as having a significant impact on purchase intention in this study. Consequently, this could lead to a backfiring effect and ultimately reduce the purchase intention of consumers.

References

Akter, M. & Sultana, N. (2020). Digital marketing communication and consumer buying decision process from a pandemic standpoint (Covid-19): an empirical study of Bangladeshi customers from branded cosmetics perspective. *Open Journal of Business and Management*, 8(06), 2696.

Ali, N. I., Samsuri, S., Sadry, M., Brohi, I. A. & Shah, A. (2016, November). Online shopping satisfaction in Malaysia: A framework for security, trust and cybercrime. In 2016 6th International Conference on Information and Communication Technology for the Muslim World (ICT4M) (pp. 194-198). IEEE.

Ansari, S., Ansari, G., Ghori, M. U. & Kazi, A. G. (2019). Impact of brand awareness and social media content marketing on consumer purchase decision. *Journal of Public Value and Administrative Insight*, 2(2), 5-10.

Aref, M. M. & Okasha, A. (2020). Evaluating the online shopping behavior among Egyptian college-educated community. *Review of Economic and Political Science*, 5(1), 21–37. https://doi.org/10.1108/reps-10-2018-0013

Basso, K., Da Costa Duschitz, C., Giacomazzi, C. M., Sonego, M., Rossi, C. a. V. & Reck, D. (2019). Purchase decision and purchase delay of hedonic and utilitarian products in the face of time pressure and multiplicity of options. REGE - Revista De Gestão. https://doi.org/10.1108/rege-01-2018-0022

Bowden, J. & Mirzaei, A. (2021). Consumer engagement within retail communication channels: an examination of online brand communities and digital content marketing initiatives. *European Journal of Marketing*, 55(5), 1411–1439. https://doi.org/10.1108/ejm-01-2018-0007

Chambers, Becca. (2021). Why Marketers Should Care About Cybersecurity – Forbes. Why Marketers Should Care About Cybersecurity (forbes.com)

Chetioui, Y., Lebdaoui, H. & Chetioui, H. (2021). Factors influencing consumer attitudes toward online shopping: the mediating effect of trust. *Euromed Journal of Business*, 16(4), 544–563. https://doi.org/10.1108/emjb-05-2020-0046

Corvidae, J. et. al. (2021). Net Zero Carbon Cities: An Integrated Approach: World Economic Forum.

Creswell. (2013). CRESWELLQualitative-Inquary-and-Research-Design-Creswell.pdf (ceil-conicet.gov.ar)

Culpepper, J. C. (2000). Merriam-Webster Online: *The Language Center. Electronic Resources Review*, 4(1/2), 9-11.

Daroch, B., Nagrath, G. & Gupta, A. (2021). A study on factors limiting online shopping behavior of consumers. *Rajagiri Management Journal*, 15(1), 39–52. https://doi.org/10.1108/ramj-07-2020-0038

Daroch, B., Nagrath, G. & Gupta, A. (2021). A study on factors limiting online shopping behavior of consumers. *Rajagiri Management Journal*, 15(1), 39–52. https://doi.org/10.1108/ramj-07-2020-0038.

Davis, F., Gnanasekar, M. B. F. & Parayitam, S. (2021). Trust and product as moderators in online shopping behavior: evidence from India. South Asian Journal of Marketing, ahead-of-print(ahead-of-print). https://doi.org/10.1108/sajm-02-2021-0017

Desai, V. (2019). Digital Marketing: A Review. International Journal of Trend in Scientific Research and Development, Special Issue (Special Issue-FIIIIPM2019), 196–200. https://doi.org/10.31142/ijtsrd23100

Dictionary, C. (2023). Expert. Retrieved March, 3, 2023.

Fahmi, K., Sihotang, M., Hadinegoro, R. H., Sulastri, E., Cahyono, Y. & Megah, S. I. (2022). Health Care SMEs Products Marketing Strategy: How the Role of Digital Marketing Technology through Social Media? *UJoST-Universal Journal of Science and Technology*, 1(1), 16-22.

Frimpong, A. O. & Alam, K. (2020). The impact of online marketing influencers on consumer purchase decision: A case study of Ghana.

Hair, J. F., Risher, J. J., Sarstedt, M. & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24.

Hamouda, M. (2021). Purchase intention through mobile applications: a customer experience lens. *International Journal of Retail & Distribution Management,* 49(10), 1464–1480. https://doi.org/10.1108/ijrdm-09-2020-0369

Hasan, I., Habib, M. M. & Tewari, V. (2022). Factors Affecting the Online Purchasing Behavior for Young Consumers: A Case Study. *Journal of Service Science and Management*, 15(5), 531-550.

Hawaldar, I. T., Ullal, M. S., Sarea, A., Mathukutti, R. T. & Joseph, N. (2022). The study on digital marketing influences on sales for B2B start-ups in South Asia. Journal of Open Innovation: *Technology, Market, and Complexity*, 8(1), 23.

Komal. (2021). A Literature Review on Consumer's Complaining Behavior and Dissatisfaction: Implication of Marketing Strategies with Special Reference to the Online Retail Sector. *Open Journal of Business and Management*, 9(02), 496-511.

LaMorte, Wayne W. (2022). The Theory of Planned Behavior, https://sphweb.bumc.bu.edu/otlt/MPHModules/SB/BehaviouralChangeTheories/BehaviouralChangeTheories3.html.

Lim, Y. C., Osman, A., Salahuddin, S. N., Romle, A. R. & Abdullah, S. (2016). Factors Influencing Online Shopping Behavior: The Mediating Role of Purchase Intention. Procedia. *Economics and Finance*, 35, 401–410. https://doi.org/10.1016/s2212-5671(16)00050-2

Martins, J., Costa, C., Oliveira, T., Gonçalves, R. & Branco, F. (2019). How smartphone advertising influences consumers' purchase intention. *Journal of Business Research,* 94, 378–387. https://doi.org/10.1016/j.jbusres.2017.12.047

Mitchell, C. (2023). What is Online Consumer Behavior? https://www.smartcapitalmind.com/what-is-online-consumer behaviour.html.

Mkwizu, K. H. (2019). Digital marketing and tourism: opportunities for Africa. *International Hospitality Review,* 34(1), 5–12. https://doi.org/10.1108/ihr-09-2019-0015

Muda, M., Mohd, R. & Hassan, S. (2016b). Online Purchase Behavior of Generation Y in Malaysia. Procedia. *Economics and Finance,* 37, 292–298. https://doi.org/10.1016/s2212-5671(16)30127-7

Nam, C. W. (2020, July). World economic outlook for 2020 and 2021. *In CESifo Forum*, 21(2), 58-59. Institut für Wirtschaftsforschung (Ifo).

Nawaz, Samsudeen Sabraz, and Mubarak Kaldeen. (2020). Impact of digital marketing on purchase intention. *International Journal of Advanced Science and Technology,* 29(4), 1113-1120.

Omar, A. M. & Atteya, N. (2020). The impact of digital marketing on the consumer buying decision process in the Egyptian market. *International Journal of Business and Management,* 15(7), 120-132.

Park, Y. J. (2022). Personal data concern, behavioral puzzle, and uncertainty in the age of digital surveillance. *Telematics and Informatics*, 66, 101748.

Peña-García, N., Gil-Saura, I., Rodríguez-Orejuela, A. & Siqueira-Junior, J. R. (2020). Purchase intention and purchase behavior online: *A cross-cultural approach. Heliyon,* 6(6).

Prebreza, A. & Shala, B. (2021). The trust in online shopping during COVID-19: A case study from Kosovo. *Open Access Library Journal*, 8(4), 1-15.

Purwanto, A. (2022). How The Role of Digital Marketing and Brand Image on Food Product Purchase Decisions? An Empirical Study on Indonesian SMEs in the Digital Era. Journal of Industrial Engineering & Management Research.

Product Mindset. (2022). EKB Model of Consumer Behavior (substack.com)

Rejikumar, G. & Asokan-Ajitha, A. (2021). Role of impulsiveness in online purchase completion intentions: an empirical study among Indian customers. *Journal of Indian Business Research,* 13(2), 189–222. https://doi.org/10.1108/jibr-04-2018-0132.

Sampe, Ferdinandus, Muhammad Yusuf, Daniel Lallo Pakiding, Andri Haryono, and Sutrisno. "Application of Digital Marketing in Maintaining Msmes During The Covid-19 PandemiC. *Journal Darma Agung,* 30(2), 663-676.

Schwab, K. & Zahidi, S. (Eds.) (2020). The global competitiveness reports. How countries are performing on the road to recovery. World Economic Forum

Sekaran, U. (2003). Research Methods for Business: A skill building approach. John Wiley & Sons.

Sekaran, U. & Bougie, R. (2016). Research methods for business: A skill building approach. john wiley & sons.

Shaouf, A., Lü, K. & Li, X. (2016). The effect of web advertising visual design on online purchase intention: An examination across gender. *Computers in Human Behavior,* 60, 622-634.

Simon Kemp. (2022). Digital 2022: Malaysia — DataReportal – Global Digital Insights

Tobi, O. T., Ayodele, M. D. & Akindele, A. A. (2020). Effect of online advertising on consumer buying behavior of internet users in Lagos State. *Ilorin journal of human resource management,* 4(1), 171-181. Najma

Venkatesh, V., Speier-Pero, C. & Schuetz, S. (2022). Why do people shop online? A comprehensive framework of consumers' online shopping intentions and behaviors. *Information Technology & People*, 35(5), 1590–1620. https://doi.org/10.1108/itp-12-2020-0867

Wu, Y. & Chen, H. (2019). The influence of product diversity on consumers' impulsive purchase in an online shopping environment. *American Journal of Industrial and Business Management*, 9(3), 680-698.

Zikmund, W. G., Babin, B. J., Carr, J. C. & Griffin, M. (2013). Business research methods. Cengage learning.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Exploring the Impact of Patriotism, Volunteerism and Perceived Empowerment on Community Engagement in Sports Events

Azzura Nordin*, Aziz Jamal, Nor Zaihan Mat Hasan Mat Hussin, Mohd Zulkifli Abdullah, Saadiah Juliana Saadun
Faculty of Business & Management, Universiti Teknologi MARA, Malaysia
*azzura344@uitm.edu.my, azizabduls.jamal@gmail.com, norzaihanmh@uitm.edu.my,
m_zulkifli@uitm.edu.my, saadiah2861@uitm.edu.my

Abstract: This paper examines the role of patriotism, volunteerism, and perceived empowerment in fostering community engagement during sports events. Using purposive sampling, this study employed 174 undergraduate event management students to answer questionnaires that measured patriotism, volunteerism, perceived empowerment, and community engagement. The relationship of studied variables was primarily analyzed using correlational and multivariate regression analyses through structural equation modeling (SEM). The results of the analyses identified patriotism, voluntarism, and perceived empowerment statistically and significantly influenced respondents` community engagement. Patriotism also emerged as a predictor that influenced community engagement the most. The findings underscore the importance of understanding the specific event context in shaping the influence of these factors. The study highlights the significance of community engagement in sports events for sports management research and practice, emphasizing the motives behind voluntary participation and the potential impact on community development and social outcomes.

Keywords: *Patriotism, Volunteerism, Perceived Empowerment, Community Engagement, Social Impact.*

1. Introduction and Background

This study aims to investigate the role of patriotism, Volunteerism, and perceived empowerment in fostering community engagement during sports events. The study aims to shed light on the theoretical and practical implications of community engagement in the context of sports events, exploring the motives behind voluntary participation and the potential impact on community development and social outcomes. By examining the multifaceted influence of these factors on community engagement, the study seeks to provide valuable insights for sport management research and practice, offering guidance to event managers and community development stakeholders in designing effective strategies and interventions that maximize the social impact of sports events. Through a comprehensive review of relevant literature, the study aims to highlight the nuanced relationships between patriotism, Volunteerism, perceived empowerment, and community engagement, while also identifying potential areas for further research to deepen our understanding of the underlying mechanisms and moderating factors that drive community engagement during sports events. Ultimately, this research contributes to the broader understanding of the complex dynamics between sports events and community engagement, emphasizing the importance of fostering positive social outcomes and promoting social change within communities.

2. Literature Review

The study of community engagement in sports events is of paramount importance for various reasons, as evidenced, by several research papers. Studying community engagement in sports events is vital for understanding its theoretical and practical implications in sports management research and practice (Marques Miragaia et al., 2018). The involvement of individuals in organizing community-level sports events reflects their values, concern for the community, and vocational guidance, making it essential to explore the motives behind voluntary participation (Wilson et al., 2022). Moreover, analyzing sports events' role in community development through community development theories can inform strategies to achieve community development goals and foster positive social outcomes (Schulenkorf & Schlenker, 2017). Participatory sports events, such as running events, offer unique opportunities to build social capital, contribute to community development, and enhance individual well-being through the cultivation of supportive attitudes, prosocial behaviors, and increased socialization (Yao & Schwarz, 2017). Furthermore, community sports events play a significant role in promoting social cohesion and trust, thereby contributing to building cohesive societies and strong community bonds (Schulenkorf & Schlenker, 2017).

Misener (2010) emphasizes that corporations can contribute to the social well-being of communities by strategically aligning themselves with a city's development agenda during the hosting of sporting events. Corte (2020) sheds light on the significant role of the local community through volunteerism experiences in small-scale sports events, highlighting the potential impact of community engagement on sustainable tourism in the local destination. Allen (2014) underscores the significance of comprehending the factors that influence sports event volunteerism to enhance event volunteer management. Additionally, Kerwin (2015) reveals that small-scale sports events can foster a stronger sense of community among volunteers, underscoring the positive social impact of such events within the community. Collectively, these studies emphasize that investigating community engagement in sports events is crucial for promoting social responsibility, sustainable tourism, effective volunteer management, and overall community development.

Patriotism and its Role in Community Engagement: Patriotism emerges as a crucial factor in fostering community engagement during sports events, especially evident in the context of international mega-sporting events (Kaplanidou, 2020). The profound sense of pride and national identity experienced by participants and followers of international sports extends to the success of their national teams, creating a unifying force Higham,1999). This heightened patriotism can contribute to social development and intergroup relations at sports events by promoting positive interactions and fostering mutual understanding among diverse groups (Schulenkorf et al., 2022). Intercommunity sports events present an ideal platform to bring disparate groups together, fostering dialogue, integration, and peaceful coexistence, ultimately leading to the formation of robust community connections (Kim et al., 2013). Such events facilitate socializing, interaction, and cooperation among individuals from different backgrounds, facilitating cultural learning, increased trust, and the establishment of strong social networks (Kim et al., 2013). The positive experiences at these events further foster inclusive social identities, nurturing a sense of togetherness, belonging, and shared community pride (Schulenkorf & Schlenker, 2017). In this way, patriotism emerges as a significant driver of community engagement and social cohesion during sports events.

Kim (2013) found that patriotism positively influenced attitudes towards patriotic advertising and brands in international mega-sporting events but not in domestic events. Choe (2020) discovered that patriotism did not significantly influence physical attendance at the Rio 2016 Olympics, yet it did impact media consumption intention. Santos (2020) revealed that patriotism had a positive effect on fans' attitudes and behaviors towards sponsors during the FIFA 2018 World Cup. On the other hand, Ličen (2019) found that hosting a major sports event did not significantly contribute to nationalizing nationalism or nation-building in Slovenia, but even moderate exposure to the event led to increased patriotism. These studies demonstrate the nuanced influence of patriotism in the context of sports events, impacting consumer attitudes towards advertising and brands in international events, media consumption intention, and fans' attitudes and behaviors towards sponsors. While patriotism may not directly drive physical attendance or national identity-building efforts, it can evoke strong patriotic sentiments even with moderate exposure to the sports event. The findings highlight the multifaceted nature of patriotism's impact on different aspects of sports events and the need to consider the specific event context when examining its influence.

Volunteerism and its Impact on Community Engagement: Volunteerism assumes a central role in shaping community engagement and fostering the formation of social capital during sports events (Fotiadis & Vassiliadis, 2020). The active participation of volunteers in organized sports activities contributes to the development of a vibrant volunteer culture within the community, where individuals voluntarily offer their time and skills to support event organizations (Allen & Bartle, 2014). Intercommunity sports events play a pivotal role in promoting intergroup development and building social capital by creating opportunities for diverse groups to collaborate and interact (Kim et al., 2013). Local volunteers play a crucial role in transforming small-scale sporting events into thriving community occasions that generate positive outcomes, including community empowerment, improved well-being, and a sense of belonging (Della Corte et al., 2020). Community sports organizations, relying on networks of dedicated volunteers, can generate and sustain social capital through the cultivation of social trust and reciprocity (Fotiadis & Vassiliadis, 2020). As a result, inter-community sports events provide a fertile ground for socialization, interaction, and cooperation among diverse groups, ultimately leading to cultural learning, increased trust, and the establishment of enduring social networks (Schulenkorf, 2010).

Volunteerism emerges as a critical factor in promoting community engagement, fostering positive social relations, and enhancing the overall success and impact of sports events. Corte (2020) found that small-scale sports events can strengthen the sense of community and tradition, thus attracting visitors. Hallmann (2017) found that both event involvement and community involvement are significantly correlated and influence future behavioral intentions for one-off events. Allen (2014) found that volunteers' engagement was related to their initial motivation, however, management practices were also important. Zhigang (2022) found that sports event management practices, namely training and working conditions, significantly affected the volunteers' social capital, which in turn affected their satisfaction and work engagement. Overall, these papers suggest that Volunteerism and community engagement are important factors in the success of sports events and should be fostered through effective management practices.

Perceived Empowerment and its Influence on Community Engagement: Perceived empowerment assumes a significant role in influencing community engagement during sports events (Hover et al., 2016). When individuals feel empowered, they are more likely to actively engage with others and contribute to social development, fostering a sense of agency and responsibility within the community (Zhou & Kaplanidou, 2018). Active engagement during participatory sports events facilitates the establishment of social networks, increased trust, and the creation of multiple inclusive social identities (Inoue & Havard, 2014). Engaging groups with others in participatory sports event projects allows them to experience firsthand the transformative impacts of cooperation and diversity, benefitting disparate communities in the long term (Inoue & Havard, 2014). Moreover, the attachment to the cause or event acts as a mediator between motivation factors and both social empowerment and engagement, highlighting the importance of meaningful and purpose-driven event experiences (Parra-Camacho et al., 2021). Sports event managers play a pivotal role in promoting events as opportunities for participants to collectively advocate for meaningful causes and raise awareness of relevant social issues, which contributes to community engagement and social development (Parra-Camacho et al., 2021). Thus, perceived empowerment emerges as a critical factor influencing community engagement and contributing to positive social outcomes during sports events.

Allen (2014) discovered that volunteers' engagement in sports events correlated with their initial motivation and management practices. Chalip (2006) argued that organizers should foster social interaction and a celebratory atmosphere to enhance liminality and communitas, promoting social value. Karadakis (2012) found that perceived event impacts influenced support for future events and community quality of life. Scotto di Luzio et al. (2020) revealed that a strong sports community negatively predicted athlete burnout and controlled motivation, while positively predicting engagement and autonomous motivation in adolescent athletes. These studies highlight the importance of understanding motivations, creating inclusive environments, and considering perceived impacts in promoting community engagement and well-being during sports events.

3. Research Methodology

Population and Sampling: To ensure the relevance of the study's findings to the target population, a purposive sampling technique was adopted. Undergraduate students enrolled in the Event Management program were selected as the study's participants. A total of 174 students participated in the study, consisting of 37 males and 137 females. This sample was deemed suitable for investigating the relationships between patriotism, volunteerism, perceived empowerment, and community engagement within the context of sports events.

Instrument & Data Collection: To measure the studied dimensions of patriotism, volunteerism, perceived empowerment, and community engagement, established scales were utilized. The Patriotism Attitude Scale (Schats, Staub & Lavine, 1999), Bales Volunteerism-Activism scale (Bales, 1996), Frans social worker empowerment scale (Frans, 1993), and the Civic Engagement Scale (Doolitle & Faul, 2013) were selected. Participants were presented with questionnaire items rated on a five-point Likert scale. Scale scores were standardized to enable the generalization of respondents' levels of patriotism, volunteerism, empowerment, and community engagement. Before analysis, the psychometric properties of the scales were rigorously examined, demonstrating high internal consistency with Cronbach's alphas of 0.81, 0.84, 0.93, and 0.86 for

the Patriotism Attitude scale, Bales Volunteerism-Activism scale, Frans social worker empowerment scale, and civic engagement scale, respectively.

Data Analysis: The collected data underwent a meticulous analysis process. Categorical variables were assessed through frequency and percentage calculations, while continuous variables were examined using mean and standard deviation calculations. Pearson's Product-Moment Correlation test was initially employed to explore associations between variables. Subsequently, multivariate regression analysis was conducted using structural equation modeling (SEM). SEM was chosen over conventional multiple regression analysis due to its ability to maximize the likelihood function through the maximum likelihood estimation (MLE) approach. This approach also facilitated explicit evaluation of measurement errors, ensuring robust results (Acock, 2013). Reported P-values were two-tailed, and statistical significance was determined at $P < 0.05$. Data analysis was executed using Stata Statistical Software Release 17 (StataCorp LP, College Station, TX), ensuring accuracy and consistency in the analytical process.

4. Results

Descriptive Analysis: A total of 174 students participated in the survey. Most respondents were female (n = 134, 78.7%). Mean comparison analyses using the Welch t-test identified no significant difference in respondents' patriotism, volunteerism, perceived empowerment, and community engagement when the scores were statistically compared against respondents' gender. Analysis of mean values showed the respondents have a moderately high level of patriotism (M = 4.21, SD = 0.56), volunteerism (M = 4.30, SD = 0.65), perceived empowerment (M = 4.27, SD = 0.70), as well as a moderately high level of agreement on the statements measuring the community engagement (M = 4.30, SD = 0.66).

Table 1: Correlational Analysis

	M	SD	1	2	3
1. Patriotism	4.21	0.56	-		
2. Volunteerism	4.30	0.65	0.69***	-	
3. Perceived empowerment	4.27	0.70	0.65***	0.67***	-
4. Community Engagement	4.30	0.66	0.75***	0.68***	0.63***

*** p <.001

Correlational Analysis: Table 1 presents the result of multiple correlation analyses. The result of the analysis suggests patriotism, volunteerism, and perceived empowerment scores are significantly correlated with respondent's community engagement scores. Patriotism (r = 0.75, p <.001), Volunteerism (r = 0.68, p <.001), and perceived empowerment (r = 0.63, p <.001) showed a positive relationship with community engagement, suggesting the higher the respondent's level of patriotism, volunteerism, and perceive empowerment, the higher the agreement of respondents on the statements measuring the community engagement. The effect sizes for correlation are larger than typical, according to Cohen (1988).

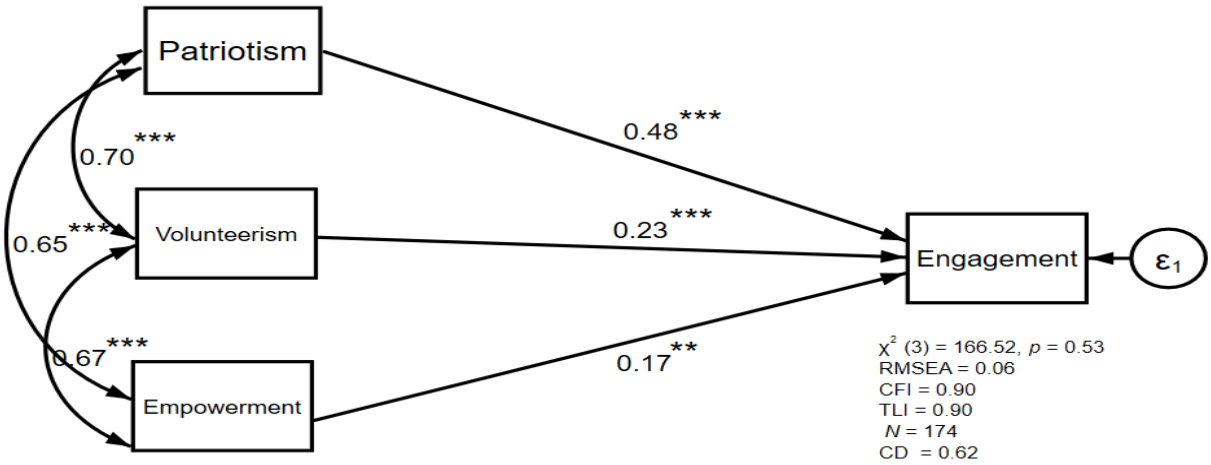
Regression Analysis: Multivariate regression analysis was performed using SEM to determine the level of patriotism, volunteerism, and perceived empowerment in community engagement. To improve the model estimate, we allowed the error terms to be correlated between and among independent variables (patriotism volunteerism, and perceived empowerment). The model shows an appropriate fit (LR chi-squared = 166.52, p = .53, RMSEA = 0.06, CFI = 0.090, TLI = 0.090, CD = 0.62) and the r-squared value explains 62% of fitted data in the regression model. The analysis revealed that patriotism, volunteerism, and perceived empowerment are significant predictors of community engagement. Based on the standardized coefficient, patriotism has a greater influence on community engagement (β = 0.48, p <.001), when compared with the influence of volunteerism (β = 0.23, p <.001) and perceived empowerment (β = 0.16, p <.001) on community engagement. Table 2 summarizes the results of multivariate regression analysis, and Figure 1 provides a diagrammatic presentation of the variable's relationship.

Table 2: Result of Multivariate Regression Analysis using Structural Equation Modelling (SEM)

Structural				***P***	**95% CI**
CE					
	0.56 [0.48]	0.08 [0.07]	6.85	<.001	0.40 – 0.72
	0.23 [0.23]	0.07 [0.07]	3.20	0.001	0.09 – 0.37
	0.16 [0.17]	0.63 [0.07]	2.48	0.013	0.03 – 0.28
Constant	0.29 [0.44]	0.24 [0.39]	1.18	0.237	-0.19 – 0.76
ean (PA)	4.21 [7.52]	0.04 [0.41]	99.20	<.001	4.13 – 4.30
Mean (VO)	4.30 [6.64]	0.05 [0.36]	87.64	<.001	4.20 – 4.39
Mean (PE)	4.27 [6.11]	0.05 [0.37]	80.63	<.001	4.17 – 4.38
Var (e. CE)	0.16 [0.38]	0.02 [0.05]			0.13 – 0.20
Var (PA)	0.31 [1.00]	0.03			0.25 – 0.39
Var (VO)	0.42 [1.00]	0.04			0.34 – 0.52
Var (PE	0.49 [1.00]	0.05			0.40 – 0.60
Cov. (PA, VO)	0.25 [0.70]	0.03 [0.04]	7.54	<.001	0.19 – 0.32
Cov. (PA, PE)	0.25 [0.65]	0.04 [0.04]	7.17	<.001	0.18 – 0.32
Cov. (VO, PE)	0.30 [0.67]	0.04 [0.04]	7.38	<.001	0.22 – 0.39

Note: beta values and S.E in the enclosed square bracket represent the standardized coefficient and (observe information matrix) standard errors. Abbreviation: S.E = Standard Error, CE = Community Engagement, PA = Patriotism, VO = Volunteerism, PE = Perceived Empowerment

Figure 1: Standardized Estimates for Patriotism, Volunteerism and Perceived Empowerment with Correlated Errors (*N* = 174; **p < 0.01, ****p* <.001).



Discussion: The findings of this study provide valuable insights into the role of patriotism, Volunteerism, and perceived empowerment in fostering community engagement during sports events. The results indicate that all three factors significantly influence community engagement, with patriotism showing the strongest impact, followed by volunteerism and perceived empowerment. These findings align with previous research that has highlighted the importance of these factors in shaping social outcomes in the context of sports events.

Patriotism emerged as a crucial driver of community engagement during sports events, particularly in the context of international mega-sporting events. The strong sense of national identity and pride experienced by participants and followers of such events creates a unifying force that promotes positive interactions and mutual understanding among diverse groups (Schulenkorf & Schlenker, 2017; Kaplanidou, 2020; Scotto di Luzio et al.). This sense of togetherness and shared community pride fosters inclusive social identities and strengthens community bonds, contributing to social cohesion and intergroup relations. However, it is noteworthy that patriotism's influence may be context-dependent, as it showed different effects on attitudes towards advertising and brands in international events compared to domestic events. Therefore, event managers should consider the event context and cultural factors when leveraging patriotism to enhance community engagement.

Volunteerism also played a significant role in fostering community engagement during sports events. The active participation of volunteers in organizing sports activities creates a vibrant volunteer culture within the community, promoting community empowerment and a sense of belonging (Fotiadis & Vassiliadis, 2020; Della Corte et al., 2020). Volunteers catalyze transforming small-scale sporting events into thriving community occasions, generating positive outcomes such as improved well-being and community tradition. Effective management practices and adequate training for volunteers contribute to their engagement and social capital, which, in turn, enhances the overall success and impact of sports events. Event managers should prioritize volunteer management to ensure positive social outcomes and community engagement.

Perceived empowerment emerged as a critical factor influencing community engagement during sports events. When individuals feel empowered, they are more likely to actively engage with others and contribute to social development (Zhou & Kaplanidou, 2018; Hover et al., 2016). The attachment to meaningful causes or events acts as a mediator between motivation factors and both social empowerment and engagement. Event managers can promote community engagement by providing opportunities for participants to collectively advocate for meaningful causes and raise awareness of relevant social issues. Such initiatives create a sense of agency and responsibility within the community, fostering positive social outcomes during sports events.

5. Discussion

In conclusion, this study highlights the significant role of patriotism, Volunteerism, and perceived empowerment in fostering community engagement during sports events. The findings underscore the importance of understanding the specific event context and management practices in shaping the influence of these factors. Event managers and community development stakeholders can use these insights to design effective strategies that maximize the social impact of sports events, ultimately benefiting communities and promoting positive social change. Continued research in this area will further enrich our understanding of the complex dynamics between sports events and community engagement, contributing to the advancement of sport management research and practice.

References

Acock, A.C. (2013). Discovering Structural Equation Modeling Using Stata. Stata Press

Allen, J. B. & Bartle, M. (2014). Sport event volunteers' engagement: management matters. Managing Leisure, 19, 36 - 50.

Bales, K. (1996). Measuring the propensity to volunteer. Social Policy & Administration, 30(3), 206-226.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. New York, NY: Routledge Academic

Chalip, L. (2006). Towards social leverage of sports events. Journal of sport & tourism, 11(2), 109-127.

Della Corte, V., Del Gaudio, G. & Nevola, G. (2020). The Engagement of Community and Volunteers in a Small-Scale Sport Event and the Impact on Sustainable Tourism.

Doolittle, A. & Faul, A. C. (2013). Civic Engagement Scale: A Validation Study. SAGE Open, 3(3). https://doi.org/10.1177/2158244013495542

Fotiadis, A. & Vassiliadis, C. (2020). Principles and Practices of Small-Scale Sport Event Management. IGI Global.

Frans, D. J. (1993). A Scale for Measuring Social Worker Empowerment. Research on Social Work Practice, 3(3), 312–328. https://doi.org/10.1177/104973159300300305 Statistical Analysis

Hallmann, K. & Zehrer, A. (2017). Event and community involvement of sports event volunteers. *International Journal of Event and Festival Management*, 8, 308-323.

Higham, J. (1999). Commentary - sport as an avenue of tourism development: an analysis of the positive and negative impacts of sport tourism, Current Issues in Tourism, 2(1), 82-90,

Hover, P., Dijk, B., Breedveld, K., Van Eekeren, F. & Slender, H. (2016). Creating social impact with sports events. https://dspace.library.uu.nl/bitstream/1874/348270/1/sport.pdf

Inoue, Y. & Havard, C. T. (2014). Determinants and consequences of the perceived social impact of a sports event, 28(3). https://doi.org/10.1123/JSM.2013-0136

Kaplanidou, K. (2020). Sports events and community development: resident considerations and community goals. International Journal of Sports Marketing & Sponsorship, 22(1), 53–66. https://doi.org/10.1108/ijsms-05-2020-0082

Karadakis, K. (2012). The influence of small-scale sports events impacts personal and community quality of life and support for sports event tourism. University of Florida.

Kerwin, S., Warner, S., Walker, M. & Stevens, J. (2015). Exploring a sense of community among small-scale sports event volunteers. *European Sport Management Quarterly*, 15, 77 - 92.

Kim, Y., Yim, K. & Ko, Y. J. (2013). Consumer patriotism and response to patriotic advertising: comparison of international vs. national sports events. International Journal of Sports Marketing & Sponsorship, 14(3), 74–96. https://doi.org/10.1108/ijsms-14-03-2013-b006

Kim, Y., Yim, K. & Ko, Y. J. (2013). Consumer patriotism and response to patriotic advertising: comparison of international vs. national sports events, 14(3). https://doi.org/10.1108/IJSMS-14-03-2013-B006

Ličen, S. (2019). Influence of hosting a major sports event on patriotic attitudes: The EuroBasket 2013 competition in Slovenia. *International Review for the Sociology of Sport*, 54(3), 361-383.

Marques Miragaia, D. A., da Costa, C. D. M. & Ratten, V. (2018). Sports events at the community level: A pedagogical tool to improve skills for students and teachers, 60(5). https://doi.org/10.1108/ET-12-2017-0206

Misener, L. & Mason, D. S. (2010). Towards a community-centered approach to corporate community involvement in the sporting events agenda. Journal of Management & Organization, 16, 495-514.

Parra-Camacho, D., González-García, R. J. & Alonso-Dos-Santos, M. (2021). Social impact of a participative small-scale sporting event, 11(2). https://doi.org/10.1108/SBM-12-2019-0119

Santos, M., Vizcaíno, F., & Campos, C. (2020). The influence of patriotism and fans' fulfillment of sponsorship activation in the sponsor's image transfer process. Sport in Society, 23, 280 - 295. https://doi.org/10.1080/17430437.2019.1619700.

Schatz, R. T., Staub, E. & Lavine, H. (1999). On the varieties of national attachment: Blind versus constructive patriotism. Political Psychology, 20(1), 151-174.

Scotto di Luzio, S., Martinent, G., Guillet-Descas, E., & Daigle, M. P. (2020). Exploring the role of sports sense of community in perceived athlete burnout, sport motivation, and engagement. *Journal of Applied Sport Psychology*, 32(5), 513-528.

Schulenkorf, N. (2010). Bridging the divide: The Role of Sports Events in Contributing to Social Development between Disparate Communities.

Schulenkorf, N. & Schlenker, K. (2017). Leveraging sports events to maximize community benefits in low- and middle-income countries, 21(2). https://doi.org/10.3727/152599517X14878772869766

Schulenkorf, N., Thomson, A. & Schlenker, K. (2011). Intercommunity Sport Events: Vehicles and Catalysts for Social Capital in Divided Societies, 15(2). https://doi.org/10.3727/152599511X13082349958316

Wilson, O., Whatman, C., Walters, S., Keung, S., Enari, D., Rogers, A., Millar, S., Ferkins, L., Hinckson, E., Hapeta, J., Sam, M., & Richards, J. (2022). The Value of Sport: Wellbeing Benefits of Sport Participation during Adolescence. International Journal of Environmental Research and Public Health, 19.

Yao, Q. & Schwarz, E. C. (2017). Impacts and implications of an annual major sport event: A host community perspective, 8. https://doi.org/10.1016/J.JDMM.2017.02.007

Zhigang, W., Yingfei, L., Jinyao, Z., Xintao, L., Hongyan, D. & Lei, Z. (2022). How Sports Event Volunteer Management Affects Volunteers' Satisfaction and Engagement: The Mediating Role of Social Capital. SAGE Open, 12.

Zhou, R. & Kaplanidou, K. (2018). Building social capital from sport event participation: An exploration of the social impacts of participatory sports events on the community. *Sport Management Review*, 21(5), 491–503.https://doi.org/10.1016/j.smr.2017.11.001.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Study on the Factors Affecting Employees' Quitting Intention in Malaysian Manufacturing Sector

Khairubi Mahmad & Maliza Delima Kamarul Zaman*
Universiti Teknologi Mara, Puncak Alam, Malaysia
khairubi@pharmaniaga.com, *malizadelima@uitm.edu.my

Abstract: To understand how ethical leadership, emotional leadership, and transformational leadership impact employees' intention to quit in the Malaysian manufacturing industry, a study was undertaken. In this study, a quantitative technique was utilized to gather data from a sample of 175 employees selected from industrial enterprises in the Klang Valley, Malaysia by the use of an online questionnaire. As a means of gathering data, a verified questionnaire with pertinent questions for the study was used. The research findings indicated that there were negative relationships between ethical leadership, transformational leadership and emotional leadership with quitting intention. This showed that employees will have less intention to quit with the increase in ethical leadership, emotional leadership as well and transformational leadership. It also led to further understanding that transformational leadership and emotional leadership had significant effects on employees' intention to quit respectively. These findings were hoped to help organization leaders keep their employees motivated and satisfied with their jobs to make them loyal customers to the company. This study was carried out with employees as the respondents and was set to be in the manufacturing sector in Klang Valley, Malaysia which included all of Selangor's major districts. This was done by choosing samples from different districts that were actively engaged in the manufacturing sector.

Keywords: *Employees' quitting intention, Malaysian manufacturing sector, Ethical leadership, Emotional leadership, Transformational leadership.*

1. Introduction and Background

The current study's goal is to determine the variables that influence employees' inclinations to leave their jobs in the manufacturing industry. Due to its impact on economic growth, Malaysia's manufacturing industry is quite significant and regularly plays a critical role in the country's economy. These businesses account for over 36% of Malaysia's GDP, 65% of its employment, and nearly 18% of its exports (Ho, 2019). The economic landscape of Malaysia has seen significant upheaval in recent decades. The need for workers increased significantly during this period of transformation, which was reflected in general labor shortages. Many national economies have been based on this sector due to its substantial contribution to total output, which tripled from 1960 to 2012 (i.e., from 8 to 24 percent). In addition, the number of persons engaged in this industry increased by 120% between 1982 and 2009, from 816,000 to 1,807,000 (Awad, Yussof, & Khalid, 2017).

With a turnover rate of 16% in 2016, the manufacturing sector had the fifth-highest turnover rate overall. In developing nations like Malaysia, the intention of employees to leave their work is a significant problem. Ooi and Teoh (2021) explain that because of its workplace, the manufacturing sector has a higher inclination to leave than other industries. Turnover is a key topic in the domains of organizational behavior and human resource management. Several studies that have been published have shown that turnover is a big source of concern for businesses. Employee turnover has an impact on organizational decisions, which forces top executives to investigate the causes. Given how this phenomenon affects business operations, further research on employee turnover is necessary (Yasin, Namoco, Jauhar, Rahim & Zia, 2021).

If an employee intends to quit their current position frequently, they are said to have a high turnover intention. Additionally, when employees quit a company for a variety of reasons, their choice to do so could be justified. Turnover is a major concern for human resource departments in every industry since it can impact output and customer satisfaction. This argument contends that if an employee decides to quit the organization, it will increase costs and reduce competitive advantages. According to some experts, the company's high turnover rate may be to blame for its low profitability. Due to its depressive effect, a lot of researchers, including academics, managers, and scholars have concentrated on employees' intentions to quit their jobs (Yasin et al., 2021).

The management's treatment of the employees gave the employees the desire to resign (Marquardt, Manegold & Brown, 2022). Organizations need strong leadership because it shapes how people act. Employers can be successful by creating leaders who can interact with employees and shape their perspectives. These ideas are chosen by effective leaders to foster commitment and enthusiasm for their work. Leaders adjust their methods and plans in response to both internal and external company difficulties. Therefore, by understanding ambidexterity, leaders can improve organizational performance (Abdullah, Atshan, Al-Abrrow, Alnoor & Valeri, 2022).

The notion of ethical leadership, on the other hand, is the practice of exhibiting proper normative behavior in one's actions and interpersonal interactions as well as motivating comparable behavior in followers through two-way communication. Followers regard morally upright leaders as truthful, dependable, fair, and people who genuinely care about other people and the community in which they live and work. Leaders who uphold moral principles both in their daily conduct and in public speech serve as role models for their organizations (Yazdanshenas & Mirzaei, 2022). By gratifying managers' higher psychological attitudes, transformational leaders enhance managers' performance. It is premature to conclude that the same mediating processes apply to creative performance, even though transformational leadership has been connected to work engagement, as research reveals that work engagement is a rather weak predictor of actual behavior (Gyensare & Okpoti, 2016).

Three potential factors were used to explore the relationship between each potential component and the quitting intention in this study. Work engagement, job responsibilities, and organizational commitment are possible variables that could influence the intention to turnover (Ooi & Teoh, 2021). In Malaysia, 61% are planning to look for a new job within the next 12 months – the highest rate compared to Singapore, Australia (48%), New Zealand (50%) and the UK (55%). Lack of career advancement is one of the leading causes of people quitting their jobs in Malaysia (36%) followed by a lack of recognition or appreciation (27%) and a lack of training opportunities (26%). Other contributing factors include a lack of compensation increases, poor management, feeling overworked, and a lack of flexibility (Yeo, 2021) besides organizational leadership.

Background of the Manufacturing Sector: Malaysia's manufacturing sector is still essential to the nation's economic development. Despite the uncertainty surrounding the global economy, the nation's growth was guaranteed by its contributions to export earnings and employment creation. According to DOSM (2022), in its press release dated 30th June 2022, the manufacturing sector contributes 24.3 percent to the national GDP, accelerated by 9.5 percent from a negative 2.7 percent in 2020. Rapid expansion in the Manufacturing sector was aided by double-digit growth in major subsectors, primarily electrical, electronic and optical products at 14.6 percent (2020: 2.6%) and petroleum, chemical, rubber and plastic products at 12.9 percent (2020: -1.0%). The surge in demand for semiconductor chips in recent years has fuelled the double-digit growth, particularly in Selangor 3.1%) and Pulau Pinang (12.4%).

Problem Statement: The likelihood that a worker will quit his or her current position is known as quitting intention. Additionally, it has been suggested that the intention to leave an organization for a variety of reasons might be explained (Ooi & Teoh, 2021). In this study, the researchers study the quitting intention of the manufacturing sector's employees. Employee turnover in Malaysia grew from 1.1% to 13.2% in 2014 and to 14.3% in 2015, which affected the manufacturing sector's business group. A high turnover rate can affect a company's productivity and raise costs. The Manufacturers Alliance for Productivity and Innovation (MAPI) Foundation reports that after growing by 3.5% in 2014, Malaysia's manufacturing sector productivity decreased at a pace of 1.0% annually in 2015 (Chin, 2018).

Work engagement, job responsibilities, and organizational commitment are possible variables that could influence the intention to turnover (Ooi & Teoh, 2021). Even though the economy is slowly recovering, and pandemic restrictions have loosened, many workers who have become accustomed to work-from-home (WFH) arrangements for more than a year are now grudgingly going back to the workplace. No one could have predicted the labor market we have now a few years ago. Unexpected behavioral changes in job seekers and employees are still being caused by COVID-19. Coronavirus continues to pose a risk to a robust and long-lasting labor market recovery. Employers' demand, meantime, far outpaces the quantity of unemployed

people looking for work. In July 2021, there were 83 unemployed people for every 100 job postings, a ratio last seen in December 2019 (Ooi & Teoh, 2021).

The "Great Resignation", as some analysts refer to it, is the result of millions of Americans abandoning their employment each month, further complicating the situation (Lewis, 2021). According to "The Great Resignation" phenomena, the US Bureau of Labour Statistics reported that as of September 2021, 4.4 million Americans had quit their jobs (Yeo, 2021). The COVID-19 pandemic-related lockdown measures gave people a chance to reassess their objectives in life and their professional choices. Since they were no longer forced to drive or take public transportation to get to their different working locations, some people began to appreciate the flexibility and autonomy that came with remote working. During the pandemic, employees must wear masks and follow additional standard operating procedures (SOPs) when returning to the office to reduce the danger of contracting an infection. They must also closely adhere to the working hours established by the organization. For many employees, this position requires quite an adjustment (Yeo, 2021).

In Malaysia, 61% are planning to look for a new job within the next 12 months – the highest rate compared to Singapore, Australia (48%), New Zealand (50%) and the UK (55%). Lack of career advancement is one of the leading causes of people quitting their jobs in Malaysia (36%) followed by a lack of recognition or appreciation (27%) and a lack of training opportunities (26%). Other contributing factors include a lack of compensation increases, poor management, feeling overworked, and a lack of flexibility (Yeo, 2021). Kim and Beehr (2017) emphasized that managers can affect how employees progress in their careers. The proper leader criterion must therefore be supported by evidence to prevent employees' intentions to leave the job, particularly in the post-Covid age. Three potential factors were used to explore the relationship between each potential component and the quitting intention in this study. Little study has examined the potential impact of an empowering leadership style on how people behave in the workplace and the possibility that they may leave.

Conclusion: A bigger intention needs to be focused on the study of how leadership can improve employees' well-being and work engagement based on the aforementioned what, where, who and why (4W) and how (1H) explanation taking element towards quitting intention among manufacturing employees. Therefore, the specific research questions were developed as follows:

- Does Ethical leadership influence the employees 'quitting intention in the manufacturing sector?
- Does Emotional leadership influence the employees 'quitting intention in the manufacturing sector?
- Does Transformational leadership influence the employees 'quitting intention in the manufacturing sector?
- What are the most significant factors that influence employees' quitting intention in the manufacturing sector?

There are four research questions developed from this study based on the understanding that leadership is important to prevent employees from quitting their jobs as well as the limited study to provide evidence on this matter.

Significance of Study: The importance of the study lies in the researchers' ability to investigate the variables impacting employees' quitting intention in the manufacturing sector.

Theoretical Significance: Theoretically, the researchers hoped to be able to determine how three independent variables, namely ethical leadership, emotional leadership, and transformational leadership affect manufacturing employees' intentions to leave their jobs.

Practical Significance: This study is hoped to assist HR in identifying the necessary leadership traits. By keeping an eye on the symptoms, it is also possible to determine the leading indicator of any turnover and decrease the number of manufacturing personnel quitting their positions.

Operational Definition of the Term: Quitting Intention: According to Ouakouak and Zaitouni (2020), a person's withdrawal cognitions, which include thoughts of resigning and looking for alternative career

prospects, are known as quitting intention. The work environment, job requirements, methods of managing human resources, and chances for alternative employment are some of the variables that influence the quitting intention.

Operational Definition of the Term: Ethical Leadership: It is intended to serve as an example of a leader who displays admirable normative behavior and inspires others to follow suit (Yazdanshenas & Mirzaei, 2022).

Operational Definition of the Term: Emotional Leadership: Emotional leadership is the practice of managing followers' emotions by demonstrating understanding, consideration, and respect for their needs and feelings. Managing group members' emotions is a crucial leadership responsibility because it can affect employees' behavior and build a meaningful, trusting relationship between leaders and followers (Ouakouak & Zaitouni, 2020).

Operational Definition of the Term: Transformational Leadership: Transformative leaders are regarded to possess leadership qualities like intellectual stimulation, idealized influence, individualized consideration, and inspirational drive (Gyensare & Okpoti, 2016). Leadership traits including intellectual stimulation, idealized influence, individualized concern, and inspirational motivation are believed to be present in transformational leaders.

2. Literature Review

Self Determination Theory (SDT): Although the motivating mechanisms underlying these effects are yet unknown, ethical leadership affects employees' attitudes and behaviors such as organizational citizenship behavior, commitment, job satisfaction, and job performance. We make use of SDT, a macro theory of human motivation, to examine how moral leadership might influence favorable employee outcomes, namely motivation. Competence, autonomy, and relatedness are the three basic psychological requirements identified by SDT as producing the highest level of intrinsic motivation. Morally upright individuals who make just decisions are ethical leaders. To encourage compliance, they clarify ethical expectations, convey them, set clear ethical standards, and implement rewards and penalties. Competence is the desire to be challenged, control, and master one's environment and, thus, to overcome challenges by using one's skills (LaGuardia, 2017).

Ethical leaders ensure that employee competency is consistent with moral ideals by fostering an environment in the workplace where individuals may push themselves and grow the skills necessary to accomplish their goals. The ability to behave voluntarily and in line with one's integrated self is what is meant by autonomy. Since autonomy depends on trust, respect, fairness, listening, and self-awareness, ethical leaders foster autonomy by acting with honesty, respect, reliability, and fairness while dealing with their staff. The degree to which individuals feel a sense of social connection or belonging to others is reflected in their need for relatedness. The qualities that are necessary for relatedness include empathy, service to others, and respect for their rights and dignity. It is more likely that the innate psychological needs of employees will be satisfied when they are under the direction of moral leaders who promote and model trust and respect in their interactions with staff. Since moral leaders allow workers to develop their abilities, make their own decisions, and engage and connect with other leaders, they are more likely to foster intrinsic motivation through sentiments of caring, stability, and relatedness (LaGuardia, 2017).

Quitting Intention: Accordance to Ouakouak and Zaitouni (2020) a person's withdrawal cognitions, which include thoughts of resigning and looking for alternative career prospects, are known as quitting intention. The work environment, job requirements, methods of managing human resources, and chances for alternative employment are some of the variables that influence the quitting intention. Ooi and Teoh (2021) highlighted that leaving intention is the willingness of an employee to leave his or her existing organization. Quitting intention is the likelihood of an employee's intention to leave the current work. When a person lacks motivation, opportunities for advancement, and performance reviews at work, they may decide to quit their position and leave the company. Since internal and external organizational contexts have changed dramatically over the past few years, employees are growing more concerned about the possibility of losing

their tenure, seniority-based compensation, and stable organizational culture. As a result of organizational environmental changes, employees frequently experience emotional irritability and dissatisfaction with their working conditions. Stressed-out workers may eventually leave their employers. Job satisfaction is lower and there is a higher chance of high turnover when there is emotional dissonance, or the mismatch between an employee's feelings and the actual expressions required of them at work (Kim & Beehr, 2017).

The significance of Employees' Quitting Intention: Since good leadership has been shown to have a strong correlation with low turnover rates, high productivity, and improved employee satisfaction, quitting intention can also be seen from this perspective. Employees who work for bad leaders have a variety of unfavorable outcomes, including decreased productivity, more absenteeism, and higher employee turnover. There are two types of turnover: (1) Preventable turnover includes employee unhappiness and leadership, in addition to (2) unavoidable turnover such as illness, family issues, and retirement (Manoppo, 2020). As "an individual's withdrawal cognitions that involve thoughts of quitting and search for alternative employment opportunities," an intention to quit is a function of various factors, such as the work environment (job characteristics, human factors), recruitment, training costs, decreased productivity, and morale. Employees' intentions to quit are a major concern for managers in both the private and public sectors (Ouakouak & Zaitouni, 2020).

The Main Factors to Reduce Employees' Quitting Intention: Given its role as a key determinant of human behavior, motivation draws a lot of attention. Organizations, in particular, are always looking for new ways to encourage employees' motivation, which is the willingness of organizational members to give their all to their tasks. Employee motivation has been linked in the past to several positive outcomes, including employee satisfaction, well-being, work engagement, and improved job performance. Researchers and managers alike ask for greater research to elucidate the dynamic methods through which businesses can support and preserve the work motivation of their personnel. Existing research distinguishes between intrinsic and extrinsic motivation as the two basic types. Money bonuses, certificates, rewards, awards, and punishment are all seen as extrinsic incentives for work but curiosity, satisfaction, interest, engagement, and good challenges are considered intrinsic incentives. Organizations should take into account both sources, but academics contend that intrinsic sources are more important and merit special attention. In response, we look at intrinsic sources of motivation by investigating how leadership philosophies may enhance employee motivation for workers in public companies in an Eastern cultural setting.

For two key reasons, public institutions make an intriguing context for answering these concerns. First off, due to their general lack of attractiveness to highly qualified managers and high-performing personnel, most nations have significant management issues. The insufficient financial incentives that public organizations can provide are the cause of this lack of attraction, which also suggests that some current employees or managers put minimal effort into their work. Second, fewer studies have examined if and how leadership affects employee motivation in public organizations, in contrast to the comparatively substantial research into employee motivation in the private sector. To attain common goals, leadership refers to "the process of encouraging individual and group efforts to comprehend and agree on what needs to be done and how to do it." It is more important for corporate performance since it influences how employees and followers behave. Motivating team members to work well and accomplish goals may be the most crucial responsibility for leaders (Ouakouak & Zaitouni, 2020).

Ethical Leadership: It is intended to serve as an example of a leader who displays admirable normative behavior and inspires others to follow suit (Yazdanshenas & Mirzaei, 2022). Ethical Leadership is defined by the exhibition of normatively suitable conduct through personal acts and interpersonal interactions, and the encouragement of such conduct to followers through two-way communication, reinforcement, and decision-making. Ethical leadership fosters a range of beneficial effects, including task performance, organizational identification, commitment, and job satisfaction. By showing empathy, care, and respect for their needs and feelings, emotional leaders may control the emotions of their followers (Ouakouak & Zaitouni, 2020). Alkhadra (2022) asserted that by fostering climates of procedural justice, ethical leadership is crucial to improving a firm's success. In the literature on organization and management, the concept of ethical leadership which is defined as a model of a leader who exhibits suitable normative behavior and who encourages followers to follow suit has grown in importance and influence (Yazdanshenas & Mirzaei, 2022).

Ethical Leadership is defined by the exhibition of normatively suitable conduct through personal acts and interpersonal interactions, and the encouragement of such conduct to followers through two-way communication, reinforcement, and decision-making. Ethical leadership fosters a range of beneficial effects, including task performance, organizational identification, commitment, and job satisfaction. By showing empathy, care, and respect for their needs and feelings, emotional leaders may control the emotions of their followers (Ouakouak & Zaitouni, 2020). There was a conditional association between ethical leadership and leaving intentions through interpersonal conflict based on follower moral identity. The negative impacts of ethical leadership on interpersonal conflict and, hence, quitting intentions were more pronounced for followers who had stronger moral identities. Employees' motivation and ethical behavior go hand in hand in hand claim Ouakouak and Zaitouni (2020). Furthermore, employee motivation improves job performance. The results also suggest that plans to quit hurt job performance.

Emotional Leadership: Emotional leadership is the practice of managing followers' emotions by demonstrating understanding, consideration, and respect for their needs and feelings. Managing group members' emotions is a crucial leadership responsibility because it can affect employees' behaviors and build a meaningful, trusting relationship between leaders and followers (Ouakouak & Zaitouni, 2020). Managing group members' emotions is a crucial leadership responsibility because it can affect employees' behavior and build a meaningful, trusting relationship between leaders and followers. Emotional leadership is the practice of managing followers' emotions by demonstrating understanding, consideration, and respect for their needs and feelings (Ouakouak & Zaitouni, 2020).

Transformational Leadership: Transformational leadership is crucial because it makes it possible for people from all backgrounds to collaborate successfully on a common goal. Furthermore, transformational leadership emphasizes change that is aimed at enhancing organizational performance, whether it is from below-par to acceptable or from acceptable to excellent (Gyensare & Okpoti, 2016). Leaders and followers assist one another in raising their moral and motivational levels in a process known as transformational leadership. The transformational method results in significant alterations in people's and organizations' lives. Transformational leaders are idealized in the sense that they serve as moral role models for working with others to further the objectives of a team (Manoppo, 2020). Manoppo (2020) suggests that, even though it was not statistically significant, the turnover intention will be lower with the increase of transformational leadership. Since transformational leadership has been shown to have a strong correlation with low turnover rates, high productivity, and improved employee satisfaction, therefore, the research hypotheses were developed as follows:

Based on the literature reviewed, the following hypotheses were developed:
H0: There is no relationship between ethical leadership and quitting intention.
H1: There is a significant relationship between ethical leadership and quitting intention.

H0: There is no relationship between emotional leadership and quitting intention.
H2: There is a significant relationship between emotional leadership and quitting intention.

H0: There is no relationship between transformational leadership and quitting intention.
H3: There is a significant relationship between transformational leadership and quitting intention.

The hypotheses were developed based on thorough literature on quitting intention based on leadership roles. Three areas of leadership were highlighted. Ethical leadership highlights beneficial effects, including task performance, organizational identification, commitment, and job satisfaction. Emotional leadership highlights employees' behaviors and builds a meaningful, trusting relationship between leaders and followers while Transformational leadership highlights collaboration and organizational performance.

3. Research Design

The goal of this research is to examine the variables influencing employees' intention to quit in the Malaysian manufacturing sector. The goal of the study is to examine how ethical leadership (IV1), emotional leadership (IV2), and transformational leadership (IV3) influence employees' intention to quit their jobs (DV). To

evaluate the prediction model that was created using the foundation of an already existing theory, this study employed a quantitative research technique. Utilizing surveys, the data for this study was gathered. Respondents were contacted through an internet medium like WhatsApp using the snowball sampling technique. The Pearson Coefficient Correlation and Multiple Regression were used to analyze the data. The extent of researchers' interference with the study was minimal and the respondents were anonymous. Surveys were distributed using Google Forms to respondents who meet the fundamental requirements of working adults.

The outcome was immediately gathered via the system and processed using SPSS Version 28.0. The atmosphere of the study was kept as natural as possible in the study setting, which was a non-contrived setting related largely to the correlational investigation. The study is also known as a field experiment while manufacturing employees in Malaysia located in the Klang Valley area that fits the basic criteria of working adults. A cross-sectional study was employed as it was a type of research strategy in which researchers gather information from numerous people all at once. The researchers observed variables in a cross-sectional study. The study sample was selected based on the snowball sampling technique within the working adults in the Klang Valley area. The sample size was 175 employees in all major districts of Selangor.

Data Collection: The researchers used primary data in this study to collect pertinent information for the analysis. The researchers collected data via an online survey distribution using Google Forms. The questionnaire, which was built around the determined dependent and independent variables, consists of sub-questions. The Klang Valley region's working population was the survey's target demographic. The researchers used online platforms like WhatsApp to distribute the questionnaire to the respondents. According to Ouakouak and Zaitouni (2020), there are a variety of elements that affect employees' intention to leave their jobs. For example, four items are used to gauge the respondents' perceptions of the overall degree of balance between their work and their superiors' leadership styles.

The study employed a 5-point Likert scale with responses ranging from "strongly disagree" (1) to "strongly agree" (5). The sample questions on the four-item questions on quitting intention, five-item questions on Ethical leadership, four-item questions on Emotional leadership and seven-item questions on Transformational leadership were shown in Table 1. The questionnaire was adopted from Gyensare and Okpoti (2016) and Ouakouak and Zaitouni (2020) for quitting intention as well as for the independent variables. The pilot test suggested that the questions were accepted and no modification was needed. The questionnaire also had undergone the validation process by an expert. The sample questions are shown in the same Table. The questionnaire was sent to respondents with introductory information and instruction, pledged for confidentiality as well as appreciation.

Table 1: Questionnaire Development

Part	Variable	Scale	Sources
Part A	**Demographic** (6 items) 1. Gender 2. Age 3. Race 4. Marital Status 5. Position in company 6. Working Experience	Nominal Scale Ordinal scale	
Part B	Dependent Variable: **Quitting Intention** (4 items) At this time, I would quit my job if it was feasible. I am planning to leave my job within the next six months. I am actively searching for another job right now. I have thoughts about leaving this organization.	1 (strongly disagree) to 5 (strongly agree)	(Ouakouak & Zaitouni, 2020)

Part C	Independent Variable 1: **Ethical Leadership** (5 items) The management takes disciplinary action against problematic employees. The management always looks after the interests of the employees. The management always makes fair and balanced decisions. The management can be trusted. The management sets an example of how to do things the right way in terms of ethics.	1 (strongly disagree) to 5 (strongly agree)	(Ouakouak & Zaitouni, 2020)
	Independent Variable 2: **Emotional Leadership** (4 items) The management acts by considering my feelings. The management shows respect for my personal feelings. The management behaves in a manner thoughtful of my personal needs. The management treats me with consideration of my personal feelings.	1 (strongly disagree) to 5 (strongly agree)	(Ouakouak & Zaitouni, 2020)
	Independent Variable 3: **Transformational Leadership** (7 items) Leaders in my organization can clearly explain the vision and mission of the organization to employees. Leaders in my organization can invite employees to work together to work for the vision of the organization's mission. Leaders demonstrate integrity in their work. Leaders in my organization show behavior that is by the values adopted by the organization. Leaders in my organization show responsibility to make improvements in the organization. Leaders in my organization provide opportunities for employees to work together. Leaders in my organization encouraged me to work with other employees.	1 (strongly disagree) to 5 (strongly agree)	(Gyensare & Okpoti, 2016)

4. Data analysis

The study focused on employees in Malaysia's Klang Valley who are employed in the manufacturing industry. To get the needed minimum sample size of participants, questionnaires were sent to individual respondents via multiple electronic platforms including email, WhatsApp, and Facebook messaging. Nevertheless, the researchers were able to compile 175 questionnaires that were filled out. No respondents were seen throwing away or leaving any questionnaires unfinished while the questionnaires were being collected.

Table 2: Respondents' Profile

Demographic Variable	Category	Frequency	Percent
Gender	Male	89	50.9
	Female	86	49.1
Age	18-26	21	12.0
	27-34	71	40.6
	35-43	67	38.3
	above 44	16	9.1

Race	Malay	120	68.6
	Chinese	25	14.3
	Indian	29	16.6
	Others	1	0.6
Marital Status	Single	39	22.3
	Married	124	70.9
	Divorcee	8	4.6
	Widowhood	4	2.3
Designation	Non-Executive	31	17.7
	Executive	123	70.3
	Manager and above	21	12.0
Experience	Below 5 years	32	18.3
	Above 5 Years	125	71.4
	More than 20 years	16	9.1

Descriptive Analysis: Before running a correlational analysis, a descriptive analysis was run. It is essential to test the data for normalcy because the goal of this normality test is to determine the distribution's shape. According to Sekaran and Bougie (2002), skewness and kurtosis values between 3 and -3 are regarded as acceptable.

Table 3: Descriptive Analysis

Variables	Mean	Standard Deviation	Skewness	Kurtosis
Ethical Leadership	4.231	0.606	-1.421	3.469
Emotional Leadership	4.109	0.742	-1.353	2.119
Transformational Leadership	4.294	0.602	-1.363	1.990
Quitting Intention	1.671	0.803	2.029	4.447

Reliability Test: This analysis is used to determine the validity of the questionnaire-derived data. This analysis's goal is to determine how consistent and stable the data are. Researchers can evaluate a scale's capacity to produce consistent results when measurements are repeated using reliability analysis. Consequently, Cronbach's Alpha was used to evaluate the validity of the analysis in this study as shown in Table 4.

Table 4: Reliability Test

Variable	No of Items	Cronbach's Alpha	Interpretation
Ethical Leadership	5	0.872	Very Good
Emotional Leadership	4	0.891	Very Good
Transformational Leadership	7	0.915	Excellent
Quitting Intention	4	0.958	Excellent

Table 5: Correlation Coefficient between Quitting Intention and All Independent Variables

Variables	Ethical Leadership	Emotional Leadership	Transformational Leadership	Quitting Intention
Ethical Leadership	1			
	175			
Emotional Leadership	.605**	1		
	175	175		
Transformational Leadership	.697**	.740**	1	
	0.000	0.000		
	175	175	175	
Quitting Intention	-.489**	-.587**	-.594**	1
	0.000	0.000	0.000	
	175	175	175	175

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5 offers a summary of the findings from Pearson's Coefficient Correlation that shows the correlation coefficient between quitting intention and all independent factors. In comparison to the other variables, the variable for transformational leadership showed the largest association coefficient. The substantial correlation coefficient of -0.594 ($r = -0.594$, $p < 0.001$) demonstrates the moderate negative association between transformational leadership and quitting intention. This suggests that a stronger commitment to transformational leadership is associated with lower rates of desire to resign. A moderately unfavorable link between emotional and leadership quitting intention is shown by the obtained correlation value of -0.587 ($r = -0.587$, $p <0.001$). This indicates that organizations with transformational leadership may see reduced levels of quitting intention. The estimated correlation coefficient of -0.489 ($r = -0.489$, $p<0.001$) indicates that the variables of quitting intention and ethical leadership have a moderately unfavorable relationship. This finding demonstrates that when a leader behaves ethically, there is little correlation between quitting intention and quitting behavior. The correlation coefficients in Table 5 generally provided insight into the relationships between quitting intention and the independent variables. According to the negative connections between these variables, transformation, emotional, and ethical leadership as well as ethical leadership may aid in lowering employees' intention rates to quit their jobs.

Multiple Regression Analysis: Regression analysis was used to determine the proportion of dependent variables that can be explained by independent variables. The R-square value was investigated to ascertain the percentage by which independent factors can affect the dependent variable. In this investigation, the F-value was also used to assess how well the regression model fit overall. For each variable to be considered significant, the study outcome must be less than 0.05. The beta coefficient analysis was last used to determine the significance of the independent variables about the dependent variables.

Table 6: Regression Analysis

Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.287	0.366		14.445	0.000
Ethical Leadership	-0.122	0.111	-0.092	-1.095	0.275
Emotional Leadership	-0.333	0.097	-0.307	-3.442	0.001
Transformational Leadership	-0.404	0.132	-0.303	-3.055	0.003
Dependent Variable: Quitting Intention					
R^2	0.43				
F Value	38.824				
Significance	0.000				

Based on Table 6, a statistically significant regression equation was found, with an F-value of 38.824, p = .000, which may be used in the model summary to learn more about the regression model's overall fit and predictive power. The amount of variance in the dependent variable that can be explained by the independent variables is measured by the coefficient of determination, abbreviated as R2. According to the R2 value of 0.430 in this situation, the independent variables are responsible for 43% of the variation in the dependent variable. The results showed that incorporating all three independent variables- ethical Leadership, Emotional Leadership and Transformational Leadership explains a sizable percentage, or 43%, of the variability in management competence. The remaining 57% of the balance was not affected as a result. The following is a representation of the anticipated outcome-dependent variable for the respondents:
Quitting Intention = 5.287 - 0.404 (Transformational Leadership) - 0.333 (Emotional Leadership).

The regression analysis demonstrates that the anticipated value for the model's intercept is 5.287. Also anticipated are regression coefficients of -0.122, -0.333, and -0.404 for Ethical leadership, Emotional leadership and Transformational leadership respectively. The significance of the link between the independent variables and the dependent variable was then determined by analysis. Each variable must reach a significant value below 0.05, as was previously indicated, to be considered significant. The variable with the highest beta coefficient, according to the results shown in Table 6 was Transformational leadership (-0.303, p=0.003, p<0.05). Thus, it can be concluded that, after taking into consideration the effects of the other variables in the model, the transformational demonstrates the most notable and distinct influence on illuminating the dependent variable. There is a strong correlation between emotional leadership and performance (-0.307, p=0.001, p<0.05). The results showed that Transformational leadership exerts the most influence on quitting intention in Malaysia, followed by emotional leadership (-0.122, p=.001, p<0.05) whereas ethical leadership had no impact (-0.092, p=0.275, p>0.05). The variable with the highest standardized coefficient Beta (-0.303) was Transformational leadership.

5. Conclusion and Recommendations

The relationship between Ethical leadership, Emotional leadership and Transformational leadership on quitting intention was the main topic of investigation in this study. The outcomes of the multiple regression analysis showed a negative link between Ethical leadership traits and intention to leave but were not significant. This research suggests that ethical leadership was not statistically associated with intention to leave (-0.122, p=0.275, p>0.05). In light of this, it can be said that hypothesis 1 was not significant indicating a non-relationship between the two variables. A key component of managerial talent is the idea of Ethical leadership. According to research findings, corporate ethics and leadership motivations for the execution of ethical works should be recognized by organizational leaders. Failure to address this problem may result in problems with one's integrity, which can then affect productivity, morale, and job satisfaction. Nevertheless,

the research indicated a non-significant finding to claim that ethical leadership significantly influences quitting intention in the manufacturing industry in Klang Valley.

Analyzing the link between Emotional leadership and quitting intention is the next step in this study's analysis. The outcomes of the multiple regression analysis show that Emotional leadership traits and intention to leave are significantly negatively correlated. According to the current research, there is a statistically significant correlation between Emotional leadership and quitting intention (-0.307, $p=0.001$, $p<0.05$). Therefore, it can be concluded that hypothesis 2 has been supported. Employees who stay with a company for a longer period tend to find that emotional leadership ability and employee intention to leave are negatively correlated. In conclusion, this study examines the relationships between the variables influencing Transformational leadership, Emotional leadership, and Ethical leadership and their effects on workers' intention to leave the manufacturing industry. To reduce rates of intention to quit and enhance staff retention, manufacturing companies should give independent considerations more weight and implement appropriate policies to fulfill employee's demands. Additionally, this study offers important knowledge for enhancing workers' intentions to remain in the industrial sector.

The research's last question focused on the relationship between transformational leadership and quitting intention. According to the results of the multiple regression analysis, the relationship between transformational leadership and the intention to quit was negatively correlated. Based on the current research, there was a statistically significant association between the two variables (-0.303, $p=0.003$, $p<0.05$). It can be concluded that hypothesis 3 has been proven correct. According to this study, organizations should teach their future leaders how to lead through transition. Organizations can improve by committing to a comprehensive training program to develop long-lasting and ongoing leadership skills, particularly in the area of transformation.

This is important because employees' motivation is influenced by perceptions of both ethical and emotional leadership in the workplace. To inspire motivation and improve work performance, leaders must also create conditions that involve positive emotional approaches and modify their emotions (Ouakouak & Zaitouni, 2020). Transformational leadership techniques like idealized influence, inspirational motivation, intellectual stimulation, and individualized attention improve the possibility that the company's aims and objectives will be met and reduce the rate of worker turnover (Gyensare & Okpoti, 2016).

The Federation of Malaysian Manufacturers (FFM) and all Malaysian manufacturing enterprises may have benefitted from the findings of this study since they will be able to better understand the nature and influences on employees' quitting intention. Based on the results of the study, FFM and manufacturing firms in Malaysia may develop plans and strategies to raise the intention of employees to stay with the firm by fostering a favorable work environment and culture that encourages organizational commitment. However, other variables may influence employees' desire to work in the manufacturing industry. To gain a deeper understanding of the phenomenon, it is therefore advised that future researchers do a more thorough investigation of the factors associated with employees' propensity to maintain their employment in the manufacturing sector. Organizations need to be aware of the fact that a condition of mental surrender frequently precedes a state of physiological acceptance, which denotes the ultimate expression of pessimism.

This research started during the harsh episode of the pandemic, thus the leadership in the organizations should play a vital role in preventing employees from quitting. This is due to the trauma experienced during the pandemic that resulted in voluntary resignation due to mental resignation. The phrase "mental resignation" describes a period when an employee loses interest in their work and feels less motivated to put out their best effort. This phenomenon can be caused by several circumstances, including feelings of undervaluation, an excessive workload, and limited prospects for advancement on the personal and professional levels. Employers must aggressively identify and resolve the underlying causes when an employee experiences a state of mental resignation. The actual act of resigning represents the height of pervasive pessimism and despair. The employee reaches a turning point at which they realize they are unable to continue working for the company, and they formally tender their resignation. Young (2022) emphasized that organization leadership should act proactively to prevent the issues of mental resignation that later can cause burnout which seemed to be the worst-case scenario.

By putting the study's findings into practice, tactics that strengthen transformational leadership and emotional leadership can be used to reduce quitting intention. The impact of quitting intention has been the subject of an in-depth study, with results from earlier investigations providing strong justifications for the findings. The research also indicated that there was no relationship between Ethical leadership and quitting intention. This is because there are many researches on Ethical leadership and turnover intention but the research was said to be ambiguous because there was insufficient empirical evidence to link between the two variables (Yaqub, Mahmood, Hussain & Sohail, 2021). Meanwhile, two factors (Transformational leadership and Emotional leadership) were unique elements that have significant impacts that have been further confirmed by statistical research. Organizations can use a variety of tactics to create leaders with the traits necessary for today's competitive market.

References

Abdullah, H. O., Atshan, N., Al-Abrrow, H., Alnoor, A. & Valeri, M. (2022). Leadership styles and sustainable organizational energy in the family business: modeling non-compensatory and nonlinear relationships. Sustainable organizational energy. 2043-6238.

Alkhadra, W. A. (2022). Relationship of ethical leadership, organizational culture, corporate social responsibility and organizational performance: a test of two mediation models. https://doi.org/10.1108/IJOES-05-2022-0092

Awad, A., Yussof, I. & Khalid, N. (2017). Output growth of Malaysia's manufacturing sector – do. Do foreign workers matter? Journal of Economic Studies. 30144-3585. DOI 10.1108/JES-09-2016-0183

Chin, C. L. (2018). The Influence of Job Satisfaction on Employee Turnover Intention in the Manufacturing Industry of Malaysia. *Journal of Arts & Social Sciences,* 1(2), 53.

DOSM. (2022). Economic performance by state, 2021 Gross Domestic Product (GDP) by state 2021. The office of Chief Statistician Malaysia. Department of Statistics, Malaysia.

Gyensare, M. A. & Okpoti, C. A. (2016). Transformational leadership and employee turnover intention. *The mediating role of affective commitment,* 12(3), 243–266.

Ho, S. W. H. (2019) Preparedness for ASEAN Economic Community (AEC): a case study of the Malaysian SME manufacturing sector. *Journal of Asia Business Studies*, 13(3), 384-411.

Kim, M. & Beehr, T. A. (2017). Directing our careers, but getting help from empowering leaders. *Career Development International,* 22(3), 300–317. https://doi.org/10.1108/CDI-11-2016-0202

LaGuardia, J. (2017). Self-determination theory in practice: how to create an optimally supportive health care environment. Middletown, DE. Independently published 2017.

Lewis, L. (2021, Sep 21). Employers and the Great Resignation.

Manoppo, V. P. (2020). Transformational leadership as a factor that decreases turnover intention: *a mediation of work stress and organizational citizenship behavior,* 32(6), 1395–1412. https://doi.org/10.1108/TQM-05-2020-0097

Marquardt, D. J., Manegold & Brown, L. W. (2021). Integrating relational systems theory with ethical leadership: how ethical leadership relates to employee turnover intentions. *Relational systems theory and ethical leadership,* 43(1), 155-179.

Ouakouak, M. L. & Zaitouni, M. G. (2020). Ethical leadership, emotional leadership, *and quitting intentions in public organizations Does employee motivation play a role?* 41(2), 257–279.

Ooi, T. P. & Teoh, K. B. (2021). Factors affecting the turnover intention among employees in the Penang manufacturing industry. *Annals of Human Resource Management Research,* 1(1), 29–40.

Sekaran, U. & Bougie, R. (2020). Research Methods for Business: A Skill-building Approach, Wiley, 2020.

Yaqub, R. M. S., Mahmood, S., Hussain, N. & Sohail, H. A. (2021) Ethical leadership and turnover intention: A moderated mediation model of job embeddedness and Organizational commitment. *Bulletin of Business and Economics,* 10(1), 66-83.

Yasin, R., Namoco, S., N., Jauhar, N., Rahim, N. F. A. & Zia, N. U. (2021). Responsible leadership is an obstacle to turnover intention. *Social responsibility journal*, 17(8), 1175-1192.

Yazdanshenas, M. & Mirzaei, M. (2022). Leadership integrity and employees' success: role of ethical leadership, psychological capital, and psychological empowerment. https://doi.org/10.1108/IJOES-05-2022-0117

Yeo, A. (2021). Is The 'Great Resignation' Spreading in Malaysia? Business Today.

Young, F. (2022). How Leadership Can Address the Great Resignation, Forbes Business Council.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

The Effect of Organizational Innovation Mediates between Knowledge Management Capabilities and Hotel Performance: A Conceptual Analysis

Syed Jamal Abdul Nasir Syed Mohamad[1], Nor Shahrul Nizam Muhamad Nor[2*,]
Amily Fikry[2] & Muhammad Ridzuan Abdul Aziz[2]
[1]Arsyad Ayub Graduate Business School (AAGBS), Universiti Teknologi MARA, Malaysia
[2]Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam, Malaysia
syedjamal145@uitm.edu.my, *shahrul@uitm.edu.my, ridzuandba@uitm.edu.my

Abstract: The mediation relationship of organizational innovation (OI) between knowledge management capabilities (KMC) and hotel performance (HP) in Malaysia is the focus of this study. According to the World Tourism Organization (2018), around 1.245 billion foreign tourists visited the world in 2016, and the business is expected to generate trillions of dollars in revenue. Unfortunately, this industry has been impacted by the COVID-19 pandemic, which began in early 2020 but has since slowly recovered since 2022 (UNWTO, 2022). To survive in the cut-throat climate, hoteliers in the tourism sector must adopt the prevailing fashion. As a result, hoteliers must equip their staff with the necessary knowledge of infrastructure and processes to handle organizational innovation to ensure they can perform and survive. Nonetheless, a large number of them continue to resist knowledge management adaptation as a creative organization. This initial stage of the conceptual paper is the development of knowledge management, organizational innovation and hotel performance. The data were collected from selected hotels among their top management such as chief executive officers, general managers, managing directors or department managers that represent three-star to five-star hotels in Malaysia by using simple random sampling from the list provided by the Ministry of Tourism, Art and Culture of Malaysia. The result can be expected to assist organizations including hoteliers to sustain competitiveness by having knowledge management capabilities and organizational innovation in the market.

Keywords: *Knowledge Management Capabilities, Knowledge Infrastructure, Knowledge Process, Organizational Innovation, Hotel Performance.*

1. Introduction

In today's rapidly changing business landscape, innovation and a diverse set of skills are imperative for organizations not only to survive but also to maintain a competitive edge (Azeem, Ahmed, Haider & Sajjad, 2021; Alves, Galina & Dobelin, 2018). In this context, knowledge management emerges as a vital tool, enabling organizations to foster creativity and innovation, thus sustaining their competitiveness (Huang & Huang, 2020; Lee, 2016). During the era of the fourth industrial revolution which is also known as IR 4.0 is characterized by technological advancements and innovation, the ability to effectively manage knowledge becomes even more critical (Urban & Matela, 2022; Muafi, 2020; Abu Bakar, Elrehail, Alatailat & Elci, 2019; Ansari, 2019). In this new era, digital technologies have undergone transformative changes, leading to new forms of competition in various industries, including the service sectors like tourism and hospitality (Antunes & Pinheiro, 2020; Hock-Doepgen, Clauss, Kraus & Cheng, 2021).

Most research indicates that organizations that embrace innovation can enhance their services and outperform their competitors, while simultaneously reducing operational costs (Putra, Rahayu & Putri, 2021). This further underscores the importance of knowledge management, as it catalyzes innovation, enabling organizations to capitalize on technology advancements and effectively adapt to the dynamic business environment. At the same time, the tourism and hospitality industry, in particular, faces the challenge of staying relevant in an era where consumer preferences and technology rapidly evolve. In this context, knowledge management plays a pivotal role in enabling these businesses to embrace innovative practices, deliver exceptional customer experiences, and optimize their operations. As digital technologies continue to reshape customer expectations and market dynamics, therefore, organizations that prioritize knowledge management and innovation will be better positioned to navigate these shifts successfully.

The tourism and hospitality industry has become a vital contributor to national income and gross domestic product (GDP) for many countries worldwide. Over the past two decades, there has been a steady increase in

international tourist arrivals, as evidenced by data from the World Bank, which shows a rise from 55 million in 1995 to a staggering 1.25 billion in 2016. Malaysia, in particular, experienced a similar trend, as reported by the World Tourism Organization (2018), with international tourist arrivals increasing from 7.5 million to 26.8 million during the same period. However, the industry faced an unprecedented challenge with the outbreak of COVID-19 in 2020, which led to a devastating impact on tourism and hospitality activities globally. Many countries were compelled to close their borders and restrict travel to curb the spread of the virus. Consequently, the industry experienced significant losses, with tourism and hospitality activities coming to a near standstill. In response to the pandemic, countries began adopting phased approaches to reopen their tourism and hospitality sectors, aiming to recover from the economic downturn caused by the pandemic (UNWTO, 2022). These phased reopenings have been accompanied by strict health and safety measures to safeguard both travelers and hospitality professionals. Despite the challenges brought on by the pandemic, the tourism and hospitality industry remains resilient, with gradual recoveries observed in various regions as vaccination efforts and travel protocols evolve. The industry's ability to adapt to rapidly changing circumstances and implement innovative strategies has been key to its survival and eventual revival.

Looking forward, as the global situation continues to evolve; the tourism and hospitality sector will undoubtedly undergo further transformations. Governments, businesses, and industry stakeholders will need to remain agile and proactive in responding to new challenges and opportunities that arise. Embracing knowledge management and innovation will play a critical role in shaping the future of the industry, allowing it to respond effectively to emerging trends, changing consumer preferences, and advancing technologies. While the path to recovery may be complex, the tourism and hospitality industry's resilience and adaptability are clear indicators of its potential to bounce back and continue its vital contribution to national economies and GDPs worldwide. The industry's role in driving economic growth, creating employment opportunities, and fostering cultural exchange and understanding between nations will remain central to its significance on the global stage.

As a service-oriented sector, the hospitality and tourism industry relies heavily on effective knowledge management as a crucial factor for survival and high performance (Patwary, Alwi, Rehman, Rabiul, Babatunde & Alam, 2022; Payal, Ahmed & Debnath, 2016; Cooper, 2006). In this dynamic and competitive landscape, knowledge is recognized as a vital resource that empowers hotels to remain innovative and maintain their competitive edge (Patwary et al., 2022; Hock-Doepgen et al., 2021; Rudez, 2010). Moreover, knowledge management serves as a critical indicator of an organization's ability to ensure that its employees are knowledgeable and capable of performing their roles effectively (Patwary et al., 2022; Poloski-Vokic, 2008). This is particularly true for frontline employees who directly interact and communicate with hotel guests. These employees require access to the right knowledge to provide exemplary services and create memorable guest experiences (Patwary el al., 2022; Shamim, Cang & Yu, 2017). Skilled and knowledgeable frontline employees not only enhance guest satisfaction but also serve as effective representatives of the organization, leaving a positive impression on guests and enhancing the hotel's reputation (Tavitiyaman, Zhang & Qu, 2012).

In the fast-paced hospitality and tourism industry, knowledgeable employees play a crucial role in staying up-to-date with market trends, customer preferences, and technological advancements (Patwary et al., 2022; Kumar, 2017; Su & Lin, 2006). Their ability to manage and apply this knowledge is pivotal for the hotel's adaptability and success in meeting evolving customer expectations and industry trends. Notably, the effectiveness of knowledgeable employees is closely linked to the leadership and guidance of knowledgeable and capable managers (Chaithanapat, Punnakitikashem, Ooo & Rakthin, 2022). In the context of the hospitality and tourism industry, this underscores the significance of knowledge management at all levels of the organization. Managers who prioritize knowledge management foster a culture of continuous learning and development, empowering their teams to thrive in a rapidly changing environment (Urban & Matela, 2022).

Organizations that fail to recognize the criticality of knowledge management may encounter significant obstacles in their quest to perform effectively and compete in the business landscape (Chaithanapat et al., 2022; Urban & Matela, 2022; Carlucci, Marr & Schiuma, 2004). The importance of knowledge management becomes increasingly evident as businesses navigate an ever-evolving and highly competitive environment.

These organizations often encounter challenges when attempting to implement and adapt knowledge management practices to meet the demands of the current business landscape (Hock-Doepgen et al., 2021; Ngah, Tai & Bontis, 2016). In today's dynamic and rapidly changing world, knowledge is a strategic asset that underpins a company's ability to remain agile and responsive to emerging trends and customer demands.

Without the appropriate levels of knowledge and the ability to manage and leverage it effectively, organizations may find themselves lagging behind their competitors. This lack of knowledge can hinder the development of essential skills and capabilities needed to achieve the organization's goals and objectives (Khan, 2019). In this context, knowledge management catalyzes fostering innovation, enhancing performance, and achieving sustainable growth. Organizations that prioritize knowledge management can tap into their collective expertise, insights, and experiences to make informed decisions, identify opportunities, and address challenges effectively.

Moreover, a robust knowledge management system enables organizations to learn from their past experiences and avoid repeating mistakes, leading to continuous improvement and efficiency gains. It also fosters a learning culture, where employees are encouraged to share knowledge, collaborate, and acquire new skills, ultimately contributing to the organization's overall competitiveness and adaptability. Furthermore, in an era marked by digital disruptions and technological advancements, organizations that neglect knowledge management may struggle to harness the potential of emerging technologies, losing out on opportunities to innovate and stay ahead of the curve.

By recognizing knowledge as a strategic asset and implementing effective knowledge management practices, organizations can build a knowledge-driven culture that empowers employees, enhances decision-making, and drives sustainable business success. This proactive approach to knowledge management is not only vital for immediate performance but also for long-term resilience and competitiveness in an increasingly dynamic and unpredictable business landscape. In conclusion, the significance of knowledge management cannot be underestimated, as it represents a cornerstone for organizational performance, innovation, and success in the face of ever-changing business challenges and opportunities. In the ever-evolving business landscape, the implementation of knowledge management alone, without due consideration for innovation and other organizational capabilities may prove insufficient in propelling organizations toward success. Simply managing knowledge without integrating it with innovation and other essential competencies can leave organizations stagnating and struggling to navigate complex business challenges.

Studies conducted by Urban and Matela (2022), Ode and Ayayoo (2020), and Nor, Mohd-Nor, and Mohd-Nor (2012) all highlight the crucial role of innovation in addressing business challenges effectively. Innovation serves as a driving force that enables organizations to adapt to changing market dynamics, capitalize on emerging opportunities, and overcome obstacles that hinder growth and performance. In this context, knowledge management and innovation become interdependent, with one complementing and reinforcing the other. Knowledge management lays the foundation by ensuring that an organization's knowledge assets are effectively captured, shared, and applied. However, it is innovation that transforms this knowledge into tangible solutions, products, or services that propel the organization forward. The integration of knowledge management and innovation allows organizations to harness the collective intelligence of their workforce and translate it into practical innovations that enhance efficiency, drive revenue, and deliver superior customer experiences.

Moreover, the fast-paced advancements in technology and market demands necessitate organizations to continuously innovate and leverage knowledge effectively to gain a competitive advantage. Urban and Matela (2022) emphasize that successful organizations align their knowledge management efforts with a focus on technology-driven innovation to stay ahead in the highly competitive business landscape. By fostering a culture of innovation and knowledge sharing, organizations can create an environment where employees are encouraged to generate and experiment with new ideas. This, in turn, leads to improved problem-solving capabilities, increased operational efficiency, and enhanced customer value propositions.

To address the challenges posed by inadequate knowledge management and limited innovation, organizations can adopt strategies recommended by Patwary el al. (2022), Hock-Doepgen et al. (2021) and

Shamim et al. (2017). They propose creating an effective knowledge management system that transforms individual knowledge into valuable intellectual assets, under the guidance and leadership of top management. This approach ensures that knowledge is harnessed, shared, and applied strategically across the organization, promoting a culture of continuous learning and innovation. Moreover, successful organizations go beyond merely managing knowledge resources; they also leverage innovation and technology to optimize operational efficiency and reduce costs (Hock-Doepgen et al., 2021; Alavi, Kayworth & Leidner, 2005). Embracing innovation in technology can lead to streamlining processes, automating routine tasks, and enhancing overall productivity. For instance, the integration of advanced technologies such as artificial intelligence, data analytics, and cloud computing can enable organizations to make data-driven decisions, predict trends, and allocate resources effectively.

The combination of knowledge management and innovation not only enhances operational efficiency but also fosters a more innovative workforce. Empowered with access to valuable knowledge resources and driven by a culture of innovation, employees are encouraged to think creatively, experiment with new ideas, and contribute to problem-solving and decision-making processes (Patwary et al., 2022; Alaarj, Mohamed, & Ahmad Bustaman, 2016). Knowledge management and innovation are particularly crucial for organizations operating in the dynamic tourism and hospitality industries. The rapidly changing customer preferences, evolving market trends, and unpredictable external factors demand adaptive and forward-thinking strategies. By engaging in effective knowledge management processes, tourism and hospitality organizations can stay attuned to market shifts, anticipate customer needs, and remain competitive in this ever-evolving landscape.

To successfully implement knowledge management and innovation, organizations must foster a collaborative and learning-oriented culture. Leaders should champion knowledge-sharing initiatives, create platforms for open communication, and recognize and reward innovative ideas and initiatives. Additionally, investing in employee training and development programs can equip the workforce with the necessary skills and knowledge to leverage the organization's intellectual assets effectively. In the contemporary business landscape, organizations, including those in the tourism and hospitality industry, face a myriad of complex challenges that demand effective solutions, making knowledge management an essential tool (Patwary et al., 2022; Alaarj et al., 2016). The tourism and hospitality sector, in particular, can benefit significantly from knowledge management to enhance innovation and competitiveness in the market (Patwary et al., 2022; Urban & Matela, 2022).

Hotels, as integral players in the tourism and hospitality industry, can gain a distinct advantage over their competitors by offering knowledge-based services. By leveraging their knowledge resources effectively, hotels can continuously improve, create and enhance their business quality, elevating the overall guest experience (Patwary et al., 2022; Su & Lin, 2006). Innovation plays a critical role in this endeavor, enabling hotels to implement novel approaches and creative solutions to meet the changing needs and preferences of their customers.

On another hand, the recognition of knowledge management's importance in fostering innovation and performance is widely acknowledged by scholars and practitioners alike. Gomes, Seman, Berndt, and Bogoni (2022) and Dukeov, Bergman, Heilmann, and Nasledov (2020) concur that the current business environment necessitates organizations to prioritize innovation to remain competitive. In the highly dynamic and fast-paced tourism and hospitality industry, innovation becomes a key driver for staying ahead in the race for customer loyalty and market share. Moreover, as the tourism and hospitality industry faces unique challenges, such as fluctuating demand patterns, changing travel preferences, and the impact of global events like the COVID-19 pandemic, effective knowledge management becomes even more critical. It allows hotels to tap into the collective intelligence of their workforce, identify potential risks and opportunities, and develop strategies that drive resilience and sustainability. By nurturing a culture that values knowledge sharing, continuous learning, and innovation, hotels can empower their employees to contribute their unique insights and ideas. This collaborative approach not only fosters a sense of ownership and engagement among employees but also cultivates an environment where creativity thrives.

Furthermore, knowledge management and innovation go hand in hand to create a positive feedback loop. As knowledge management processes enrich the organization with valuable insights and best practices,

innovation turns these assets into tangible solutions, products, or services that provide a competitive edge. This cycle of continuous improvement drives the organization's growth and positions it as an industry leader. In the pursuit of competitiveness and success in the business market, hoteliers must effectively assess their organization's performance from multiple perspectives, as suggested by Philips (1999). Traditionally, organization performance has been evaluated primarily through financial metrics, such as profitability and revenue generation. However, Huang and Huang (2020), Reyes-Santiago, Sanchez-Medina, and Riaz-Pichardo (2019), and Chow and Van Der Stede (2006) raise valid concerns about the limitations of relying solely on financial measurements. They argue that financial metrics may not provide a comprehensive picture of an organization's overall performance and may overlook crucial non-financial aspects.

Recognizing the significance of non-financial indicators, Kokkaew, Jokkaw, Peansupap, and Wipulanusat (2022) advocate focusing on non-financial perspectives, which they find to be more suitable for measuring organization performance, especially in the context of knowledge management. Non-financial metrics encompass a wide range of criteria, including customer satisfaction, employee engagement, innovation capability, and sustainability practices, among others. These indicators offer valuable insights into the organization's ability to create value, build relationships, and drive long-term success. In light of the challenges and complexities associated with assessing organization performance in the hospitality industry, this conceptual analysis endeavors to shed light on the research objective of investigating the relationship between knowledge management and hotel performance in Malaysia. More specifically, the study aims to explore how innovation serves as a mediator between knowledge management and hotel performance. By understanding this relationship, hoteliers can identify the mechanisms through which knowledge management practices impact performance outcomes and leverage innovation as a catalyst for sustainable growth and competitiveness.

The inclusion of innovation as a mediator is of particular importance, as it helps elucidate the dynamic interplay between knowledge management and hotel performance. Innovation acts as a bridge, transforming the knowledge acquired, shared, and applied within the organization into tangible improvements, novel solutions, and enhanced guest experiences. As a result, hotels can unlock their full potential by effectively utilizing their intellectual assets to drive innovation and improve overall performance.

This conceptual study serves as a valuable foundation for future empirical studies seeking to validate and further explore the relationship between knowledge management, innovation, and hotel performance. By incorporating both financial and non-financial perspectives, researchers can gain a comprehensive understanding of how knowledge management practices and innovation contribute to hotels' overall success and competitiveness.

2. Literature Review

Knowledge Management Capabilities: Knowledge is a valuable resource that plays a pivotal role in an organization's ability to maintain a competitive edge and achieve strong business performance (Martins, Rampasso, Anholon, Quelhas & Filho, 2019). Scholars like Barney (1991) and Grover & Davenport (2001) emphasize the significance of knowledge as an asset for organizations. Bolisani and Bratianu (2018) go further to explain that knowledge is not just an abstract concept but rather undergoes a transformative process, becoming tangible and actionable.

The concept of knowledge management, which involves the systematic handling of knowledge within an organization, emerged in the late 20th century, as noted by Steward and Waddel (2008). However, its roots in organizations can be traced back more than four decades. Anjaria (2020) defines knowledge management as a set of tools, techniques, and methods used to manage the process of knowledge within organizations. It entails understanding, codifying, disseminating, and applying knowledge to accomplish organizational goals, as suggested by Al-Hawari (2004).

Furthermore, the idea of knowledge management capabilities highlights an ongoing and intentional mechanism within organizations to acquire knowledge, as described by Chiu & Chen (2016). This capability is essential for organizations to create, transfer, integrate, and apply knowledge effectively to their operations.

Hock-Doepgen et al. (2021) and Alavi and Leidner (2001) concur with this perspective, emphasizing that knowledge management capabilities are the organization's capacity to handle knowledge throughout its various stages, ultimately leading to improved performance and competitive advantage.

To truly become knowledgeable organizations, knowledge management capabilities must undergo a comprehensive and radical transformation, involving a complete reassessment of assumptions, structures, and the value system within these organizations. This proposition, put forward by Hindasah and Nuryakin (2020), stresses the need for continuous support and implementation of knowledge management practices to enhance overall performance and ensure sustainability in the fiercely competitive market.

In this context, it becomes imperative for organizations to not only embrace knowledge management but also to incorporate innovation as an integral part of their capabilities. By fostering a culture that supports innovation, organizations can ensure a steady flow of fresh ideas and adapt to the dynamic business landscape. When examining the constituents of knowledge management capabilities, various scholars have offered different perspectives. Jasimuddin and Naqshbandi (2019) and, Zhang, Liu, Tan, Jian, and Zhu (2018) present a tripartite division of knowledge management capabilities, encompassing technological, structural, and cultural elements. This approach acknowledges that successful knowledge management necessitates not only the right technological tools but also the proper organizational structure and a supportive cultural environment that encourages knowledge sharing and collaboration.

On the other hand, Gold, Malhotra, and Segars (2001) and Lee and Yang (2000) propose a different categorization, dividing knowledge management capabilities into two main types: knowledge infrastructure and knowledge process. Knowledge infrastructure involves the establishment of a solid foundation for managing knowledge, including the integration of information systems, databases, and communication networks. Knowledge processes, on the other hand, focus on the implementation of effective knowledge-sharing, creation, and utilization procedures within the organization.

In the realm of knowledge management capabilities, the concept of knowledge infrastructure emerges as a critical organizational asset. According to Jasimuddin and Naqshbandi (2019) and, Wu and Chen (2014), knowledge infrastructure serves as the foundation upon which organizations build systems and services to support their core business functions. Lee and Yang (2000) emphasize that an organization's infrastructure is a dynamic amalgamation of its structure, technology, and culture, all of which play integral roles in shaping its overall knowledge management capabilities. To optimize social capital within the organization, Gold et al. (2001) argue that a robust infrastructure should be developed, incorporating aspects from structural, cultural, and technological dimensions. This comprehensive approach recognizes the interplay of human, technological, and organizational elements in fostering an environment conducive to effective knowledge management.

In this context, technology infrastructure assumes significance as a valuable resource for organizations, influencing overall business performance, as noted by Jasimuddin and Naqshbandi (2019) and, Gil-Padilla and Espino-Rodriguez (2008). Similarly, the significance of organizational culture within the knowledge infrastructure cannot be ignored. Azeem et al. (2021) and, Mohannak (2011) highlight that culture plays a pivotal role in determining the success or failure of knowledge management initiatives within an organization. The importance of a well-developed knowledge infrastructure is further evidenced by Hock-Doepgen et al. (2020), who found that the integration of culture, technology, and structure within the knowledge management framework directly influences business innovation among Germany's SMEs. Moreover, research conducted by Urban and Matela (2022) within the hospitality sector in Lesotho supports the notion that knowledge management practices significantly influence an organization's innovativeness.

Considering the above observations, it becomes evident that knowledge infrastructure is a critical component of an organization's knowledge management capabilities, impacting its overall performance and potential for innovation. Based on this understanding, researchers are prompted to examine the following hypothesis:
H1: There is a direct relationship between knowledge infrastructure and organizational innovation.

This hypothesis aims to shed further light on the intricate relationship between knowledge management capabilities, knowledge infrastructure, and organizational innovativeness, contributing to a deeper understanding of how organizations can leverage their knowledge-related assets for sustained success and competitive advantage.

In addition to knowledge infrastructure, the knowledge process is another vital component that organizations must focus on to effectively utilize the knowledge captured, stored, reconciled, and disseminated through their infrastructure, as highlighted by Nonaka and Takeuchi (1995). The knowledge process can be seen as an organization's ability to generate knowledge and transform it into a competitive advantage, granting them an edge over their competitors. Cegarra-Navarro, Jimenez-Jimenez and Gracia-Perez (2021) and, Su and Lin (2006) define the knowledge process as the identification of core competencies in a challenging and competitive market, emphasizing its role in shaping the organization's business strategies.

The process of knowledge management encompasses several key stages, as identified by various researchers. These stages include knowledge acquisition or generation, dissemination or application, and transfer (Hock-Doepgen et al., 2021; Antunes & Ayavoo, 2020; Lee & Yang, 2000). Wu and Chen (2014) present their unique perspective and categorize knowledge processes into creation, transfer, integration, and application, illustrating how these stages form a cohesive and accumulative process for implementing knowledge within organizations. Gold et al. (2001) contribute to the understanding of knowledge process capabilities, emphasizing the integration of knowledge acquisition, conversion, application, and protection. This comprehensive view highlights that the knowledge process involves not only the generation and application of knowledge but also the safeguarding of intellectual assets.

The significance of the knowledge process in driving business innovation is evident in the findings of Hock-Doepgen et al. (2021) who establish a direct relationship between the knowledge process and an organization's capacity for innovation. Additionally, they identify the knowledge process as an external management capability, further underlining its influence on promoting innovation within the organization.

Drawing from the body of knowledge discussed, researchers aim to explore the hypothesized relationship between knowledge process, organizational innovation, and hotel performance in the following study. This hypothesis seeks to enrich the understanding of how organizations can effectively harness and leverage their knowledge processes to foster innovation, thereby contributing to their overall success and adaptability in a dynamic and competitive business landscape. Thus, the following hypothesis is examined:
H2: There is a direct relationship between knowledge process and organizational innovation.

Organizational Innovation: Innovation, owing to its long-standing history in academia, has been conceptualized and defined in various ways. Economists have viewed innovation as both a cost and a quantity of production within organizations, particularly in the context of technological development and achieving economies of scale (Mohamad, Nor & Fikry, 2022). This perspective emphasizes the role of innovation in driving efficiency and competitiveness within the business landscape.

On the other hand, Hurley and Hult (1998) present a broader definition, describing organizational innovation as the organization's ability to be open and receptive to new ideas, considering it an essential aspect and an ingrained part of the organizational culture. This definition highlights the importance of fostering a culture that encourages creativity and the adoption of novel approaches. Alves et al. (2018) offer a more pragmatic understanding of organizational innovation by defining it as the actual implementation of new methods and practices within the business, both in internal operations and in its relationships with external stakeholders. This definition underscores the tangible application of innovative ideas and practices to improve business processes and relationships as well as the outcomes (Azeem et al., 2021). Furthermore, Dukeov et al. (2020) emphasize the proactive nature of organizational innovation, defining it as the capability of organizations to continuously innovate and adopt new business methods. This includes building external relationships based on their internal processes to ensure sustained success in the ever-evolving business landscape. This perspective emphasizes the significance of innovation as an ongoing process rather than a one-time event.

In recent years, the business landscape has been characterized by rapid technological advancements, necessitating innovation among business players for their survival and success (Azeem et al., 2021; Pandey, Gupta & Gupta, 2019). As suggested by Chung et al. (2016), organizations must embrace and implement new technological changes as part of their long-term survival and growth strategies. In response to these evolving demands, numerous studies have explored different facets of innovation within organizations.

From a managerial perspective, researchers like Fritz (1996) have examined the organizational characteristics that are conducive to fostering innovation. On the other hand, scholars such as Lukas and Ferrell (2000) have focused on product innovations, analyzing how marketing strategies and consumer needs drive innovation in product development. Additionally, other studies, like Chung et al. (2016), have explored the relationship between technology adoption and innovation, recognizing the crucial role of technology in driving organizational progress. A common focus of research on organizational innovation has been product, process, and administrative process innovations (Dukeov et al., 2020; Huang and Huang, 2020; Muafi, 2020). These studies delve into how organizations can innovate their products, streamline internal processes, and adopt new administrative approaches to enhance overall efficiency and effectiveness.

However, Urban and Matela (2022) brought forth a fresh perspective by proposing that innovation specifically within the hotel industry in Lesotho could have a positive impact on overall business performance. This insight highlights the industry-specific context in which innovation plays a crucial role in driving success. Building on the findings and research gaps in the existing literature, researchers may examine the following hypothesis:
H3: There is a direct relationship between organizational innovation and hotel performance.

This hypothesis aims to explore the relationship between organizational innovation and business performance within the hotel industry in Malaysia, shedding light on how innovation initiatives can contribute to the industry's competitiveness and growth. By examining this hypothesis, scholars can contribute to a deeper understanding of the significance of organizational innovation in driving success in a specific sector, offering valuable insights for businesses in Malaysia's hospitality industry and beyond.

Organizational Innovation as a Mediator: Organizational innovation is a crucial component of an organization's capabilities and resources, serving as a means to enhance competitiveness in the market (Azeem et al., 2021; Barney, 1991; Grant, 1991). As a mediator, organizational innovation plays a pivotal role in establishing the relationship between independent and dependent variables, facilitating a better understanding of the factors that drive business success.

The research conducted by Ramirez, Parra-Requena, Ruiz-Ortega, and Garcia-Villaverde (2018) sheds light on the mediating role of organizational innovation, particularly in conjunction with product innovation. They discovered that organizational innovation, when combined with product innovation, positively mediates the relationship between external information and marketing innovation. This finding emphasizes the significance of organizational innovation in transforming external knowledge into tangible marketing innovations, subsequently contributing to an organization's market performance. Similarly, Gomes et al. (2022) conducted a study focused on knowledge-intensive organizations in Brazil and found that innovation and learning mediate the relationship between entrepreneurial orientation and organizational outcomes. This highlights how innovation, as a mediating factor, can translate entrepreneurial orientation into practical applications, leading to organizational success in knowledge-intensive sectors.

Based on this empirical research, it can be hypothesized that organizational innovation acts as a critical mediator in various contexts, facilitating the link between independent variables (such as external information, entrepreneurial orientation, or other relevant factors) and dependent variables (such as marketing innovation, organizational outcomes, etc.). The specific hypothesis to be examined may revolve around the mediating role of organizational innovation in a particular context or industry. Thus, it could be hypothesized that:
H_4: Organizational innovation positively mediates between knowledge infrastructure and hotel performance.
H_5: Organizational innovation positively mediates between the knowledge process and hotel performance

By further exploring these hypotheses, researchers can deepen their understanding of how organizational innovation functions as a conduit for translating inputs into desired outcomes, providing valuable insights for businesses seeking to harness their innovation capabilities for sustainable competitive advantage. This line of research contributes to the ongoing discourse on the pivotal role of organizational innovation in the success of modern businesses, emphasizing its significance as a transformative force in today's dynamic and competitive markets.

Hotel Performance: Performance is a fundamental measure of success, encompassing the evaluation of achievements and the fulfillment of objectives and goals for individuals, societies, and organizations. The significance of performance cannot be overstated, as it serves as a key driving force for these entities to strive and excel. Antunes and Pinheiro (2020) concur with this definition and characterize performance as the outcome of a well-structured process aimed at attaining desired results. However, when viewed from managerial and organizational perspectives, Chaithanapat et al. (2022) propose a more comprehensive understanding of performance, incorporating both financial and non-financial perspectives. This approach recognizes the multifaceted nature of success within the industry and underscores the importance of considering diverse aspects to gauge organizational performance.

Expanding on this concept, Rolstadas (1998) introduces a comprehensive framework for assessing organizational performance, which comprises seven criteria: productivity, quality, effectiveness, efficiency, innovation, quality of life, and profitability/budget-ability. These criteria collectively represent a holistic approach to evaluating an organization's performance, taking into account not only financial success but also factors like innovation, employee well-being, and overall efficiency. An organization is deemed to be performing well when it effectively balances and synergizes these seven criteria to achieve its objectives. Salim and Rajput (2017) emphasize the strategic dimension of organizational performance, describing it as the ability to skilfully implement and manage strategies, ultimately translating them into tangible results that align with the organization's stated goals. This highlights the importance of effective planning and execution in achieving and sustaining high levels of performance.

In the tourism and hospitality industry, hotel performance is a key area of focus, with researchers exploring various dimensions related to the environment, management, and marketing aspects (Abu Bakar et al., 2019; Jang et al., 2009; Claver-Cortes et al., 2007). A comprehensive understanding of hotel performance requires a balanced assessment that considers both financial and non-financial perspectives, as highlighted by Ali et al. (2020) and Alonso-Almeida et al. (2016). This acknowledgment of the significance of both financial and non-financial factors in evaluating hotel performance underscores the need for further exploration in this field.

However, existing research on hotel performance has primarily emphasized quantitative measurements, with a focus on financial indicators and efficiency, particularly profitability (Sainaghi et al., 2013). While financial metrics are undoubtedly crucial, they only provide a partial picture of a hotel's overall performance. To develop a more comprehensive and well-rounded understanding of hotel performance, it is imperative to include non-financial or subjective perspectives as well.

Reyes-Santiago et al. (2019) have recognized the limited attention given to non-financial perspectives in hotel performance measurement, indicating a gap in the existing literature. To address this gap, the current study aims to explore hotel performance, seeking to redefine strategies based on non-financial perspectives. Such perspectives include achievements related to customer and employee satisfaction, accomplishments relative to competitors, as well as progress toward broader financial and strategic objectives.

By focusing on this approach, this study aims to delve deeper into the non-financial aspects of hotel performance, providing a richer understanding of the underlying factors that contribute to success in the hospitality industry. This research's focus will shed light on the intangible aspects of hotel performance, such as guest experiences, employee engagement, and strategic positioning, which can significantly impact a hotel's long-term viability and competitiveness.

Overall, this research contributes to the advancement of knowledge in the domain of hotel performance measurement, urging scholars and practitioners to consider a more comprehensive perspective to gain a holistic understanding of success in the dynamic and multifaceted world of hospitality.

Figure 1:
The Conceptual Framework

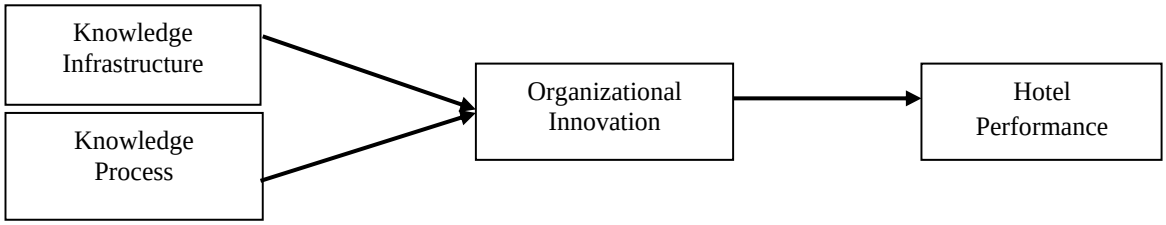


Figure 1*:* The conceptual framework

3. Research Methodology

This research employs a quantitative method to gather and analyze data. Primary data will be collected through an e-survey distributed via email to selected respondents. The unit of analysis for this study is the organization, but the information will be presented by individual representatives on behalf of their respective organizations. The respondents will be randomly selected from the top management of 266 hotels in Malaysia, including managers, managing directors, and chief executive officers. These individuals are chosen due to their in-depth knowledge of their hotel's performance, as well as their ability to implement knowledge management and innovation strategies for their establishments. The selected hotels will come from three-star, four-star, and five-star categories, based on the services and amenities they offer to their guests. The sample size for this research is based on the list provided by Malaysia's Ministry of Tourism, Art, and Culture (MOTAC), which comprises 863 hotels falling under the specified categories.

Data analysis will be conducted using two software tools. The first software utilized will be the Statistical Package for the Social Sciences (SPSS), which will be employed for preliminary analysis and data exploration. The second software is SmartPLS, which falls under Partial Least Squares Structural Equation Modeling (PLS-SEM). SmartPLS will be used to examine and test the relationships, direction, and significance of the structural parameter estimates in the research model (Hair Jr., Hult, Ringle & Sarstedt, 2016).

The quantitative approach allows for a systematic and rigorous investigation of the relationships and variables under consideration. By distributing e-surveys and using data from a substantial number of hotels, the study aims to provide comprehensive insights into the impact of knowledge management and innovation on hotel performance. The utilization of SPSS and SmartPLS as analytical tools ensures robust statistical analysis, enabling researchers to draw valid conclusions and make evidence-based recommendations for the hospitality industry. The findings of this research hold the potential to guide hotel managers and decision-makers in adopting effective strategies to enhance their organization's performance, innovation capabilities, and competitiveness in the dynamic tourism market of Malaysia.

The measurement scales used in this research will employ a 7-point Likert-type scale, ranging from 1 = strongly disagree to 7 = strongly agree, for all variables except for hotel performance. The hotel performance variable will also use a 7-point Likert-type scale, but with a different measurement approach, where 1 = decrease more than 20% and 7 = increase more than 20%. This modification allows respondents to express their perceptions of hotel performance in terms of significant changes in either direction.

To assess knowledge management capabilities, the researchers adapted questions from the scale developed by Gold et al. (2001). This scale has been widely used in previous studies and has demonstrated reliability and validity in assessing an organization's ability to manage knowledge effectively. Meanwhile, for organizational innovation, the constructs were derived from multiple sources, including Damanpour and

Gopalakrisnan (2001), Fritz (1996), and Pennings (1991). By incorporating constructs from these various studies, the researchers ensure a comprehensive and robust assessment of organizational innovation, encompassing diverse aspects related to innovation within the organization. The measurement of hotel performance constructs is based on a non-financial performance scale developed by Narver and Slater (1990). This choice is particularly relevant as it allows the researchers to capture non-financial aspects that are critical to understanding a hotel's overall performance, such as customer satisfaction, employee engagement, and market share.

By utilizing established scales and constructs from reputable sources, the researchers ensure the reliability and validity of the data collected for their study. This approach also facilitates comparability with prior research, enabling them to build upon existing knowledge and contribute to the body of literature in the field of hospitality and organizational management. Furthermore, the use of 7-point Likert-type scales offers a wide range of responses, allowing respondents to provide nuanced feedback and express their perceptions with greater precision. The inclusion of a specific measurement for hotel performance adds granularity to the assessment, enabling a more detailed analysis of performance changes.

4. Conclusion

In the realm of organizational research, knowledge management, organizational innovation, and performance have garnered significant attention due to their crucial roles in shaping organizational success. Numerous empirical studies have been conducted, exploring these variables from diverse perspectives and scopes to understand their impact on organizational outcomes.

This conceptual paper is a pivotal component of a doctoral research project centered on knowledge management, organizational innovation, and performance within the hotel industry in Malaysia. The study aims to shed light on the interplay between these three variables specifically among three-star, four-star, and five-star hotels across the nation. To ensure the study's relevance and accuracy, the top management of these hotels, including managers, managing directors, general managers, and chief executive officers, were selected as participants to represent their respective organizations.

The research employed a robust sampling methodology, using simple random sampling to choose hotels from the list provided by Malaysia's Ministry of Tourism, Art, and Culture (MOTAC). The MOTAC list is considered the most comprehensive and authoritative compilation of hotels in Malaysia, making it an ideal reference point for comparison with other sources, such as the Malaysia Association of Hotels (MAH).

The results of this study hold promising implications for hoteliers and organizations across various sectors. By examining the relationships between knowledge management capabilities, organizational innovation, and performance, the study aims to offer valuable insights to assist organizations in effectively implementing strategies to improve their knowledge management and innovation practices. By doing so, they can enhance their overall performance and better navigate the competitive business environment.

The findings of this research are expected to contribute to the existing body of knowledge, providing practitioners and scholars with a deeper understanding of how knowledge management and innovation can be harnessed to achieve sustained success and growth in the hospitality industry and beyond. As hoteliers and organizations gain greater clarity on the drivers of organizational performance, they can make informed decisions and implement targeted initiatives to stay competitive, meet customer demands, and thrive in an ever-changing marketplace. Ultimately, this research seeks to empower organizations to navigate the complexities of the modern business landscape with confidence and resilience.

Contribution of the Research: The framework used in this research has been widely employed by numerous scholars in previous studies, attesting to its relevance and applicability across various organizational contexts. However, despite its established use, this conceptual study seeks to make a unique contribution by applying the framework specifically in the context of the hospitality industry. As the hospitality sector poses distinct challenges and opportunities, this study aims to enrich the existing body of knowledge by offering insights tailored to this particular industry.

Moreover, the utilization of this framework is an integral part of a doctoral research endeavor that delves into the intricate relationships between knowledge management, organizational innovation, and hotel performance in Malaysia. By conducting an in-depth investigation within the hospitality industry, the study aspires to shed light on the specific dynamics and factors that shape knowledge management practices, organizational innovation, and ultimately, the performance of hotels in Malaysia.

The dimensions of the variables under scrutiny, namely knowledge management, organizational innovation, and hotel performance, hold the potential to provide a comprehensive and nuanced understanding of the factors at play. Specifically, this research aims to elucidate the elements of knowledge management, including knowledge infrastructure and knowledge process, that significantly influence both organizational innovation and hotel performance. By exploring these dimensions, this study seeks to offer valuable insights and practical implications for industry players and academics alike.

By disseminating its findings, this research aims to contribute to the enhancement of knowledge management practices and organizational innovation in the hospitality industry, thereby fostering improved hotel performance. The implications of this study extend beyond just the hospitality sector, as the insights gained could apply to other industries grappling with similar challenges related to knowledge management and innovation.

Overall, the framework employed in this conceptual study holds the potential to unlock valuable insights that can bolster the performance and competitive edge of hotels in Malaysia and potentially serve as a blueprint for industry players seeking to optimize their knowledge management efforts and drive innovation. Additionally, the academic community can benefit from the enriched understanding of the interconnections between knowledge management, organizational innovation, and performance, fostering further research and exploration in this critical domain of organizational studies.

References

Abu Bakar, A. M., Elrehail, H., Alatailat, M. A. & Elci, A. (2019). Knowledge Management, Decision-Making Style and Organizational Performance. *Journal of Innovation & Knowledge,* 4, 104 -114.

Alavi, M., Kayworth, T. R. & Leidner, D. O. (2005). An Empirical Examination of the Influence of the Organizational Culture on Knowledge Management Practice. *Journal of Management Information Systems*, 22(3), 191-224.

Alavi, M. & Leidner, D. O. (2001). Review: Knowledge Management and Knowledge Management Systems; Conceptual Foundations and Research Issues. *MIS Q*, 25(1), 107-136.

Alaarj, S., Mohamed, Z. A. & Ahmad Bustaman, U. S. (2016). Mediating Role of Trust on the Effects of Knowledge Management Capabilities on Organizational Performance. *Procedia- Social and Behavioral Sciences,* 235, 729-738.

Alves, M. F. R., Galina, S. V. R. & Dobelin, S. (2018). Literature on Organizational Innovation: Past and Future. *Innovation & Management Review*, 15(1), 2-19.

Al-Hawari, M. (2004). *Kn*owledge Management Styles and Performance: A Knowledge Space Model from both Theoretical and Empirical Perspective. University of Wollongong Thesis Collections, Australia.

Anjaria, K. (2020). Negation and Entropy: Effectual Knowledge Management Equipment for Learning Organizations. Expert Systems with Applications, 1-15.

Ansari, F. (2019). Knowledge Management 4.0: Theoretical and Practical Considerations in Cyber-Physical Production Systems. *International Federation of Automatic Control,* 52(13), 1597- 1602.

Antunes, H. J. G. & Pinheiro, P. G. (2020). Linking Knowledge Management, Organizational Learning and Memory. *Journal of Innovation & Knowledge*, 5, 140-149.

Azeem, M., Ahmed, M., Haider, S. & Sajjad, M. (2021). Expanding Competitive Advantage through Organizational Culture, Knowledge Sharing and Organizational Innovation. Technology in the Society, 66, https://doi.org/10.1016/j.techsoc.2021.101635

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management,* 17(1), 99-120.

Bolisani, E. & Bratianu, C. (2018). The Elusive Definition of Knowledge. Emergent Knowledge Strategies, 1-22.

Carlucci, D., Marr, B. & Schiuma, G. (2004). The Knowledge Value Chain; How Intellectual Capital Impacts on Business Performance. *International Journal of Technology Management*, 27(6/7), 575 – 590.

Cegarra-Navarro, J. G., Jimenez-Jimenez, D. & Gracia-Perez, A. (2021). An Integrative View of Knowledge Processes and a Learning Culture for Ambidexterity: Toward Improved Organizational Performance in the Banking Sector. *IEEE Transactions on Engineering Management,* 68(2), 408 -417.

Chaithanapat, P., Punnakitikashem, P., Ooo, N. C. K. K. & Rakthin, S. (2022). Relationships among Knowledge-Oriented Leadership, Customer Knowledge Management, Innovation Quality and Firm Performance in SMEs. *Journal of Innovation & Knowledge*, 7, 100 162.

Chiu, C. N. & Chen, H. H. (2016). The Study of Knowledge Management Capabilities and Organizational Effectiveness in Taiwanese Public Utility: The Mediator Role of Organizational Commitment. *SpringerPlus,* 5, 1520. https://doi.org/10.1186/s40064-016-3173-6

Chow, C. W. & Van Der Stede, W. A. (2006). The Use and Usefulness of Nonfinancial Performance Measures. *Management Accounting Quarterly,* 7(3), 1.

Cooper, C. (2006). Knowledge Management and Tourism. *Annals of Tourism Research*, 33(1), 47-64.

Damanpour, F. & Gopalakrisnan, S. (2001). The Dynamics of the Adoption of Product and Process Innovations in the Organization. *Journal of Management Studies,* 38(1), 45-56.

Dukeov, I., Bergman, J. K., Heilmann, P. & Nasledov, A. (2020). Impact of a Firm's Commitment to Learning and Open-mindedness on its Organizational Innovation among Russian Manufacturing Firms. *Baltic Management Journal*, 15(4), 551-569.

Fritz, W. (1996). Market Orientation and Corporate Success: Findings from Germany. *European Journal of Marketing*, 30(8), 59-74.

Gill-Padilla, A. M. & Espino-Rodriguez, T. F. (2008). Strategic Value and Resources and Capabilities of Information Systems Area and their Impact on Organization Performance in the Hotel Sector. *Tourism Review*, 63(3), 21-47.

Gold A. H., Malhotra, A. & Segars, A. H. (2001). Knowledge Management: An Organizational Capabilities Perspective. *Journal of Management Information Systems*, 18(1), 185 - 214.

Gomes, G., Seman, L. O., Berndt, A. C. & Bogoni, N. (2022). The Role of Entrepreneurial Orientation, Organizational Learning Capability and Service Innovation in Organizational Performance. *Revista De Gestao,* 29(1), 39-54.

Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review*, 33(3), 114-135.

Grover, V. & Davenport, T. (2001). General Perspectives on Knowledge Management: Fostering a Research Agenda. *Journal of Information System*, 18(1), 5-2.

Gold A. H., Malhotra, A. & Segars, A. H. (2001*).* Knowledge Management: An Organizational Capabilities Perspective*, Journal of Management Information Systems*, 18(1), 185- 214.

Hair Jr., J. F., Hult, G. T. M., Ringle, C. & Sarstedt, M. (2016). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Thousand Oaks, CA: Sage Publications.

Hindasah, L. & Nuryakin, N. (2020). The Relationship between Organizational Capability, Organizational Learning and Financial Performance. *Journal of Asian Finance Economics and Business,* 7(8), 625-633.

Hock-Doepgen, M., Clauss, T., Kraus, S. & Cheng, C. F. (2021). Knowledge Management Capabilities and Organizational Risk-Taking for Business Model Innovation in SMEs. *Journal of Business Research,* 130, 683-697.

Huang, C. C. & Huang, S. M. (2020). External and Internal Capabilities and Organizational Performance; Does Intellectual Capital Matter. *Asia Pacific Management Review*, 25, 111-120.

Hurley, R. F. & Hult, G. T. (1998). Innovation, Market Orientation, and Organizational Learning: An Integration and Empiric*al Examination. Journal of Marketing*, 62(July), 42-54.

Jasimuddin, S. M. & Naqshbandi, M. M. (2019). Knowledge Infrastructure Capability, Absorptive Capacity and Inbound Open Innovation: Evidence from SMEs in France. *The Management of Operations,* 30(10-12), 892 – 906.

Khan, M. H. (2019). Knowledge, Skills and Organizational Capabilities for Structural Transformation, *Structural Change and Economic Dynamics*, 48, 42-52.

Kokkaew, N., Jokkaw, N., Peansupap, V. & Wipulanusat, W. (2022). Impacts of Human Resources Management and Knowledge Management on Non-Financial Performance: Evidence of Thai Infrastructure Construction Firms. *Ain Shams Engineering Journal*, 13, 101750.

Kumar, P. (2017). Marketing of Hospitality and Tourism Services. McGraw Hill Education.

Lee, C. C. & Yang, J. (2000). Knowledge Value Chain. *Journal of Management Development*, 19(9), 783-794.

Lee, M. C. (2016). Knowledge Management and Innovation Management: Best Practice in Knowledge Sharing and Knowledge Value Chain. *International Journal Innovation and Learning,* 19(2), 206-226.

Lukas, B. A. & Ferrel, O. C. (2000). The Effect of Market Orientation on Product Innovation. *Journal of the Academy of Marketing Science*, 28(2), 239-247.

Martins, V. W. B., Rampasso, I. S., Anholon, R., Quelhas, O. L. G. & Filho, W. L. (2019). Knowledge Management in the Context of Sustainability: Literature Review and Opportunities for Future Research. *Journal of Cleaner Production,* 229, 489 – 500.

Mohamad, S. J. A. N. S., Nor, N. S. N. M. & Fikry, A. (2022). The Effect of Knowledge Management Capabilities towards Organizational Innovation in Malaysia's Hotel: A Conceptual Analysis. *International Journal of Academic Research in Business and Social Sciences*, 12(11), 1040 – 1048.

Mohannak, K. (2011). Diversity in Managing Knowledge: A Cultural Approach, Economic Research Centre Discussion Paper 1-34. http://eprints.qut.edu.au

Muafi, M. (2020). A Nexus among Strategic Orientation, Social Network, Knowledge Sharing, Organizational Innovation and MSMEs Performance. *Journal of Asian Finance, Economics and Business*, 7(6), 327-338.

Narver, J. C. & Slater, S. F. (1990). The effect of Market Orientation on Business Profitability. *Journal of Marketing*, 20-35.

Ngah, R., Tai, T. & Bontis, N. (2016). Knowledge Management Capabilities and Organizational Performance in Roads and Transport Authority of Dubai: The Mediating Role of Learning Organization. *Knowledge and Process Management*, 23(3), 184-193.

Nonaka, I. & Takeuchi, H. (1995). The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. New York.

Nor, N., Mohd-Nor, N. & Mohd-Nor, A. (2012, December 04-06). *Challenges facing woman entrepreneurs in the hospitality and tourism Malaysia* (Paper presentation). World Islamic Economic Forum (WIEF 2012), Kuala Lumpur.

Ode, E. & Ayavoo, R. (2020). The Mediating Role of Knowledge Application in the Relationship between Knowledge Management and Firm Innovation. *Journal of Innovation & Knowledge*, 5, 209-217.

Pandey, A., Gupta, V. & Gupta R. K. (2019). Spirituality and Innovative Behavior in Teams; Examining the Mediating Role of Team Learning. *IIMB Management Review,* 31, 116-126.

Patwary, A. K., Alwi, M. K., Rehman, S. U., Rabiul, M. K., Babatunde, A. Y. & Alam, M. M. D. (2022). Knowledge Management Practices on Innovation Performance in the Hotel Industry: Mediated by Organizational Learning and Organizational Creativity. Global Knowledge, Memory and Communication, https://doi.org/10.1108/GKMC-05-2022-0104

Payal, R., Ahmed, S. & Debnath, R. M. (2016). Knowledge Management and Organizational Performance: A Study in the Context of Indian Software Companies. *The IUP Journal of Knowledge Management*, 14(4), 53-71.

Pennings, J. M. (1991). Innovations and Performance: The Case of Service Sectors, Technology and Innovation, Academy of Management Meeting.

Philips, P. A. (1999). Hotel Performance and Competitive Advantage: A contingency approach. *International Journal of Contemporary Hospitality Management*, 11(7), 359-365.

Poloski-Vokic, N. (2008, June 11-14). The Importance of Educated and Knowledgeable Employees for the Hotel Industry Performance: The Case of Croatia (Paper presentation). The 4th International Conference 'An Enterprise Odyssey: Tourism-Governance and Entrepreneurship', Hrvatska, Zagreb.

Putra, D. G., Rahayu, R. & Putri, A. (2021). The Influence of Enterprise Resource Planning (ERP) Implementation System on Company Performance: Mediated by Organizational Capabilities. *Journal of Accounting and Investment*, 22(2), 221-241.

Ramirez, F. J., Parra-Requena, G., Ruiz-Ortega, M. J. & Garcia-Villaverde, P. M. (2018). From External Information to Marketing Innovation: The Mediating Role of Product and Organizational Innovation. *Journal of Business & Industrial Marketing*, 33(5), 693-705.

Reyes-Santiago, M. D. R., Sanchez-Medina, P. S. & Riaz-Pichardo, R. (2019). The Influence of Environmental Dynamic Capabilities on Organizational and Environmental Performance: Evidence from Mexico. *Journal of Cleaner Production*, 227, 414-423.

Rolstadas, A. (1998). Enterprise Performance Measurement. *International Journal of Operation Product Management,* 18(9/10), 989-999.

Rudez, H. N. (2010). Integration of Corporate Social Responsibility into Loyal Programs in the Tourism Industry. *Tourism & Hospitality Management*, 16(1), 101 – 108.

Shamim, S., Cang, S. & Yu, H. (2017). Supervisory Orientation, Employee Goal Orientation, and Knowledge Management among Front Line Hotel Employees*. International Journal of Hospitality Management,* 62, 21-32.

Steward, D. & Waddel, D. (2008). Knowledge Management: The Fundamental Component for Delivery of Quality. *Total Quality Management*, 19(9), 987- 996.

Su, H. & Lin, Y. (2006). Enhancing Knowledge-Based Service Quality: A Knowledge Management Perspective, *The Service Industry Journal*, 26(7), 787-800.

Tavitiyaman, P., Zhang, H. Q. & Qu, H. (2012). The Effect of Competitive Strategies and Organizational Structure on Hotel Performance*. International Journal of Contemporary Hospitality Management*, 24(1), 140-159.

UNWTO Tourism Market Intelligence and Competitive Department. (2022, July). World Tourism Barometer. *UNWTO World Tourism Organization,* 20(4), 1-27.

Urban, B. & Matela, L. (2022). The Nexus between Innovativeness and Knowledge Management: A Focus on Firm Performance in the Hospitality Sector. *International Journal of Innovation Studies*, 6, 26-34.

World Tourism Organization. (2018, August 28). International Tourism; Number of Arrivals 995-2016. World Bank. https;//data.worldbank.org/indictors/st.int.arvl

Wu, I. L. & Chen, J. L. (2014). Knowledge Management Driven Firm Performance: The Roles of Business Process Capabilities and Organizational Learning. *Journal of Knowledge Management*, 18(6), 1141-1164.

Zhang, Y., Liu, S., Tan, J., Jian, G. & Zhu, Q. (2018). Effects of Risks on the Performance of Business Process Outsourcing Projects: The Moderating Roles of Knowledge Management Capabilities. *International Journal of Project Management*, 36, 627-639.

Information Management and Business Review (IMBR)
Vol. 15, No. 3(SI), September 2023 (ISSN 2220-3796)

Factors Influencing Philanthropic Behavior among Youths in Malaysia

Norellani Binti Sukri[1], Afiza Azura Mohamad Arshad[2*], Chuah Soo Cheng[2], Zaidi Mohd Aminuddin[2] & Azlin Shafinaz Arshad[2,3]
[1]Department of Postgraduate and Professional Studies, UiTM, Shah Alam Campus, Malaysia
[2]Faculty of Business and Management, UiTM Cawangan Selangor, Puncak Alam Campus, Malaysia
[3]Member, Sustainability Co-operative Business Group (RIG), Faculty of Business and Management, Universiti Teknologi MARA Sarawak, Mukah Campus, Malaysia
norellanisukri@gmail.com, *afiza400@uitm.edu.my, chuahsc@uitm.edu.my, zaidi220@uitm.edu.my, azlinshafinaz@uitm.edu.my

Abstract: Philanthropy is the desire to promote the well-being of others. It is about looking for and helping the welfare of others, particularly by giving them money for good reasons. Philanthropy is not only confined to the contribution of money, but it involves making efforts for religious purposes and self-satisfaction towards others. The level of charity among Malaysian citizens is alarming in 2015, Malaysia ranked 10th in the World Giving Index but in 2021 the ranking has dropped tremendously to 29th place. This has shown that Malaysians are getting less interested in participating in charitable activities and doing general good deeds. Therefore, there is an urgent need to look broadly at the philanthropic behavior of Malaysians. This research aims to determine the factors influencing philanthropic behavior among youth in Malaysia. For this study, a survey was conducted to the target population which is youth. Data was collected by distributing questionnaires via emails and WhatsApp groups and data was analyzed using SPSS and PLS-SEM. Findings show that religion and altruism are significant to the philanthropic behavior of Malaysian youth. This study has provided valuable insights into youth philanthropy by identifying solutions to further create awareness of philanthropy.

Keywords: *Philanthropy, religion, tax benefits, trust, altruism, philanthropic behavior.*

1. Introduction

Philanthropy is essentially an individual action in the interest of the public and is generally motivated to improve the community (Ridings, 1997). It is serving and giving to others above and beyond one's loved ones (Iqbal et al, 2023). The hallmark of real philanthropic work is to give without expecting anything in return (Ridings, 1997; Bennett, 2003). Islam, according to Amersi (2019), tries to instill good in all individuals but also to treat everyone well and demonstrate good cause and empathy. Philanthropic actions may come in various forms including money, time, skills, efforts, and contributions (Coombs, Shipp, & Christensen, 2008). Philanthropy wishes to promote the well-being of others by generously giving money for good reasons. Fidelity Charitable Organization rendered that one can practice philanthropy by providing financial aid to a cause that one has faith in or giving time to teaching unfortunate children and joining any volunteering activities that may improve the lives of others (Iqbal et al, 2023). Nevertheless, the recently released World Giving Index 2022 report pointed out that Malaysia has dropped to the 29th place in the index. Although philanthropy is a social principle, people would not choose to do so. It is less likely to find that young people contribute, especially when it is difficult to distinguish between charitable organizations and suspect fundraisers and institutions for good reasons (Falco et al., 1998; Sargeant et al., 2006). Donations to young people who have had a tough time are also subject to various options and constraints (e.g., post-secondary schooling, marriage preparations and work) (Kang et al., 2011).

The age range for youth in Malaysia is defined as those between 15 and 30, which is approximately 8.9 million from 34.69 million of Malaysia's population (Facts and Figure: Kajian Indeks Belia Malaysia 2022). Regular young philanthropists were optimistic due to charity experiences. However, there was space for improvement in the number of philanthropists who said that their charitable activities could be better arranged. The youth had mixed opinions about the importance of recognizing their support, with 50 percent feeling it was important and not half important. Most felt they received enough recognition usually verbal or written from the organization they did the charitable work for. Nevertheless, researchers were asked to find ways of encouraging young people to give donations (Kang et al., 2011).

In Malaysia, there are three main races, namely Malays, Chinese and Indians, with a total population of 21 million, 6.9 million and 2.9 million respectively (Malaysia Economic Planning Board, 2022). Different races have different ideas. According to Cogswell (2002), for traditional Buddhists in Malaysia, donations are used to support monks, temples and pagodas. These donations are not just for education or donations in need. However, for the younger generation, their donations to education and poverty are more due to the preservation of Chinese cultural heritage. For Muslims, there are many types of charities, such as zakat, waqf, and sadaqah. Zakat is a mandatory tax stipulated by Islamic Sharia law. The Muslims, guided by Zakat-Islamic legislation, spend two and five percent of their yearly income on charity but the study focuses on the contemporary meaning of philanthropy that involves not only donation as an expense but also effort, time, and knowledge-sharing. On the other hand, charitable donations, such as donating land or property for mosques, religious schools, and orphanages, are called "waqf" a form of endowment mainly if a form of properties that are held in a form of property to be used and held in trust for a charitable or religious purpose, Mujahidah and Rusydiana (2023). In addition, voluntary charitable gifts such as cash, property, or voluntary services (sadaqah) may be considered voluntary rather than mandatory. Mohammad (2019) reported that the Indian population in Malaysia has the hardest access to funding because most of them are not wealthy enough.

Philanthropy aims to promote the welfare of others, in particular by giving them money for good reasons. If it is not confined to money, it involves making efforts for religious purposes and self-satisfaction, goods, and, above all, good deeds. Hence, there was a need to look at the behavior of Malaysians in philanthropy. Therefore, this study aims to fill the gap by focusing on the factors that influence philanthropy behavior among youth in Malaysia specifically. The following sections are structured accordingly; the literature review is presented next followed by methodology and findings and ends with a conclusion.

2. Literature Review

Philanthropic Behaviour: Philanthropy is a social relationship defined by a moral responsibility that links a supply of private resources with a demand for unfulfilled needs and desires conveyed through entreaty or other means of solicitation (Sulek, 2010). Wai Yee and Hassan (2016) stated individuals who have a philanthropic conscience usually like to make a positive contribution to the community by giving to others. Philanthropy is a responsibility to pursue the well-being of others, expressed in particular by a generous donation of good money (Abd Rahim, Jalaludin, & Tajuddin, 2011). Philanthropy is not all about giving money, but it can be defined as contributing something valuable, such as time and energy. Charitable work might also be categorized as a form of philanthropy. Many philanthropic pioneers are certainly already very rich, and the richest members of the community continue to offer significant potential to grow philanthropic capital in society.

Philanthropic behavior is related to various activities conducted to assist unfortunate individuals (Hassan, Yeap & Al-Kumaim, 2022). Charitable philanthropy seeks to relieve those who are unable to provide for themselves permanent or temporary (Gewin, 2020). As emphasized by Ruehle, Engelen, & Archer (2021) charitable philanthropy is when an individual gives people something they cannot get on their own. The aim of philanthropy is primarily to promote the well-being of others, particularly by giving them money for good reasons. Where it is not limited to money alone, effort, goods and above all, good deeds are also involved, both for religious purposes and for self-satisfaction.

Religious and Philanthropy Behavior: Religious or religious actors and institutions in many countries have and are still providing welfare services. According to Mujahidah and Rusydiana (2023), for the betterment of society and humanity, Muslims are always willing to lend a helping hand. Religious faith is said to be one of the factors that cause one to volunteer or contribute to waqf (Rizal and Amin, 2017). Considering the importance of helping others and carrying out charitable activities, religious people can make generous contributions to charity (Ranganathan and Henley, 2008). People with higher religious beliefs usually donate more than those with less religious beliefs (Jamal et al. 2019). Lammam and Gabler (2012) emphasized religious affiliation is an important social determinant of charitable activities while Osman, Htay and Muhammad (2012) explained religion may influence the behavior of cash waqf which is the intrinsic motivation of waqf.

Several studies have identified positive links between religion and various forms of pro-social behavior, including blood donation (Healy, 2004) voluntary service (Grönlund and Pessi 2015) and money donations (Lunn, Klay, & Douglass, 2001). Based on earlier studies, pro-social behaviors are particularly related to religious activities, such as participating in places of worship and active members of religious communities (Wiepking & Bekkers, 2012). McCullough & Willoughby (2009) reported a positive connection between religious commitment, dedication or strength of beliefs and self-esteem, resilience, and self-control, and believe that religion provides individuals with various resources that can enhance the psychological impact of negative life events. Donors use religion as a strategy to enhance self-esteem and at the same time to combat survival anxiety (Ferraro et al., 2005). Religion inspires donations as it strengthens people's perceptions of right and wrong, so people can pay more attention to the well-being of others, and can inculcate communities and social backgrounds and make people more aware of opportunities (Bekkers and Schuyt, 2008). Therefore, the researcher proposed the following hypothesis.
H1: There is a significant relationship between religious and philanthropic behavior.

Altruism and Philanthropy Behavior: Altruism is defined as the motive to help and make others happy without expecting anything in return (Sauri, 2022). According to Kathryn Muyskens, to make this world a better place one needs to help people regardless they know each other or not, be it within the community or people from other communities, states, and countries (2023). When people show others care, love, and tenderness after seeing their pain, this is an example of altruism (Hazim et al., 2023). Altruism is a tendency or identity", the question is "whether people are truly altruistic or whether their actions are in some way secretly selfish—a matter of purity of motivation" (Healy, 2004, p. 388). Altruism is usually divided into three types of altruistic giving. These include "one-shot opportunities with no organizational context; conventional or routine actions with little formal social organization; and repeated donations managed by organizations" (Healy, 2004). These different types of altruistic action generally stem from a person's response to a prompt volunteerism "results from the overflowing need for many people to express themselves, which forces them to act" (Perry et al., 2008, p. 4). These needs are created in various ways by different organizations, which lead to different types of donations; single-shot temporary donations or repeated regular donations.

The spirit of altruism is consistent with Islamic teachings. Islam encourages believers to help the unfortunate through sadaqah (common charity). This is clearly stated in the Qur'an, "In their wealth and property (there) is the right of the poor, of those who ask, and of those who are deprived" (Quran 51:19, translated in Ar-Riyadh Perjuzuk, 2017) Prophet Muhammad (pbuh) also emphasized that sadaqah (charity) is taken from the rich among them and given to the poor among them" (Salih, 1999). Not only that, it has also made society and the state accountable for reducing the hardship and poverty of their societies through the institutionalization of Zakah. Jehle (1994) explained the third pillar of Islam is an annual wealth levy above a certain threshold (revenue) the proceeds of which must be distributed to the needy which is known as zakat. Therefore, the researcher proposed the following hypothesis.
H2: There is a significant relationship between altruism and philanthropic behavior.

Trust: People find that trust is one of the key factors that motivate individuals to donate to charities (Ranganathan and Sen, 2012). Sargante and Lee (2004) pointed out the short-term and long-term effects of raising trust between charitable organizations and the public. Individuals are often deprived of any information collected on how charitable organizations utilize the personal donations of their donors (Bekkers, 2003). The idea that funders are not often adequately informed of how financial contributions are used by charitable organizations means that the former can only trust that those contributions will be handled ethically and honestly by the latter (Bekkers and Schuyt, 2003).

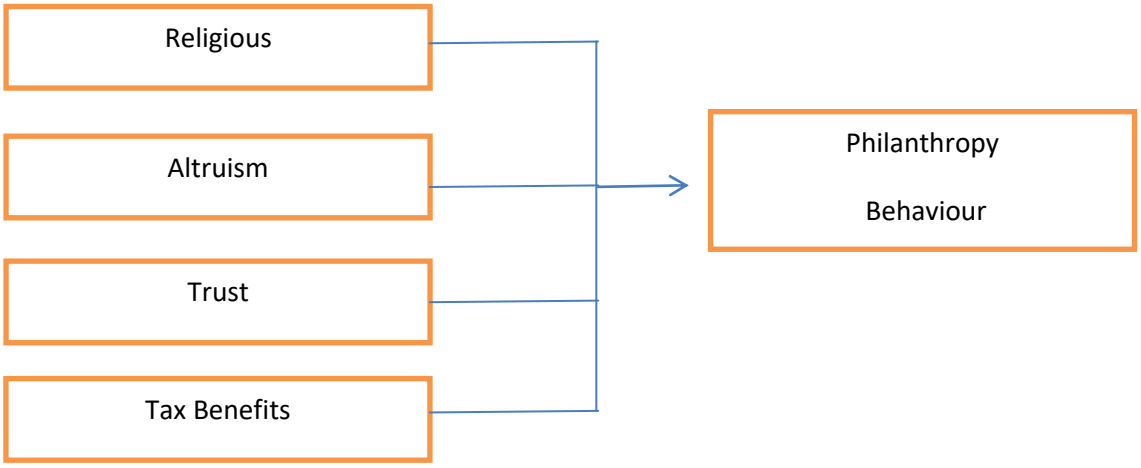
For charitable organizations, the trust of donors is essential because it raises public support (Sargeant & Lee, 2004) through fundraisings (Melendez, 2001; Sargent & Lee, 2004) and voluntary work over time (Melendez, 2001), even though voluntary work may be irregular or unofficial (Taniguchi, 2012). In particular, as trust in charitable organizations is present, it is possible to expect communication between funders or volunteers and the organization (O'Neill, 2008). Donors who have more trust in charitable organizations feel that their contributions are less likely to be spent on fundraising costs and overheads (Bekkers and Wiepking, 2011; Sargeant, Ford, & West, 2006). Wiepking (2009) finds that trust in charitable organizations specifically

increases the likelihood of giving to organizations with an international focus. Therefore, the researcher proposed the following hypothesis.
H3: There is a significant relationship between trust and philanthropic behavior.

Tax Benefit: The main motivation for interest in tax donation was that tax benefits can have a significant influence on the level of donation on individuals, especially when charitable donations of taxable income are deductible. Without the deductible clause, every dollar received by the charity would mean forgetting personal use and saving only one dollar (Clotfelter, 1985). Many researchers predict the impact of income tax changes on donations (Clotfelter, 1985). Recent findings by individuals in the USA on charitable determinants have usually focused on how the tax price of charitable contributions impacts the charitable contribution level (Chua & Wong, 1999). Crittall et al. (2019) mentioned that only 1 percent or 7 percent of respondents knew the new tax incentives showed an effect on their donations. Therefore, the researcher proposed the following hypothesis.
H4: There is a significant relationship between tax benefits and philanthropic behavior.

The research model used for the study is depicted in Figure 1. There are four independent variables (religion, altruism, trust & tax benefits) and one dependent variable (philanthropic behavior).

Figure 1: Research Model



3. Research Methodology

This study adopts a cross-sectional study using non-probability sampling. The sampling method used is convenience sampling where the targeted respondents were youth. The age group for the youth is between 15 to 30 years old since the amendment was tabled by former Youth and Sports Minister Syed Saddiq Syed Abdul Rahman (NST, 2020). The survey was distributed using an online platform. A total of 149 responses were deemed to be useful for further analysis. The minimum sample size needed is 95 based on G*Power 3.1 calculation (Faul et al., 2007) with a power of 0.85 with an effect size of 0.15 as suggested by Cohen's (1988), thus the sample size is adequate. The items for all the variables were adopted from past studies. The religious items were adopted from Mohd Ali et al. (2015), and items for altruism were from Bekkers et al. (2016) and Webb et al. (2000). The items for the third independent variable, trust was adopted from Bekkers et al. (2016), Bennett (2003) and Grace and Griffin (2009) while tax benefits were from Green and Webb (1997) and Furnham (1995). The items for philanthropic behavior items were taken from Snip (2011). All the measurement items were rated on a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). For data analysis, Partial least square structural equation modeling (PLS-SEM) was applied to analyze the hypotheses using SmartPLS version 3.2.8 (Ringle et al., 2015). It is a multivariate statistical analysis technique that performs a measurement model (validity and reliability) and a structural model (the relationship among variables).

4. Results

A demographic analysis of the respondents' characteristics is shown In Table 1. It was observed that the majority of the respondents were female (66.4%) and that about 35.6%, 55% and 9.4% of the respondents belonged to the age group between 26 – 30 years old, 21 – 25 years old and 15 – 20 years old, respectively. 96.6% of respondents were Bumiputra. The majority of the respondents were degree scholars (72.5%), while 20.1% were postgraduate scholars and the balance of 4.7% were diploma and secondary school students. In terms of monthly income, 78.5% of respondents earned below RM2500 and the rest of the respondents (21.5%) earned more than RM2500. Only 4% of respondents donated more than RM1000 annually, while 26.9% donated between RM100 – RM100 annually and the majority of respondents donated less than RM100 annually (69.1%).

Table 1: Demographic of Respondents

Variable	Frequency (n = 149)	Per cent
Gender		
Female	99	66.4
Male	50	33.6
Age		
15-20 years old	14	9.4
21-25 years old	82	55.0
26-30 years old	53	35.6
Marital status		
Divorced	3	2.0
Married	22	14.8
Single	124	83.2
Ethnicity		
Bumiputera	144	96.6
Chinese	3	2.1
Indian	2	1.3
Religion		
Muslim	144	96.6
Buddha	3	2.1
Hindu	2	1.3
Education level		
Secondary school	4	2.7
Diploma	3	2.0
Bachelor degree	112	75.2
Postgraduate	30	20.1
Monthly Income		
Less than RM2,500	117	78.5
More than RM10,000	1	0.7
RM2,501-RM5,000	20	13.4
RM5,001-RM7,500	7	4.7
RM7,501-RM10,000	4	2.7
Donation amount (annual)		
Less than RM99	103	69.1
RM100-RM499	39	26.2

RM500-RM999	1	0.7
More than RM1,000	6	4.0

As data were collected on a single source basis in this study, the common method bias issue was tested using the full collinearity method as recommended by Kock and Lynn (2012), and Kock (2015). This method was carried out by regressing all the variables in the model towards a common variable and if the VIF values are less than 3.3 indicating no serious bias from the single source data. Table 2 reported that single-source bias is not a problem as the VIF values were found to be less than 3.3.

Table 2: Full Collinearity Test

Religious	Altruism	Trust	Tax benefit	Philanthropy Behavior
1.930	2.512	2.659	1.253	2.195

The multivariate skewness and kurtosis were assessed using the WebPower online tool as recommended by Cain et al. (2017). The Mardia's multivariate skewness ($\beta = 5.533, p < 0.01$) and Mardia's multivritrtosis ($\beta = 37.997, p < 0.01$) power analysis results indicated that the data was non normality. As partial least squares (PLS) modeling does not require the normality assumption (Chin et al., 2003), the SmartPLS 4 version (Ringle et al., 2022) is employed to analyze the data by examining the measurement and structural model.

The measurement model results of convergent validity comprising item loadings, composite reliability (CR), and average variance extracted (AVE)) are presented in Table 3. The values of factor loadings > 0.5, CR > 0.7 and AVE > 0.5 fulfill the requirements as suggested by Hair et al. (2017).

Table 3: Convergent Validity

Variable	Item	Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)
Altruism	ALTRUISM1	0.874	0.936	0.746
	ALTRUISM2	0.855		
	ALTRUISM3	0.904		
	ALTRUISM4	0.859		
	ALTRUISM5	0.826		
Religious	RELIGIOUS 1	0.668	0.795	0.566
	RELIGIOUS 2	0.742		
	RELIGIOUS 3	0.838		
Tax benefit	TAX1	0.901	0.947	0.816
	TAX2	0.856		
	TAX3	0.93		
	TAX4	0.924		
Trust	TRUST1	0.884	0.866	0.683
	TRUST2	0.767		
	TRUST3	0.825		
Philanthropy Behavior	INT1	0.939	0.914	0.78
	INT2	0.888		
	INT3	0.819		

The discriminant validity was evaluated using the HTMT criterion as recommended by Henseler et al. (2015) and Franke and Sarstedt (2019). The moderately lenient criterion is that the HTMT readings should be between 0.85 and 0.90. The values of HTMT shown in Table 4 were lower than the threshold of 0.85 indicating that the measurement items are valid and reliable.

Table 4: HTMT Criterion

	Altruism	Religious	Tax benefit	Trust	Philanthropy Behavior
Altruism					
Religious	0.535				
Tax benefit	0.137	0.127			
Trust	0.850	0.752	0.142		
Philanthropy Behavior	0.717	0.734	0.127	0.758	

The hypotheses developed were tested through the structural model criteria including path coefficients, standard errors, t-values and p-values. In determining the significance of a hypothesis, p-values, confidence intervals, and effect sizes are combination criteria as commented by Hahn and Ang (2017). The results of path coefficients are presented in Table 5.

Table 5: Hypothesis Testing

Hypothesis	Relationship		Std beta	Std error	t-value	p-value	BCI LL	BCI UL	f^2
H1	Religious -> behavior	Philanthropic	0.316	0.078	4.056	0.000	0.196	0.442	0.145
H2	Altruism -> behavior	Philanthropic	0.318	0.107	2.985	0.001	0.143	0.492	0.097
H3	Trust-> behavior	Philanthropic	0.242	0.115	2.112	0.018	0.063	0.435	0.051
H4	Tax benefit -> behavior	Philanthropic	-0.131	0.081	1.625	0.052	-0.232	0.056	0.033

The results indicate that religious and trust were found to have a positive relationship with philanthropic behavior among youth. However, tax benefits were found to have an insignificant relationship with philanthropic behavior. Thus, H1, H2 and H3 were supported while H4 was not supported. The R^2 value of 0.546 indicated that 54.6% of the variance in philanthropy intention was explained by the variance of altruism, religious obligation, tax benefit and trust in charity institutions. The f^2 values of 0.145, 0.097 and 0.051 indicate the small effect of the three significant predictors on philanthropic behavior.

Further, the predictive relevance was evaluated by applying PLS Predict as suggested by Shmueli et al. (2019). As shown in Table 6, all the errors of the PLS model were lower than the LM model indicating that the model has a strong predictive power.

Table 6: PLS Predict

	PLS-SEM Q^2_predict	RMSE	LM RMSE	PLS-SEM-LM RMSE
INT1	0.514	0.548	0.58	-0.032
INT2	0.348	0.677	0.712	-0.035
INT3	0.279	0.83	0.849	-0.019

5. Conclusion

In conclusion, the objective of the study is to determine the factors influencing philanthropic behavior among youth in Malaysia. The findings found that religion, altruism and trust were all significant and influenced philanthropic behavior. This indicates that a religious sentiment does encourage young people to donate which can affect their intent to repeat the donation. Religious responsibilities and obligations can be helpful when applying for donations. There are a few types of donations among Muslims, which also support causes in society such as Sadaqah, Kaffara, Waqf and Zakat. Another aspect of Islamic philanthropy is the contribution of religious contributions to the construction of mosques, schools and hospitals through the establishment of one of Muslim donation's strongest social manifestations. waqf. The principles of charity and compassion embodied in the Islamic teachings through the Quran and the tradition of the Prophet Muhammad have a huge weight (Kroessin, 2007, 2008; Khan, 2012). It is every Muslim's obligation, through charitable donations, to redistribute wealth (Kroessin, 2007). Zakat is paid at the end of each year at a tax rate of 2.5% higher than the minimum amount of disposable wealth (Kroessin, 2008; Khan, 2012). This proved that Malaysians are prone to donate to Religious Corporations and Charitable or Registered Trust. Therefore, the findings of this study on religion are supporting with previous studies where religious affiliates are more likely to give for religious reasons (e.g., Hoge et al., 1996; Raganathan and Henley, 2008).

Many efforts have been made to promote philanthropy in many regions and nations. Among ways to promote philanthropic behavior is by enhancing existing incentives. For instance, getting tax relief in Malaysia is burdensome. To obtain tax-exempt status for an organization in the area, they must be operational for at least two years before application, which means that the head of the organization normally has to cover the costs in person or locate a donor who supports tax payments. The lack of government support for charity must be looked at in every respect. There is a lack of trust in all aspects of charitable foundation governance. Many people have been abused, and politicians often use the foundation as the front line of their political activities. In addition to the government's accountability requirements, non-profit organizations and the general civil society must also become more transparent and self-reliant in ensuring increased public confidence and donations. By requesting annual reports on activities and audited financial statements and by adopting legislation that prohibits personal economic benefits arising from unsuitable charitable conduct, the governments may enhance transparency between NGOs and privately owned charities. Within the NGO itself, every organization can develop practicable methods to increase its transparency, for example by publishing voluntarily annual reports, which provide financial and planning information, and serve as examples for other organizations. In addition, more favorable tax incentives are an effective way of fostering charity by increasing the amount of donors' tax deductions and tax credits as well as increasing the number and type of non-profit organizations that can receive tax-friendly donations.

References

Abd Rahim, R., Jalaludin, F. W. & Tajuddin, K. (2011). The Importance of Corporate Social Responsibility on Consumer Behaviour in Malaysia. *Asian Academy of Management Journal*, 16(1), 119-139

Amersi, M., & Milani, A. S. F. (2019). Philanthropy and Islam. Philanthropy Impact, (December 2020), 2019 – 2020. https://www.philanthropy-impact.org/article/philanthropy-and-islam

Bekkers, R. & Schuyt, T. (2008). And who is your neighbor? Explaining denominational differences in charitable giving and volunteering in the Netherlands. *Review of Religious Research,* 50(1), 74–96.

Bekkers, R. & Wiepking, P. (2011). A literature review of empirical studies of philanthropy: Eight mechanisms that drive charitable giving. Nonprofit and Voluntary Sector Quarterly.

Bekkers, R. (2003). Trust, Accreditation, and Philanthropy in the Netherlands. *Nonprofit and Voluntary. Sector Quarterly*, 32(4), 596 - 615.

Bennett, R. (2003). Factors underlying the inclination to donate to particular types of charity. *International Journal of Nonprofit and Voluntary Sector Marketing*, 8(1), 12-29.

Chua, V. C. H. & Wong, C. M. (1999). Tax incentives, Individual characteristics and charitable giving in Singapore. *International Journal of Social Economics,* 26(12), 1492–1504.

Clotfelter, C. T. (1985). Federal tax policy and charitable giving. Chicago: University of Chicago Press.

Cogswell, E. (2002). Macalester College. Retrieved August 13, 2014, from Digital Commons@Macalester: http://digitalcommons.macalester.edu/cgi/viewcontent.cgi?article=1271&context=macintl

Coombs, J. E., Shipp, A. J. & Christensen, L. J. (2008). Entrepreneur as change agent: Antecedents and moderators of individual-level philanthropic behavior. *Frontiers of Entrepreneurship Research*, 28(21), 1-13.

Crittall, M., McGregor-Lowndes, M. & Conroy, D. (2019). Individual giving: A decade of change in Australia? *Third Sector Review,* 25(1), 1–26.

Economic Planning Unit (2022). The Malaysian Economy in Figures 2022: Area, Population and Labor Force. Retrieve May 15, 2023, https://www.ekonomi.gov.my/sites/default/files/2020-02/MEIF%202016.pdf

Falco, N., Fopma, W., Maxwell, S., Stoller, M. & Turrell, N. (1998). Planned giving: is philanthropy a learned behavior? *Fundraising Management,* 29(7), 36–37.

Faul, F., Erdfelder, E., Lang, AG., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods,* 39, 175–19. https://doi.org/10.3758/BF03193146

Ferraro, R., Shiv, B. & Bettman, J. R. (2005). Let us eat and drink, for tomorrow we shall die: Effects of mortality salience and self-esteem on self-regulation in consumer choice. *Journal of Consumer Research*, 32(1), 65–75.

Gewin, V. (2020). The career cost of COVID-19 to female researchers, and how science should respond. *Nature,* 583(7818), 867-870.

Green, C. L., & Webb, D. J. (1997). *Factors Influencing Monetary Donations to Charitable Organizations. Journal of Nonprofit & Public Sector Marketing, 5(3), 19–40.* doi:10.1300/j054v05n03_03

Grönlund, H. & Pessi, A. B. (2015). The Influence of Religion on Philanthropy across Nations. In: Wiepking, P., Handy, F. (eds) The Palgrave Handbook of Global Philanthropy. Palgrave Macmillan.

Hahn, D. E. & Ang, S. H. (2017). From the editors: New directions in the reporting of statistical results in the Journal of World Business. *Journal of World Business,* 52(2), 125 – 126.

Hair, et al. (2017). An Updated and Expanded Assessment of PLS-SEM in Information Systems Research. *Industrial Management & Data Systems,* 117(3), 442 – 458.

Hassan, S. H., Yeap, J. A. & Al-Kumaim, N. H. (2022). Sustainable fashion consumption: advocating philanthropic and economic motives in clothing disposal behavior. *Sustainability*, 14(3), 1875.

Hazim, H., Anggraenni R. P. & Bahodirovna, A. M., (2023), Altruistic Actions in COVID-19 Corpses Care: Empathy, Modeling, and More. Proceedings of the International Conference on Advance Research in Social and Economic Science (ICARSE 2022), 476 -484.

Healy, K. (2004). Altruism as an organized problem: The case of procurement. *American Sociological Review*, 63(3), 387 – 404.

Henseler, et al. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science,* 43, 115 – 135.

Hoge, R. D., Andrews, D. A., & Leschied, A. W. (1996). *An Investigation of Risk and Protective Factors in a Sample of Youthful Offenders. Journal of Child Psychology and Psychiatry, 37(4), 419–424.* doi:10.1111/j.1469-7610.1996.tb01422.x

Institut Penyelidikan Pembangunan Belia Malaysia. (2022). Jumlah Populasi Belia, Retrieve: https://www.iyres.gov.my/images/penerbitan/Facts%20&%20Figures%20Indeks%20Belia%20Malaysia%20202

Jamal, A., Yaccob, A., Bartikowski, B., & Slater, S. (2019). *Motivations to donate: Exploring the role of religiousness in charitable donations. Journal of Business Research, 103, 319–327.* doi:10.1016/j.jbusres.2019.01.064

Jehle, G. A. (1994). Zakat and inequality: Some Evidence From Pakistan. *Review of Income and Wealth,* 40(2).

Kang, C., Handy, F., Hustinx, L., Cnaan, R., Brudney, J. L., Haski-Leventhal, D., Holmes, K., Meijs, L., Pessi A. B., Ranade, B., Smith, K., Yamauchi, N. & Zrinscak. (2011). What gives? Cross-national differences in students' giving behavior. *The Social Science Journal,* 48(2), 283–294.

Khan, A. A. (2012). Religious obligation or altruistic giving? In Muslims and Charitable Donations, Barnett M, Stein J (eds). Oxford University Press, 90–114.

Kock, N. & Lynn, G. (2012). Lateral Collinearity and Misleading Results in Variance-Based SEM: An Illustration and Recommendations. *Journal of the Association for Information Systems*, 13(7).

Kock, N. (2015), Common method bias in PLS-SEM: A Full Collinearity Assessment Approach, *International Journal of e-Collaboration,* 11(4), 1 – 10.

Kroessin, M. R. (2007). Islamic charities and the 'War on Terror': dispelling the myths. Humanitarian Exchange Magazine 38(June), 27–29. Also available at: http://www.odihpn.org/ [Accessed on October 28, 2012].

Kroessin, M. R. (2008). Worlds apart? Muslim donors and international humanitarianism. *Forced Migration Review,* 29(Nov), 36.

Lammam, C. & Gabler, N. (2012). Determinants of charitable giving: A review of the literature. Fraser Forum March/April. 12-15.

Lio, S. W. & Yao, L. (2023). An Investigation on the Success and Failure of Charities from the Effective Altruism Perspective. *Journal of Education, Humanities and Social Science*, 10, 191-196.

Lunn et al. (2001), Relationships among Giving, Church Attendance, and Religious Belief: The Case of the Presbyterian Church (USA), *Journal of the Scientific Study of Religion,* 40(4), 765 - 775

McCullough, M. E. & Willoughby, B. L. B. (2009). Religion, self-regulation, and self-control: Associations, explanations, and implications. *Psychological Bulletin*, 135(1), 69–93.

Melendez, S. E. (2001). The nonprofit sector and accountability. *New Directions for Philanthropic Fundraising,* 31, 121–132.

Mohamed. A. A. S. F. M. (2019). Philanthropy and Isla. Philanthropy Impact Magazine, 21.

Mohd, A. A. F., Rashid, Z. A., Johari, F. & Muhammad, M. R. (2015). The effectiveness of Zakat in reducing poverty incident: An analysis in Kelantan. Malaysia. *Asian Social Science*, 11(21), 355–367.

Mujahidah, A.S. & Rusydiana, A. S. (2022). Perceptions of Indonesian Muslim youth on factors influencing their intention to perform cash waqf. *International Journal of Islamic Economics and Finance (IJIEF), 6*(1), 53-72. DOI: https://doi.org/10.18196/ijief.v6i1.13964.

Iqbal, N., Toor, S. I., & Nisar, M. (2023). Youth Philanthropy: A Study Towards Redefining Youth Philanthropy In Pakistan. *Pakistan Journal of Social Research*, *5*(02), 866-876.

O'Neill, M. (2008). Public Confidence in Charitable Nonprofits. *Nonprofit and Voluntary Sector Quarterly,* 38(2), 237–269.

Osman, A. F., Htay, S. N. N. & Muhammad, M. O. (2012). Determinants of Cash Waqf Giving in Malaysia: Survey of selected works. In: Workshop Antarabangsa Pembangunan Berteraskan Islam V (WAPI-5), Medan, Indonesia.

Perry, J. L., Brudney, J. L., Coursey, D. & Littlepage, L. (2008). What drives morally committed citizens? A study of the antecedents of public service motivation. *Public Admin Review,* 68(3), 445 – 458.

Ranganathan, S. K. & Henley, W. H. (2008). Determinants of charitable donation intentions: a structural equation model. *International Journal of Nonprofit and Voluntary Sector Marketing,* 13(1), 1-11.

Ranganathan, S. K. & Sen, S. (2012). Examining charitable donation process in South India: role of gender. *International Journal of Nonprofit and Voluntary Sector Marketing,* 17(2), 108–121.

Ridings, D. S. (1997). Philanthropy in action: Building Community. *National Civic Review,* 86(4), 281-286.

Ringle, et al. (2022). A brief review of partial least squares structural equation modeling (PLS-SEM) use in quality management studies. *Psychology and Marketing Journal,* 39(5), 1035-1064.

Rizal, H. & Hanudin, A. (2017). Perceived Ihsan, Islamic egalitarianism and Islamic religiosity towards charitable giving of cash waqf. *Journal of Islamic Marketing,* 8, 669 - 685

Ruehle, R. C., Engelen, B. & Archer, A. (2021). Nudging charitable giving: What (if anything) is wrong with it? *Nonprofit and Voluntary Sector Quarterly*, 50(2), 353-371.

Salih, S. A. (1999). The Challenges of Poverty Alleviation in IDB Member Countries. IDB Occasional Paper no 3.

Sargeant, A. & Lee, S. (2004). Donor Trust and Relationship Commitment in the U.K. Charity Sector: The Impact on Behavior. *Nonprofit and Voluntary Sector Quarterly*, 33(2), 185–202.

Sargeant, A., Ford, J. B. & West, D. C. (2006). Perceptual determinants of nonprofit giving behavior. *Journal of Business Research,* 59(2), 155–165.

Sauri, S. (2022). Indonesian Altruism Through Crowdfunding Platform at Kitabisa.com. Journal of Economic and Sharia Law and Business Studies, 73 – 280.

Shmueli et al. (2019), Predictive model assessment in PLS-SEM: guidelines for using PLSpredict, *European Journal of Marketing*, 53(11), 2322 - 2347.

Snip, B. (2011). Factors Influencing the Intention to Donate to Charity Organizations: Importance of Trust. Master's Thesis, Faculty of Behavioral Sciences, University of Twente, Netherlands.

Sulek, M. (2010). On the modern meaning of philanthropy. *Nonprofit and voluntary sector quarterly,* 39(2), 193-212.

Taniguchi, H. (2012). The Influence of Generalized Trust on Volunteering in Japan. *Nonprofit and Voluntary Sector Quarterly*, 42(1), 127–147.

Wai Yee, L., Hassan, S. H., & Ramayah, T. (2016). Sustainability and Philanthropic Awareness in Clothing Disposal Behavior among Young Malaysian Consumers. *SAGE Open*, *6*(1). https://doi.org/10.1177/2158244015625327

Webb, D. J., Green, C. L., & Brashear, T. G. (2000). Development and validation of scales to measure attitudes influencing monetary donations to charitable organizations. *Journal of the Academy of Marketing Science, 28*(2), 299-309.

Wiepking, P. & Bekkers, R. (2012). Who gives? A literature review of predictors of charitable giving. Part Two: *Gender, family composition and income, Voluntary Sector Review*, 3(2), 217 – 245.

Wiepking, P. (2009). The state of giving research in Europe: Household donations to charitable organizations in twelve European countries. Amsterdam University Press.

Wiepking, P., Madden, K. & McDonald, K. (2010). Leaving a legacy: Bequest giving in Australia. *Australasian Marketing Journal,* 18, 15 - 22.

Ranganathan, S. K., & Henley, W. H. (2008). *Determinants of charitable donation intentions: a structural equation model. International Journal of Nonprofit and Voluntary Sector Marketing, 13(1), 1–11.* doi:10.1002/nvsm.297