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WEB TECHNOLOGIES, E-BUSINESS AND E-EDUCATION: POST PANDEMIC PERSPECTIVE

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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, Cambodia, Turkiye, New Zealand, Japan and USA. Exploring the Influence of Technology, Lifestyle and Flexible Working Arrangements on Cyber Psychology, Comparative Analysis of Individualism and Collectivism Effects on Customer Satisfaction, Factors Influencing Volunteers' Motivation, Role of Personality Peculiarities on Depression and Anxiety, Boosting Customer Satisfaction and Unleashing Inventory Mastery, Influence of Perceived Risk Factors on Online Purchase Intention, Occupational Stress and Work-Life Balance, Awareness of Microtakaful Development, Instructional Elements Assessments of Entrepreneurship Education, Relationship between Employability Skill and Job Mismatch, Policies, Technology and Leadership Support on Work-Life Balance, Determinants of Using Reusable Eco-Friendly Shopping Bags, Financial Literacy among University Students, Unraveling the Internationalization Barriers among SMEs, Effect of Self-Resilience on Financial Anxiety & Psychological Distress, Factorial Structure and Psychometric Validation, Role of Student Exchange Programs in Fostering Halal Understanding, Development in Electric Vehicle Intention and Adoption, Determinants of Household Debt, Factors Influencing the Price of Gold, Navigating the COVID-19 Storm, Foreign Bias in the Global Portfolio Investment, Narcissism and Entrepreneurship, Challenges of Asnaf Entrepreneurs, Determinants of Sustainable Energy Saving Behavior, Factors of Gig Job Involvement, COVID-19 and Emergency Online Learning, Exploring Holistic Performance Indicators for WAQF Institutions, Effect of Crowd Design, Information and Management on Crowd Safety, Employer's Satisfaction on Accounting Internship, Nexus between Macroeconomic Factors and Economic Growth, Exploring Communication Channel Selection for Enhanced Audit Quality, Determinants of Financial Planning for Retirement, Understanding Customer Intention to Use E-Payment, Competitive Advantages amongst Travel Agencies, Exploring the Research Landscape of Turnover Intention, Personality Traits and Job Performance, Entrepreneurial Ventures, Public Safety, Undergraduate Students and Gig Economy, SMEs Performance and Supply Chain Integration, Financial Well-Being of Micro-Entrepreneurs, WAQF and Tourism Industry Sustainability, Online Learning Self-Efficacy and Self-Regulated Learning, Enhancing Workplace Well-Being, Relationships between Emotional Intelligence and Leadership Effectiveness, Application of Technology Usage and Perception of Performance of Cash Waqf, Empowering Whistleblowing Policy and Cybersecurity Awareness on Personal Data Protection 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 the editorial team of the journal for relevance and originality of the work and then blindly peer-reviewed by 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.

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PAPERS

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Exploring the Influence of Technology, Lifestyle and Flexible Working Arrangements on Cyber Psychology among Employees at a Malaysian Investment Holding Company

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Abstract: This study explores the relationship between cyberpsychology and its influencing factors among employees at an investment holding company (which will be addressed as XYZ Berhad). Understanding the impact of technology, lifestyle, and flexible working arrangements on employees' psychological well-being and behavior is crucial in today's digital workplace. With the prevalence of remote work and flexible arrangements, it becomes essential to examine how these factors influence employees' cyberpsychology experiences. Using a quantitative correlational approach, data was collected from 123 participants out of a total employee population of 174 at XYZ Berhad. The survey utilized Likert scale items to assess respondents' perspectives on technology usage, lifestyle choices, flexible working arrangements, and cyberpsychology. The findings reveal significant relationships between cyberpsychology and the influencing factors. Technology has a strong positive relationship, indicating its substantial impact on employees' psychological well-being and work behaviors. Similarly, lifestyle choices show a moderate positive relationship, highlighting the relevance of personal lifestyle preferences in shaping cyberpsychological experiences. Additionally, flexible working arrangement displays a medium positive relationship, underscoring the importance of work arrangements in influencing employees' psychological responses. The study recommends implementing awareness programs to help employees manage the psychological effects of technology usage and promoting the usage of online communication platforms to foster a positive organizational culture. Guidelines for employees working under flexible arrangements are advised to support their well-being and maintain a healthy work-life balance.

Keywords: *Technology, lifestyle, flexible working arrangements, cyberpsychology.*

1. Introduction and Background

Psychology, as the scientific study of the human mind and behavior, has long explored the psychological impact of life changes on individuals. In the modern era, the COVID-19 pandemic has caused significant changes in people's lives, affecting socio-economic and psychological aspects globally. Consequently, people have had to adapt to new norms and lifestyles during this challenging period. According to Ahuja and Alavi (2017), cyberpsychology has emerged as an evolution of human psychology, often referred to as internet or web psychology. This field studies psychological phenomena related to human interactions with technology and how such interactions influence individuals. Yusof and Othman (2018) define cyberpsychology as the study of human behavior within the principles of cyberpsychology to understand the psychological influence of cyberspace on its users.

Technology plays a crucial role in modern life, fulfilling social, economic, work, and communication needs (Cascio & Montealegre, 2016). Various technological platforms and tools, such as social media, games, virtual reality, mobile phones, computers, and tablets, significantly impact users' psychology (Tams et al., 2018). The Internet, in particular, has become a primary channel for communication, information exchange, academic research, entertainment, commerce, and social media usage (Masud et al., 2016). Social media platforms, like Facebook, have connected people globally, bridging gaps and creating virtual interactions that foster information exchange, interactivity, and bonding (Kahil, 2021).

By 2021, around 4 billion individuals were using the Internet, which accounted for 59% of the world's total population (Dwivedi et al., 2021). The COVID-19 pandemic has brought significant changes to various aspects of daily life, including work, education, and leisure (Liu et al., 2022). Lifestyle, as a reflection of people's regular social activities and how they perceive them, has undergone alterations due to these changes. This

evolution has affected communication and interactions among individuals using devices like mobile computing, game consoles, virtual reality, and artificial intelligence (Singh & Singh, 2019). The analysis of lifestyles contributes to product development and enhances understanding of political, economic, and cultural phenomena through information obtained via the Internet (Whang & Chang, 2004).

In response to changing technologies and lifestyles, many organizations have adopted flexible work arrangements to cater to employees' needs. These arrangements include remote working, flexitime, and compressed working hours (Menezes & Kelliher, 2016). They offer employees the opportunity to achieve work-life balance, which is believed to improve knowledge and work performance (Frank & Lowe, 2003; Kelliher & Anderson, 2008). The COVID-19 pandemic has further accelerated the adoption of flexible work arrangements, particularly the Work-From-Home (WFH) setup, as organizations shifted their operations to adapt to movement restrictions (Islam et al., 2022). While flexible work arrangements are expected to provide more work-life balance and lower stress levels, they may also lead to potential challenges, such as maintaining boundaries between work and personal life, and increased reliance on electronic devices (Mumin, 2020). The COVID-19 pandemic has instilled fear, nervousness, and confusion among individuals. The implementation of the Movement Control Order (MCO) compelled most Malaysians to work from home during the pandemic (Ambikapathy & Ali, 2020). Consequently, there has been an increased dependence on technologies and social networking services for organizations to continue their operations.

Psychological issues, such as anxiety and depression, have been exacerbated by factors such as the distress caused by the pandemic, globalization, liberalization, and technological advancements. Cyberpsychology, as a field within applied psychology, evaluates human interactions with technology and explores how technology influences behavior and psychology (Kirwan, 2016). Employee health and well-being are influenced not only by working conditions and organizational culture but also by individual psychological characteristics (Assim et al., 2021; Biggio & Cortese, 2013). Studies have shown a relationship between the use of social network sites, like Facebook, and individuals' well-being, with excessive usage leading to negative life outcomes (Clark et al., 2018; Brooks & Longstreet, 2015). Flexible work arrangements, while offering advantages in achieving work-life balance, also pose challenges related to the home environment and lack of work-related resources (Mumin, 2020). The blurring of boundaries between work and personal life during remote work may lead to work-life conflicts and psychological stress (Tams et al., 2018; Brough et al., 2005).

Despite the significance of these issues, limited research exists on the relationship between technology, lifestyle, flexible work arrangements, and cyberpsychology. Additionally, there is a lack of a strong theoretical foundation in cyberpsychology to explain offline behavior in the digital context. Given the ongoing global crisis caused by the COVID-19 pandemic, this study is crucial in providing awareness of the relationship between technology, lifestyle, flexible work arrangements, and cyberpsychology among employees of XYZ Berhad. The findings can offer insights into employee well-being, performance, and implications for organizations and individuals.

2. Literature Review

Cyberpsychology: Cyberpsychology is the study of how new technologies, beyond traditional computers, interact with the human mind and behavior (Dhanalakshmi, 2020). It aims to promote well-being in the digital environment (Calvo et al., 2014). Technology can have both positive and negative effects on users' psychology, impacting their overall quality of life and experiences. Positive psychology focuses on aspects like affective quality, engagement, actualization, and connectedness in personal experiences. Positive technology uses technology to enhance these aspects of cyberpsychology and human-computer interaction (Riva et al., 2012, 2014). However, excessive technology use can lead to negative effects on behavior, work-life balance, and work performance (Tams et al., 2020).

Studies have explored the consequences of excessive technology use, including internet and text messaging, on individuals' personalities and behaviors. Internet accessibility has been associated with reduced productivity and less effective interpersonal connections (Henle et al., 2012; Bryce, 2015). During the COVID-19 pandemic, social isolation increased, and technology usage became crucial for staying connected. However, it also highlighted negative psychological effects due to restrictions on movement and work

disruptions (Riva et al., 2020). Cyberpsychology plays a vital role in understanding how technology impacts human behavior. Amidst the challenges posed by the pandemic, gaining a profound comprehension of cyberpsychology becomes crucial in fostering well-being and ensuring positive technology experiences for individuals.

Technology, Lifestyle, and Flexible Working Arrangements: Technology has been defined in various ways by researchers over time. It refers to intangible assets that require continuous learning and can be costly to transfer tacit knowledge (Wahab et al., 2011). Technology has significant implications on how things are done, providing easy access to information, saving time, improving communication, managing costs efficiently, and enhancing learning techniques (Riva, 2008; Caponnetto & Milazzo, 2019). It has transformed the way people communicate, work, study and maintain relationships. Technology encompasses the practical application of scientific knowledge to solve problems and create useful tools. Organizations adopt new technologies to achieve cost reductions, improve quality, enhance productivity, stay competitive, and reduce reliance on skilled labor (Dawson, 2012).

Online communication involves various forms of non-immediate communication, such as sending messages through WhatsApp, email, or text messaging (Zalk, 2016). Excessive chatting and internet addiction can lead to anxiety and feelings of being left behind when not online (Shaw & Black, 2008; Young, 2009; Zalk, 2016). The relationship between technology readiness and acceptance can be informed by self-determination theory, which suggests that autonomy, competence, and relatedness influence self-motivation and well-being (Cascio & Montealegre, 2016). Technology acceptance is influenced by the ease of use, self-efficacy, economic and social factors, and the support of friends and family (Coovert & Thompson, 2014; Cascio & Montealegre, 2016). Different technologies serve different purposes, such as inducing positive experiences, providing engaging experiences, or improving social integration (Riva et al., 2020).

Lifestyle encompasses habits, behaviors, values, attitudes, and economic levels that define an individual or group's way of living (Veal, 1993). It represents the social position and character of a person, shaped by activities and influenced by social groups. Social media, particularly social networking, has become a significant aspect of lifestyle but may lead to neglecting other activities (Brooks & Longstreets, 2015).

Flexible working arrangements have become common in many countries and can include various schedules and work locations (Menezes & Kelliher, 2016). Such arrangements can help employees balance work and personal life, but success depends on organizational culture and managerial support (Timms et al., 2015). While there are benefits to flexible working, excessive flexibility may lead to blurred boundaries between work and personal life (Schieman & Glavin, 2008; Malek, 2020).

During the COVID-19 pandemic, technology became even more important in connecting people virtually, but it also impacted lifestyle and work arrangements. Employers need clear policies and procedures for flexible working arrangements, and appropriate technology usage can sustain productivity (Christopher & Ong, 2020; Ambikapathy & Ali, 2020). Hence, technology, lifestyle, and flexible working arrangements are interrelated factors that have significant impacts on individuals' well-being, behavior, and work experiences. Understanding these relationships is crucial, especially in the context of the COVID-19 pandemic.

The Relationship between Technology and Cyberpsychology: Technology plays a significant role in shaping cyberpsychology, particularly in the context of internet use. While technology, such as the internet, can improve various aspects of life and activities, excessive use can lead to addiction and negative consequences. Internet addiction may result in a loss of control over online activities, social problems; performance issues due to neglecting other activities, and health problems related to excessive screen time and disrupted sleep schedules (McNicol & Thornsteinsson, 2017). Moreover, internet addiction has been associated with anxiety and emotional disorders, particularly among youths and adults (McNicol & Thornsteinsson, 2017).

A study by Nie (2001) suggested that internet use has led to a decline in face-to-face social interactions, which can negatively impact relationships and well-being. The popularity of social media platforms like Facebook, Instagram, and Twitter has further reduced engagement in other social activities like email, phone calls, and

physical gatherings. As of 2021, social media use has indeed become a significant part of many people's lives, with the average user spending a considerable amount of time on these platforms. The figure you mentioned, 2.22 hours per day, might vary depending on the region, age group, and other factors, but it's generally reflective of the trend of increased social media usage. The concerns about the potential threats to well-being have been highlighted in Clark, Algoe, and Green's (2018) work.

Technology also influences work environments by facilitating new ways of conducting meetings and discussions online. Employees are now expected to attend meetings remotely, leading to increased stress levels. Moreover, excessive use of social media can diminish interpersonal and communication skills among employees, as they become more comfortable expressing themselves online without facing the audience physically (McNicol & Thornsteinsson, 2017). Given these observations, the hypothesis is that:
H1: There is an influence of technology on cyberpsychology among employees.

The Relationship between Lifestyle and Cyberpsychology: The internet has become an integral part of people's lives, regardless of their personality type (introvert or extrovert). It has significantly impacted users' lifestyles, influencing their activities, behaviors, and attitudes. Electronic platforms, like electronic messaging, have become prevalent in people's daily activities, such as online shopping, reading books, and accessing music, which has also affected their socio-economic patterns positively (Ancis, 2020).

However, an overreliance on the internet can lead to various issues, including depression, low self-esteem, sleep disorders, eating disorders, and anxiety disorders (Ahuja et al., 2017). As more people engage in online behavior, research on cyber technology's impact on educational, psychological, social, and physical well-being has increased. Misusing the internet can have negative consequences for individuals (Hawi & Samaha, 2017; Ancis, 2020), and in some cases, individuals may seek help from cyber psychologists to address these problems.

In the realm of cyberpsychology, various domains exist, including clinical psychology, educational psychology, consumer psychology, social psychology, and sports psychology (Arun, 2020). Problems like anxiety and depression can adversely affect employees' performance and productivity levels, subsequently impacting organizational performance and business sustainability in the long run. Therefore, the hypothesis states that:
H2: There is an influence of lifestyle on cyberpsychology among employees.

The Relationship between Flexible Working Arrangements and Cyberpsychology: Flexible working arrangements have become increasingly common due to socio-demographic changes (Masuda et al., 2011). This type of work arrangement allows employees to have flexible scheduling, such as remote or compressed working hours, enabling them to balance work and family demands. Studies have shown that flexible working arrangements contribute to better work performance and employee satisfaction (Bloom & Van Reenen, 2006; Menezes & Kelliher, 2017). Employees appreciate having control over their time and location of work execution (Atkinson & Hall, 2011). Expectations for workplace flexibility vary in different regions like Asia and Latin America due to cultural characteristics, legal requirements, and labor markets (Poelmans & Sahibzada, 2004; Masuda et al., 2011). There are employee-driven and employer-driven strategies for creating a flexible working environment, and their integration has different implications for employees' work-personal-life balance (Lewis, 2003; Kotey & Sharma, 2016).

The change in work arrangement has also impacted employee-employer communication. Mobile technologies have become key mediums for work-related communication, but excessive reliance on them can be challenging for employees due to constant email notifications, instant messages, and work notices, leading to work-life conflict (Tams et al., 2020). Employers now expect fast responses from employees, even during peak evening hours, which can intrude on employees' time and impact their well-being and behavior (Tams et al., 2020). Based on these factors, the study proposes the hypothesis that:
H3: There is an influence of flexible work arrangements on cyberpsychology among employees.

3. Research Methodology

The research design for this study is a quantitative correlational approach. Its main objective is to explore the relationship between cyberpsychology and its independent variables (technology, lifestyle, and flexible working arrangement) among employees of XYZ Berhad. The investigation type is correlation, which involves analyzing the relationships between the independent variables (technology, lifestyle, and flexible working arrangement) and cyberpsychology among the employees. The time horizon for data collection is cross-sectional, meaning that data will be gathered at a single point in time to answer the research questions. This allows for a snapshot view of the relationships between the variables. The unit of analysis is the employees of XYZ Berhad, and the sample size comprises 123 participants out of a total population of 174 employees. The sampling technique used is simple random sampling, ensuring that each employee has an equal chance of being selected as a respondent.

The research instrument consists of a questionnaire divided into three sections: demographics, cyberpsychology, and factors related to cyberpsychology (technology, lifestyle, and flexible working arrangement). Likert's scales are employed to measure respondents' agreement on each item, making it easier to analyze the data quantitatively. Data were collected through primary sources, specifically by distributing the questionnaires to the employees via email. A pilot study involving 30 respondents was conducted to validate and refine the research instruments before conducting the main study. This step ensures the clarity and comprehensibility of the questions to gather reliable data. Data analysis involved various statistical techniques such as descriptive analysis, normality analysis, reliability analysis, and multiple regression analysis using SPSS version 23. These analyses helped to understand the relationships between the variables and assess their significance.

4. Results and Discussion

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, level of education, and region).

Profile of Respondents: The respondent profiling data in the study reveals a diverse group of participants from XYZ Berhad, contributing to a comprehensive analysis of the relationship between cyberpsychology and its contributing factors. The gender distribution is nearly balanced, with representation from both females (50.8%) and males (49.2%), ensuring a holistic understanding of perspectives. The majority of respondents fall within the age range of 25 to 40 years old (56.9%), while participants from different age groups are also included. Ethnicity-wise, the study predominantly comprises Malay participants (96.2%), with smaller representations from Chinese and other ethnicities. Education-wise, a significant proportion holds a Bachelor's degree (61.5%), followed by Diploma and Master's degree holders. Marital status includes a mix of married (66.2%) and single (33.8%) respondents. Geographically, urban areas have the highest representation (68.5%), with participants also from suburbs (29.2%) and rural areas (2.3%). Different position levels are represented, with executives being the largest group (50.0%), followed by non-executives, managers, and senior managers. Job categories include participants from operations (53.1%), management, and non-management roles. Years of service vary, with the largest group having 1 to 5 years (40.0%), indicating a diverse range of experiences. Overall, this diverse demographic composition provides a solid foundation for understanding how cyberpsychology is influenced by factors such as technology, lifestyle, and flexible working arrangements among the employees of XYZ Berhad.

Regression Analysis: The regression analysis results presented in the tables provide valuable insights into the relationship between cyberpsychology (dependent variable) and its predictors: technology, lifestyle, and flexible Working Arrangements.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.669[a]	.448	.435	.35434

a. Predictors: (Constant), Flexible Working Arrangement, Technology, Lifestyle
b. Dependent Variable: Cyberpsychology

Table 2: ANOVA

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	12.825	3	4.275	34.049	<.001[b]
	Residual	15.820	126	.126		
	Total	28.645	129			

a. Dependent Variable: Cyberpsychology
b. Predictors: (Constant), Flexible Working Arrangement, Technology, Lifestyle

Table 3: Coefficient Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.747	.208		3.599	<.001
	Technology	.528	.073	.515	7.207	<.001
	Lifestyle	.160	.056	.205	2.838	.005
	Flexible Working Arrangement	.087	.043	.142	2.047	.043

a. Dependent Variable: Cyberpsychology

Regression Analysis Interpretation: In Table 1, the R Square value (0.448) in Model 1 indicates that approximately 44.8% of the variance in cyberpsychology can be explained by the combined influence of technology, lifestyle, and flexible working arrangements. The adjusted R Square (0.435) suggests that the model's predictive power remains consistent even after considering the number of predictors. The standard error of the estimate (0.35434) represents the average difference between the actual and predicted values, reflecting the accuracy of the model in predicting cyberpsychology. In Table 2, the ANOVA table displays the sources of variance in the regression model. The regression model's sum of squares is 12.825, with 3 degrees of freedom, resulting in a mean square of 4.275. The F-value (34.049) is highly significant (<.001), indicating that the regression model as a whole significantly explains the variance in cyberpsychology.

The coefficient analysis provides information about the individual predictors' influence on cyberpsychology, indicated in Table 3. The coefficient for technology is 0.528. A positive standardized coefficient (β = 0.515) indicates that an increase in technology is associated with a higher cyberpsychology score. This suggests that as employees use technology more extensively, their cyberpsychology tendencies increase. The coefficient for Lifestyle is 0.160, with a standardized coefficient (β = 0.205). It indicates that an increase in lifestyle factors is associated with a higher cyberpsychology score. This implies that certain lifestyle choices and habits may influence employees' cyberpsychology. The coefficient for flexible working arrangements is 0.087, with a standardized coefficient (β = 0.142). A positive Beta value suggests that a more favorable flexible working arrangement is associated with a higher cyberpsychology score. This implies that employees who have greater flexibility in their work arrangements may exhibit different cyberpsychology tendencies compared to those with less flexibility.

In summary, the regression analysis reveals that technology, lifestyle, and flexible working arrangements are significant predictors of cyberpsychology among employees. The model indicates that these factors collectively explain a considerable portion of the variance in cyberpsychology, providing valuable insights into the relationships between the variables in the context of the study.

Discussion: The results of the regression analysis provide compelling evidence regarding the relationships between the variables and cyberpsychology among employees of XYZ Berhad. The analysis shows that there

is a significant and positive relationship between technology and cyberpsychology among XYZ Berhad employees. The correlation coefficient (r=0.617) indicates a strong positive association between these variables. This finding aligns with previous research, emphasizing that technology plays a crucial role in the modern workplace, impacting employees' cyberpsychology both positively and negatively (Watermeyer et al., 2023). The study participants reported using the internet and social media for communication and exchange of ideas, which positively influenced their cyberpsychology.

There is a significant and positive relationship between lifestyle and cyberpsychology among XYZ Berhad. The correlation coefficient (r=0.425) indicates a medium positive correlation between these variables. Employees' use of social media platforms, like Facebook, for building relationships and communication positively influenced their cyberpsychology (Yu et al., 2023). This finding corroborates previous research, suggesting that social media use impacts well-being through both online and offline interactions (Meier & Johnson, 2022). The study participants engaged with social media for both work and non-work-related purposes, further emphasizing the impact of lifestyle on cyberpsychology. These results highlight the relevance of lifestyle choices, particularly social media usage, in influencing employees' cyberpsychology.

There is a significant and positive relationship between flexible working arrangements and cyberpsychology among XYZ Berhad employees. The correlation coefficient (r=0.302) indicates a medium positive correlation between these variables. Technology plays a significant role in creating flexibility in employees' working hours, affecting their cyberpsychology. The study participants reported feeling overwhelmed and busier when facing mobile interruptions after regular working hours, illustrating the impact of flexible working arrangements on cyberpsychology. Additionally, the findings suggest that flexible working arrangements may lead to extended working hours, potentially contributing to work-family conflicts (Soga et al., 2022; Marx et al., 2021). These results emphasize the importance of considering flexible working arrangements' implications on employees' cyberpsychology.

As a whole, the regression analysis provides robust evidence supporting the relationships between technology, lifestyle, flexible working arrangements, and cyberpsychology among employees of XYZ Berhad. The findings highlight the significant role of technology and lifestyle in shaping employees' cyberpsychology and underscore the importance of considering flexible working arrangements' impact on their well-being. These insights can be instrumental in informing organizational policies and practices to promote positive cyberpsychology among employees and foster a healthy and productive work environment. The study's results contribute valuable knowledge to the field of cyberpsychology and its implications for employee well-being and performance in the contemporary workplace.

5. Managerial Implications and Recommendations

To address the potential anxiety and psychological effects of adopting new technologies, XYZ Berhad can organize awareness programs for employees. These programs can help employees understand and manage the emotional impact of technology use, ensuring they are in their best psychological state both at home and work (Riva et al., 2020). Additionally, it is essential to continuously explore the psychological and organizational effects of modern workplace technologies to develop effective retention strategies. Understanding how employees experience technology at work can lead to a better integration of technology within the organization.

Considering the significant changes in lifestyle due to the COVID-19 pandemic, XYZ Berhad can improve and promote the usage of online communication platforms for employees. Encouraging the use of platforms like Telegram, WhatsApp, Zoom, or Google Meet can facilitate communication and information sharing among employees, fostering a strong organizational culture (Santoso et al., 2022). However, it is crucial to monitor these communication channels to prevent any undesirable effects from open communication opportunities.

Given the fast-paced and constantly changing business environment, organizations like XYZ Berhad need to adopt flexible working arrangements. However, it is equally important to ensure that employees' well-being is not compromised. The company should establish proper guidelines for flexible working arrangements, considering suitable job functions and job design (Piazza, 2004). This will help strike a balance between work

and family domains, reducing work-family conflicts (Greenhaus & Beutell, 1985). Ensuring the readiness of work-from-home infrastructure and identifying the most suitable working arrangements for different job roles will contribute to successful implementation (Ndubisi & Kahraman, 2005).

By implementing these recommendations, XYZ Berhad can create a supportive and productive work environment that considers the psychological well-being of its employees in the context of technology use, lifestyle changes, and flexible working arrangements.

Recommendations for Future Research: For future research on cyberpsychology and its influencing factors, researchers can adopt various strategies to enhance the depth and breadth of their investigations.

Firstly, researchers should consider incorporating different and diverse variables into their studies. By expanding the scope of variables, they can gain a more comprehensive understanding of the relationship between cyberpsychology and its influencing factors. Including additional variables, moderators, or mediators can provide valuable insights into how various factors interact and contribute to employees' psychological well-being and behavior in the workplace. Secondly, researchers should explore alternative data collection methods beyond traditional surveys. Conducting interviews, whether online or face-to-face, can offer a more in-depth and nuanced understanding of participants' experiences and perspectives. Through interviews, researchers can delve into the intricacies of employees' interactions with technology, lifestyle choices, and flexible working arrangements, leading to richer qualitative data.

Additionally, future studies can benefit from focusing on specific groups of employees. By narrowing the research scope to particular job functions, designs, requirements, departments, job categories, or industries, researchers can obtain targeted and comparable results. This approach allows for a more detailed examination of how cyberpsychology and its influencing factors impact different employee segments. Lastly, researchers should consider employing mixed methods surveys. By combining quantitative and qualitative data, researchers can address research questions from multiple angles. Mixed methods surveys enable the integration of deductive and inductive thinking, empowering researchers to tackle a wider range of research problems effectively. This approach can provide a more holistic understanding of the complexities surrounding cyberpsychology and its influencing factors.

Incorporating these recommendations into future research endeavors will contribute to a more comprehensive and insightful exploration of cyberpsychology and its impact on employees in various organizational settings. By employing diverse variables, alternative data collection methods, targeted focus groups, and mixed methods surveys, researchers can advance their knowledge of the intricate relationship between technology, lifestyle, flexible working arrangements, and employees' psychological well-being. These advancements can inform the development of evidence-based strategies to promote a positive and thriving work environment, ultimately benefiting both employees and organizations alike. By implementing these recommendations, future studies can enhance the understanding of cyberpsychology and its relationships with technology, lifestyle, and flexible working arrangements.

Conclusion: In conclusion, this study aimed to explore the relationship between cyberpsychology and its influencing factors among employees of XYZ Berhad. The research design employed a quantitative correlational approach, utilizing data collected from 123 participants through a questionnaire with Likert scales. The demographic characteristics of the respondents were diverse, ensuring a comprehensive analysis of the research topic. The findings revealed significant relationships between cyberpsychology and the independent variables, namely technology, lifestyle, and flexible working arrangements. Technology showed a strong positive correlation with cyberpsychology, indicating its significant impact on employees' psychological well-being and behavior in the workplace. Lifestyle exhibited a positive influence on cyberpsychology, underscoring the impact of social media and online platforms on employee cyberpsychology.

Moreover, the study highlighted a medium positive correlation between flexible working arrangements and cyberpsychology, shedding light on the potential challenges and benefits of remote work practices. These findings underline the importance of balancing work demands with employees' personal lives to avoid work-

family conflicts and maintain overall well-being. Based on the research findings, several recommendations were proposed for XYZ Berhad to enhance the usage of technology, promote a healthy lifestyle, and implement flexible working arrangements. Organizing awareness programs and establishing guidelines can help employees better manage the psychological effects of technology. Improving communication through online platforms may foster a positive organizational culture while being mindful of potential drawbacks. Ensuring appropriate job functions and designs in flexible arrangements can contribute to harmonious work-life integration.

For future research, scholars are encouraged to explore additional variables and utilize mixed methods surveys to gain deeper insights into the complexities of cyberpsychology and its influencing factors. Focusing on specific employee groups and using diverse data collection methods can enrich our understanding of the ever-evolving relationship between technology and employee well-being in the modern workplace. Ultimately, by understanding and addressing the dynamics of cyberpsychology and its influencing factors, organizations like XYZ Berhad can create a supportive and conducive work environment that promotes employees' mental health, productivity, and overall job satisfaction. This, in turn, can lead to a more engaged and resilient workforce, contributing to the long-term success and growth of the company.

References

Abdul Wahab, S., Che Rose, R. & Idayu Wati Osman, S. (2012). The theoretical perspectives underlying technology transfer: A literature review. *International Journal of Business and Management*, 7(2), 277–288.

Ahuja, V. & Alavi, S. (2017). Cyberpsychology and cyber behavior of adolescents-the need of the contemporary era. *Procedia Computer Science*, 122, 671-676.

Ambikapathy, M., & Ali, A. (2020). Impact and challenges towards employees working from home during COVID-19 (MCO) period. *International Journal of Social Science Research*, *2*(4), 97-107.

Ancis, J. R. (2020). The age of cyberpsychology: An overview.

Arun, N. D. (2020). A study of cyberpsychological behaviors among girls studying in higher educational institutes.

Assim, M. I. S. A., Munusamy, A., Yaccob, Y., Jusoh, N. H. M., & Janis, S. (2021). Factors influencing psychological well-being and gender among private financial sector employees in Malaysia. *International Journal of Academic Research in Business & Social Sciences*, *10*(1), 331-351.

Atkinson, C., & Hall, L. (2011). Flexible working and happiness in the NHS. *Employee Relations*, *33*(2), 88-105.

Biggio, G., & Cortese, C. (2013). Well-being in the workplace through interaction between individual characteristics and organizational context. *International Journal of Qualitative Studies on Health and Well-Being*, *8*(1), 19823.

Malek, M. B. C. (2020). The impact of flexible work arrangements on employee engagement with the mediating role of work-home interaction.

Bloom, N., & Van Reenen, J. (2006). Management practices, work-life balance, and productivity: A review of some recent evidence. *Oxford Review of Economic Policy*, *22*(4), 457-482.

Brooks, S., & Longstreet, P. (2015). Social networking's peril: Cognitive absorption, social networking usage, and depression. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *9*(4).

Bryce, J. (2015). Cyberpsychology and human factors. *Engineering & Technology Reference.*

Calvo, R., D'Mello, S., Gratch, J., Kappas, A., Riva, G., Calvo, R. & Lisetti, C. (2015). Cyberpsychology and affective computing. *The Oxford Handbook of Affective Computing*.

Caponnetto, P., & Milazzo, M. (2019). Cyber Health Psychology: The use of new technologies at the service of psychological well-being and health empowerment. *Health Psychology Research*, *7*(2).

Cascio, W. F., & Montealegre, R. (2016). How technology is changing work and organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, *3*, 349-375.

Clark, J. L., Algoe, S. B. & Green, M. C. (2017). Social network sites and well-being: The role of social connection. *Current Directions in Psychological Science*, 27(1), 32–37.

Coovert, M. D. & Thompson, L. F. (2013). The psychology of workplace technology. In *the Psychology of Workplace Technology*.

De Menezes, L. M. & Kelliher, C. (2016). Flexible working, individual performance, and employee attitudes: Comparing formal and informal arrangements*. Human Resource Management*, 56(6), 1051–1070.

De Menezes, L. M., & Kelliher, C. (2017). Flexible working, individual performance, and employee attitudes: Comparing formal and informal arrangements. *Human Resource Management*, *56*(6), 1051-1070.

Dhanalakshmi, A. (2020). Cyberpsychology and its impact on 10th and intermediate students in West Godavari District of Andhra Pradesh. *Editorial Board*, *9*(2), 71.

Draxler, J. (2012). Globalization and social risk management in Europe–a literature review

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J. & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, *59*, 102168.

Frank, K. E., & Lowe, D. J. (2003). An examination of alternative work arrangements in private accounting practice. *Accounting Horizons*, *17*(2), 139-151.

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, *10*(1), 76-88.

Hawi, N. S., & Samaha, M. (2017). The relations among social media addiction, self-esteem, and life satisfaction in university students. *Social Science Computer Review*, *35*(5), 576-586.

Henle, C. A., & Kedharnath, U. (2012). Cyberloafing in the workplace. In *Encyclopedia of Cyber Behavior* (pp. 560-573). IGI Global.

Islam, A. (2022). Work-from/at/for-home: COVID-19 and the future of work–A critical review. *Geoforum*, *128*, 33-36.

Kahil, B. (2021). Motivation and privacy role in knowledge sharing during Pandemic 2020: A study of enterprise social system use in Malaysian SMEs. *Journal of Digitovation and Information System*, *1*(1), 28-42.

Kirwan, G. (2010). Cyberpsychology. *The Irish Journal of Psychology*, 31(1-2), 69–84.

Kotey, B., & Sharma, B. (2016). Predictors of flexible working arrangement provision in small and medium enterprises (SMEs). *The International Journal of Human Resource Management*, *27*(22), 2753-2770.

Lewis, S. (2003). Flexible working arrangements: Implementation, outcomes, and management. *International Review of Industrial and Organizational Psychology 2003*, *18*, 1-28.

Liu, H. L., Lavender-Stott, E. S., Carotta, C. L., & Garcia, A. S. (2022). Leisure experience and participation and its contribution to stress-related growth amid the COVID-19 pandemic. *Leisure Studies*, *41*(1), 70-84.

Marx, C. K., Reimann, M., & Diewald, M. (2021). Do work–life measures really matter? The impact of flexible working hours and home-based teleworking in preventing voluntary employee exits. *Social Sciences*, *10*(1), 9.

Masuda, A., Boone, M. S., & Timko, C. A. (2011). The role of psychological flexibility in the relationship between self-concealment and disordered eating symptoms. *Eating Behaviors*, *12*(2), 131-135.

McNicol, M. L., & Thorsteinsson, E. B. (2017). Internet addiction, psychological distress, and coping responses among adolescents and adults. *Cyberpsychology, Behavior, and Social Networking*, *20*(5), 296-304.

Meier, A., & Johnson, B. K. (2022). Social comparison and envy on social media: A critical review. *Current Opinion in Psychology*, *45*, 101302.

NIE, N. H. (2001). Sociability, Interpersonal Relations, and the Internet. Reconciling conflicting findings. *American Behavioral Scientist*, 45(3), 420–435.

Nurhamiza, M. (2020). Are Malaysians ready for telecommuting? A case of COVID-19 Movement Control Order. *Journal of Critical Reviews*, 7(18), 3979–3990.

Oly Ndubisi, N., & Kahraman, C. (2005). Teleworking adoption decision-making processes: Multinational and Malaysian firms' comparison. *Journal of Enterprise Information Management*, *18*(2), 150-168.

Palumbo, R., Manna, R., & Cavallone, M. (2021). Beware of side effects on quality! Investigating the implications of home working on work-life balance in educational services. *The TQM Journal*, *33*(4), 915-929.

Piazza, C. F. (2007). Workplace connectivity: A hidden ethical dilemma. *California: Business and Organizational Ethics Partnership Markkula Center for Applied Ethics of Santa Clara University*.

Poelmans, S., & Sahibzada, K. (2004). A multi-level model for studying the context and impact of work–family policies and culture in organizations. *Human Resource Management Review*, *14*(4), 409-431.

Riva, G. (2008). From virtual to real body: virtual reality as embodied technology. *J. Cyber Ther. Rehabil*, *1*, 7-22.

Riva, G., Baños, R. M., Botella, C., Wiederhold, B. K., & Gaggioli, A. (2012). Positive technology: using interactive technologies to promote positive functioning. *Cyberpsychology, Behavior, and Social Networking*, *15*(2), 69-77.

Riva, G., Calvo, R., & Lisetti, C. (2014). *Cyberpsychology and affective computing.*

Riva, G., Mantovani, F., & Wiederhold, B. K. (2020). Positive technology and COVID-19. *Cyberpsychology, Behavior, and Social Networking*, *23*(9), 581-587.

Santoso, N. R., Sulistyaningtyas, I. D., & Pratama, B. P. (2022). Transformational leadership during the COVID-19 pandemic: Strengthening employee engagement through internal communication. *Journal of Communication Inquiry*, 01968599221095182.

Schieman, S., & Glavin, P. (2008). Trouble at the border? Gender, flexibility at work, and the work-home interface. *Social Problems*, *55*(4), 590-611.

Shaw, M., & Black, D. W. (2008). Internet addiction: definition, assessment, epidemiology and clinical management. *CNS Drugs*, *22*, 353-365.

Singh, A. K., & Singh, P. K. (2019). Recent trends, current research in cyberpsychology: A literature review. *Library Philosophy and Practice*, NA-NA.

Soga, L. R., Bolade-Ogunfodun, Y., Mariani, M., Nasr, R., & Laker, B. (2022). Unmasking the other face of flexible working practices: A systematic literature review. *Journal of Business Research*, *142*, 648-662.

Tams, S., Ahuja, M., Thatcher, J., & Grover, V. (2020). Worker stress in the age of mobile technology: The combined effects of perceived interruption overload and worker control. *The Journal of Strategic Information Systems*, *29*(1), 101595.

Tams, S., Thatcher, J. B., & Grover, V. (2018). Concentration, competence, confidence, and capture: An experimental study of age, interruption-based technostress, and task performance. *Journal of the Association for Information Systems*, *19*(9), 2.

Timms, C., Brough, P., O'Driscoll, M., Kalliath, T., Siu, O. L., Sit, C. & Lo, D. (2014). Flexible work arrangements, work engagement, turnover intentions and psychological health. *Asia Pacific Journal of Human Resources*, 53(1), 83–103.

Van Zalk, N. (2016). Social anxiety moderates the links between excessive chatting and compulsive internet use. *Social Anxiety Moderates the Links between Excessive Chatting and Compulsive Internet Use*, 10(1).

Veal, A. J. (1993). The concept of lifestyle: a review. *Leisure Studies*, *12*(4), 233-252.

Watermeyer, R., Knight, C., Crick, T., & Borras, M. (2023). 'Living at work': COVID-19, remote-working and the spatial-relational reorganization of professional services in UK universities. *Higher Education*, *85*(6), 1317-1336.

Whang, L. S. M., & Chang, G. (2004). Lifestyles of virtual world residents: Living in the online game" Lineage". *Cyberpsychology & Behavior*, *7*(5), 592-600.

Young, K. (2009). Internet addiction: Diagnosis and treatment considerations. *Journal of Contemporary Psychotherapy*, *39*, 241-246.

Yu, L., Zhong, Y., Sun, Y., & Qin, G. (2023). The impact of excessive social media use at work: A usage experience–stressor–strain perspective. *Behavior & Information Technology*, *42*(7), 985-1004.

Yusof, S. H. M., & Othman, S. H. (2018). The Cyberpsychology Factors of Internet Addiction among School Teenagers. *International Journal of Innovative Computing*, *8*(3).

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Comparative Analysis of Individualism and Collectivism Effects on Customer Satisfaction in the Retail Sector: Examining Asian and Western Cultures

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Abstract: Customer satisfaction is the result of a customer's assessment of how well a service has performed, stemming from the differences between their initial expectations and the actual service they have encountered. While various elements play a role in shaping customer satisfaction, numerous factors come into play. This study focuses on exploring cultural differences, considering the multicultural environment of Malaysia. This is particularly intriguing since businesses in Malaysia cater to both local and international customers from Asian and Western regions. The objective of this study is to examine the correlation between individualism and collectivism about customer service satisfaction, with a specific focus on the retail sector involving multinational brands and diverse customers. The utilization of Geert Hofstede's Dimension theory is justified as it is a widely recognized framework for cultural differences research. A quantitative methodology was employed, surveying 103 participants, with 51.5% originating from Asian cultures and 48.5% from Western cultures. The findings demonstrate that while both individualism and collectivism significantly influence customer service satisfaction in the retail sector, collectivism plays a more significant role in determining overall satisfaction levels. To enhance the understanding of this topic, it is suggested that future studies expand beyond the Klang Valley area and explore additional explanatory variables that consider the impact of cultural differences on customer satisfaction.

Keywords: *Individualism; collectivism; Asian culture; Western culture; retail.*

1. Introduction and Background

This research examines the impact of cultural factors, specifically the cultural syndromes of collectivism and individualism, on customer satisfaction. While previous studies have explored individualism and collectivism, there is a growing focus on cultural classifications that consider the patterns of hierarchy and power within societies, along with the privileges and obligations associated with them. This holds particularly true for Malaysia, where businesses flourish by capitalizing on cultural diversity. By conducting an in-depth analysis of various cultures through the research literature, we aim to gain a comprehensive understanding of how customer satisfaction is perceived and how specialized services can be tailored to meet customer needs. This study seeks to provide valuable insights for those seeking a deeper understanding of how to enhance customer satisfaction in their respective contexts. Furthermore, this research aims to pinpoint the pivotal elements that exert a noteworthy influence on customer service satisfaction within the retail sector.

The retail sector in Malaysia possesses unique characteristics, as it often relies on the patronage of tourists and expatriates to drive sales. To enhance customer satisfaction in this sector, retailers must gain a profound understanding of the diverse cultural backgrounds of their customer base. Customer satisfaction is a pivotal factor in marketing and promotion, and research indicates that it is closely linked to customers' cultural backgrounds (Md. Uzir Hossain Uzir, 2020). By comprehending the cultural contrasts in customers' expectations and needs across different backgrounds, retailers can deliver services that align with customer expectations. Exploring cultural differences between Western and Asian tourists can provide valuable insights into this matter, as significant variations exist between these two cultural groups (Viken, Höckert, & Grimwood, 2021). Moreover, customers from Asian and Western countries exhibit distinct perspectives on what constitutes excellent service (Ali, et al., 2021).

Without a comprehensive understanding of cultural differences, retailers and consumers may hold divergent expectations regarding the standards of good versus poor service. What may be deemed satisfactory in one country could be deemed inappropriate in another. Therefore, retailers should not only focus on satisfying customers but also pay attention to dissatisfied customers, as they are more likely to spread negative word-of-mouth, while satisfied customers may simply move on without expressing their satisfaction. Word-of-mouth intentions serve as a crucial metric for customer evaluations of service encounters (Han & Ryu, 2012).

Customer satisfaction has emerged as a crucial topic in both marketing theory and practice. However, there is a lack of specific guidelines for studying the factors that influence customer satisfaction. It is important to recognize that customers from different backgrounds may have varied definitions and interpretations of what determines their satisfaction. Unfortunately, the role of cultural contrasts in customer satisfaction research has been largely overlooked, despite the growing focus on internationalization strategies by organizations. It is widely acknowledged that cultural backgrounds significantly influence how customers perceive their interactions with businesses, leading to differing expectations and experiences. The ongoing process of globalization and the increasing movement of people across diverse countries pose challenges for industries in accommodating these cultural variations. In Malaysia, businesses cater not only to local customers but also to individuals from foreign countries. Cultural background significantly influences an individual's comfort level in engaging with the services they receive. Conducting studies on cultural differences can assist retailers and researchers in avoiding misunderstandings that may arise due to cultural variations. A deeper understanding of these differences ultimately leads to higher levels of customer satisfaction.

2. Literature Review

With the increasing globalization of businesses, culture is recognized as a significant factor influencing marketing practices (Peprah, Ocansey, & Mintah, 2017). Cultural intelligence has been found to have a positive correlation with customer satisfaction (Hassan, Basit & Sethumadavan, 2020). Particularly in the context of differentiation, when sellers and buyers come from diverse cultures or backgrounds, it becomes crucial to adapt strategies to accommodate these differences (Arli, Bauer, & Palmatier, 2018). Cultural diversity pertains to a framework of convictions and actions that recognize the existence of varied societal groups, appreciate their cultural differences, and nurture their ongoing contributions within a comprehensive cultural environment that encompasses all segments of society (Aktar & Alam, 2021).

Hofstede's extensive research suggests that Asian cultures tend to be more collectivist, while Western cultures lean towards individualism (Power, Schoenherr, & Samson, 2010). Furthermore, service quality researchers emphasize the need for developing advanced measures of cultural dimensions, particularly individualism or collectivism (Rita, Oliveira, & Farisa, 2019). Customers from different countries or regions bring diverse perspectives, behaviors, and thought patterns (Shavitt & Barnes, 2020). An intercultural service encounter occurs when the customer and service provider come from different cultures, making communication and obtaining specific product or service information challenging. Studies have demonstrated that customers from different cultures evaluate and perceive a company's service quality differently (Mariani & Matarazzo, 2020).

Despite individuals in Malaysia sharing some cultural similarities, their buying and consumption patterns often differ due to varying cultural backgrounds. The stark differences between Asian and Western societies often give rise to cultural clashes and misunderstandings, highlighting the need for understanding and navigating these cultural variations (Le & Yazdanifard, 2014).

Collectivism: Customers hailing from collectivist cultures tend to place greater value on social influences that emphasize adapting behavior to maintain harmonious relationships with significant others. In collectivist cultures, individuals prioritize group cooperation, reliance on others, and saving "face" - a concept encompassing notions of dignity, wrongdoing, social status, character, praise, and embarrassment (Merkin, 2017). Collectivists typically favor close, enduring relationships (Cherry, 2022) and exhibit loyalty and care towards their in-group members (Honglie, Linshen, & Zhou, 2022). Even when service quality is subpar, collectivist individuals may display greater tolerance, as they perceive the service provider as part of their group. Moreover, collectivists are inclined to cultivate and sustain relationships with service providers, demonstrating commitment and loyalty to their group members. Expectations towards service quality are generally lower among collectivist customers (Lee, Kang, & Kang, 2018).

Collectivism is associated with a strong sense of responsibility, seeking advice from group members, and demonstrating commitment to the collective. Collectivist individuals are often more compliant and accommodating compared to those from individualistic cultures (Triandis, 2019). Therefore, it is hypothesized that:

H1: There is a positive relationship between collectivism and customer service satisfaction in the retail sector.

Individualism: In individualistic cultures, there is a greater emphasis on individual autonomy, valuing rebellion and creativity (Triandis, 2019). Individuals in such cultures tend to join and leave groups more easily, as they prioritize personal development over long-lasting relationships with group members. According to Hofstede (2006), individualistic cultural traits are characterized by a sense of detachment between individuals. Individuals in individualistic cultures appreciate concepts such as self-liberty, competition, direct communication, personal peace, self-knowledge, and unique qualities (Hofstede, 2011). Those who prioritize their interests and the interests of their immediate family members are also considered individualistic (Fatehi, Priestley, & Taasoobshirazi, 2020). They tend to value making decisions based on their own opinions rather than relying on others' advice.

In terms of service expectations, individualistic customers anticipate respect, care, empathy, and personal attention from service providers. They also expect service providers to demonstrate confidence in the services they offer (Ali, et al., 2021). Individualistic customers are less tolerant compared to collectivists when it comes to perceiving low-quality services. Due to their inclination to easily join or leave groups, individualistic customers are more likely to discontinue services and have a higher probability of not returning if they receive poor service (Dwivedi, et al., 2021). Based on this understanding, it is hypothesized that:
H2: There is a positive relationship between individualism and customer service satisfaction in the retail sector.

3. Research Methodology

This study employed a correlation coefficient analysis to examine the relationship between collectivism culture, individualism culture, and customer satisfaction. The sample size consisted of 103 respondents, which the researcher considered fair in terms of representing both major cultural orientations of populations presented at the venue during the time of the data collection (about 150 to 200 visitors or shoppers were approached at the venue), consistent with the formula posited by Krejcie & Morgan (1970). The researchers opted for a quantitative technique in collecting data for several reasons; quantitative data allows for sophisticated statistical analysis, which can help identify patterns, relationships, and correlations in the data and allows for direct comparisons between different groups or variables. Researchers can use these statistical tests to determine if differences are statistically significant. This is useful for hypothesis testing and making predictions (Matthias & Marcel, 2021). Participants responded to a set of 45 questions specifically designed to address the research objective. The questionnaire utilized a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to assess the respondents' agreement or disagreement with statements about collectivist culture and individualism culture. The questionnaire used in this study was adapted from previous research conducted in related fields.

Figure 1: Theoretical Framework

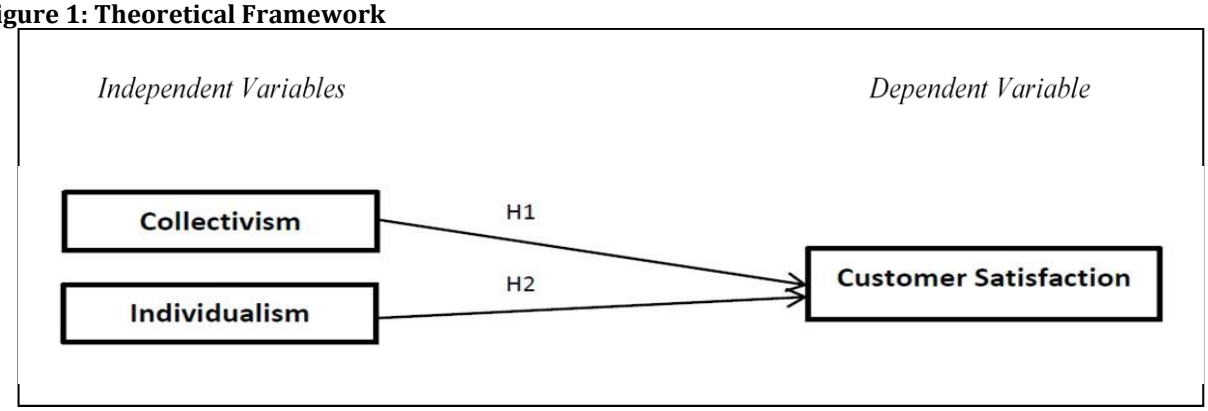


Figure 1 outlines Hofstede's foundational framework, which forms the core of cultural dimensions. Recognizing the importance of culture, the researcher chose to align with this influential theory and explore its relevance within the Malaysian context.

4. Results

A total of 103 questionnaires were gathered and analyzed from customers of selected retail stores in Suria KLCC, one of Malaysia's largest shopping centers, which provided an ideal setting to obtain respondents from both Asian and Western backgrounds. The respondents consisted of 45.6% males and 54.4% females. Among the participants, 51.5% (53) were of Asian origin, while 48.5% (50) were of Western origin, as indicated in Table 1.

Table 1: Origin of Respondents

VARIABLE	FREQUENCY	PERCENTAGE
Asian	53	51.5%
Western	50	48.5%
Total	**103**	**100%**

The relationship between collectivism and customer satisfaction: Illustrated in Table 2 is a positive, albeit modest, correlation between collectivism and customer satisfaction scores ($r = 0.232$, $p < 0.05$). This implies that with the rise of collectivist culture, there is an inclination for customer satisfaction scores to likewise experience an increase (Nickolas, Mansa, & Munichiello, 2021).

Table 2: Relationship between Collectivism and Customer Satisfaction

Variables		Customer Satisfaction	Collectivism
Customer Satisfaction	Pearson Correlation	1	.232**
	Sig. (1-tailed)		.009
	N	103	103
Collectivism	Pearson Correlation	.232**	1
	Sig. (1-tailed)	.009	
	N	103	103

The relationship between individualism and customer satisfaction: According to Table 3, there is a moderate positive correlation between individualism and customer satisfaction scores ($r = 0.308$, $p < 0.05$). This implies that as individualism culture increases, there is a tendency for customer satisfaction scores to also increase (Nickolas, Mansa, & Munichiello, 2021).

Table 3: Relationship between Individualism and Customer Satisfaction

Variables		Customer Satisfaction	Individualism
Customer Satisfaction	Pearson Correlation	1	.308**
	Sig. (1-tailed)		.001
	N	103	103
Individualism	Pearson Correlation	.308**	1
	Sig. (1-tailed)	.001	
	N	103	103

As indicated in Table 4, a one standard deviation rise in individualism culture among customers is linked to an anticipated increase of 0.287 standard deviations in customer satisfaction. Similarly, an increase of one standard deviation in a collectivist culture is connected to a customer satisfaction elevation of 0.202 standard deviations. Thus, the most potent impact is attributed to the individualism variable, with a beta weight of 0.287 and a significant positive correlation ($p < 0.05$). The data presented supports the affirmation of both hypotheses (H1 & H2).

Table 4: Coefficients (most influencing culture on customer satisfaction)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.799	.592		3.040	0.03
Individualism	.352	.115	.287	3.067	0.03
Collectivism	.261	.121	.202	2.163	0.33

5. Discussion and Recommendations

Individualism and collectivism are cultural dimensions that highlight profound differences between Asian and Western societies. In Western cultures, notably in North America and Europe, individualism is a prominent trait, emphasizing personal autonomy, self-expression, and the pursuit of individual goals and achievements. In contrast, many Asian cultures, such as those in East Asia, tend to lean towards collectivism, emphasizing group harmony, interdependence, and communal values. This distinction often manifests in various aspects of life, from family dynamics to work environments. Western societies often celebrate individual success, while Asian cultures prioritize group cohesion and loyalty. Understanding these cultural differences is crucial for effective cross-cultural communication and cooperation, as it shapes the way people perceive themselves and their roles within their communities.

When considering customer satisfaction in the retail industry, the interplay of individualism and collectivism in different cultural contexts becomes a crucial factor. Retail businesses operating in diverse regions, including both Western and Asian markets, must navigate these cultural nuances to effectively meet customer expectations and ensure high levels of satisfaction.

In Western cultures, where individualism prevails, customer satisfaction often hinges on personalized and tailored shopping experiences. Customers in these regions expect retailers to provide a high degree of individual attention, personalized product recommendations, and a seamless, self-directed shopping journey. The emphasis is on convenience, efficiency, and the empowerment of individual choice. Retailers use data analytics and customer relationship management systems to create personalized marketing campaigns and enhance the shopping experience, all to satisfy the individual customer's needs and desires.

Conversely, in many Asian cultures characterized by collectivism, customer satisfaction often extends beyond the individual. It encompasses the entire shopping group, such as families or close-knit communities. Retailers in these markets need to consider the preferences and expectations of not just the individual customer but also the larger social group. The shopping experience is often seen as a collective activity, with decisions made jointly. Customer loyalty may be built through relationships with sales staff and a sense of trust and familiarity. Word-of-mouth recommendations within these close-knit communities can significantly impact a retailer's reputation and success.

In both cultural contexts, understanding and adapting to local norms and expectations are critical for retail success. Retailers must consider factors such as the balance between individualism and collectivism, the role of social influence, and the importance of trust and relationships in shaping customer satisfaction. This can lead to tailored marketing strategies, store layouts, and customer service approaches that resonate with the values and preferences of the target market.

Moreover, technology plays a significant role in enhancing customer satisfaction in the retail industry across cultures. Mobile apps, e-commerce platforms, and online reviews provide avenues for retailers to engage with customers on an individual level while also leveraging the power of social networks to reach a broader audience. Retailers need to strike a balance between personalization and community-building, ensuring that their strategies align with the cultural context and customer expectations.

In conclusion, understanding the cultural dimensions of individualism and collectivism is crucial for achieving customer satisfaction in the retail industry, whether in Western or Asian markets. Successful retailers recognize the importance of adapting their approaches to cater to the unique preferences and expectations of

their target customer base, fostering both individualized experiences and a sense of community within their stores. Balancing these factors can lead to increased customer loyalty and satisfaction, ultimately contributing to the long-term success of retail businesses.

In the retail sector, addressing cross-cultural issues is essential. To ensure success, companies and service representatives must possess cultural awareness, adaptability, and effective communication skills to effectively meet the expectations of customers from diverse cultural backgrounds. Regardless of their race, religion, social status, or language preferences, customer demands hold significant importance. Whether customers exhibit individualistic or collectivist tendencies, it remains the responsibility of retail companies to fulfill their needs and ultimately provide satisfaction. Several recommendations are outlined as follows:

- Consider increasing the sample size. A larger sample size enhances the reliability of the findings. Moreover, with a larger sample size, more robust statistical techniques like structural equation modeling can be employed to test causal relationships among the variables.
- Conduct further studies across various regions in Malaysia. Exploring similarities or differences in findings across the country, particularly in rural areas, would provide a more comprehensive understanding of the topic.
- Broaden the scope of future investigations by encompassing a wider array of explanatory variables. For instance, delve into the exploration of additional cultural differentiators like power distance, masculinity-femininity, short/long-term orientation, and uncertainty avoidance, and how they might impact levels of customer satisfaction. The inclusion of these factors would lead to a more holistic grasp of the subject matter, enabling a more thorough comprehension of its nuances.

References

Aktar, M. A. & Alam, M. M. (2021). Cultural Inequality and Sustainable Development. France: Springer International Publishing. Retrieved from https://hal.science/hal-03520087/document

Ali, B. J., Gardi, B., Othman, B. J., Ahmed, S. A., Ismael, N. B., Hamza, P. A. & Anwar, G. (2021). Hotel Service Quality: The Impact of Service Quality on Customer Satisfaction in Hospitality. *International Journal of Engineering, Business and Management (IJEBM),* 5(3), 14-28. doi:10.22161/ijebm.5.3.2

Arli, D., Bauer, C. & Palmatier, R. W. (2018). Relational selling: Past, present and future. *Industrial Marketing Management,* 69, 169-184.

Cherry, K. (2022, November 8). What Is a Collectivist Culture? Retrieved from Very Well Mind: https://www.verywellmind.com/what-are-collectivistic-cultures-2794962

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J. & Rauschnabel, P. A. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. International Journal of Information Management, 59. doi:https://doi.org/10.1016/j.ijinfomgt.2020.102168

Fatehi, K., Priestley, J. L. & Taasoobshirazi, G. (2020). The expanded view of individualism and collectivism: One, two, or four dimensions? *International Journal of Cross-Cultural Management,* 20(1), 7-24. doi:https://doi.org/10.1177/147059582091

Han, H. & Ryu, K. (2012, May 28). Key Factors Driving Customers' Word-of-Mouth Intentions in Full-Service Restaurants: The Moderating Role of Switching Costs. *Cornell Hospitality Quarterly,* 53(2), 96-109.

Hassan, Z., Basit, A. & Sethumadavan, S. (2020). Role of Sales Representative's Cultural Intelligence in Enhancing. *International Journal of Business Marketing and Management (IJBMM),* 5(7), 37-56.

Hofstede, G. (2011, 12). Dimensionalizing Cultures: The Hofstede Model in Context. Online Readings in Psychology and Culture, 2. Maastricht, Universities of Maastricht and Tilburg, Netherlands: International Association for Cross-Cultural Psychology. doi:https://doi.org/10.9707/2307-0919.1014

Honglie, Z., Linshen, D. & Zhou, J. (2022). Loyalty to organizations" or "loyalty to supervisors"? Research on differential leadership and employee loyalty behavior: A perspective of insiders and outsiders. Frontiers in Psychology, 13. doi:10.3389/fps.2022.971624

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

Le, W. Y. & Yazdanifard, D. R. (2014). The Impact of Cultural Background and Gender Differences on Malaysian Consumption Patterns. ResearchGGate. Retrieved from https://www.researchgate.net/publication/268387783_The_Impact_of_Cultural_Background_and_Gender_Differences_on_Malaysian_Consumption_Patterns

Lee, M., Kang, M. & Kang, J. (2018). Cultural influences on B2B service quality-satisfaction-loyalty. *The Service Industries Journal,* 39(6), 1-21. doi:10.1080/02642069.2018.1495710

Mariani, & Matarazzo. (2020). Does cultural distance affect online review ratings? Measuring international customers' satisfaction with services leveraging digital platforms and big data. Journal of Management and Governance, 1057-1078. doi:https://doi.org/10.1007/s10997-020-09531-z

Matthias, B. & Marcel, S. (2021). Quantitative and Qualitative Approaches to Generalization and Replication–A Representationalist View. Frontiers in Psychology, 12. doi:10.3389/fps.2021.605191

Md. Uzir Hossain Uzir, I. J. (2020). Does quality stimulate customer satisfaction where perceived value mediates and the usage of social media moderates? *Heliyon,* 6(12), 1-19.

Merkin, R. S. (2017). Saving Face in Business (1 ed.). New York: Palgrave Macmillan. doi:https://doi.org/10.1057/978-1-137-59174-6

Nickolas, S., Mansa, J. & Munichiello, K. (2021, May 31). Correlation Coefficients: Positive, Negative, and Zero. Retrieved from Investopedia: https://www.investopedia.com/ask/answers/032515/what-does-it-mean-if-correlation-coefficient-positive-negative-or-zero.asp#:~:text=A%20correlation% 20of% 20%2D1.0%20indicates,it%20is%20a%20negative%20relationship.

Peprah, W. K., Ocansey, E. O. & Mintah, E. K. (2017). The Influence of Culture on Global Marketing Strategies: A Confirmatory Study. *THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT,* 5(10), 150-155.

Power, D., Schoenherr, T. & Samson, D. A. (2010). The cultural characteristic of individualism/collectivism: A comparative study of implications for investment in operations between emerging Asian and industrialized Western countries. Journal of Operations Management, 206-222.

Rita, P., Oliveira, T. & Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping, Heliyon.

Shavitt, S. & Barnes, A. J. (2020). Culture and the Consumer Journey. *Journal of Retailing,* 96(1), 40-54.

Triandis, H. C. (2019). Individualism and Collectivism. Milton Park: Routledge.

Viken, A., Höckert, E. & Grimwood, B. S. (2021). Cultural sensitivity: Engaging difference in tourism. *Annals of Tourism Research,* (89), 1-11.

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A Conceptual Framework to Study Factors Influencing Volunteers' Motivation

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Abstract: Many researchers agree that motivation plays a key role for people to volunteer. This is because volunteering sometimes offers them no money or recognition. Understanding volunteer motivations and variances between groups of people will enable management to build management methods that will help volunteers perform better. Little study has been conducted on the volunteer motivational factors due to crisis although there were many studies on other forms of factors related to volunteerism. By understanding volunteer motivation, volunteers can be better managed to ensure that the benefits of helping outweigh the potential negative consequences for individuals and the community as a whole. The Malaysian Ministry of Youth and Sports was selected because although the initiative has just been launched recently but the Ministry able to attract more than 200,000 volunteers. Therefore, the purpose of this study is to examine the factors that influence people to volunteer as trained Satria. This will help government and non-profit organizations understand the factors that influence people to motivate during crises and emergencies as well as less-emergencies situations. Therefore, this paper aims to examine the factors influencing volunteers' motivation from a population of 508 trained Satria volunteers of the Malaysian Ministry of Youth and Sports throughout Malaysia.

Keywords: *Volunteer motivation, Satria Volunteers, Malaysian Ministry of Youth and Sports, Maslow's hierarchy of needs theory, Self-enhancement.*

1. Introduction and Background

Complexity is the term used to describe motivation as organizations deal with people from different walks of life (Zvavahera, 2015). Clary and Snyder's model of volunteer motivation provides an important contribution to our understanding of this complex area, giving practitioners a useful framework with which to design and deliver effective volunteer programs (Clary, Ridge, Stukas, Snyder, Copeland, Haugen, and Miene (1998). According to research, to examine the motivating factors of volunteers and to design the need for appropriate volunteer opportunities, a framework was provided by The Volunteer Function Index (VFI) (Starnes & Wyner, 2001). Other than that, Clary et al. (1998) also highlight the importance of considering volunteer needs to design and deliver the development of programs and services. It is analyzed that volunteer motivation had a strong positive relationship with volunteering and sustainability (Aydinli, Bender, Chasiotis, van de Vijver, & Cemalcilar, 2015; Wilson, 2012).

Many community-based services depend on volunteers, therefore recruiting and retaining volunteers are crucial for the long-term success of the services (Ainsworth, 2020). By understanding volunteer motivation, volunteers can be better managed to ensure that the benefits of helping outweigh the potential negative consequences for individuals and the community as a whole. The Malaysian Ministry of Youth and Sports was selected because although the initiative was just been launched in July 2022 but able to attract 230,905 volunteers registered as of 6th Mac 2023 (data from Malaysian Ministry of Youth and Sports officer email). Therefore, this paper aims to examine the influencing factors of volunteer motivation during emergencies and crises from a population of 508 trained Satria volunteers of the Malaysian Ministry of Youth and Sports throughout Malaysia.

Volunteer: Volunteer is defined as persons who use their free time to benefit others while receiving no monetary compensation (Zollo, Laudano, Boccardi, & Ciappei, 2018) & (Wilson, 2012). Volunteering significantly influences the community and non-profit organizations economically (Lau, Fang, Cheng, & Kwong, 2019). In other research by Bang et al. (2018), the success of sporting events was largely due to volunteerism.

Volunteering gives an individual a sense of purpose and benefits both the individual and the community (Gray & Stevenson, 2019). Aside from that, volunteering can enhance social connection and bonding among people help to establish community relationships and encourage involvement among citizens (Toomey, Strehlau-Howay, Manzolillo, & Thomas, 2020). As a result, disaster-affected communities will be more willing to aid one another in the future. Volunteerism has long been the major cause for many countries worldwide to achieve environment conservation through clubs and organizations (Sloane & Pröbstl-Haider, 2019).

Motivation: The word Motivation is translated from a Latin word, "movere" which means move and is later interpreted as moving people to strive (Nurbaeti, 2022). Motivation plays an important part in volunteerism success by getting people to volunteer, increase the number of volunteers and also determining its success (Lee & Zhang, 2019). The understanding of the factors that motivate people to volunteer is crucial for recruiting and supporting volunteers (Yang, 2021). According to Yang (2021), knowing the motivation factor is required to make the program sustainable and minimize any negative effects that may arise as a result of volunteer engagement. Motivation is thought to be a mental impulse that motivates and directs human behavior, especially learning behavior (Filgona, Sakiyo, Gwany & Okoronka, 2020). Other than the above previous research, motivation is described as the driving force that inspires or prompts a person to act towards a desired goal (Aliyah & Ariyanto, 2021). It is a force that causes an individual to act or behave in a particular way with influencing factors such as needs, desires, personal values, and aspirations (Mitchell & Clark, 2020).

Overview of Disaster: Disaster is defined as events that occur all over the world daily and have a profound impact on individuals and groups of families and communities (Younis, Ahmed, & Hussein, 2020). Faulkner and Vikulov (2001) define disaster as those events that disrupt the affected community externally with the need for adjustments. This is different from disasters caused by an organization's prolonged failure to deal with changes and problems (Faulkner and Vikulov, 2001). The number of countries affected by successive catastrophes is growing, and their effects might differ significantly from those of single disasters (Ruiter, Couasnon, Homberg, Gill & Ward, 2019).

Natural disasters affect people all over the world. These natural disasters are catastrophic and endanger peoples' lives (Kankanamge, Yigitcanlar, Goonetilleke & Kamruzzaman, 2019). Kankanamge et al. (2019) highlight many natural disasters that happened from 2010 to 2018 such as the Haiti Earthquake, the Tōhoku Earthquake and Tsunami, Hurricane Sandy, the Mexico Earthquake, Sierra Leone Floods and Landslides, Japan Floods and Mudslides to name a few. In Malaysia, natural disasters such as the Ranau Earthquakes in Sabah were dated back from 2015 to 2021 (Bikar, Rathakrishnan, Kamaluddin, Nasir & Nasir, 2021). According to Bikar et.al (2021), earthquake disasters tend to cause society to experience enormous levels of stress and awful scenes psychologically.

In December 2014, extreme rains and unusually strong winds during the Northeast Monsoon season caused unprecedented floods in Malaysia. The people in Kuala Krai Kelantan were the victims of these floods which forced them to evacuate and experience harsh episodes of high water increase of flood up to 4^{th} building floors (Anua & Chan, 2020). According to Anua and Chan (2020), one of the most common, harmful, and uncontrollable natural disasters is a flood disaster, which puts human lives and property in danger as well as indirectly harms the nation's economy while repeated floods can harm infrastructure, agriculture, property, and even human livelihood. Besides flood disasters, Malaysia also experiences many natural disasters as well as man-made disasters such as the worst episodes of haze, dreadful landslides, drought and typhoons to name a few (Chan, 2014). This research focuses on post-disaster aid where trained Satria volunteers from the Malaysian Ministry of Youth and Sports assist the affected victims.

Post Disaster Volunteers: Sukarelawan Anak Muda (Satria): Sukarelawan Anak Muda also known as Satria was launched by the Malaysia Prime Minister on 16th July 2022 during National Youth Day in Tuaran, Sabah. Satria is a dedicated platform to gather all the willing individuals to be part of volunteers during activities and post-disaster programs such as aids at the evacuation center, debris cleaning and minor repairs on public amenities and houses that have been affected by the disaster. Other than that, Satria is also involved in sports events such as the SUKMA (Malaysian Sport) event, Le Tour De Langkawi, and the AFF Mitsubishi

Cup Tournament. This research is focused on the population of 508 trained Satria volunteers of the Ministry of Youth of Malaysia from all over Malaysia.

Research Background: Butt, Hou, Soomro and Maran (2017), in their research state that a large number of volunteers are needed all over the world to render quality service for the betterment of the societies, organizations and communities. Volunteers can help to ensure the relevancy and legitimacy of development-related advocacy activities in important knowledge repositories (Suandi, Hamzah, Ismail & Shah, 2014). Bang and Chelladurai (2009) state that understanding the motivation, recruitment and retention of volunteers is important as volunteers contribute significantly to organizations. Thus, the population of 508 trained volunteers of the Malaysian Ministry of Youth and Sports all over Malaysia will be the participants of this research.

Problem Statement: The purpose of this study is to examine the factors that motivate people to volunteer as regards self-enhancement, expression of values, career and interpersonal among the trained Satria volunteers. According to Sengupta and Khalifa (2022), volunteerism is a synonym for crises. Motivation is the key factor for people to volunteer as they know that there will be no monetary benefits, it will need them to sacrifice time for training and prolonged volunteerism work by volunteering (Mertins & Walter, 2021). Understanding volunteer motivations and variances between groups of people will enable management to build management methods that will help volunteers perform better. According to Osei (2021), volunteer recruitment and retention may be difficult due to a lack of time, resources, and relevance. According to Aminizade et al. (2017), without volunteers, many organizations will not be able to function particularly in times of disasters or emergencies.

Citizens are typically the first people to arrive at the scene of accidents and tragedies and with the necessary abilities and knowledge can play significant roles and help the relief efforts greatly (Aminizade, et al., 2017). Volunteer motivation refers to the challenge of maintaining the enthusiasm and commitment of individuals who choose to contribute their time and resources to a cause or organization without receiving financial compensation (Mobiny & Ramos, 2020). Furthermore, Mobiny and Ramos (2020) state that this can result in decreased participation, high turnover rates, and difficulty attracting new volunteers, ultimately compromising the success of the cause or organization they support. According to Mak and Fancourt (2021), there are three types of volunteering namely formal volunteering, social action volunteering and neighborhood volunteering during the time of crisis. Those who were more connected with their communities tended to have greater intentions to volunteer during the crisis (Wang et al. 2021). For this research, trained Satria volunteers of the Malaysian Ministry of Youth and Sports are categorized as formal volunteering.

Little study has been conducted on the volunteer motivational factor during the crisis as compared to other factors of volunteerism (Sengupta & Al-Khalifa, 2022). The purpose of this study is to examine the main factors that motivate people to volunteer as trained Satria and then later, may be helpful for governments and non-profits to deal with volunteerism in the time of crises and emergencies.

Research Objectives: Based on the research questions, the main objective of this examine the relationship between factors that affect volunteer motivation among trained Satria volunteers in the Malaysian Ministry of Youth and Sports. The specific research objectives (ROs) are outlined below:
RO1: To examine the relationship between self-enhancement and volunteer motivation.
RO2: To examine the relationship between the expression of values and volunteer motivation.
RO3: To examine the relationship between career and volunteer motivation.
RO4: To examine the relationship between interpersonal and volunteer motivation.
RO5: To examine the most significant factor that influences volunteer motivation.

Significance of the Study: Contribution to the Government: The finding of this study will indicate factors affecting the volunteer motivation among the trained Satria volunteers registered with the Malaysian Ministry of Youth and Sports. Thus, the result will provide insights to government agencies to give due attention to these factors that motivate volunteer to offer their expertise and time for future voluntary

engagement. Other than that, these findings are most relevant for the recruitment of volunteers, networking and promoting organizations with volunteerism.

Significance of the Study: Contribution to the Non-Governmental Organizations (NGOs): This research can help the NGOs in Malaysia by sharing information on how to produce programs that are appropriate for the target group of individuals, particularly the youth, in the future.

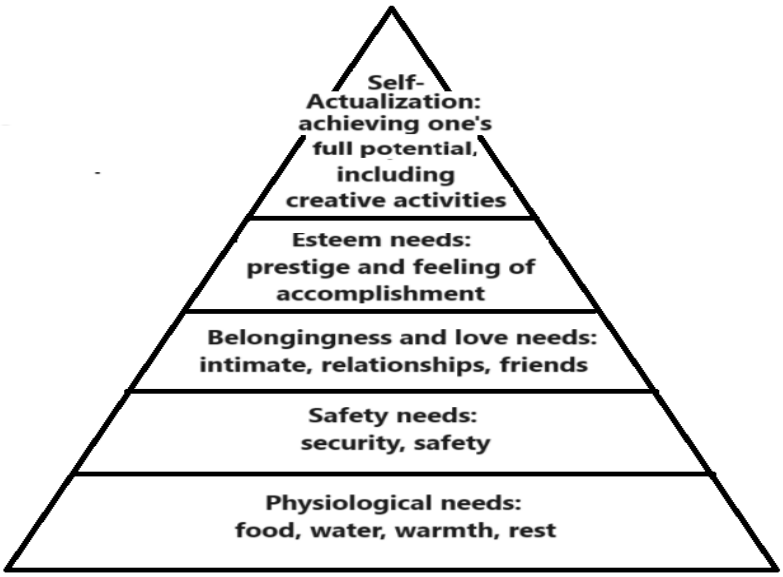
2. Literature Review

Brudney (2016) states that since the development of volunteer programs incur cost, therefore the screening, formulating, attracting and training are necessary before recruiting volunteers, following the successful recruitment of volunteers, one of the most important responsibilities of volunteer managers is to ensure long-term volunteer involvement (Brudney, 2016).

Clary et al. (1998), hypothesize 6 volunteerism functions with the application of functionalist theory. The functionalist theory focuses on the social structure that promotes society's long-term survival (Gómez-Diago, 2020) and Maslow's hierarchy of needs serves the purpose of the base on human needs. There are six motivation types namely, values, understanding and career. Social needs, enhancement, sense of security accordingly and each type has its elaborative functions (Suandi, et al., 2014).

Underlying Theory: Maslow's Theory of Hierarchical Need: According to Maslow's hierarchy of needs theory, people will be motivated if they are able to meet their desires. There are five level hierarchy of needs according to Maslow namely physiological, safety, love, esteem needs, and self-actualization (Maslow, 2000). Maslow explains that the different levels of hierarchy will define each person's needs. This model relates to Maslow's hierarchy of needs from the evolvement of psychological needs for people to have motivation to volunteer.

Figure 1: Maslow's Hierarchy of Need



Maslow's theory of motivation is based on the idea that individuals have a hierarchy of needs, starting with the most basic and important physiological necessities and ascending to the fifth level of the need for self-actualization (Alajmi & Alasousi, 2018).

Dependent Variable: Volunteer Motivation: According to Suandi et al. (2014), the Social Exchange theory framework hypothesizes that volunteerism sustainability depends on the reward and cost. It was hypothesized that any imbalance between contribution and rewards will increase the equilibrium (Suandi et

al., 2014). Ahn (2018) highlights volunteer motivation as a person's willingness to participate or contribute and remain in volunteer work. In the same study, it was mentioned that the motivations for volunteering in sporting activities vary based on the size and nature of the activity.

Volunteer activities have become trendy worldwide and volunteerism is said to be an important area of educational research in recent years (Ahmad, Sulaiman, & Khalifah, 2020). Volunteers are those who sacrifice some of their time to serve others within their society without expecting anything in return; they tackle responsibility for voluntary activities in the pursuit of self-happiness and new experiences (Adler 2011). Stebbins (2009) indicates that whether economic or voluntary, a "volunteer" is someone who is volunteering in the context of both formal and informal, even for a little time where this person serves or benefits one or more people (who, by definition, must not be members of that person's family) through volunteer work; volunteers typically do not get paid, but they occasionally get reimbursed for out-of-pocket expenses. Theoretically, volunteer work refers to a nonprofit endeavor that relates to a person or another person doing work with pay or no pay, organize work individually or institutionally, show personal or project commitment that consumes time (Guntert, Wehner & Mieg, 2022). Volunteers in organizations refer to those in organized nonprofit organizations, who work willingly without pay in exchange for their membership (Faletehan, Burg & Wempe, 2021).

It is very important to understand the volunteer's motivations since they make a great contribution to any organization, as well as the recruiting and retention of volunteers (Bang & Chelladurai, 2009). Volunteers play a vital role in the operation of our modern communities, thus their dedication to non-profit organizations is a significant social issue. In addition, Alajmi and Alasousi (2018) in their research state that motivation is partly a technique to motivate individuals to act. It is the process of behavior arousing, energizing, and finally determine performance by making people take action and achieve objectives (Alajmi & Alasousi, 2018).

Independent Variable: Self Enhancement: Self-enhancement is the motivation to have a direct impact on the life of an individual. It also the way one sees oneself positively (Krueger, Heck, & Asendorpf, 2017, et al., 2017). By volunteering, the person will have gained a sense of accomplishment. Enhancement is one of the six (6) primary functions served by volunteerism by Daniel (1960). Self-enhancement can also be interpreted by the achievement of the hierarchy of personal growth and self-esteem as to achieve satisfaction by volunteering (Daniel , 1960). It motivates them to present enhanced, self-relevant and positive self-image information. Self-enhancement is said to achieve the level of self-esteem by improving and enhancing oneself (Merriam-Webster, 2022).

The Relationship between Self-Enhancement and Volunteer Motivation: Research by Krueger et al. (2020) analyses self-enhancement with consistent results. The observation research on self-enhancement finds positive relationships between volunteering intention and volunteering expectation from others (Krueger et al., 2020). Furthermore, another research by Beckman et al. (2021) analyzed self-enhancement or personal enrichment to influence volunteerism and resulted in a positive relationship between the two variables stating that experience seekers on a personal level tend to have a positive relationship with volunteerism. In their research, Zainuddin, Yusof, Zaini, and Mansor (2020) discover that self-improvement is the primary reason that motivates respondents to volunteer. Self-enhancement also notifies the perception of an individual in a positive term (Krueger et al., 2017). Therefore, it was hypothesized as follows:
H0: There is no relationship between self-enhancement and volunteer motivation.
H1: There is a significant relationship between self-enhancement and volunteer motivation.

Independent Variable: Expression of Values: Values are concepts that describe desirable, trans-situational end-states and behaviors. They are divided into two categories: individual and societal values. Values influence social cohesion in three ways: first, when they are shared; second, when they promote behavior that is conducive to social cohesion; and third, by influencing policy choices and institutional design (Nowack & Schoderer, 2020). Recent research on how people cope with their surroundings indicates that the coping mechanism is related to values (motivation and focus) (Tamir, Cieciuch, Torres, & Dzokoto, 2016). The expression of values function is a function in which an individual gets pleasure from consistent attitude expression of personal values and self-concept. Ego psychology ideologies refer to the importance of self-

expression from three functions namely self-expression, self-development, and self-realization, and these functions are important to them (Daniel , 1960).

The Relationship between Expression of Values and Volunteer Motivation: Research by Bang, Bravo, Figuerôa, & Mezzadri (2018) indicates that individuals who believe that volunteering at a sporting event will meet their needs and aspirations to volunteer. Expression of values was found to form effectively their future intention to volunteer in the community (Bang et al., 2018). The research by Cho, Bonn and Han (2018) indicates that "value" was the positive factor that influenced Gen Z to volunteer. Values are important in decision making privately or publicly. Values also help the decision-maker to prioritize and strive for improvement (Haste, 2018). Therefore, H2 is developed as follows:
H0: There is no relationship between the expression of values and volunteer motivation.
H2: There is a significant relationship between the expression of values and volunteer motivation.

Independent Variable: Career: Most people characterize their careers in terms of a person's progression through numerous jobs, from education to work to retirement (Ng et al., 2018). In contrast, According to Savickas (2005) career development hypothesis contends that a career is more than a chronology of employments and organizations; it deals with career design, suggesting that careers must be understood in the context of their enactment, as they reflect modifications to a changing environment, including key life and career events (Savickas, 2005). Bang and Ross (2009) discovered that career had a strong beneficial effect on volunteer satisfaction.

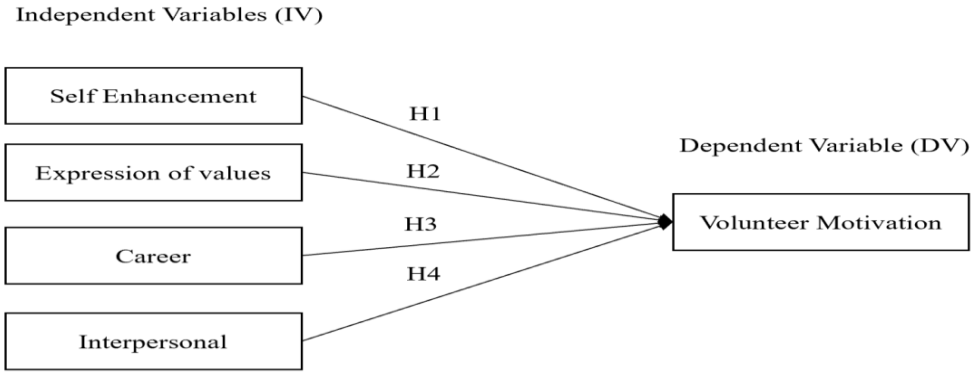
The relationship between Career and Volunteer Motivation: The research by Cho et al. (2018) also indicates that Gen Z's positive attitudes towards volunteering depend importantly on the benefits which are then followed by value and self-esteem. Respondents in the United Kingdom are primarily driven by career experiences, whereas participants in Austria are primarily motivated by two factors namely: value and esteem (Sloane & Pröbstl-Haider, 2019). In the research of Sloan and Probst-Haider (2019), careers have a positive relationship with volunteer motivation. Therefore, H3 is developed as follows:
H0: There is no relationship between career and volunteer motivation.
H3: There is a significant relationship between career and volunteer motivation.

Independent Variable: Interpersonal Contact: Interpersonal contact helps people to grow socially by meeting new people and making contacts. Volunteers achieve networking, gain knowledge and enhance skills that finally increase employment opportunities (Ahmad et al., 2020). Newes et al. (2019) indicate that volunteering helps improve interpersonal relationships through activities, interactions and engagements. The most important indicators of personal and interpersonal adjustment were arguably included in the current meta-analytic review. Despite this, the sheer volume of available studies made it impossible to cover personal and interpersonal adjustment in depth (Dufner, Gebauer, Sedikides, & Denissen, 2019).

The Relationship between Interpersonal and Volunteer Motivation: There is a positive relationship between volunteer motivation and interpersonal. The research by Zainuddin et al. (2020) finds that the respondents with positive social contact who care for people and the community will have higher volunteer desires.
Other research by Zainuddin et al. (2020) emphasizes that interpersonal factor has a positive relationship with volunteer motivation which indicates the desire to participate in volunteer activities as a result of positive social contact. Therefore, H4 is developed as follows:
H0: There is no relationship between interpersonal and volunteer motivation.
H4: There is a significant relationship between interpersonal and volunteer motivation.

Theoretical Framework: A theoretical framework includes experts' expression of theory that contributes to the process of guiding the development of a framework for data analysis and interpretations (Kivunja, 2018). The framework of this study has been developed based on the previous frameworks established by Vinnicombe and Wu (2020) and Zainuddin et al. (2020) as shown in Figure 2. This framework employs Maslow's Theory of human motivation also known as Maslow's Hierarchy of needs theory as a suitable theoretical ground.

Figure 2: Theoretical Framework



3. Research methodology

This research utilizes a quantitative research method where data will be collected once and analyzed with statistical approaches. Quantitative research methods are designed to enable researchers to study natural phenomena, objectively measure the social world, and predict and understand human behavior (Mkhomazi & Iyamu, 2013).

Research Design: Research design describes the design elements to answer the research questions. This research aims to examine the relationship between the variables (Sekaran & Bougie, 2013). It is intended to provide an appropriate framework for a study. The study consisted of well-structured questionnaires as the tools to gather primary data. The researcher will use the stratified samples method. The survey questionnaire was developed with adaptation and adoption from past studies from Vinnicombe and Wu (2020) and Zainuddin et al. (2020) and later was validated by the supervisor to measure the factors that influence volunteer motivations among the population of 508 trained Satria volunteers of Malaysian Ministry of Youth and Sports. The study proposes possible research that will look at the relationship between Self-Enhancement (IV1), Expression of Values (IV2), Career (IV3), and Interpersonal (IV4) with Volunteer Motivations (DV).

The goal of this study is to test the predictive model established based on current theory; hence a quantitative research approach will be used. The unit analysis of this study is the population of 508 all over Malaysia with a sample size of 226 trained Satria volunteers who have attended training with the Malaysian Ministry of Youth and Sports. The data for this study will be collected using multiple online platforms which as Google Forms surveys distributed in applications such as WhatsApp and Telegram Messenger. The data then will be interpreted using the Pearson Correlation Coefficient. The researcher uses a correlational study design, non-experimental research that facilitates prediction and explanation of the relationship among variables. The survey and statistical analysis methods are preferable to be used since they may produce the most accurate data. This approach may be used to test the previously mentioned hypotheses at the same time.

Population and Sampling: The total population of registered volunteers in Malaysia is 230905 as per 6th Mac 2023. While 508 volunteers have attended Satria Volunteers Basic Course Training. For this research, the respondents are the trained volunteers, n=508. Based on Krejcie and Morgan's (1970) table for the determination of sample size, and a given population of 508, a sample size of 226 would be sufficient to be analyzed as a cross-section of the population (Krejcie & Morgan, 1970). The researcher will use a stratified sampling technique as a sampling procedure method. Stratified sampling is a process of dividing the population into smaller groups known as strata where all the elements of the strata share distinctive qualities. A random selection proportionate to the stratum's size will be gathered for the analysis. Based on the understanding of stratified sampling, the population of this research will be divided into smaller groups according to their states in Malaysia, where everyone in the population will be invited to participate. The

questionnaire will be emailed and will be sent to the state Satria volunteers' coordinator's group WhatsApp and Telegram phone application.

Questionnaire Development: A set of questionnaires has been developed which includes 5 sections. The first section consists of demographic information which covers the personal attributes of the respondents. Most questions were adapted from previous journals that related to this study by Vinnicombe and Wu (2020) and Zainuddin et Al. (2020). Section A uses nominal-typed 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. 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. Table 1 is developed based on the items included to measure the intended variables.

Table 1: Questionnaire Development

Part	Variable	Scale
Part A	Demographic (7 items) Gender: Age Marital status Race Education qualification Employment status Volunteering Experience	Nominal Scale
Part B	Dependent Variable: Volunteer Motivation (11 items) I like to meet and cooperate with important people. I want to improve my social skills (communication, leadership, etc.). I want to be an example to other people. I want to volunteer for a membership requirement. I want to fulfil the merit needs for college application (if I want to continue studying). I want to fulfil the merit need for the scholarship requirement (if I want to continue studying). I want to gain a reward or honor. I want to understand the problems faced by others. I want to self-train to be a community leader in the future. It is my religious belief to volunteer. My friend is also a volunteer.	1 (strongly disagree) to 5 (strongly agree)
Part C	Independent Variable 1: Expression of Values (5 items) I want to help other people. I want to find self-satisfaction through volunteering activities. I want to meet new people and expand relationships with others. Spending my free time on beneficial activities. I want to achieve career goals.	1 (strongly disagree) to 5 (strongly agree)
	Independent Variable 2: Self Enhancement (4 items) I want to explore my strengths. Volunteering makes me feel needed. Volunteering makes me feel important. I gained a new perspective on things.	1 (strongly disagree) to 5 (strongly agree)

Independent Variable 3: Interpersonal Contacts (4 items) I want to work with different people. I want to develop relationships with others. I want to work with different people. I want to meet people.	1 (strongly disagree) to 5 (strongly agree)
Independent Variable 4: Career Orientation (5 items) Volunteering will look good on my resume. I want to gain practical experience. I want to make contacts for my future career. I want to gain experience that would help in any job I want to gain some work-related experience.	1 (strongly disagree) to 5 (strongly agree)

4. Data Analysis

The data gathered from the questionnaire will be analyzed using the Statistical Package for Social Science (SPSS) Software for Windows Version 27.0. To test the dependability of each variable, this research assists in the generation of data and the analysis will cover demographics, reliability, descriptive statistics, normality test, correlation and regression. This software can also assist in the discovery of a missing value while also ensuring that the quality of the result is maintained. Frequencies, cross-tabulation and descriptive analysis will be used to analyze demographic information. The research will use Correlation coefficient analysis to examine the relationship between self-enhancement, expression of values, career development and interpersonal contacts with volunteering motivation and to examine which factor most influences volunteering motivation among trained Satria volunteers, the research will use regression analysis.

5. Summary

Volunteer motivation differs from person to person and is impacted by several factors. Understanding volunteer motivation is crucial for organizations that rely on volunteers to accomplish their goals. Organizations must understand what factors motivate people to offer their time and effort to effectively recruit and retain volunteers. Organizations can design volunteer programs that correspond with their needs and provide an opportunity for volunteers to feel valued and appreciated by recognizing what inspires them. Based on the literature reviewed, the factors that influence volunteer motivation are self-enhancement, expression of values, career and interpersonal contact. With a population of 508 trained Satria volunteers of the Malaysian Ministry of Youth and Sports, the researchers intend to identify the factors that motivate people to volunteer. Other than that, the research highlights the research design, population and sampling, sampling technique and others. The questionnaire will be distributed amongst the trained Satria volunteers of the Malaysian Ministry of Youth and Sports. The sample will be acquired using stratified sampling and will be analyzed by using Statistical Package for Social Science (SPSS Program Version 27.0).

References

Abdullah, N. H. (2021, 2 27). What Is Herd Immunity? Retrieved from Kementerian Kesihatan Malaysia: https://covid-19.moh.gov.my/semasa-kkm/2021/feb/what-is-herd-immunity

Adler, R. (2011). The Volunteer Factor. *Journal of Personality and Social Psychology*, 124-138.

Ahmad, S. N., Sulaiman, Z. & Khalifah, Z. (2020). Motivation and Satisfaction. *International Journal of Recent Technology and Engineering.*

Ahn, Y. J. (2018). Recruitment of volunteers connected with sports mega-events: A case study of the PyeongChang 2018 Olympic and Paralympic Winter Games. *Journal of Destination Marketing & Management*, 194-203. doi:doi:10.1016/j.jdmm.2017.04.002

Ainsworth, J. (2020). Feelings of ownership and volunteering: Examining psychological ownership as a volunteering motivation for nonprofit service organizations. *Journal of Retailing and Consumer Services.*

Alajmi, B. & Alasousi, H. (2018). Understanding and motivating academic library employees: theoretical implications. *Motivating*, 203-214.

Aliyah. & Ariyanto, H. H. (2021). Pengaruh Gaya Kepemimpinan, Motivasi Kerja, dan Kepuasan Kerja Terhadap Kinerja Guru Madrasah Boarding Schooldi Kota Batam. Conference on Management, Business, Innovation, Education and Social Science.

Aminizade, M., Moghaddam, M. N., Jam, M. B., Shamsi, M., Majidi, N., Amanat, N.. & Hoseini, S. H. (2017). The Role of Volunteer Citizens in Response to Accidents and Disasters. *Health in Emergencies and Health Quarterly.*

Anua, N. & Chan, N. W. (2020). Community Resilience Building in the Aftermath of Flood Disaster. Innovation and Transformation in Humanities For a Sustainable Tomorrow.

Aydinli, A., Bender, M., Chasiotis, A., Vijver, F. J. & Cemalcilar, Z. (2015). Implicit and explicit prosocial motivation as antecedents of volunteering: The moderating role of parenthood. *Personality and Individual Differences.*

Bang, H. & Chelladurai, P. (2009). Development and validation of the volunteer motivations scale for international sporting events (VMS-ISE). *Int. J. Sport Management and Marketing,* 6(4)*, 2009*.

Bang, H. & Ross, S. D. (2009). Volunteer Motivation and Satisfaction. Journal of Venue and Event.

Bang, H., Bravo, G. A., Figuerôa, K. M. & Mezzadri, F. M. (2018). The Impact of Volunteer Experience at Sport. *Wiley Journal of Community and Psychology*.

Beckman, E., Pan, T., Kitterlin, M. & Cain, L. (2021). Identifying motivating factors among college students that influence repeat participation among special event volunteers: the moderating role of class standing. *International Journal of Event and Festival Management*.

Bikar, S. S., Rathakrishnan, B., Kamaluddin, M. R., Nasir, N. C. & Nasir, M. M. (2021). Social Sustainability of Post-Disaster: How Teachers Enable. *Sustainability*.

Brudney, J. L. (2016). DESIGNING AND MANAGING VOLUNTEER PROGRAMS. The Jossey-Bass Handbook of Nonprofit Leadership and Management, 688-733.

Butt, M. U., Hou, Y., Soomro, K. A. & Maran, D. A. (2017). The ABCE Model of Volunteer Motivation. *Journal of Social Service Research.*

Chan, N. W. (2014). Impacts of Disasters and Disaster Risk Management in Malaysia: The Case of Floods. Resilience and Recovery in Asian Disasters, 239-265.

Cho, M., Bonn, M. A. & Han, S. J. (2018). Generation Z's Sustainable Volunteering: Motivations, Attitudes and Job Performance. Sustainability 2018. doi:https://doi.org/10.3390/su10051400

Clary, E. G., Ridge, R. D., Stukas, A. A., Snyder, M., Copeland, J., Haugen, J. & Miene, P. (1998). Understanding and Assessing the Motivations of Volunteers: A Functional Approach. *Journal of Personality and Social Psychology*. doi:10.1037/0022-3514.74.6.1516

Daniel, K. (1960). Public Opinion Quarterly. The functional approach to the study of attitudes, 163-204. doi:https://doi.org/10.1086/266945

Dufner, M., Gebauer, J. E., Sedikides, C. & Denissen, J. J. (2019). Self-Enhancement and Psychological Adjustment: A Meta-Analytic Review. *Personality and Social Psychology Review*.

Faletehan, A. F., Burg, E. v., Thompson, N. A. & Wempe, J. (2021). Called to volunteer and stay longer: the significance of work calling for volunteering motivation and retention. *Voluntary Sector Review,* 12(2), 235–255.

Faranadia, A., Bukhari, W., Kamal, M., Normala, R., Lukman, Z. & Azlini, C. (2018). Understanding and Assessing the Motivation Factors of University Students Involvement in Volunteerism. *International Journal of Research and Innovation in Social Science (IJRISS).*

Faulkner, B. & Vikulov, S. (2001). Katherine, washed out one day, back on track the next: a post-mortem of a tourism disaster. *Tourism Management.*

Filgona, J., Sakiyo, J., Gwany, D. M. & Okoronka, A. U. (2020). Motivation in Learning. *Asian Journal of Education and Social Studies.*

Gray, D. & Stevenson, C. (2019). How can 'we' help? Exploring the role of shared social identity in the experiences and benefits of volunteering. 2019 The Authors Journal of Community & Applied Social Psychology Published by John Wiley & Sons Ltd.

Guntert, S. T., Wehner, T. & Mieg, H. A. (2022). Organizational, Motivational, and Cultural Contexts of Volunteering The European View. Springer.

Gómez-Diago G. (2020). The SAGE International Encyclopedia of Mass Media and Society. SAGE Publications, Inc. City: Thousand Oaks.

Haste, H. (2018). Attitudes and Values and the OECD Learning Framework 2030: A Critical Review of Definitions, Concepts and Data. Paris: OECD.

Kankanamge, N., Yigitcanlar, T., Goonetilleke, A. & Kamruzzaman, M. (2019). Can volunteer crowdsourcing reduce disaster risk? A systematic review of the literature. I*nternational Journal of Disaster Risk Reduction.*

Kivunja, C. (2018). Distinguishing between Theory, Theoretical Framework, and Conceptual Framework: A Systematic Review of Lessons from the Field. *International Journal of Higher Education*, 44-53.

Krejcie, R. V. & Morgan, D. W. (1970). Determining Sample Size and Research Activities. *Educational and Psychological Measurement*, 607-610.

Krueger, J. I., Heck, P. R., Evans, A. M. & DiDonato, T. E. (2020). Social game theory: Preferences, perceptions and choices. *European Review of Social Psychology.*

Lau, Y., Fang, L., Cheng, L. J. & Kwong, H. D. (2019). Volunteer motivation, social problem solving, self-efficacy, and mental health: a structural equation model approach. Educational Psychology-*International Journal of Experimental Educational Psychology.*

Lee, H. Y. & Zhang, J. J. (2019). Rethinking sustainability in volunteer tourism. Current Issues in Tourism.

Mak, H. & Fancourt, D. (2021). Predictors of engaging in voluntary work during the COVID-19 pandemic: analyses of data from 31,890 adults in the UK. Royal Society for Public Health 2021.

Maslow, A. H. (2000). The Maslow Business Reader. Canada: John Wiley & Sons, Inc.

Merriam-Webster. (2022, Pandemic). https://www.merriam-webster.com/dictionary/pandemic. Retrieved from Pandemic.

Mertins, V. & Walter, C. (2021). In absence of money: a field experiment on volunteer work motivation. Springer Link.

Mitchell, S. L. & Clark, M. (2020). Volunteer choice of nonprofit organization: an integrated framework. *European Journal of Marketing.*

Mkhomazi, S. & Iyamu, T. (2013). A Guide to Selecting Theory to Underpin Information Systems Studies. International Working Conference on Transfer and Diffusion of IT, 525-537.

Mobiny, M. & Ramos, V. S. (2020). Motivating and maintaining people in nonprofits. A comparative case study of managerial challenges and opportunities in Sweden.

MOH. (2022, May). Kemeterian Kesihatan Malaysia. Retrieved from https://covid-19.moh.gov.my/faqsop/faq-umum

Newes, A. G., Hatami, A., Hermes, J., Keranen, A. & Ulkuniemi, P. (2019). Organizational outcomes of corporate volunteering: a qualitative study. *Journal of Positive Management*, 32-43.

Ng, E. S., Lyons, S. T. & Schweitzer , L. (2018). "Career Experiences" In Generational Career. Emerald Publishing Limited, Bingley, 71-93.

Nowack, D. & Schoderer, S. (2020). Theoretical Explication. The Role of Values for Social Cohesion.

Nurbaeti, S. (2022). Significance of the Influence of Leadership Model, Morale, and Satisfaction on Performance Consistency. Jurnal Kepegawaian dan Organisasi.

Osei, S. R. (2021). Volunteers' Motivation and Spiritual Capital at a Black Baptist Church.

Ruiter, M. C., Couasnon, A., Homberg, M. J., E., J., Gill, J. C. & Ward, P. J. (2019). Why we can no longer ignore consecutive disasters. 2019 American Geophysical Union.

Sakeran, U. & Bougies, R. (2013). Research Method for Business. Six Edition. United Kingdom: John Wolfley & Sons Ltd.

Savickas, M. L. (2005). The Theory and Practice of Career Construction. Wiley Publishers.

Sengupta, D. & Al-Khalifa, D. (2022). Motivations of Young Women Volunteers during COVID-19: A Qualitative Inquiry in Bahrain. Administrative Sciences.

Sloane, G. M. T. & Pröbstl-Haider, U. (2019). Motivation for environmental volunteering - A comparison between Austria and Great Britain. *Journal of Outdoor Recreation and Tourism*.

Starnes, B. J. & Wymer, W. W. (2001), Conceptual foundations and practical guidelines for retaining volunteers who serve in local nonprofit organizations: Part II, *Journal of Nonprofit & Public Sector Marketing*.

Stebbins, R. A. (2009). Would You Volunteer? Social science and public policy.

Suandi, T., Hamzah, S., Ismail, I. & Shah, J. A. (2014). Why Youths Choose to Become Volunteers: From the Perspective of Belief. *Athens Journal of Social Sciences*, 51-64.

Tamir, M., Cieciuch, J., Torres, C. & Dzokoto, V. (2016). Desired Emotions Across Cultures: A Value-Based Account. Personality Process and Individual Differences.

Toomey, A., Strehlau-Howay, L., Manzolillo, B. & Thomas, C. (2020). The place-making potential of citizen science: Creating social-ecological connections in an urbanized world. Landscape and Urban Planning.

Vasilieva, V. (2018). "The best way to find yourself is to lose yourself!". Social Entrepreneurship Akademie. Retrieved from https://seakademie.org/en/2018/10/23/the-best-way-to-find-yourself-is-to-lose-yourself/

Vinnicombe, T. & Wu, Y. C. (2020). Generalizing motivation measurement indexes: the case of Midi Music Festival volunteers. Generalizing motivation measurement indexes.

Wang, X., Yang, Z., Xin, Z., Wu, Y. & Qi, S. (2021). Community identity profiles and COVID-19-related community participation. *Journal of Community and Applied Social Psychology.*

Wilson, J. (2012). Volunteerism research: A review essay. Nonprofit and Voluntary Sector Quarterly.

Yang, Z. (2021). Understanding spontaneous volunteering in crisis: towards a needs-based approach of explanation. *The Social Science Journal.*

Younis, N. M., Ahmed, M. M. & Hussein, A. A. (2020). Nurses' Knowledge, Attitude and Practice Towards Preparedness of Disaster Management in Emergency of Mosul Teaching Hospitals. Medico-Legal Update.

Zainuddin, N., Md Yusof, Z., Zaini, B. & Mansor , R. (2020). Identifying Volunteers' Motivation: A Factor Analysis Study. *Journal of Science and Mathematics Letters,* 8(1), 57-65.

Zvavahera, P. (2015). An Analysis of the Complex Model of Motivation in Retaining and Motivating Employees. *Business and Management Horizons*, 3(1), 2-12.

Zollo, L., Laudano, M. C., Boccardi, A. & Ciappei, C. (2018). From governance to organizational effectiveness: the role of organizational identity and volunteers' commitment. *Journal of Management and Governance*.

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The Role of Personality Peculiarities on Depression and Anxiety of Medical Doctors Using the Job-Demands Resources Model: The Mediating Effect of Job Burnout

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Abstract: Prolonged stress also known as job burnout refers to psychological conditions resulting from excessive fatigue due to work-related factors. However, distinguished features in personality might affect how people cope with job burnout which has implications for their mental health especially for their depression and anxiety. Therefore, this study intends to respond to the existing practical and empirical gaps by investigating the relationships between personality differences such as neuroticism and extraversion and mental health with the role of job burnout as the mediator. A cross-sectional study was conducted at eight public hospitals within Peninsular Malaysia. A total of 471 medical doctors from six departments participated. The result has shown that job burnout mediates the relationship between neuroticism and mental health. Job burnout made no difference to associations between extraversion and mental health.

Keywords: *Personality Differences, Job Demands Resources Model, Depression, Anxiety, public hospital, job burnout, medical doctors.*

1. Introduction and Background

Worldwide, mental disorders affect more than 450 million people. Mental, neurological and substance use disorders accounted for 13% of the total global burden of disease. The World Health Organization (WHO) estimates that 1 in 4 people are affected by mental disorders at some point in their lives. Depression alone accounts for 4.3% of the global burden of disease and is among the largest single cause of disability worldwide (World Health Organization, 2022).

Studies in Malaysia have shown that the prevalence of depression and anxiety fell within the global data ranging from 8.7 percent to 44.6 percent and 5.3 percent to 50.6 percent, respectively (Chow, Francis, Ng, Naim, et al., 2021; Ismail, Lee, Tanjung, Jelani & Latiff, 2021). Chow et al. (2021) reported that 29.5 percent of the healthcare workers, especially medical doctors working in Kuala Lumpur government hospital, demonstrated depressive symptoms, while 36.5 percent of the medical doctors displayed anxiety symptoms. Also, a multi-center study by Ismail et al. (2021) has shown depression and anxiety symptoms among 431 healthcare professionals working in government hospitals. The prevalence of depression and anxiety symptoms was 26.2 percent and 39.9 percent, respectively.

The National Health and Morbidity Survey (NHMS) conducted by the Ministry of Health (MOH) in 2015 revealed that 1 in 3 Malaysians or 29.2 percent of the population have mental health issues. This means 3 in every 10 adult Malaysians (about 9.6 million) may have mental health problems and at least 2 million adults with serious mental illnesses. To date, the national prevalence of depression is 2.3 percent of the total population in Malaysia (Allied Health Sciences Division, 2020; Medical Development Division, 2020). He added that various initiatives had been taken to address this issue; however, these initiatives will reach saturation levels (Aliman, 2019; Jabatan Audit Negara, 2019; Tawie, 2020). Aliman (2019) reported that public hospitals experience insufficient funding to provide adequate healthcare services in response to the audit findings. Tawie (2020) remarked that the shortage of medical doctors at public hospitals in Malaysia occurs due to the unequal distribution of medical doctors. In Malaysia, there are limited numbers of psychiatrists among medical doctors capable of carrying out large numbers of conducting mental illness cases. As of 2018, there were only 410 psychiatrists available to cater to the approximately 32 million population. Thus, the Ministry of Health has been advised to implement requirement mapping staff to cater social needs of people with mental illnesses (Beckstein, Rathakrishnan, Hutchings, & Mohamed, 2020). Research has shown that the prevalence of mental and physical health problems is high in Malaysian healthcare services, especially during the COVID-19 pandemic (Chow, Francis, Ng, & Naim, 2021; Woon & Tiong, 2020).

There was substantial evidence demonstrating that Malaysian medical doctors were bound to encounter pressure, like gloom, nervousness, substance misuse, addiction, and an undeniable degree of trouble due to some personality differences (Roslan, Yusoff, Razak, Morgan, & Shauki, 2021). Medical doctors who are exposed to these risks jeopardize their satisfaction and the consideration they give to their patients. Consequently, their ailments and sufferings could bring about a deferral in care conveyance, affecting their patients (Alrawashdeh, Al-Tammemi, Alzawahreh, & Al-Tamimi, 2021). Mental health problems can be seen among individuals throughout all milestones in life. Among the possible factors that may contribute to this more than two-fold rise over the past 10 years are heavy workload, lack of social support from supervisors, peers and subordinates and personality indifferences. With all these, a poor state of emotional exhaustion and excessive fatigue can further worsen one's mental health. Bakker, Demerouti and Sanz-Vergel (2023) have identified two of the Big Five Personality which are neuroticism and extraversion as proactive personality traits that are significantly related to employees' well-being. They contended that each individual is contrasted in the manner they adapt and oversee climate. Accordingly, they will encounter different degrees of job burnout even if they are in similar working circumstances.

There is a dearth of research on the mental health associated with medical doctors working in Malaysian public sector organizations (Abbas, Roger, & Asadullah, 2012; Chow, Francis, Ng, Naim, & Beh, 2021; Fauzi et al., 2020; Ismail, Lee, & Sutrisno, 2021). Generally, literature is abundant on employee well-being such as job satisfaction (Chew, Ramli, Omar, & Ismail, 2013; Dousin, Collins, & Kler, 2019; Ramlan, Rugayah, & Zarul Zafuan, 2014; Roslan, Noor Hazilah, Nor Filzatun, & Azahadi, 2014), intention to resign (Roslan et al., 2014; Soelton & Lestari, 2020), health behaviors (Alexandra-Karamanova et al., 2016) and absenteeism (Danna & Griffin, 1999) in the context of health care professional. Henceforth, there is a need to do a more in-depth study on medical doctors' mental health as the amount of research done focusing on this matter is scarce, and the generalizability of this study is limited.

2. Literature Review

Neuroticism: Neurotic individuals are more prone to experience job burnout because they tend to focus on negative perspectives in a situation. Over the years, personality indifferences have shown an increase in predicting the health status of an individual since they differ in the way they appraise and cope with the environment. Neuroticism has been linked to job burnout dimensions in various studies. A study by Farfan, Pena, Fernandez-Salinero and Topa (2020) and Farfan, Pena and Topa (2019) reported that neuroticism is the most prominent personality trait affecting adverse health outcomes. For instance, individuals with high neuroticism become anxious, hostile, and nervous when dealing with stress and pressure (Bai, Bai, Dan, Lei, & Wang, 2020). Therefore, the study anticipated that these individuals might experience high levels of emotional exhaustion. As a result of their predisposition to negative emotions, the study anticipated that these individuals would exhibit elevated levels of emotional exhaustion. Individuals with a high level of neuroticism were often more prone to concentrate on the negative aspects of a case, as well as quickly encoding and recalling negative details for potential use (Suprapto, Linggi, & Arda, 2022; Swider & Zimmerman, 2010). Yu (2020) remarked that employees with high neuroticism are more vulnerable to stress and poor coping skills. Professionals who work with the daily public face a greater risk of developing health concerns, such as mental health problems and physical health complaints (Choi, Kang, & Yeo, 2021; Naseer & Raja, 2021; Yao, Zhao, Gao, An, & Wang, 2018). For instance, healthcare professionals work with dying and chronic patients daily and are emotionally drained. The challenges arise when workers cannot communicate their authentic emotions, prompting them to conceal their feelings. This condition ultimately results in adverse effects for workers, most notably their health status, which includes mental health issues.
H1: Job burnout mediates the relationship between neuroticism and mental health.

Extraversion: Scholars have shown continuous interest in the role of extraversion influencing the ability of the individual to control their job burnout. Individuals with a higher level of extraversion have performed better in terms of their health status and mental health (Chandra & Yagnik, 2022; Iorga, Dondas, Sztankovszky, & Antofie, 2018; Suprapto et al., 2022). Failure to manage job burnout within an individual is likely to have a detrimental effect on the person's health problems (Liu, Lithopoulos, & Zhang, 2020; Maslach, Schaufeli, & Leiter, 2001). The dimension of job burnout is correlated negatively with extraversion, which indicates that the higher the score for extraversion, the healthier the individual will be. Individuals with

higher extroversion are likely to experience positive emotions, such as cheerfulness, enthusiasm, and optimism. These positive emotions make them perform more at work, leading to lower emotional exhaustion, reduced depersonalization, and increased personal accomplishment. Thus, employees with higher extroversion are associated with lesser burnout risk and exposure to mental disorders (Ang et al., 2016; Ruisoto et al., 2021).

H2: Job burnout mediates the relationship between extraversion and mental health.

3. Research Methodology

The target population of this study was medical doctors who work full-time in public hospitals under the jurisdiction of the Ministry of Health, Malaysia. However, out of 12 state hospitals, eight agreed to participate, while four withdrew participation due to their busy schedules and did not respond to the invitation. G power was used to compute the minimum sample size which was 118. Out of the 997 sets of questionnaires distributed, a total of 488 sets of questionnaires were returned. The responses yielded a response rate of 48.95 percent. However, from 488 returned questionnaires, only 471 questionnaires were found usable for analysis. The data was analyzed using the Statistical Package for Social Science (SPSS) version 28. The Smart Partial Least Square version 3.3.2, which is also known as a Structural Equation Model (SEM-Smart PLS) developed by Ringle, Wende and Becker (2015) was used to test the hypotheses to validate the data and verify the data (Hair, Hult, Ringle & Sarstedt, 2017).

4. Results

In this study, the survey solicited information about the socio-demographic profile of participants including gender, marital status, race, job grade, department and which state hospitals are from. Depression and anxiety variables were measured using a five-point Likert scale adapted from the Depression Anxiety Stress Scale (DASS) by Lovibond and Lovibond (1995). Following Sy, Afiq and Chow (2011), the present study only focused on 14 items measuring depression and anxiety using a five-point Likert scale, 1 = never to 5 = most of or all the time for the past 12 months had been used. The reliability of Cronbach's alpha for depression was reported to be 0.91 and anxiety was reported to be 0.84. Job burnout was measured using nine items adapted from an abbreviated version of the Maslach Burnout Inventory (aMBI) by McManus, Winder and Gordon (2002) following the original Maslach Burnout Inventory Human Service Survey using 22 items developed by Maslach et al. (2001). A seven-point Likert scale was used, from 1 = never to 7 = every day. The reliability of Cronbach's alpha for job burnout was reported at 0.87. Neuroticism and extraversion were measured using twelve items adapted from the Revised Neuroticism-Extraversion-Openness to Experience (NEO) And Personality Inventory (NEO-PI-R) by Costa and McCrae (1992). The reliability of Cronbach's alpha for neuroticism and extraversion was reported to be at 0.90.

Profile demographic characteristics: Table 1 below presents the demographic data of the participants involved in the study. A total of 471 medical doctors participated. It could be reported that the participants were mostly females, amounting to 297 female medical doctors representing 63.1 percent of the total participants. The remaining 174 medical doctors were males, representing 36.9 percent of the total participants. Regarding their marital status, most medical doctors were single, representing 58 percent, while 41.2 percent were married, and the remaining 0.8 percent were others. The majority of the participants were Malays (58.6%). Apart from that, 27.3 percent were Chinese, 13 percent were Indians, and 1.3 percent were others. Table 1 reported that the participants were mainly from the Emergency Department, amounting to 154 medical doctors, representing 32.7 percent of the total participants. Besides that, the participants are from eight state hospitals who agreed to participate in the study. Most participants are from Hospital Pulau Pinang, representing 76 participants.

Table 1: Participants' Profile

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	174	36.9%
Females	297	63.1%
Total	**471**	**100%**

MARITAL STATUS		
Single	215	58%
Married	194	41.2%
Others	4	0.8%
Total	**471**	**100%**
RACE		
Malay	276	58.6%
Chinese	128	27.2%
Indian	61	13%
Others	6	1.3%
Total	**471**	**100%**
JOB GRADE		
UD41	265	56.3%
UD43/44	67	14.2%
UD47/48	79	16.8%
UD51/52	23	4.9%
UD53/54	21	4.5%
UD55/56	16	3.4%
Total	**471**	**100%**
DEPARTMENT		
General Medicine	85	18%
Orthopedic	19	4%
O&G	31	6.6%
General Surgery	40	8.5%
Pediatric	142	30.1%
Emergency Medicine	154	32.7%
Total	**471**	**100%**
STATE HOSPITALS		
Hospital Kuala Lumpur	49	25.8%
Hospital Melaka	58	27.2%
Hospital Tengku Ampuan Afzan	38	
Hospital Tuanku Jaafar	61	5.1%
Hospital Sultanah Bahiyah	71	15.7%
Hospital Pulau Pinang	76	
Hospital Tuanku Fauziah	50	7%
Hospital Raja Perempuan Zainab II	68	2.9%
Total	**471**	**100%**

Descriptive Statistics: Neuroticism and extraversion were measured using the five-point Likert scale. In contrast, mental health and job burnout were measured using a five-point Likert scale. For items in the seven-point Likert scale, mean scores equal to or less than 2.99 were considered low, mean scores between 3 to 4.99 were considered moderate, and mean scores of 5 and higher were considered high. Meanwhile, for items in the five-point Likert scale, mean scores of equal or less than 2.99 were regarded as low, mean scores ranging from 2 to 3.99 were regarded as moderate, and mean scores of 4 and higher were regarded as high. Table 2 below displays the outcome. These provide moderate to high mean scores for neuroticism and extraversion. In contrast, items in the five-point Likert scale mean scores for job burnout and mental health are considered low to moderate.

Table 2: Descriptive Statistics

	Descriptive Statistics		
Variable	**Factor Name**	**Mean**	**Std. Dev.**
NEO	Neuroticism	3.5334	1.3670
EXT	Extraversion	4.8025	1.0456
JB	Job Burnout	3.5121	1.3171
MH	Mental Health	1.9014	0.8394

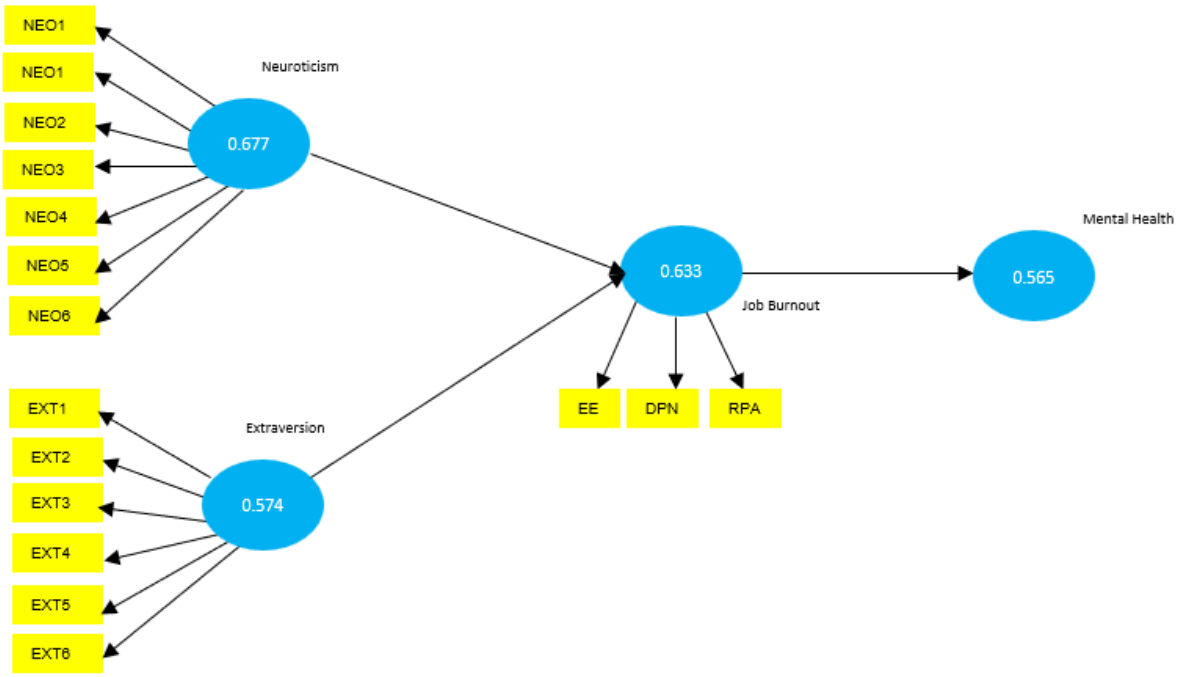
In Table 3, the study assessed the measurement model's loadings, average variance extracted (AVE), and composite reliability (CR). The values for composite reliability (CR) are considered satisfactory and very good whereby the values for neuroticism are 0.926, extraversion is 0.889, job burnout is 0.838 and mental health is 0.887. According to Henseler, Hubona and Ray (2016), to measure internal consistency, the loading of each item must be examined. Loading values in each item are considered acceptable if the loading values are equal to and greater than 0.7. Thus, loading values for neuroticism and job burnout were greater than 0.70. Besides, if the AVE scores are greater than 0.5, the loading items are still acceptable if the values are equal and greater than 0.6 (Byrne, 2016). As shown in Table 3, AVEs were greater than 0.5, and CRs were greater than 0.7. The loadings were also acceptable, with less than five loadings less than 0.708 (Hair, Risher, Sarstedt, & Ringle, 2019).

Table 3: Measurement Model for the Second-Order Constructs Outer Loadings Values, Composite Reliability (CR), and Average Variance Extracted (AVE)

Constructs	Items	Loadings	AVE	CR
Neuroticism	NEO1	0.829	0.677	0.926
	NEO2	0.841		
	NEO3	0.873		
	NEO4	0.773		
	NEO5	0.784		
	NEO6	0.831		
Extraversion	EXT1	0.786	0.574	0.889
	EXT2	0.793		
	EXT3	0.662		
	EXT4	0.820		
	EXT5	0.729		
	EXT6	0.745		
Job burnout	EE	0.853	0.633	0.838
	DPN	0.722		
	RPA	0.807		
Mental Health	AX1	0.664	0.565	0.887
	AX2	0.654		
	AX3	0.653		
	AX4	0.657		
	AX5	0.720		
	AX6	0.740		
	AX7	0.733		
	DP1	0.739		
	DP2	0.796		
	DP3	0.823		
	DP4	0.793		
	DP5	0.842		
	DP6	0.839		
	DP7	0.821		

Figure 1 shows shown job burnout was conceptualized as a higher-order construct, a hierarchical component comprising three first-order reflective constructs (emotional exhaustion, depersonalization, and reduced personal accomplishments). The second-order constructs were measured following the repeated indicators approach for the first-order constructs and moved to the second-stage approach called as embedded two-stage approach (using the latent variable score) as proposed by (Becker, Klein and Wetzels (2012), Ringle, Sarstedt and Straub, (2012) and Sarstedt, Hair, Cheah, Becky and Ringle (2019). The embedded two-stage approach was used by creating a new dataset based on the standardized scores of all constructs in the repeated indicators approach and adding a new variable, job burnout, to the model.

Figure 1: Second-Order Construct using the Embedded Two-Stage Approach



In Table 4, the structural model is examined. The assessment of the structural model involved assessing the path coefficient to assess the significance and relevance of the structural model relationship by using a 5,000-sample re-sample bootstrapping procedure (Beta, standard errors, *t*-value, *p*-value) as suggested by Ramayah, Jacky, Chuah, Ting and Memon (2018) and Wong (2013). Thus, job burnout was found to mediate the relationship between neuroticism and mental health in which the path coefficient value was 0.120 and a *t*-value of 5.062. The result also showed that all the indirect effects of 99 percent and 95 percent bootstrap BCI LL and UL for hypothesis H1 were not straddling a 0 in between, indicating that there was a significant result. Thus, the findings ascertained that H1 had a significantly positive relationship. However, job burnout was not found to mediate the relationship between extraversion and mental health, in which the path coefficient value was -0.023 with a *t*-value of 1.504. Besides that, BCI LL and UL values straddled a 0 in between. Thus, the findings revealed that H2 was not supported.

Table 4: Hypothesis Testing for Mediation Paths

Hypothesis	Std Beta	Std Error	*t-values*	*p-values*	BCL LL	BCI UL
H1 Neuroticism->Job Burnout->Mental Health	0.120	0.024	5.062	0.000***	0.068	0.196
H2 Extraversion->Job Burnout->Mental Health	-0.023	0.015	1.504	0.133	-0.064	0.016

***p <0.01.

Discussion: The mediating effect of job burnout on the relationship between neuroticism and health status was examined. Job burnout was found to mediate the relationship between neuroticism and mental health. Thus, H1 is accepted. Previous studies have confirmed that neurotic individuals are more sensitive to stressful workplaces (Bai et al., 2020; Farfan et al., 2019; Yu, 2020). They were more attentive to adverse emotional reactions and were more likely to be triggered by job burnout (De Hoogh & Den Hartog, 2009). For instance, when medical doctors had a high degree of neuroticism, they were more susceptible to stress and developed mental illnesses, such as depression and anxiety (Bai et al., 2020; Rees et al., 2016). The prevalence of job burnout in this study was similarly lower by 12.31 percent when compared to a study by van de Wal, Bucx, Hendriks, Scheffer and Prins (2016), in which the prevalence of job burnout accounted for 13 percent. It was known that not all medical doctors with job burnout symptoms sought help and stopped working.

However, job burnout did not impact the relationship between extraversion and mental health. The results contradict previous literature stating that personality differences influenced how individuals dealt with job burnout (Iorga et al., 2018). Failure to manage job burnout causes the person to experience health problems (Maslach et al., 2001; Shanafelt et al., 2002). A study by Farfan et al. (2020) discovered that job burnout had no impact on the relationship between extraversion and mental health. The results are consistent with a study by Farfan et al. (2020) stating that a stressful working environment did not necessarily affect all employees, and they suffered from chronic occupational stress syndrome. The medical doctors in Malaysia were able to manage and encounter stress depending on their personality traits and their own life experiences. Thus, medical doctors who had other working experience as medical doctors were prone to experience less stress and maintain good health due to their coping abilities. Besides that, the other argument was that medical doctors with extraversion personalities might hardly experience stress at the workplace since they know how to counteract the problems at the workplace. In other words, some medical doctors perceive problems positively and find solutions instead of dragging their negative emotions for too long (van de Wal et al., 2016). Thus, personality differences impacted the development of job burnout and mental and physical health. Extrovert individuals tend to demonstrate positive attitudes rather than neurotic individuals. They perceived that a stressful workplace provided them with more opportunities than threats (Rogers & Barber, 2019). Thus, the findings in the study showed that medical doctors in Malaysia received a more significant perceived work-related stress; however, due to personality differences, they quickly adapted to their work environment.

5. Practical Implications and Recommendations

The study provides several managerial implications to the Ministry of Health Malaysia (MOH), Malaysian Medical Council (MMC), and other public administrations on the personality peculiarities influencing job burnout and health status. According to the Twelfth Malaysia Plan, several programs and campaigns have been introduced to combat mental health by introducing interventions and treatments and increasing awareness through concerted efforts with related agencies, volunteers, and community-based organizations (CBOs). The MENTARI community will be expanding to reach more mental illness patients, especially among healthcare professionals (Medical Development Division, 2020). Besides that, the national suicide registry will be established to assist in formulating effective measures to address the rising suicide rate due to mental illnesses (Economic Planning Unit, 2021). According to The Medical Program, incentive packages shall be further improved to encourage medical doctors to serve the public sector. They also need to provide more training to medical doctors to improve competencies in clinical governance and public health practices (Medical Development Division, 2020). In this way, Townsley, Li-Wang and Katta (2023) proposed positive psychology intervention (PPI) that assists with further improving healthcare workers' well-being, especially medical doctors. Meditation and therapy to regulate healthier emotional management can be implemented as part of the intervention programs to mitigate the effects of work-related stress factors (Fornes-Vives, Gracia-Banda, Frias-Navarro, & Pascual-Soler, 2019; Rees et al., 2016).

Conclusion: The main finding of this study was to investigate the relationship between personality differences such as neuroticism and extraversion and mental health with the role of job burnout as the mediator. These variables are consistent with the Job Demands Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and Conservation of Resources Theory (COR) theory (Hobfoll, 1989; Hobfoll & Freedy, 1993) which guide the major part of this research. The study expands prior research on mental health which will add to the current body of knowledge on health status in the medical context and the healthcare industry. Limitations of the study occurred in the study. This study is self-reported in which only one single source is used to answer all the questionnaires. Apart from that, the study uses the cross-sectional design, which reduces the ability to assert causal relationships, revealing the relationship between different variables at one point. Henceforth, it is recommended for future research to implement longitudinal studies to determine not only a specific temporal event but also to observe the medical doctors' health status that changes over time (Diener, Pressman, Hunter, & Delgadillo-Chase, 2017; Kinman & Teoh, 2018). The result from this study suggests more job resource variables, specifically in personality traits, because personality traits need to be explored to enlighten the relationship between job burnout and health status. Ntantana et al. (2017) elucidated that personality differences determine how medical doctors handle stress and survive in the workplace. Stress that leads to job burnout and health

impairment also can be decreased once the individual or the medical doctors seek proper support and help. Differences in the social environment, such as personality indifferences, neuroticism or extraversion, demand or support, and the intense or relaxed situation may add to or lessen the strains contributing to job burnout. Therefore, it is very pertinent for future research to explore personality peculiarities to buffer the impact of chronic stress and other health illnesses.

References

Aliman, K. H. (2019). Audit finds Malaysian hospitals understaffed, underfunded and overcrowded. The Edge Markets.

Allied Health Sciences Division. (2020). Profile of Allied Health Professions in Ministry of Health Malaysia: A Consultation Report by WHO.

Alrawashdeh, H. M., Al-Tammemi, A. B., Alzawahreh, M. K. & Al-Tamimi, A. (2021). Occupational burnout and job satisfaction among physicians in times of COVID-19 crisis: a convergent parallel mixed-method study. *BMC Public Health*, 21(811), 1–18.

Ang, S. Y., Dhawali, S. S., Ayre, T. C., Uthaman, T., Fong, K. Y., Tien, C. E. & Della, P. (2016). Demographics and personality factors associated with burnout among nurses in a Singapore tertiary hospital. BioMed Research International, 1–13.

Bai, Q., Bai, S., Dan, Q., Lei, L. & Wang, P. (2020). Mother Phubbing and adolescent academic burnout: the mediating role of mental health and the moderating role of agreeableness and neuroticism. *Personality and Individual Differences*, 155(109622), 1–7.

Bakker, A. B. & Demerouti, E. (2007). The job demands-resources model: state of the art. *Journal of Managerial Psychology*, 22(3), 309–328.

Bakker, A. B., Demerouti, E. & Sanz-Vergel, A. (2023). Job Demands-Resources Theory: Ten Years Later. *Annual Review of Organizational Psychology and Organizational Behavior*, 10, 25–53.

Becker, J. M., Klein, K. & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. *Long Range Planning* 2, 45(5), 359–394.

Beckstein, A., Rathakrishnan, B., Hutchings, P. B. & Mohamed, N. H. (2020). The COVID-19 pandemic and mental health in Malaysia: current treatment and future recommendations. *Malaysian Journal of Public Health Medicine*, 21(1), 260–267.

Byrne, B. M. (2016). Structural equation modeling with AMOS: Basic concepts, applications, and programming. Routledge.

Chandra, Y. & Yagnik, J. (2022). Experience of perceived stress and impact of health locus of control during Covid-19 pandemic: investigating entrepreneurs and corporate employees. *South Asian Journal of Human Resources Management*, 9(1), 79–99.

Choi, S., Kang, Y. & Yeo, K. (2021). Effect of a Protestant work ethic on burnout: mediating effect of emotional dissonance and moderated mediating effect of negative emotion regulation. *Sustainability*, 13(5909), 1–14.

Chow, S. K., Francis, B., Ng, Y. H. & Naim, N. (2021). Religious coping, depression, and anxiety among Healthcare workers during the COVID-19 pandemic: a Malaysian Perspective. *Healthcare*, 9(79), 1–15.

Costa, P. T. J. & McCrae, R. R. (1992). The five-factor model of personality and its relevance to personality disorders. *Journal of Personality Disorders*, 6(4), 343–359.

De Hoogh, A. H. B. & Den Hartog, D. N. (2009). Neuroticism and locus of control as moderators of the relationships of charismatic and autocratic leadership with burnout. *Journal of Applied Psychology*, 94(4), 1058–1067.

Demerouti, E., Bakker, A. B., Nachreiner, F. & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 459–512.

Division, M. D. (2020a). Strategic Framework of the Medical Program: Ministry of Health Malaysia 2021-2025.

Division, M. D. (2020b). Strategic Framework of the Medical Program Ministry of Health Malaysia 2021-2025.

Farfan, J., Pena, M., Fernandez-Salinero, S. & Topa, G. (2020). The moderating role of extraversion and neuroticism in the relationship between autonomy at work, burnout, and job satisfaction. *International Journal of Environmental Research and Public Health*, 17(8166), 1–12.

Farfan, J., Pena, M. & Topa, G. (2019). Lack of group support and burnout syndrome in workers of the state security forces and corps: the moderating role of neuroticism. *Medicina*, 55(536), 1–13.

Fornes-Vives, J., Gracia-Banda, G., Frias-Navarro, D. & Pascual-Soler, M. (2019). Longitudinal study predicting burnout in Spanish nurses: the role of neuroticism and emotional coping. *Personality and Individual Differences* 2, 138, 286–291.

Hair, J. F., Hult, T. M., Ringle, C. M. & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM) (2nd Editio). Los Angeles: SAGE Publications, Inc.

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), 1–23.

Henseler, J., Hubona, G. & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. *Industrial Management & Data System*, 116(1), 2–20.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513–524.

Hobfoll, S. E. & Freedy, J. (1993). Conversation of resources: A general stress theory applied to burnout. Professional Burnout: Recent Developments in Theory and Research, 115–129.

Iorga, M., Dondas, C., Sztankovszky, L. Z. & Antofie, I. (2018). Burnout syndrome among hospital pharmacists in Romania. *Farmacia*, 66(1), 181–186.

Liu, S., Lithopoulos, A. & Zhang, C. Q. (2020). Personality and perceived stress during COVID-19 pandemic: Testing the mediating role of perceived threat and efficacy. *Personality and Individual Differences*, 168(110351).

Lovibond, S. H. & Lovibond, P. F. (1995). Manual for the Depression Anxiety Stress Scale. 2nd ed. Sydney.

Maslach, C., Schaufeli, W. B. & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52(1), 397–422. https://doi.org/10.1146/annurev.psych.52.1.397

McManus, I. C., Winder, B. C. & Gordon, D. (2002). The causal links between stress and burnout in a longitudinal study of UK doctors. *Lancet*, 359, 2089–2090.

Naseer, S. & Raja, U. (2021). Why does workplace bullying affect victims' job strain? Perceived organizational support and emotional dissonance as resource depletion mechanisms. *Current Psychology*, 40(9), 4311–4323.

Negara, J. A. (2019). Laporan Ketua Audit Negara Siri 1: mengenai aktiviti kementerian/jabatan kerajaan persekutuan dan badan-badan berkanun persekutuan.

Ntantana, A., Matamis, D., Savvidou, S., Giannakou, M., Gouva, M., Nakos, G. & Koulouras, V. (2017). Burnout and job satisfaction of intensive care personnel and the relationship with personality and religious traits: an observational, multicenter, cross-sectional study. *Intensive and Critical Care Nursing,* 2(41), 11–17.

Ramayah, T., Jacky, C., Chuah, F., Ting, H. & Memon, M. A. (2018). Partial Least Squares Structural Equation Modeling (PLS-SEM) using SMARTPLS 3.0 - Handbook of Market Research (2TH Edition). Pearson Malaysia Sdn Bhd.

Rees, C. S., Heritage, B., Osseiran-Moisson, R., Chamberlain, D., Lynette, C., Anderson, J. & Hegney, D. G. (2016). Can we predict burnout among student nurses? An exploration of the ICWR-1 models of individual psychological resilience. *Frontiers in Psychology*, 7(1072), 1–11.

Ringle, C. M., Sarstedt, M. & Straub, D. W. (2012). A critical look at the use of PLS-SEM in MIS Quarterly. *MIS Quarterly*, 36(1), iii–xiv.

Ringle, C. M., Wende, S. & Becker, J. M. (2015). *SmartPLS*. Retrieved from http://www.smartpls.com

Rogers, A. P. & Barber, L. K. (2019). Workplace intrusions and employee strain: the interactive effects of extraversion and emotional stability. *Anxiety, Stress and Coping*, 32(3), 312–328.

Roslan, N. S., Yusoff, M. S. B., Razak, A. A., Morgan, K. & Shauki, N. I. A. (2021). Training characteristics, personal factors and coping strategies associated with burnout in junior doctors: a multi-center study. *Healthcare*, 9(1208), 1–14.

Ruisoto, P., Ramirez, M. R., Garcia, P. A., Paladines-Costa, B., Vaca, S. L. & Clemente-Suarez, V. J. (2021). Social support mediates the effect of burnout on health in healthcare professionals. *Frontiers in Psychology*, 11(623587).

Sarstedt, M., Hair, J. F., Cheah, J. W., Becky, J. M. & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal (AMJ)*, 27(3), 197–211.

Suprapto, S., Linggi, E. B. & Arda, D. (2022). Personality characteristics of nursing students with stress perception in clinical practice in the era of the Covid-19 pandemic. *Journal of Positive Psychology & Wellbeing*, 6(1), 534–538.

Swider, B. W. & Zimmerman, R. D. (2010). Born to burnout: a meta-analytic path model of personality, job burnout and work outcomes. *Journal of Vocational Behavior*, 76, 487–506.

Tawie, S. (2020). Is our doctor-to-population ratio better than the WHO's recommendation? Reality is different, Kuching MP says. Malay Mail.

Townsley, A. P., Li-Wang, J. & Katta, R. (2023). Healthcare workers' well-being: a systematic review of positive psychology interventions. *Cureus*, 15(1).

Unit, E. P. (2021). Twelfth Malaysia Plan 2021-2025: A prosperous, inclusive, sustainable Malaysia. Retrieved from https://www.epu.gov.my

van de Wal, R. A. B., Bucx, M. J. L., Hendriks, J. C. M., Scheffer, G. J. & Prins, J. B. (2016). Psychological distress, burnout and personality traits in Dutch anesthesiologists. *European Society of Anesthesiology*, 33, 179–186.

Abbas, S. G., Roger, A. & Asadullah, M. A. (2012). Impact of organizational role stressors on faculty stress and burnout (An exploratory analysis of a public sector university of Pakistan). 4eme Colloque International (ISEOR - AOM), 18.

Alexandra-Karamanova, A., Todorova, I., Montgomery, A., Panagopoulou, E., Costa, P., Baban, A. & Mijakoski, D. (2016). Burnout and health behaviors in health professionals from seven European countries. *Health Int Arch Occup Environ*, 89, 1059–1075.

Chew, B. H., Ramli, A., Omar, M. & Ismail, I. Z. (2013). A preliminary study of job satisfaction and motivation among Malaysian primary healthcare professionals. *Malaysian Family Physician : The Official Journal of the Academy of Family Physicians of Malaysia*, 8(2), 15–25.

Chow, S. K., Francis, B., Ng, Y. H., Naim, N. & Beh, H. C. (2021). Religious coping, depression and anxiety among healthcare workers during the COVID-19 pandemic: a Malaysian perspective. *Healthcare2*, 9(79), 1–15.

Danna, K. & Griffin, R. W. (1999). Health and well-being in the workplace: a review and synthesis of the literature. *Journal of Management*, 25(3), 35–384.

Diener, E., Pressman, S. D., Hunter, J. & Delgadillo-Chase, D. (2017). If, why and when subjective well-being influences health and future needed research. *Applied Psychology: Health and Well-Being*, 9(2), 133–167.

Dousin, O., Collins, N. & Kler, B. K. (2019). Work-life balance, employee job performance and satisfaction among doctors and nurses in Malaysia. *International Journal of Human Resource Studies*, 9(4), 306–319.

Fauzi, M., Yusoff, H. M., Robat, R. M., Saruan, A. M., Ismail, K. I. & Haris, A. F. M. (2020). Doctors' mental health amid COVID-19 pandemic: the role of work demands and recovery experiences. *International Journal of Environmental Research and Public Health*, 17(7340), 1–16.

Ismail, M., Lee, K. Y. & Sutrisno, A. (2021). The prevalence of psychological distress and its association with coping strategies among medical interns in Malaysia: a national-level cross-sectional study. *Asia-Pacific Psychiatry*, 13(e12417), 1–8.

Kinman, G. & Teoh, K. (2018). What could make a difference to the mental health of UK doctors? A review of the research evidence.

Ramlan, M. M. A., Rugayah, H. & Zarul Zafuan, M. D. (2014). Job satisfaction at the workplace : A case of doctors in government hospital Kuala Lumpur. *Journal of Administrative Science*, 11(1), 1–12.

Roslan, J. M. G., Noor Hazilah, A. M., Nor Filzatun, B. & Azahadi, M. O. (2014). Turnover Intention among public sector health workforce: is job satisfaction the issue? *The International Medical Journal Malaysia*, 13(1), 51–56.

Soelton, M. & Lestari, P. A. (2020). The effect of role conflict and burnout toward turnover intention in software industries, work stress as moderating variables. *Advances in Economics, Business and Management Research*, 120, 186–190.

WHO, W. H. O. (2022). World mental health report. Geneva.

Wong, K. K. (2013). Partial Least Squares Structural Equation Modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, 24(1), 1–32.

Woon, L. S., & Tiong, C. P. (2020). Burnout, mental health, and quality of life among employees of a Malaysian hospital: a cross-sectional study. *Annals of Work Exposures and Health*, 64(9), 1007–1019.

Yao, Y., Zhao, S., Gao, X., An, Z. & Wang, S. (2018). General efficacy modifies the effect of stress on burnout in users with different personality types. *BMC Health Services Research*, 18(667), 1–9.

Yu, J. (2020). Abusive supervision and burnout: the moderating role of subordinates' neuroticism and time spent with supervisors.

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Boosting Customer Satisfaction and Unleashing Inventory Mastery through the Dynamic PDCA Cycle at a Trendsetting Outlet in Malaysia: A Case Study of PKS Fashion Outlet

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Abstract: This study aims to investigate how PKS Fashion Outlet utilizes the PDCA methodology to enhance inventory management which eventually will boost customer satisfaction. As the department responsible for order-taking, customer feedback, and issue resolution over various channels, including phone and social media platforms, maintaining high customer satisfaction is crucial for PKS Fashion Outlet's primary business of selling fashion products. The research seeks to establish a continuous improvement process and enhance product quality by implementing the PDCA technique. Through a literature review, this study contrasts various approaches that have employed PDCA methods, demonstrating that PKS Fashion Outlet can improve service quality and inventory management through the Plan-Do-Act-Check process. The research provides recommendations and solutions to address the identified issues, leading to improved customer happiness and reduced complaints. It is important to note that this study focuses solely on customer service departments and enhancing customer satisfaction within PKS Fashion Outlet. The originality of this research lies in its application of the PDCA approach and fishbone analysis to identify the root causes of problems and their impact, contributing to the existing body of literature.

Keywords: *Plan-Do-Check-Action, Inventory management, Customer satisfaction, Malaysia.*

1. Introduction

The primary business activity of PKS Fashion Outlet, a private company, is to market items to consumers online. A cultural change resulted from the quick growth of information technology. Customers began making purchases online rather than in actual stores. By interacting with clients online, physical firms have been striving to obtain a competitive edge (Lee and Lin, 2005). One of PKS Fashion Outlet Sdn Bhd's duties is to offer the most outstanding products, including apparel and scarves (hijabs), through social media. The department's duties include interacting with consumers, gathering their comments and grievances, conducting inspections, and updating inventory. Because customer happiness directly encourages client loyalty, which is essential for sustaining long-term success and growth (Ranaweera and Prabhu, 2003), businesses invest considerable resources to increase customer satisfaction (Durvasula et al., 2004). The determining factors were the customer's opinions about the goods, payment, delivery circumstances, services, risk, privacy, security, personalization, aesthetic appeal, navigation, entertainment, and enjoyment. This study shows a strong correlation between consumer happiness and the service quality provided by Internet shops. Customers' experiences and happiness are influenced by three metrics: dependability, attention, and usability (Ali et al., 2020; Rod et al., 2009). In conclusion, addressing problems with customer service and the time allotted for inventory management would enhance product quality based on customer input and guarantee that consumers are happy with the goods and services offered by PKS Fashion Outlet.

The widespread usage of the internet in recent years has led to a rapid increase in online shoppers and the number of online retailers as well as an increase in demand for selling products online, especially among women and focusing on women aged 30 and above since PKS Fashion Outlet's product is a scarf (hijab) suitable for older women. In addition, the increase in complaints also increased, which caused several issues to occur within PKS Fashion Outlet management. These problems have led to complaints from customers about their dissatisfaction with the products they purchase from PKS Fashion Outlet, including poor customer

service management, poor customer service quality, and lengthy delays from PKS Fashion Outlet to restock products that are getting thinner and thinner, keeping customers, dropships, and agents waiting when PKS Fashion Outlet wants to do so. Customer discontent leads to customer complaints (Bakar et al., 2016; Nimako & Mensah, 2013). Thus, these troubles produced a negative reputation for PKS Fashion Outlet and led to a rising number of unanswered complaints from the client. Therefore, the primary goal of this research is to apply the PDCA technique to PKS Fashion Outlet management to enhance inventory management which eventually will boost customer satisfaction of PKS Fashion Outlet.

2. Literature Review

The Plan-Do-Check-Act (PDCA) cycle is a quality management system used in manufacturing, services, offshore, project areas, and organizations. Dr. Edwards Deming, an American quality management expert, popularised the cycle in 1950 (Isniah et al., 2020). This strategy's four phases are repeated to regulate and enhance the management process, supply chain, or organizational practices (Isniah, Purba & Debora, 2020). The Planning, Conducting, Testing, and Implementation phases, commonly called the Deming Phase, mark the culmination of the PDCA process. Plan Do Check Action Cycle was created by Deming as a four-stage repeating issue resolution technique. Firstly, a "plan" to accomplish particular objectives consists of defining goals and following procedures. Secondly, "do" is for carrying out the initial step per their objectives. Next, "check" is that there ought to be two inspections throughout the project. First, inspections throughout project implementation make sure that the goals are being fulfilled. Second, a thorough evaluation of the project is conducted when it is finished to identify its accomplishments and shortcomings to make future improvements. Last but not least, "act", which is after prior errors have been found and fixed. The last stage is to take remedial action. The PDCA Cycle is repeated and may be redesigned to provide better outcomes when new rules are followed (Zailani et al., 2023).

Service quality is a gauge of how well a company meets the requirements and expectations of its customers. Any organization can expand if it can figure out how to raise the quality of its services and products (Zygiaris et al., 2022). Next, expand on the body of information on e-service quality in online buying to create new knowledge to better understand the most crucial aspects of e-service quality that affect customer pleasure, trust, and behavior (Rita et al., 2019). A cultural change resulted from the quick growth of information technology. Customers began making purchases online rather than in actual stores (Sivan et al., 2023). Providing and maintaining client happiness is the primary problem in online buying. A service-focused strategy is essential for surviving in a highly competitive online world. To encourage repeat business and client loyalty, a business must provide exceptional customer service (Zygiaris, et al. 2022). Besides that, services, goods, procedures, and human resources are strongly tied to service quality. Additionally, service quality aims to please clients by upholding their established standards and exceeding their expectations (Selvaraju et al., 2019).

Customer satisfaction is a consumer's assessment of his or her level of fulfillment in connection to decisions made about acquiring and using particular goods and services. Customer happiness and service quality are crucial business factors since a company's ability to expand depends heavily on its ability to retain clients through customer service and keep them happy (Edward and Sahadev, 2011). Managers who know what influences consumer satisfaction and their decision to shop online may assess their companies' performance and provide direction for future enhancements (Vasic et al., 2018). Because it allows businesses to get consumer feedback in a way that allows them to manage and improve their operations, customer happiness is crucial (Vasic et al., 2018). Also, the level of fulfillment for the client following the completion of the service delivery process is known as customer satisfaction (Zygiaris, Hameed, Alsubaie & Rehman, 2022).

Customer complaints are feedback identifying issues with one business's goods or services (Vatumalae et al., 2023). The way a business reacts to online complaints may make all the difference. Managers can employ strategies to lessen online complaints' adverse effects and result in positive outcomes (Stevens et al., 2018). These are chances for the company to enhance internal operations and client experiences (Jenkins, 2020). A customer complaint reveals a worker, product, or internal procedure problem. By hearing about these issues directly from consumers, the company can look into them and make improvements to stop future complaints

(Steven Macdonald, 2023). To restore confidence, make amends, and/or prevent future incidents, complainants demand dependable and trustworthy psychological calm-downs that explain what went wrong, why it happened, and what the provider will do or has already done (Awa et al., 2021).

To identify the root causes of consumer complaints, problems must be identified. According to the results, problems with customer services, employees, management, and system operations might be the root. The repair process is the following phase, where the improvement, implementation, and assessment outcome will be assessed. The primary idea of the PDCA technique will be explained by the framework using a flowchart (Vasic, et al., 2018).

3. Research Methodology

It appears that you've described the research approach and methodology for a study related to customer feedback, inventory management, and customer service improvement in a specific firm, PKS Fashion Outlet in Klang Valley, Malaysia. The methodology involves a qualitative research approach, particularly focusing on descriptive research and problem-solving techniques (Sundram et al., 2023a; Sundram et al., 2023b).

Research Approach: *Descriptive Research* - Descriptive research aims to describe and document the characteristics of a phenomenon or situation. In this study, you intend to describe how customers provide feedback, how inventory management affects customer service, and how the qualitative model problem-solving approach can enhance services.

Analysis Approach: Qualitative Analysis- The analysis of the gathered data will be qualitative. This means that instead of relying on statistical methods, the focus will be on understanding the underlying meanings, patterns, and themes in the data. This could involve techniques such as thematic analysis or content analysis.

Problem-Solving Technique: Qualitative Model Approach (PDCA Cycle) - The study will use a problem-solving technique based on the Plan-Do-Check-Act (PDCA) cycle. This iterative cycle involves planning a solution, implementing it, checking its effectiveness, and adjusting as needed to improve the process. This approach is often used for continuous improvement.

Data Gathering: Observation and Recording - The study will gather data through observation, likely involving direct interactions with customers, monitoring inventory levels, and recording feedback from customers. This is in the form of interviews with the members of the QCC (Quality Control Circle) team, surveys, or other methods of data collection. The plan outlined presents a structured approach to addressing the issues with customer complaints and service quality at PKS Fashion Outlet. This Plan-Do-Check-Act (PDCA) cycle is a common problem-solving framework that focuses on continuous improvement. Here's a breakdown of the steps you've outlined:

Plan:

a. Gather Information: Collect customer complaints and feedback to understand the specific issues they have faced with PKS Fashion Outlet's services.
b. Cause Analysis (Fishbone Diagram): Analyze the root causes of the identified problems using a fishbone (Ishikawa) diagram. This helps to identify the underlying factors contributing to poor service quality.
c. Issue Determination: Identify the most critical issue that needs to be addressed to improve the overall quality of PKS Fashion Outlet's services.
d. Action Plan: Develop a detailed plan of action that outlines the steps and strategies to address the identified issue effectively.

Do:

a. Remedial Action: Implement corrective measures, such as introducing a new protocol for staff-customer interactions to improve engagement and communication.
b. Enhance Management Systems: Establish new procedures within the management systems to prioritize and manage cases more efficiently as they are received.

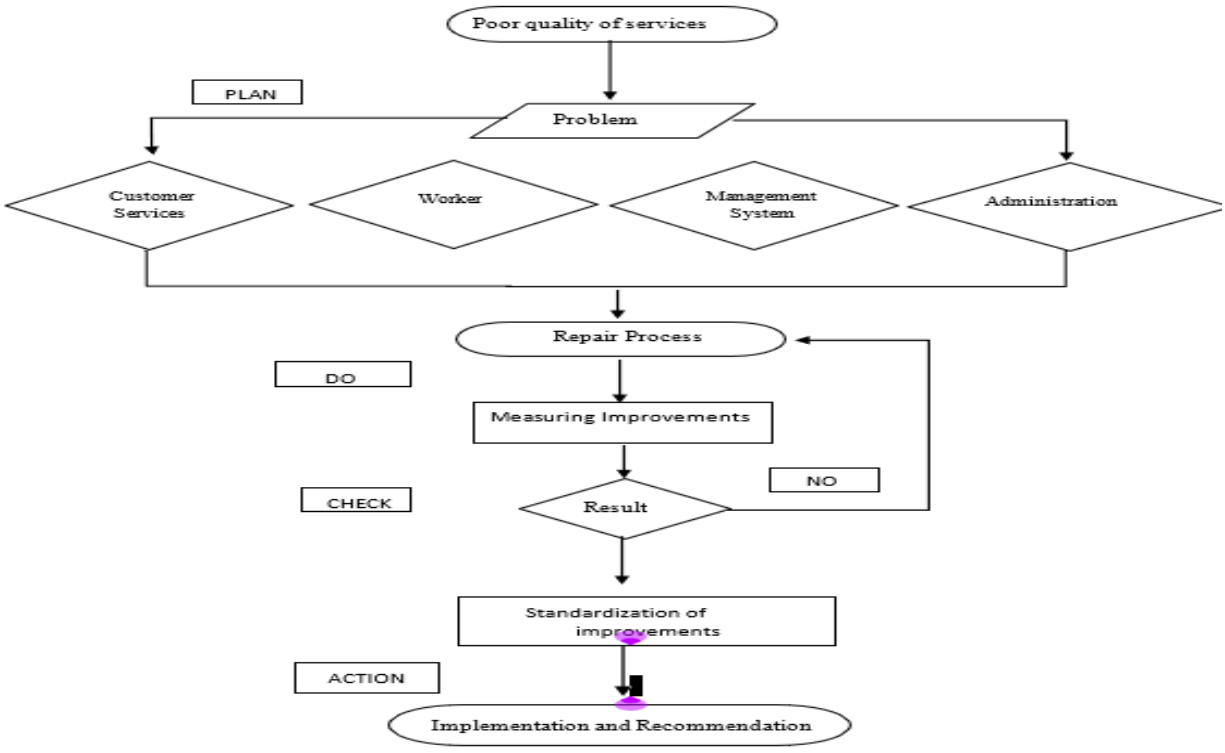
Check:

a. Review Response Times: Evaluate the time it takes to respond to each received case. This helps to understand the efficiency of the response process.
b. Set Deadlines: Establish specific deadlines for case resolution (e.g., 1-2 business days). This ensures that cases are addressed promptly.
c. Monitor Intended Times: Continuously track and monitor whether the intended response and completion times are being met for each situation.

Act:

a. Next Corrective Plan: Based on the information gathered during the "Check" phase, determine the next set of corrective actions that need to be taken.
b. Schedule Meetings: Schedule meetings to address any unresolved issues and discuss strategies for improvement.
c. This PDCA cycle is a dynamic process that encourages continuous refinement and enhancement of processes. By following this approach, PKS Fashion Outlet can identify areas of improvement, take targeted actions, monitor progress, and adjust as necessary. It's important to involve relevant stakeholders, including employees and management, in each phase to ensure effective implementation and collaboration.

Figure 1: Flowchart of Research Data Analysis



Based on the flowchart above, the main issue is poor customer service and stock management, problems from various aspects such as customer service, workers, management system and administration. Each aspect has its problems; the company needs strategic and effective planning to solve them. Next, the company needs to improve the process for each aspect and try and measure the level of strategic effectiveness that has been planned.

After that, we can check the results whether the plan is effective or not. If not, the company must repeat the repair process until it is effective. Once the results are promising, standardization of improvement is vital to impose a degree of uniformity or consistency on specific procedures or methods within the chosen setting. Last but not least, implement the planned strategy and give recommendations to improve the quality of customer service and stock management.

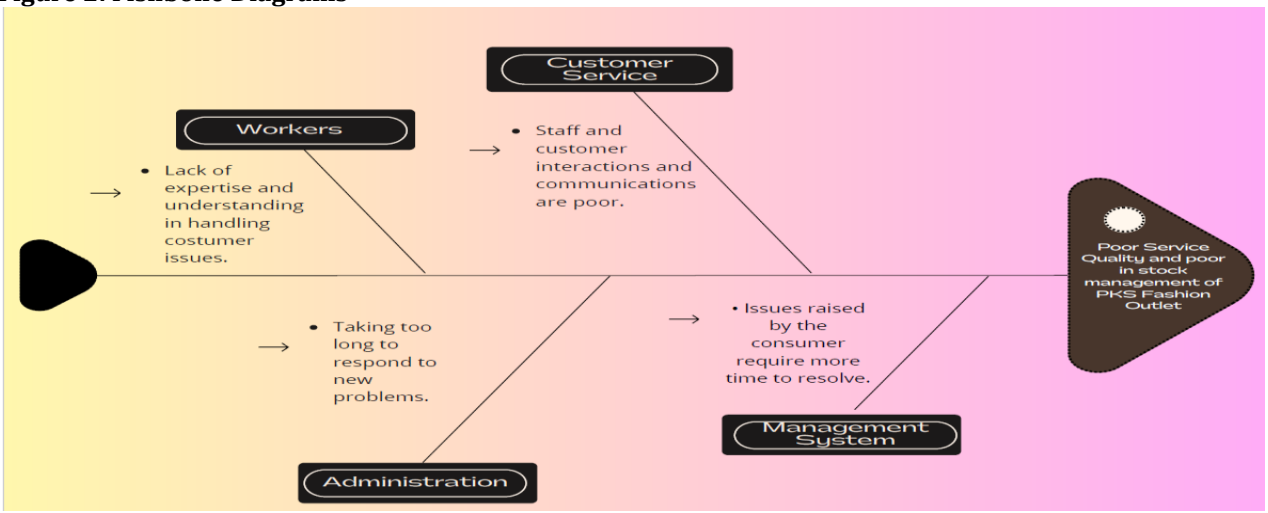
4. Analysis of Causes and Effects

The issues are picked based on the prioritization of the analysis's findings and the analysis results. The research focuses on four variables—customer services, employees, administrative, and management variables that directly affect the service offered by PKS Fashion Outlet. The following categories describe the variables that influence the services offered by PKS Fashion Outlet:

Customer Service: This term refers to the support and assistance provided to customers before, during and after their purchase of products or services. It involves addressing customer inquiries, concerns, and issues to ensure their satisfaction and maintain a positive relationship between the customer and the business.
Workers: In the context of customer service, "workers" typically refer to the frontline employees who interact with customers directly. These employees are responsible for assisting customers, answering their questions, resolving their issues, and ensuring a positive customer experience.
Administration: "Administration" in the customer service context involves the methods and processes used to manage various aspects of customer interactions. This includes handling customer complaints, addressing out-of-stock situations, and overall managing customer-related issues to ensure efficient resolution and customer satisfaction.
Management System: A "management system" refers to the structured procedures and processes that an organization uses to manage specific functions or areas. In the context of customer service, a management system could encompass the processes and steps followed to handle customer cases from the time they are reported or received until they are successfully resolved.

It's clear that you are highlighting the importance of effective customer service and issue resolution within a business. Establishing clear roles and processes for workers, administration, and management is crucial to providing high-quality customer service and maintaining customer satisfaction. An efficient management system ensures that customer issues are handled systematically and with a focus on resolving them promptly.

Figure 2: Fishbone Diagrams



The diagram you've provided illustrates the factors contributing to poor quality at PKS Fashion Outlet, particularly regarding consumer complaints. The factors you've identified are related to different aspects of the business that impact customer service and satisfaction. Let's break down each factor and its associated issues:

Customer Services Factor: This factor highlights issues stemming from the customer service department's practices and interactions. Specifically:

- **Lack of Employee Reaction:** Employees are not adequately engaging with and addressing client complaints and inquiries. This lack of responsiveness can lead to frustrated customers who feel unheard and dissatisfied.

Workers Factor: This factor focuses on challenges related to the skills and performance of the workers or frontline staff:

- **Lack of Experience and Expertise:** Staff members lack the necessary experience and expertise to effectively address customer issues and complete their tasks. This lack of competence can hinder the resolution of customer problems.
- **Staff Underperformance:** Underperforming staff members negatively impact the overall level of customer service provided by the outlet.

Administration Factor: The administration factor addresses issues related to how the business manages and responds to customer complaints:

- **Slow Response to New Complaints:** The administration takes too long to respond when new complaints are received. This delayed response can lead to customer frustration and dissatisfaction.
- **Inadequate Action:** It's implied that even when action is taken; it might not be sufficient or effective in resolving customer issues.

Management Factor: This factor involves the time and effectiveness of management's involvement in addressing problems.

- **Extended Problem Resolution Time:** The time taken by PKS Fashion Outlet management to resolve problems is longer than what customers anticipate. Prolonged resolution times can lead to increased customer frustration and dissatisfaction.

5. Discussion and Recommendations

The corporate improvement plan must be implemented to raise the standards of employee performance, administration, management, and customer service. With this technique, PKS Fashion Outlet hopes to decrease customer complaints and raise customer happiness. The firm improvement strategy must be implemented to enhance PKS Fashion Outlet's stock management and service quality. With this technique, customers will be more satisfied with the services they receive and will be less likely to complain about them, and PKS Fashion Outlet will never run out of stock.

Guidelines for Customer Service Interaction: Customers are continually impacted by the actions of service organizations and those of other resources and players in the service environment. One such factor that affects the service is the presence of other clients. Every company's approach to client interaction depends on its industry, size, and objectives. However, all effective client interactions follow the same basic principles. Keeping the consumers engaged with the company's brand by showing them that the organization values them, being open and honest with them, and addressing any problems they may have (Rita et al., 2019). Customer services must have a suitable protocol and rules to refer to and follow. Client satisfaction would be favorably impacted by the quality of the services offered to the client (Tjahjaningsih, Maskur, Widyasari, & Kusuma, 2020).

Staff Members' Expertise and Abilities Are Lacking: The degree of applied manufacturing technologies (intelligent machines, gadgets and autonomous vehicles) necessitates the employment of highly skilled personnel and their capacity to impart knowledge, operate in a team environment, and be flexible (Saniuk et al., 2021). For a firm to succeed, training is essential. The training options will vary depending on the organization, but providing educational chances at work has several advantages. By ignoring the importance of workplace training, some risks will occur, such as unsafe workplace conditions, Workers who are unhappy and dissatisfied, a decrease in productivity and others (Awa et al., 2021). The expertise and abilities of the personnel will be enhanced via training, which will improve PKS Fashion Outlet's level of service. This is because training and development are the primary elements influencing organizational performance (Jenkins, 2020).

Poor Performance of Staff: Failure to fulfill the requirements of the function or fall short of the acceptable standard is a frequent sign of poor performance or underperformance. Violation of workplace norms, regulations, or practices. Unacceptable conduct at the office. Disruptive or unfavorable activity that has an impact on co-workers. To improve the staff's performance is to provide them with weekly or monthly feedback so they understand what they should do to achieve their goals. Also, the management must evaluate its personnel annually and reward success with incentives. This will motivate the personnel to give their all to their work. This is because employees who perform well will benefit from the standard of customer service (Rita et al., 2019). Furthermore, without training, high-quality and consistent performance is entirely unachievable. For this reason, every organization includes a human resource development component to ensure that its employees can do their duties ((Hlengane & Bayat, 2013).

Pending Cases Due to Slow Response Time: The study shows that postponing the recovery process can increase patronage, customer happiness, and good word-of-mouth when an apology is extended and service criticism is minimal (Crisafulli & Singh, 2017; Sundram et al., 2016). Nobody is in charge of organizing the cases the customer submits. Due to the lack of a designated person coordinating the cases, many cases are now pending. To monitor, coordinate, escalate, and follow up with the outstanding cases, a person in charge of the cases is required. In Osifo's opinion, coordinated management will improve the company's long-term success (Osifo, 2013). As a result, it is crucial to designate a specialized individual to oversee the case management to enhance the quality of administration and, therefore, the services provided by PKS Fashion Outlet.

Too Long a Delay in Entering New Stock: For retailers to succeed, supply chain management (SCM) must be first-rate. IT is the backbone of a great SCM, just as SCM is the backbone of a merchant. The foundation of retail logistics begins with a deep comprehension of client needs. The availability of supplies on the shelves would be a crucial success factor in this case (Zailani et al., 2023). Having control over the inventory will enable the organization to establish a clear procedure for handling returns and damaged goods and stop the delivery of incorrect goods to clients. To avoid too long stock delays, implement stock control systems to handle problematic inventory, such as perishable goods, delicate machinery, or outdated supplies. If the manufacturer specifies it, do routine preventative maintenance on the machinery and equipment stock in storage. To track shelf life and reduce waste, catalog data on issue stock location, cost, and amount is available. In addition, when placing orders for high-demand items, consider lead times. Utilizing cycle counting data to define automated reorder points and average lead times, monitor and manage high-demand inventory and avoid stockouts (Jenkins, 2020; Vatumalae et al., 2022).

Conclusion: PKS Fashion Outlet must act to enhance customer happiness and service quality, as these are the company's primary problems, according to the discussion and analysis results. Customer service, employee, administration, and management system quality are four areas that need significant development. First, new policies and guidelines must be adopted to improve the caliber of customer care. The employees will adhere to the regulations by establishing new processes and guidelines, which will help them connect with customers more effectively and stop them from doing so based only on emotion. Furthermore, creating a system to evaluate the team's performance which sets the team up for success with performance indicators for customer service is essential. The only approach to choosing the appropriate key performance indicators (KPIs) is establishing a solid framework to serve as the direction.

Second, staff development programs and performance reviews must be conducted to improve the workforce's quality. It could seem wise to cut back on training or stop it altogether to save time and money. However, forcing individuals to pick up new skills on the job is probably a bad idea. The fact is that training is necessary for people to do their jobs effectively. Therefore, ensure that the personnel receive enough training. By doing so, they can get the self-assurance they need to perform their duties, and the manager's or the staff's time will not be squandered later in responding to straightforward queries or rectifying mistakes made by new staff. Furthermore, the staff's motivation may be raised by conducting yearly evaluations and awarding incentives. Motivated employees tend to perform better and are more devoted to their jobs.

Thirdly, an incident management system needs to be put into place to improve management quality. The incident management procedure aims to preserve agreed-upon service quality levels while swiftly returning to regular service operation and minimizing the negative impact on business activities. Next, Establishing the proper procedures and utilizing tools that enable organizations to proactively respond, address, and learn from every issue is essential to effective incident management. This approach can aid in escalating instances and helping to prioritize situations. Besides, handling stock also is essential to improve management quality. Stock management aims to lower the expenses of retaining stock while guaranteeing that it can fulfill consumer demand and that there is sufficient material for manufacturing. Businesses should always have a "safe" amount of goods on hand to quickly respond to unanticipated circumstances.

Lastly, PKS Fashion Outlet must finally designate a responsible individual to oversee and manage the case to improve administration quality. Administrative management employees establish a power structure, choose their primary duties, distribute labor across the many divisions of the organization, and allocate the various areas of responsibility. The escalation procedure of the case received from the client will be made more accessible, and the coordination of cases will move more smoothly with the presence of a case manager. The company will see the benefits of implementing administrative management, which can be an effective practice in the successful operation of a business.

To sum up, the PDCA method aims to assist PKS Fashion Outlet in boosting production and enhancing service quality. The PDCA cycle is a crucial tool for continuous improvement because it offers a structured and methodical approach to problem-solving and process improvement, encourages data-driven decision-making, supports efficient problem-solving, boosts efficiency and effectiveness, and encourages teamwork and collaboration. This approach will let PKS Fashion Outlet continue to offer the most significant services and sound management in the 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.

Awa, H. O., Ikwor, N. K. & Ademe, D. G. (2021). Customer satisfaction with complaint responses under the moderation of involvement. *Cogent Business & Management,* 8(1), 1905217.

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.

Crisafulli, B. & Singh, J. (2017). Service failures in e-retailing: Examining the effects of response time, compensation, and service criticality. *Computers in Human Behavior*, 77, 413–424.

Durvasula, S., Lysonski, S., Mehta, S. C. & Tang, B. P. (2004). Forging Relationships with Services: The Antecedents that have an Impact on Behavioral Outcomes in the Life Insurance Industry. *Journal of Financial Services Marketing*, 8, 314-326.

Edward, M. & Sahadev, S. (2011). Role of switching costs in the service quality, perceived value, customer satisfaction and customer retention linkage. *Asia Pacific. J. Market. Logist*, 23, 327–345.

Hlengane, N. A. & Bayat, M. S. (2013). Poor Employee Work Performance: A Case Study Cambridge Police Station. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 2(12), 80–92.

Isniah, S., Purba, H. H. & Debora, F. (2020). Plan, Do, Check, Action (PDCA) method: literature review and research issues. *Jurnal Sistem Dan Manajemen Industri*, 4(1), 72–81.

Jenkins, A. (2020, October 14). Inventory Management: 20 Challenges, 20 Solutions. Oracle NetSuite. https://www.netsuite.com/portal/resource/articles/inventory-management/inventory-management-challenges.shtml

Lee, G. & Lin, H. (2005). Customer perceptions of e-service quality in online shopping. *International Journal of Retail & Distribution Management,* 33(2), 161–176.

Nimako, S. G. & Mensah, A. F. (2014). Exploring Customer Dissatisfaction/Satisfaction and Complaining Responses among Bank Customers in Ghana. *International Journal of Marketing Studies,* 6(2).

Osifo, O. C. (2013). The Effects of Coordination on Organizational Performance: An Intra and Inter Perspective. *Asian Journal of Business and Management*, 01(04).

Ranaweera, C. & Prabhu, J. (2003). The Influence of Satisfaction, Trust and Switching Barriers on Customer Retention in a Continuous Purchasing Setting. *International Journal of Service Industry Management,* 14(4), 374-395.

Rita, P., Oliveira, T. & Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping. *Heliyon,* 5(10), e02690.

Rod M., Ashill N. J., Shao J. & Carruthers J. (2009). An examination of the relationship between service quality dimensions, overall internet banking service quality and customer satisfaction: A New Zealand study. *Marketing Intelligence & Planning*, 27(1), 103–126.

Saniuk, S., Caganova, D. & Saniuk, A. (2021). Knowledge and Skills of Industrial Employees and Managerial Staff for the Industry 4.0 Implementation. Mobile Networks and Applications. https://doi.org/10.1007/s11036-021-01788-4

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, s* 19(2), 1-11.

Stevens, J. L., Spaid, B. I., Breazeale, M. & Esmark Jones, C. L. (2018). Timeliness, transparency, and trust: A framework for managing online customer complaints. *Business Horizons*, 61(3), 375–384.

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, 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.

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.

Tjahjaningsih, E., Maskur, A., Widyasari, S. & Kusuma, L. (2020). The Effect of Customer Experience and Service Quality on Satisfaction in Increasing Loyalty. Advances in Economics, Business and Management Research, 169.

Vasic, N., Kilibarda, M. & Kaurin, T. (2018). The Influence of Online Shopping Determinants on Customer Satisfaction in the Serbian Market. *Journal of Theoretical and Applied Electronic Commerce Research,* 14(2), 70–89.

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 Hypermarke*t Warehouse Operations Performance in Malaysia SMART Journal of Business Management Studies,* 19(1), 1-9.

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.

Zygiaris, S., Hameed, Z., Ayidh Alsubaie, M. & Ur Rehman, S. (2022). Service Quality and Customer Satisfaction in the Post-Pandemic World: A Study of Saudi Auto Care Industry. *Frontiers in Psychology*, 13.

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The Influence of Perceived Risk Factors on Online Purchase Intention among Millennials in Malaysia

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Abstract: This study investigates perceived risk factors that influence online purchase intention among Millennials in Malaysia. The study examined several predictor variables, namely financial risks, product risks, and non-delivery risks, whereas the result variable under investigation was online purchase intention. The study employs structured questionnaires verified for data collection through face and content validity. The data were analyzed using descriptive statistics through the Statistical Package for Social Sciences (SPSS) version 23. Multiple regression analysis was conducted to ascertain the association between the predictor factors and the outcome variable. The findings indicate a significant relationship between the predictor variables, namely financial risks, product risks, and non-delivery risks, and the outcome variable. The analysis shows that non-return risks exhibited the highest association with online purchase intention. The findings of this study offer significant contributions to the advancement of future research and the enhancement of online entrepreneurs' ability to optimize their online operations and give enhanced consumer value experiences.

Keywords: *Perceived risk, financial risk, product risk, convenience risk, non-delivery risk, online purchase intention, millennials.*

1. Introduction and Background

The rise of online shopping is causing a significant transformation in the global marketing industry, as it steadily garners more popularity among customers daily. There is a pressing need for additional research to comprehensively comprehend the phenomenon of online shopping from the psychological standpoint of customers. Their behavior influences their inclination to engage in online product purchases. This inquiry transcends mere comprehension of client preferences and expectations, delving into the underlying motivations that drive customers to make online purchasing decisions. A comprehensive understanding of the primary determinants influencing consumers' desire to make online purchases can offer valuable insights for online retailers in developing and delivering creative product offerings that align with and fulfill customer expectations, specifications, and satisfaction. The popularity of online shopping is increasing in several countries due to the convenience it offers individuals to buy through the Internet. The Internet facilitates the communication of pertinent information regarding products and services between buyers and sellers, hence expediting the process of business transactions (Andriani & Sihombing, 2015). Various factors influence consumers' intention to engage in online purchasing before the actual transaction. Lissitsa and Kol (2016) propose that the propensity for online buying is contingent upon the customer's financial resources. This implies that those with higher incomes exhibit a greater propensity to engage in online purchasing activities than those with lower incomes. However, the existing literature provides limited data to establish a correlation between income level and online shopping (Aziz & Wahid, 2018).

Gaining insight into millennials' purchasing intention, particularly about online items, holds significance for online entrepreneurs seeking to devise methods that efficiently tap into the online market among this demographic. The International Trade Ministry of Malaysia implemented several e-business reforms to augment the adoption of electronic commerce by small and medium enterprises (SMEs). About 77 percent of SMES establishments have embraced digitalization (SMECorp, 2021). Approximately 25.08 individuals in Malaysia use the Internet, representing nearly 79 percent of the country's population, as reported in the Malaysia Country Commercial Guide of 2018. This vast market is a significant opportunity for online marketers to leverage to enhance sales. The growth of online marketing in Malaysia is seeing significant expansion. To ensure the long-term viability of this emerging market, thorough research is needed to gain insights into customer perceptions and understand how these perceptions influence their buying intentions. Gupta (2017) asserts that the existing literature lacks a comprehensive understanding of internet buying in

Malaysia. This implies that internet marketers risk losing out on the potential benefits of comprehending customer behavior, as there is currently a lack of expertise in this regard. Understanding client behavior concerning online purchasing can significantly enhance the efficacy of online marketing endeavors in Malaysia. This knowledge can be leveraged to improve various aspects of the online market, including but not limited to delivery service, product quality, security, and privacy.

Revesencio (2017) asserts that online shopping continues to elicit several inquiries among consumers and potential consumers. These inquiries encompass the customer's inclination towards purchasing products from online retailers, determining which things to purchase, and considering pricing factors. This statement implies that those engaged in online sales must understand the underlying elements that influence consumer behavior. Chawla, Khan, and Pandey (2019) argue that online retailers face challenges in accurately understanding and fulfilling client preferences and expectations, resulting in the provision of products that may not fully align with customer needs. It might be argued that online shops often present unnecessary product options for the buyer, which is a concern for online marketers. Consumer wants are inherently intricate and subject to constant evolution. This phenomenon renders it challenging for proprietors of online retail platforms to anticipate and fulfill the expectations and requirements of customers effectively, hence hindering their ability to provide products that align with customer preferences. Determining the factors influencing consumers' online purchase intentions is a challenging task. Failure to adequately understand the customer's psychology and behavior can significantly impede online businesses and their ability to gain a competitive advantage in highly competitive markets. The potential consequences of this phenomenon include a decrease in sales and the viability of Internet marketing. The study examines the factors that influence the desire to make online purchases among millennials in Malaysia, focusing on the relationship between financial risks, product risks, convenience risks, non-delivery risks and consumer purchase intention.

This study's scope is restricted to examining four predictor variables, namely financial risks, product risks, convenience risks, and non-delivery risks. The dependent variable in this study is the intention to make online purchases. While several elements influence customers' intention to purchase online products, these four factors appear widely observed and applicable in online purchase decisions (Gupta, 2017). The scope of this study is confined to online buying activities, specifically within the geographical boundaries of Malaysia. Therefore, the findings and conclusions derived from this research cannot be extrapolated to encompass online shopping behaviors in other countries or regions. However, it is noteworthy that certain commonalities in the elements influence online purchasing throughout different regions of the globe. The participants for this study were selected from millennials who live in Kuala Lumpur, specifically those who possess prior expertise in engaging in online buying activities. The participants were chosen for the study based on convenience sampling to minimize the likelihood of non-response.

2. Literature Review

Online Shopping: The term "online shopping" pertains to utilizing digital or e-commerce platforms to facilitate the purchase of goods or services. This process involves customers utilizing internet-connected technology devices to make direct purchases from the convenience of their location, hence eliminating the need to physically visit traditional marketplaces (Aziz & Wahid, 2018). Although online buying is a relatively recent phenomenon, it is gaining popularity among young individuals, particularly those who are predominantly occupied and find it challenging to visit physical marketplaces for shopping. The option is comparatively convenient and offers cost savings regarding time and transportation expenses. The buyer can complete their purchase by clicking a few times, adding products to their shopping cart, and proceeding to checkout. This may be done within seconds, all from the convenience of their preferred location. According to Aziz and Wahid (2018), the process is characterized by a lack of tension, and upon receiving the correct address; the consumer can have their package delivered to their preferred location or doorstep. In addition, Kumar (2016) suggests that an alternative option for payment can be arranged at the time of delivery. Individuals with a strong inclination towards making purchases through online platforms are likely to engage in online shopping activities, acquiring various items (Lim et al., 2016). In their study, Lim et al. (2016) examined the factors that influence the intention of Malaysian university students to make online consumer purchases. They observed that online marketing has become increasingly prominent in Malaysia, primarily

due to the widespread availability of internet access. According to Lim et al. (2016), internet access significantly increased from 3,700,000 in 2010 to 17,723,000 in 2012, representing a growth within two years.

The substantial growth in user population implies that Internet marketing is poised to become the dominant force in future corporate operations, potentially leading to a shift in customer focus from traditional physical retail outlets to online purchasing experiences. According to a study conducted by Wong, Lo, and Ramayah (2014), it was observed that approximately 91% of internet users in Malaysia engage in online shopping. Furthermore, more than 54% of these individuals make monthly purchases, while 27% make at least one weekly or more frequent purchase of online products. According to a study by Lim et al. (2016), statistical data indicates that Malaysia has allocated around 1.8 billion ringgits towards implementing Internet banking. The bright outlook for the future of online banking in Malaysia is attributed to the continual growth in the number of online shoppers. Given the relative novelty and extensive scope of online buying, researchers must document how online shopping can be effectively maintained and positioned as a formidable alternative to traditional brick-and-mortar retail establishments.

Online Purchase Intention: The purchasing behavior of individuals is contingent upon their initial intentions. Purchase intention refers to the inclination or desire of a consumer to acquire a specific product or service (Sien, 2015). Regarding online shopping, an individual's inclination to make purchases from virtual retail establishments constitutes a significant element of the company process and customer decision-making (Xiao, Yang & Iqbal, 2019). In general, online buying is commonly linked to the concept of customer satisfaction, which pertains to the evaluation made by a consumer regarding their online shopping experience after placing an order, making a payment, receiving the goods, and using it, all inside the context of an online business. Customer satisfaction in online buying can be measured as the discrepancy between customers' initial expectations and their subsequent experience, which influences their post-purchase intentions. Additionally, the process entails customers assessing the Internet services provided by comparing them to those available in brick-and-mortar establishments.

Furthermore, the determination of consumer intent is typically preceded by a thorough needs assessment. During this process, the customer must evaluate whether the product being considered for purchase can effectively fulfill its intended purpose. This process typically involves conducting many background checks, such as seeking testimonials from individuals who have previously purchased and utilized the goods, reviewing product evaluations on the company's website, or examining the product's specifications to determine its suitability. If the pertinent information acquired regarding the product is sufficiently persuasive, the consumer typically develops an inclination to purchase the product based on the available choices. When making online purchases, customers typically consider many variables, such as financial considerations, pricing, product quality, convenience, and the possibility of non-delivery. However, if it is subsequently discovered that the product fails to meet their needs, this will lead to disappointment and overall dissatisfaction. According to Wang and Hazen (2016), the circumstances above may ultimately hurt the individual's future desire to make online purchases and diminish their commitment and loyalty towards the specific product or brand.

It is crucial to emphasize that individual with a favorable mindset or intention regarding online purchases tends to order or buy goods and services through online platforms consistently. Xiao, Yang, and Iqbal (2019) propose that a high positive intention can foster a more robust and enduring relationship between sellers and buyers in online commerce. This information suggests that individuals who conduct their business online should prioritize satisfying the demands of buyers rather than solely pursuing financial gain. When customers experience satisfaction with their purchases, they are more inclined to exhibit repeat purchasing behavior, rewarding the online entrepreneur. This scenario can be characterized as mutually beneficial since the customer obtains their desired product or service while the seller achieves a successful transaction and financial gain. On the contrary, in such instances, disgruntled customers seek alternative sellers who can fulfill their expectations and provide them with a satisfactory return on their investment. As previously said, numerous aspects significantly stimulate buyers' intention to purchase online goods. There are numerous and diverse factors, including but not limited to product pricing, online purchasing security, privacy concerns, and apprehensions regarding the receipt of defective merchandise. According to Ma and Yang (2018), prior

research has indicated that consumers tend to evaluate the quality of a product concerning its price. Various theoretical frameworks are employed in research to examine how individuals or customers initially intend to purchase a product. This approach aims to comprehensively grasp this notion by considering multiple perspectives.

Financial Risk: The primary concern for most prospective online customers revolves around the apprehension related to financial threats. Individuals desire to ascertain the potential risks associated with engaging in online shopping activities. Financial risks can be defined as the subjective assessment of prospective online consumers regarding the potential monetary loss they may incur during or after an online transaction. The apprehension around financial losses in the context of online buying is more prevalent among those from the baby boomer age group than those from the millennial cohort (Liew & Falahat, 2019). Conversely, millennial demographics exhibit a comparatively lower level of apprehension over the financial hazards of Internet transactions. One possible explanation is that individuals in the latter two age groups exhibit a higher propensity towards technology adoption and usage than those in the former age group. The primary concern arising from financial risk is the potential disclosure of personal financial information by online store owners to other parties, which may result in misuse or abuse, such as fraudulent activities or unauthorized access to accounts. While the notion above is more prevalent among the older demographic than the younger generation, it is essential to emphasize that financial dangers are a universal worry that impacts all internet consumers. The issue at hand pertains to the perception held by individuals who engage in online shopping, wherein they have biases that lead them to believe that there is a likelihood of financial loss associated with this mode of shopping. However, it is essential to note that there is a lack of empirical data to substantiate this assumption (Gan & Wang, 2017).

Kamalul Ariffin, Mohan, and Goh (2018) employed an online survey methodology to gather data from 350 participants and examine the factors influencing customers' intention to make online purchases. The findings of their study revealed a significant correlation between perceived financial risks and customers' online purchase intention. The authors acknowledge that numerous online customers continue encountering diverse types and levels of dangers while and after online purchasing. Consequently, they emphasize the importance for online retailers to enhance their operations to mitigate the perceived risks of conducting business online. Given that the prosperity of a firm is significantly influenced by its customers, online entrepreneurs must address client concerns about financial dangers to attain a competitive edge and enhance sales and profitability. The findings indicate that customers hesitate to engage in online shopping mainly due to concerns around security, encompassing the safeguarding of their bank accounts, ATM details, and overall personal financial information. However, the study also concludes that particular online consumers tend to overestimate the perceived dangers associated with online shopping, leading them to assume that they are at a higher likelihood of experiencing financial losses through this medium. Based on their assessment, it appears that customers may not possess a comprehensive understanding of the primary dangers inherent in online buying and the underlying factors contributing to these risks. In the context presented, an inverse relationship exists between the level of perceived risks and the consumer's propensity to engage in online product purchases. Given the lack of definitive evidence in existing studies about the perceived financial risks associated with online purchasing, the present study aims to contribute to this discourse by putting forth the proposition that:
Hypothesis 1: The degree of financial risks impacts a consumer's intention to purchase online.

Product Risk: Essentially, customers desire immediate access to products close to their immediate vicinity. One potential concern individuals may have regarding online purchasing is the absence of an option for customers to physically own and evaluate a product concerning their personal requirements, expectations, and specifications. Harris, Dall'Olmo Riley, Riley, and Hand (2017) conducted a survey involving 871 UK consumers with prior experience in online and traditional supermarket shopping. Based on the survey results, the study aimed to analyze and evaluate the advantages and disadvantages of these two shopping methods. The researchers employed the avoidance behavior theory as the conceptual framework for their study. They discovered that individuals prefer purchasing from physical brick-and-mortar stores rather than online shops due to their desire to evade perceived risks or disadvantages. The magnitude of these perceived risks varies depending on the specific customer in question.

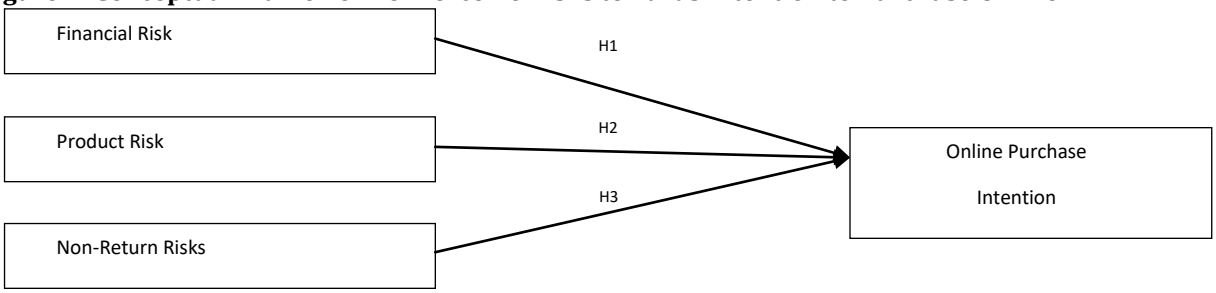
Notably, those who patronize physical supermarkets tend to engage in a more thorough evaluation of the products they intend to purchase, considering factors such as actual quality, features, functioning, design, and other relevant considerations. By adopting this approach, customers can reassess their expectations and specifications to align them with the current market offerings, thereby forming an intention to purchase (Lee, Cheng, & Shih, 2017). However, online marketing does not exhibit the same characteristics. Frequently, e-commerce vendors fail to provide customers with the necessary and precise information required to facilitate a thorough buy intention or decision. To address customers' perceptions of product hazards, it is essential to furnish sufficient product information and present relevant product visuals. One potential improvement may be incorporating a feature that allows users to enlarge the product photographs, enhancing the clarity of the visuals and facilitating the process of making well-informed decisions. Given the customers' need for optimal cost-effectiveness, it is imperative to acknowledge the significance of furnishing clients with comprehensive and precise information and detailed product visuals to mitigate any hazards associated with product perception. The study was conducted by Pascual-Miguel, Agudo-Peregrina, and Chaparro-Peláez (2015).

In their study, Lee et al. (2017) examined the phenomenon of internet purchase of medical equipment or products in Taiwan and China. Their research aimed to determine the effects of such purchases on customers, with a specific focus on product features/characteristics, product involvement, and word-of-mouth. The study revealed a significant correlation between the research variables and the end variable, specifically online buy intention. However, it should be noted that product quality did not exhibit a positive link with purchase intention. Liew and Falahat (2019) studied internet marketing in Malaysia, focusing on the factors influencing online purchase intention. Their findings revealed a significant correlation between purchase intention, perceived usefulness, and perceived risks, specifically product risks. Factors such as product price and perceived trust were also found to be influential in shaping purchase intention. This study posits the following hypothesis:
Hypothesis 2: The degree of product risk impacts a customer's intention to purchase online.

Non-Return Risks: While it is not a frequent phenomenon, the apprehension of shoppers regarding the non-receipt of purchased things in online buying is widely shared. The potential loss of a return refers to the possibility of items being lost or damaged, which instills apprehension in customers over the timely receipt of their goods as per the business's stated timeframe (Dachyar & Banjarnahor, 2017). Several variables can influence the customer's receipt of a non-return, such as inadequate shipping and handling procedures during transportation. Due to many potential complications, consumers may opt not to finalize a transaction due to uncertain delivery commitments. One effective strategy for alleviating customer concerns regarding shipping and non-delivery is to provide precise and timely updates regarding the anticipated arrival of their ordered product.

The study by Khan, Liang and Shahzad (2015) revealed that the perception of non-return risks significantly influenced individuals' purchase intention in online purchasing. When customers possess a greater understanding of the perceived risks related to non-return in the context of online shopping, it is more probable that their intention to make a purchase will increase, resulting in a corresponding increase in their level of satisfaction. Conversely, a decrease in customers' knowledge of these risks will likely have the opposite effect. In their study, Rosillo-Díaz, Blanco-Encomienda, and Crespo-Almendros (2019) adopt a cross-cultural perspective to examine the impact of perceived product quality and perceived risks on individuals' purchase intention of e-commerce products. The authors highlight that uncertainty avoidance, precisely the apprehension related to non-return risks associated with e-commerce, discourages individuals from participating in e-business activities. Therefore, there is a notable correlation between the perception of non-delivery risks and the intention to make purchases in the context of online purchasing. Hence, this study posits that:
Hypothesis 3: The degree of non-return risks impacts a consumer's intention to purchase online.

Figure 1: Conceptual Framework of Perceive Risks towards Intention to Purchase Online



3. Research Methodology

This part presents and analyses the findings derived from the data collection process. As previously mentioned, a sample of 300 participants was selected, and 300 survey questionnaires were given to the prospective respondents. Upon the conclusion of the data collection procedure, a total of 287 questionnaires were received, indicating a response rate of about 96 percent. Descriptive analysis was conducted using SPSS version 23.0 for data analytic purposes.

4. Results and Discussion

The profile data of the respondents encompassed various demographic variables such as gender, nationality, age, monthly household expenses, occupation, level of education, duration of online shopping activity, online shopping experience, types of products purchased online, expenditure on online shopping within the past six months, and the practice of price comparison at physical retail markets before engaging in online shopping. Please refer to Table 1 for the respondents' background information.

Table 1: Respondents Background Information

Variable	Frequency	Percentage
GENDER		
Males	173	60.3%
Females	114	39.7%
Total	**287**	**100%**
NATIONALITY		
Local	273	95.1%
Foreigner	14	4.9%
AGE		
19-30	264	91.9%
31-40	23	8.01%
>41	0	0%
Total	**287**	**100%**
EDUCATION		
Diploma	27	9.4%
Bachelor Degree	202	70.4%
Postgraduate qualification	58	20.2%
Total	**287**	**100%**
MONTHLY HOUSEHOLD EXPENSES		
<RM1k	53	18.5%
RM1k – RM2k	84	29.2%
RM2.1k 0 RM4k	118	10.8%
RM4k >	32	8.4%
Total	**287**	**100%**
OCCUPATION		
Unemployed / Student	111	38.7%
A student with a part-time job	80	27.8%

Employed	96	33.5%
Total	**287**	**100%**
ONLINE SHOPPING EXPERIENCE		
Yes	287	110%
No	0	0%

Hypotheses Testing: The regression analysis was conducted to determine the relationship between the explanatory variable that explains the response variable. The results show that the R-square is .913, which implies that 91.2% of the variation in intention to purchase online was explained by factors of convenience risks, financial risks, product hazards and non-return risks.

The regression analysis showed a β-value of -0.199, and p-values of 0.00388 for financial risks, which is significant at the .005 alpha level. This result indicates that financial risks have a negative relationship with the intention to purchase online. Therefore, H1: The level of financial risk that impacts a customer's purchase intention of online products is accepted. This finding is consistent with that of Liew & Falahat (2019), who argue that financial risk is the number one issue before customers make online purchases. Gan & Wang (2017) stated that the underlying issue of financial risks is the fear of having financial information disclosed to a third party after the online transaction.

As for product risk and intention to purchase online, the regression analysis outcome reported a β-value of -0.267 with p-values of 0.0000. This explains that product risks have a negative relationship and can predict the intention to purchase online. Hence, H2: The level of product risk significantly affects a customer's purchase intention of online products is accepted. According to Lee, Cheng, & Shih (2017), the advantage of shopping from a traditional brick-and-mortar store is that the product is right in front of the customer to touch, feel, and manage expectations. Since online shopping lacks this opportunity, product risks become a vital issue of concern to the customer because customers are often presented with limited information on the products sold at online shops.

Next, for non-return risks, the regression analysis reported a β-value of -0.376 with p-values of 0.0000. This means that non-return risks had a negative relationship with university students' intention to purchase online. Therefore, H4: The level of non-return risk impacts customer's purchase intention of online products is accepted. Based on the regression analysis, non-return risks appear to be the most important factor customers would consider before purchasing online. This finding agrees with the research findings of (Dachyar & Banjarnahor, 2017) that many online customers fear the potential loss of their package, delivery to a wrong location, or non-delivery. Other issues related to non-return risks are delayed delivery and delivery of malfunctioned products, amongst others. The results of regression analysis indicate students consider non-return risks as the most significant factor in making purchase intention, followed by product and financial risks.

5. Managerial Implications and Recommendations

The findings derived from the data analysis indicate that although online shopping has generated significant value for customers, there remains a need for further efforts to enhance customer confidence in this mode of commerce. It is imperative to acknowledge that internet marketers must acquire knowledge and comprehension of client needs and expectations and demonstrate an understanding of customer concerns. This entails the ability to discern the customer's underlying thoughts and offer alternate resolutions.

As evidenced by the findings of this study, it is essential to acknowledge that a significant portion of potential consumers continue to refrain from making online purchases due to their apprehension regarding the perceived hazards connected with online purchasing. Hence, due consideration is recommended to be given to matters such as financial, product, convenience, and non-return risks. One potential approach to mitigating financial risks is for online shoppers to refrain from divulging their customers' financial information to third parties. Ensuring client safety while shopping online is crucial in fostering a sense of trust and confidence among consumers. Additionally, it is imperative to mitigate product risks by ensuring that the claimed online features, designs, price, and quality are accurately supplied to customers. Clients frequently encounter

situations when they pay for a particular product but subsequently receive a dissimilar product that exhibits characteristics such as substandard quality, inferior features, and inadequate design, among others.

To mitigate the matter of online shopping convenience, online marketers must acquire the skill of adhering to their designated delivery timetables. The failure to adhere to predetermined delivery timelines results in the generation of avoidable stress and discomfort for the consumer. The primary reason for customers to inquire about delivery dates before placing online orders is to ensure timely receipt of products that fulfill specified requirements. Delivering delays undermine the intended purpose for which the product was purchased, causing concern. Lastly, online retailers must mitigate the potential risks associated with non-return of items, as this remains a paramount worry for customers. This may be achieved by ensuring accurate delivery of products to customers' designated addresses and timely shipment to the specified locations. This measure will effectively mitigate the prevailing idea that many online retail establishments are fraudulent, dispelling concerns regarding their inability to fulfill customers' purchases.

The present study is limited in its scope regarding the variables under investigation. Several aspects influence customers' buying intentions in the context of online shopping. Notably, elements such as product price, product design, and product quality and features hold significant importance for customers when making decisions regarding online purchases. Nevertheless, this study was constrained by its focus on a subset of characteristics, including financial, product, convenience, and non-return risks. The scope of the investigation was constrained by the people who live in Kuala Lumpur, Malaysia. This suggests that the findings may lack sufficient representativeness to allow for generalization about the overall perceptions of Malaysian students regarding internet purchasing. Additionally, the study was constrained by the size of the sample. A total of 300 questionnaires were distributed, of which 278 were successfully retrieved, indicating a response rate of roughly 93 percent. Furthermore, it is essential to note that this study exclusively employed a quantitative research methodology without using qualitative or mixed-mode approaches.

Conclusion: Online marketing has established a permanent presence and is poised for ongoing market share and volume expansion. Despite the potential benefits Internet shopping offers customers, researchers must acknowledge and address the significant obstacles associated with this mode of commerce. Numerous unresolved matters persist within the existing body of literature, primarily stemming from divergent findings on accurately identifying elements that genuinely forecast client online purchase intention. This study contributed novel empirical findings to the existing literature on online shopping. The study's findings suggest a strong relationship between financial risks, product risks, convenience risks, non-return risks, and customer online purchase intention.

References

Abd Aziz, N.N., & Abd Wahid, N. (2018). Factors influencing online purchase intention among university students. *International journal of academic research in business and social sciences, 8(7),* 702-717

Andriani, L., & Sihombing, S.O. (2015, October). Factors influencing purchase intention in online shopping. In *Conference on Management and Behavioral Studies* (pp. 978-602)

Chawla, M., Khan, M.N., & Pandey, A. (2019). Demographics and Preference for Online Buying: An Exploratory Study of University Students. *Review of Professional Management, 7(2),* 31-43

Dachyar, M., & Banjarnahor, L. (2017). Factors influencing purchase intention towards consumer-to-consumer e-commerce. Intangible Capital. https://doi.org/10.3926/ic.1119

Gan, C., & Wang, W. (2017). The influence of perceived value on purchase intention in social commerce context. Internet Research. https://doi.org/10.1108/IntR-06-2016-0164

Gupta, P. (2017). Comparative study of online and offline shopping: A case study of Rourkela in Odisha. Journal of Applied Business Research. https://doi.org/10.1016/j.dss.2005.11.005

Harris, P., Dall'Olmo Riley, F., Riley, D., & Hand, C. (2017). Online and store patronage: a typology of grocery shoppers. International Journal of Retail and Distribution Management. https://doi.org/10.1108/IJRDM-06-2016-0103

Khan, S. A., Liang, Y., & Shahzad, S. (2015). An Empirical Study of Perceived Factors Affecting Customer Satisfaction to Re-Purchase Intention in Online Stores in China. Journal of Service Science and Management. https://doi.org/10.4236/jssm.2015.83032

Kumar, P. (2016). Dimensions of perceived risk among students of high educational institutes towards online shopping in Punjab. *Journal of Internet Banking and Commerce, 21(S5),* 1

Lee, W. I., Cheng, S. Y., & Shih, Y. T. (2017). Effects among product attributes, involvement, word-of-mouth, and purchase intention in online shopping. Asia Pacific Management Review. https://doi.org/10.1016/j.apmrv.2017.07.007

Liew, Y. S., & Falahat, M. (2019). Factors influencing consumers' purchase intention towards online group buying in Malaysia. *International Journal of Electronic Marketing and Retailing*. https://doi.org/10.1504/IJEMR.2019.096627

Lim, Y. J., 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. https://doi.org/10.1016/S2212-5671 (16)00050-2

Lissitsa, S., & Kol, O. (2016). Generation X vs. Generation Y–A decade of online shopping. *Journal of retailing and consumer services, 31,* 304-312

Ma, Y., & Yang, S. (2018). An empirical study of female e-shopper's satisfaction with cosmetic products in China. *International Journal of Business and Management, 13(3),* 211-219

Pascual-Miguel, F. J., Agudo-Peregrina, Á. F., & Chaparro-Peláez, J. (2015). Influences of gender and product type on online purchasing. *Journal of Business Research*. https://doi.org/10.1016/j.jbusres.2015.01.050

Revesencio, J. (2017). The Mind of an Online Shopper: A Peek Inside Ecommerce Buying Behavior. https://www.business.com/articles/the-mind-of-an-online-shopper-a-peak-inside-ecommerce-buying-behavior/ [February 12, 2019]

Rosillo-Díaz, E., Blanco-Encomienda, F. J., & Crespo-Almendros, E. (2019). A cross-cultural analysis of perceived product quality, perceived risk and purchase intention in e-commerce platforms. Journal of Enterprise Information Management. https://doi.org/10.1108/JEIM-06-2019-0150

SMECorp. (n.d.). *Challenges in Digital Adoption.* Retrieved January 20, 2020, from https://smecorp.gov.my/index.php/my/news/4461-challenges-in-digital-adoption

Wang, Y., & Hazen, B. T. (2016). Consumer product knowledge and intention to purchase remanufactured products. *International Journal of Production Economics*. https://doi.org/10.1016/j.ijpe.2015.08.031

Wong, W. P. M., Lo, M. C., & Ramayah, T. (2014). The effects of technology acceptance factors on customer e-loyalty and e-satisfaction in Malaysia. International Journal of Business and Society.

Xiao, A., Yang, S., & Iqbal, Q. (2018). Factors affecting purchase intentions in Generation Y: An empirical evidence from the fast food industry in Malaysia. *Administrative Sciences,* 9(1), 4.

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Occupational Stress and Work-Life Balance in the Manufacturing Industry

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Abstract: The manufacturing industry has become a crucial sector in Malaysia, leading to a high demand for employees, especially in management positions. However, job stress is a prevalent issue that can affect employees' work-life balance. Thus, this study aims to identify the factors that contribute to job stress in the private sector, specifically at the management level, which is vital for ensuring smooth daily operations. Private sector employees have the most control over occupational stress. The study focuses on conflict at work, job requirements, and job environment as contributing factors. A self-administered survey questionnaire was used to gather data, with 201 sets distributed to employees in food manufacturing at Selangor. The analysis of 190 valid questionnaires using the latest version of Statistic Packages for Social Science (SPSS) revealed that there is a significant influence of occupational stress on employees' work-life balance in the manufacturing industry with the work environment as the most influential factor. Conflict at work is the second most influential factor, while job requirements do not significantly contribute to job stress. The findings of this study can help managers and business owners in the manufacturing industry to understand the factors that cause employee, and job stress and encourage them to focus on implementing strategies to reduce stress in the workplace.

Keywords: *Work-life balance, Occupational stress, Conflict at work, Job environment, Job requirement.*

1. Introduction and Background

Occupational stress is defined as the detrimental physical and emotional responses that arise when a worker's capabilities, resources, or needs do not match the requirements of the job (NIOSH, 2014). According to Giorgi et al (2017), the National Institute for Occupational Safety and Health (NIOSH) undertook the task of categorizing 130 occupations with the highest levels of stress based on their respective stress levels. Typically, demanding professions exhibited a common characteristic of limited autonomy, resulting in people feeling confined within their roles, where they were subjected to treatment that prioritized their productivity over their humanity. In addition, Giorgi et al. (2017) and Michailidis & Georgiou (2005) stated that the occupations that were found to be the most stressful were management, administration, and supervision. While in another study, Sidhu et al. (2020) examined five distinct factors that lead to occupational stress, namely the working environment, workload, employee optimism, focus, and future outlook.

On the other hand, according to Wang et al. (2015), work stress is a major concern in the workplace and can have significant impacts on employees' health, leading to various health problems (Fila et al., 2018). Recognizing the importance of promoting and preventing mental health issues in the workplace, the World Health Organization (WHO) has taken action to address this issue on a global scale. Studies have shown that individuals working in the banking industry are more susceptible to mental health problems resulting from stress (Giorgi et al., 2017).

Previous research has extensively explored the effects of role overload and job conflict but has not yet examined the potential connection between these two stresses (Dodanwala et al., 2022; Firth et al., 2004; Hang-yue et al., 2005; Siong et al., 2006). Only a few studies have investigated the link between role overload, work conflict, and job stress (Duxbury et al., 2018; Sadiq, 2020). These studies reveal that employees experience more work-related problems and stress when they have a heavy workload. However, they do not address the different aspects of work-family conflict and job stress that could further enhance our understanding of people's behavior and help improve working conditions. Dodanwala et al. (2022) also suggest that the ever-changing nature of the work environment makes achieving project goals and objectives more challenging for employees due to unpredictable workloads, unclear requirements, and high job expectations. This often results in employees having to spend more time at work, leaving less time for family

activities. For example, construction workers in Sri Lanka often work long and unpredictable hours, which can negatively impact their personal lives (Dodanwala et al.; 2020, Panojan et al., 2022).

The connection between work conflict and work-life balance is a crucial factor in HR management. In the opinion of Al-Alawi et al. (2021), workplace conflicts can make it harder to maintain a healthy work-life balance because it puts more demand on their time and energy. In addition to disrupting work-life balance, unresolved disagreements can also result in decreased output, morale, and job satisfaction. Balancing personal and professional responsibilities is known as work-life balance. According to Delecta (2011), as cited by Saratian et al. (2019), work-life balance involves prioritizing family, personal tasks, and employment duties. It emphasizes the importance of maintaining a harmonious relationship between an employee's personal and professional life (Haar et al., 2019). Work-life balance has become a concern for all employees due to the increasing conflict between personal and professional responsibilities (Rashmi et al., 2021). When work-life balance is disrupted, employees may experience absenteeism and stress (Mohd et al., 2016), leading to low productivity, job dissatisfaction, and negative psychological indicators (Durodolu et al., 2021). Maintaining a healthy work-life balance is essential for good health and relationships, and it can also improve an employee's productivity and performance, leading to a better personal life. The employer of a company typically plays a critical role in its success. Occupational stress refers to stress that arises from the work environment or the work itself (Demerouti et al., 2014). Many manufacturing workers experience stress on the job, both at the top and bottom levels, due to a desire to excel and a high workload. Occupational stress can also result from a lack of skills and knowledge, as well as the work environment. Major sources of occupational stress include factors related to the job, employee roles in the organization, workplace relationships, and career development. According to Hannah et al. (2020), stressors can be categorized as task demands, physical demands, and interpersonal demands. A worker's psychological state, socioeconomic status, and family situation can also contribute to occupational stress (Morshidi & Norafneezal, 2019).

The impact of work on employees' quality of life and safety is significant. In a study conducted by Bodin et al. (2020), various factors related to job quality were analyzed to determine the level of occupational stress and work-life balance among private sector employees. The role of work in people's lives has changed significantly due to technological advancements and globalization, leading to increased competition for jobs and higher job burnout rates in fields such as manufacturing and service. According to the Department of Statistics, Malaysia (DOSM) in 2021, this can cause employees to experience long-term fatigue. Therefore, this study aimed to examine the effect of work environment, job requirements, and conflicts at work on work-life balance, ultimately identifying the potential to reduce occupational stress and maintain high productivity levels among employees in the manufacturing industry. The initial step entails the identification of occupational stress levels and work-life balance among employees within the manufacturing industry. Subsequently, the examination will focus on the impact of occupational stress on employees' work-life balance.

2. Literature Review

Organizations have historically demonstrated a commitment to investing in the deliberate structuring of work environments to cultivate creativity (Amabile et al., 1996; Annosi et al., 2020; Caniels & Rietzschel, 2015; Elsbach and Stigliani, 2018; Shalley and Gilson, 2004). The relationship between the structured work environment and the interpersonal dynamics inside the workplace has not been extensively studied in terms of its influence on overall individual well-being and, more specifically, work-life balance. The existing body of literature about work-life balance acknowledges the existence of a reciprocal relationship between work and personal life, sometimes referred to as spillover (Abdul Rahman et; al. 2017). Withdrawal from family engagement, marital conflict, and depression are negative spillovers that can occur as a result of a significant workload and high levels of stress (Timmons, 2017). Drawing from a resource-based framework, it is posited that adverse experiences encountered in one's personal life can have a detrimental impact on one's psychological resources within the professional sphere. Consequently, this can manifest in reduced job satisfaction, increased absenteeism, and compromised long-term capacity to sustain optimal levels of work performance (Mattarelli et al., 2022; Ten Brummelhuis and Bakker, 2012).

Work-Life Balance: According to Yunus (2018), people intrigued by the quality of working life and how it relates to the overall quality of life have long been concerned with work-life balance. When there is a work-life balance, a person can lead a happy, healthy, and successful life. Work-life balance has turned into a top priority for people seeking a high quality of life (Soomro et al., 2018). Job-life balance involves striking a balance between two very different roles that a person plays, especially the responsibilities of work and family, and both roles are satisfying to the people who play them (Shaffer et al., 2016). Work-life balance can also be referred to as a person's level of contented involvement in all of their many life roles, or how well those positions "fit" together (Mano et al., 2017). The dilemma of balancing work and family is significant for firms, employees, and researchers. Due to changes in political, social, and economic values, there is a significant shift in the demands of work and family life. People need to deal with and adjust to the inter-role conflict that has arisen as a result of changes in the areas of work and family (Kalpna et al., 2019). According to Bina et al. (2014), employee's emotional intelligence can improve how they feel at work, which has a significant impact on their ability to maintain a healthy work-life balance. On the other hand, Wong et al. (2018) discovered that working hours had the greatest impact on employees. The results of the study (Kalpna et al., 2019) indicated that there is a substantial negative association between Occupational Stress and Work-Life Balance.

Employees can benefit from a greater understanding of the connection between work-life balance and occupational stress. Thus, contributing to an improvement in work-life balance and a reduction in occupational stress among employees (Kalpna et al., 2019). The findings of Derick (2022) indicated that work-life balance does not imply an equivalent time allocation. Equal amounts of time devoted to work and personal life do not constitute a work-life balance. Also, doing so is nearly unrealistic. Flexibility is essential for this. A work-life balance must incorporate two fundamental concepts: accomplishment and pleasure. The employee's perspective on the necessity of Work-Life Balance regulations varies based on their background (Kiburz et al., 2017). There is a significant correlation between the flexible starting time and married status, based on demographic data. Work-Life Balance is positively influenced by employee impression of their job, work environment, supervision, and management (Fontinha et al., 2019). Employees must be conscious of the presence of Work-Life Balance policies to appreciate those (Matthews et al., 2014). On the other hand, Thilagavathy et al. (2021) find that the ability of individuals to manage work and life is restricted. Together, the individual's skill and Work-Life Balance policies significantly enhanced Work-Life Balance. In general, all researchers thought that Work-Life Balance has a beneficial effect on job satisfaction and reduces the intention to quit (Jaharuddin and Zainol, 2019).

Occupational Stress: Occupational stress is defined as the detrimental physical and emotional responses that arise when a worker's capabilities, resources, or needs do not match the requirements of the job (NIOSH, 2014). Occupational stress is often referred to as "job stress," "work-related stress," and "work stress." This is also defined by the World Health Organization as "a pattern of reactions that happens when employees are challenged with work expectations that do not match their knowledge, skills, or capacities and that challenge their ability to cope (Hemalatha & Rajesari, 2017). According to the Department of Statistics Malaysia Official Portal for the year 2023, the majority of private sector workers who contribute to economic growth are employed in the agriculture, mining and quarrying, manufacturing, construction, and services industries. The private Sector is a firm owned by individuals who are not under direct government control where the necessity to produce a profit to stimulate the economy causes Occupational Stress in employees. Numerous experts from varied domains, including psychology, management, medicine, and sociology, have made strenuous efforts to comprehend the intricacies of job stress, its causes, effects, and management approaches. Between 2011 and 2015, research was undertaken on teachers, police officers, and nurses, but manufacturing, banking, etc. have only recently received attention. Different perspectives and interpretations of the idea of stress are offered by researchers in several domains, which possibly complicate the matter.

Based on the National Institute for Occupational Safety and Health (NIOSH) classified around 130 most stressful occupations according to their stress levels as demanding professions had in general a lack of control over the task, with employees feeling trapped in employment where they were treated more like machines than humans. The twelve most stressful positions were management, administration, and supervision. Sidhu et al. (2020) investigated five characteristics that contribute to occupational stress, including working environment, workload, employee optimism, focus, and future outlook. According to the findings of a study conducted by Sari et al. (2021), workplace stress has a considerable impact on

employees. One study recommended that the business create flexible working hours and host discussion forums and meetings with employees to effectively manage stress. Consequently, staff will be more motivated to enhance production. Karamchandani et al. (2020) reached the conclusion that occupational stress considerably and negatively impacted employee attitudes toward management. Multiple factors, according to Aidoo (2017), contribute to job stress and stress-related disorders. Among these elements are the environment, occupational demand (task), organizational structure, and work-life balance. Organizational stress negatively impacts the workforce. Stress levels among employees are proportional to the nature and severity of the events that create it. Regular exposure to high amounts of stress produces several uncomfortable and detrimental physiological and health effects, as demonstrated by his research. Individual demographic characteristics, such as gender, may affect occupational stress levels (Sak et al., 2018). Consequently, significant direct and indirect impacts of occupational stress on the desire to leave the current organization and the intention to abandon the profession in the future. It exerts its indirect effects primarily through work satisfaction, depression, and stress adaption. In most cases, the purpose to quit the existing organization precedes the intent to leave the profession.

Conflict at Work: The occurrence of conflict within a workplace setting can be characterized as relational, interpretive, and dynamic, as highlighted by Greenwood and Haar (2017). Meier et al. (2013) identified that disputes possess the capacity to impede the attainment of objectives across several levels. Consequently, team members experience diminished performance and reduced satisfaction due to the diversion of their attention caused by tension or antagonism (Kakar, 2017). According to Benitez et al. (2018), to achieve effectiveness, it is important for team members to effectively handle intragroup conflict. According to Bahkia (2019), individuals who do not adhere to moral norms or stray from expected behaviors are prone to instigating conflicts within their social groups. Interpersonal conflict in the workplace pertainsto instances of suboptimal interactions among coworkers. Interpersonal conflict arises when individuals or groups see discord or differences with another individual about significant matters such as shared interests, resources, values, or behaviors (Dreu & Gelfand, 2008).

Task conflict can be defined as disagreements that arise regarding the substance and consequences of the activities that individuals or groups are engaged in. These disagreements may pertain to many aspects such as the allocation of resources or differing interpretations of factual information (Giebels et al., 2016, p. 324). The correlation between workplace conflict and work-life balance is a vital aspect within the realm of human resource management. According to Al-Alawi et al. (2021), the presence of workplace conflicts might provide challenges in maintaining a healthy work-life balance as it places additional demands on individuals' time and energy resources. Furthermore, the failure to resolve disagreements can have detrimental effects on other aspects of individuals' professional lives, including work-life balance, productivity, employee morale, and job satisfaction. Based on the literature, the researcher consequently, it is hypothesized that:
H1: There is a significant relationship between conflict at work and work-life balance in the manufacturing industry.

Job Environment: According to Amran et al. (2019), there is a positive correlation between employee satisfaction with the work environment and their performance. This suggests that higher levels of employee satisfaction can lead to a reduction in workplace stress. Office workers face unique pressures, including the growing prevalence of difficult knowledge-based tasks that necessitate extensive formal training, the expectation of high productivity levels and inventiveness, and the need to work flexible hours in dynamic settings and locations. In addition, the persistent mental demands placed on individuals and the constant advancements in technology, which necessitate the ability to adjust and engage in continuous learning, contribute to heightened levels of stress experienced by employees in office settings (Alberdi et al., 2015).

A conducive work environment may encompass various elements such as flexible working hours and schedules, opportunities for professional advancement and growth, a workplace culture that fosters inclusivity and positivity, supportive and insightful leadership, as well as fair compensation and additional benefits. On the other hand, an unfavorable work environment might pose challenges for individuals in achieving a harmonious integration of their personal and professional spheres. This may lead to burnout and a decrease in overall job satisfaction. According to the findings of Sánchez-Hernández et al. (2019), it is imperative for human resource managers to possess an understanding of the impact of the workplace on

work-life balance and to proactively cultivate an inclusive and supportive organizational culture for their employees. In HR management, there is a significant correlation between work environment and work-life balance. In the opinion of Gigauri (2020), by giving workers the assistance and tools they need to manage their time and obligations properly, a supportive work environment can promote work-life balance. Flexible work hours, telecommuting choices, and access to amenities like health programs and on-site childcare are a few examples of what this might include. For that reason, the researcher tries to identify the influence of job environment on employees' work-life balance by developing the second hypothesis:
H2: There is a significant relationship between job environment and work-life balance.

Job Requirement: A potential outcome of achieving a more optimal work-life balance may arise through engaging in a vocation that elicits greater satisfaction and reduced levels of stress, while simultaneously aligning with an individual's inherent abilities, personal passions, and core principles. Nevertheless, occupations that necessitate extended or inflexible work hours, stringent time constraints, or frequent travel might provide challenges in terms of allocating time for personal commitments and leisure activities, compromising the equilibrium between work and personal life. The workload is a fundamental aspect of employment and can be intensified by operating under demanding conditions, such as being tasked with a substantial volume of work within limited time constraints (Baka et. al, 2016). According to a recent study conducted by Balducci et; al. (2021), there is a significant association between elevated workloads and the likelihood of experiencing a sad mood and emotional tiredness. Additionally, a study conducted by Irawati et al. (2017) found that an excessive workload can lead to negative consequences, including physical and mental tiredness, as well as emotional reactions such as headaches, digestive issues, and irritation. An excessive amount of work can contribute to an individual experiencing mental distress and may ultimately result in work-related stress. Wood et al. (2020) propose that HR managers can implement various strategies to support employees in achieving harmonious work-life equilibrium. Provide opportunities for employees to have flexible work arrangements. This encompasses options such as flexible work hours, remote work arrangements, and job sharing. Hence the third hypothesis is developed.
H3: There is a significant relationship between job requirements and work-life balance.

3. Research Methodology

The study's population consisted of management employees in the manufacturing business at various levels, including supervisors, middle-level managers, and executives, located in the Klang Valley region. The sample size for this study consisted of 420 individuals who were employed at the time of data collection. Questionnaires were distributed by researchers to assess and analyze numerical data within the context of quantitative research. The statistical software known as Statistical Package for Social Science (SPSS) Version 26, which is commonly employed by social researchers and practitioners for statistical analysis, was utilized to examine the data at the individual level in this study. The survey was administered on an online platform over one month to gather the necessary data. Questionnaires were disseminated to a sample of employees spanning various hierarchical levels, ranging from supervisors to top-level management personnel, to gather data. The sample methodology employed in this investigation was non-probability sampling. Based on an estimated response rate of 80%, a total of 190 questionnaires were successfully returned and then analyzed. The researcher utilized instruments for assessing work-life balance based on Dolai's (2015) work, while for evaluating conflict at work, working environment, and job requirements, the researcher employed the NIOSH generic job stress questionnaire. The analyses carried out for this research are descriptive demographic analysis, correlation and regression analysis.

4. Results

The outcome of the data analysis is accessible in this chapter by using the SPSS version 26 database. The use of analysis is to distinguish the factors of occupational stress. This research analysis is based on the section in the questionnaires.

Table 1: Standard Deviation

		Work-Life Balance	Conflict at Work	Job environment	Job Requirement
N	Valid	190	190	190	190
	Missing	0	0	0	0
	Mean	3.11	3.20	3.59	3.67
	Std. Deviation	.889	.766	1.168	1.032

Table 1 presents the descriptive statistics for the variables of Work-life balance, Conflict at work, Job Environment, and Job Requirement. The mean and standard deviation values for the constructs of work-life balance, conflicts at work, job environment, and job requirement are as follows: work-life balance (mean = 3.11, standard deviation = 0.889), conflicts at work (mean = 3.20, standard deviation = 0.766), job environment (mean = 3.59, standard deviation = 1.168), and job requirement (mean = 3.67, standard deviation = 1.032). Based on the data shown in the table, it can be observed that the mean and standard deviation values for both job environment and job requirement variables demonstrate a significant level of consensus and frequency about occupational stress, respectively. Meanwhile, work-life balance scored (μ = 3.11, σ= .889) f o r mean and standard deviation signaling the medium level of employee agreement on their work-life balance.

Table 2: Reliability Result

Variables	No of item	Cronbach's Alpha	Strength Association
Conflict at Work	7	0.65	Questionable
Job Environment	6	0.91	Excellent
Job Requirement	6	0.87	Good
Work-life Balance	6	0.82	Good

Based on Table 2, the researchers have observed that all of the variables in the study exhibit range-scale items with Cronbach's alpha values over 0.06, suggesting that each item can be considered reliable. The study's dependent variable, work-life balance, exhibited a Cronbach's alpha coefficient of 0.82 connotating a good level of reliability. Equally, the independent factors, namely conflict at work, working environment, and job requirement, demonstrated Cronbach's alpha coefficients of 0.65, 0.91, and 0.87, respectively. Therefore, it can be inferred that all questionnaires included in this study demonstrated a high level of reliability.

Table 3: Correlations Analysis

		Work-Life Balance	Conflict Work	atJob Environment	Job Requirement
Work-life balance	Pearson Correlation	1	-.261**	-.181*	-.172*
	Sig. (2-tailed)		.000	.013	.018
	N	190	190	190	190
Conflict at Work	Pearson Correlation	-.261**	1	.075	.326**
	Sig. (2-tailed)	.000		.301	.000
	N	190	190	190	190
Job Environment	Pearson Correlation	-.181*	.075	1	-.074
	Sig. (2-tailed)	.013	.301		.309
	N	190	190	190	190
Job Requirement	Pearson Correlation	-.172*	.326**	-.074	1
	Sig. (2-tailed)	.018	.000	.309	
	N	190	190	190	190

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Referring to Table 3: the findings indicate a significant association between work-life balance and work conflict, as evidenced by a negative correlation coefficient of -0.261 and a statistically significant p-value of less than 0.05 (p = 0.000). Furthermore, it is worth noting that there exists a negative link between the employment environment and work-life balance. This is supported by a correlation coefficient of -0.181, which is statistically significant at a significance level of p<0.05 (p = 0.013). Similarly, there is also a significant negative relationship between work-life balance and job requirement, as evidenced by a correlation coefficient of -0.172 and a statistically significant p-value of less than 0.05 (p = 0.018).

Table 4: Model Summary

Model	R	R Square	Adjusted RSquare	Std. Error of theEstimate
1	.326a	.106	.092	.847

a. Predictors: (Constant), ALL_JR, ALL_JE, ALL_CAW
b. Dependent Variable: ALL_WLB

Table 5: Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.890	3	5.297	7.377	.000b
	Residual	133.557	186	.718		
	Total	149.448	189			

a. Dependent Variable: ALL_WLB
b. Predictors: (Constant), ALL_JR, ALL_JE, ALL_CAW

The outcomes of the multiple regression analysis are presented in Tables 4 and 5. The F-value is seen to be 7.377, with a statistically significant p-value of 0.000. This indicates that the model possesses statistical significance and validity. Furthermore, it is important to take into account the R-square, often referred to as the coefficient of determination, which indicates that 10.6% of the variance in the independent variables consist of work conflict, working environment, and job requirements is attributed to the dependent variable namely work-life balance. The remaining 89.4% of the variance is attributed to extraneous factors beyond the scope of this study, which are not accounted for by the independent variables under investigation.

Table 6: Coefficients of Every Model

	Unstandardized Coefficients		Standardized Coefficients		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
1 (Constant)	4.734	.354		13.380	.000
Conflict at work	-.244	.086	-.210	-2.848	.005
Job Environment	-.132	.053	-.174	-2.485	.014
Job Requirement	-.100	.064	-.117	-1.581	.116

a. Dependent Variable: ALL_WLB

Based on the findings shown in Table 6, it can be observed that the beta coefficients (β) with the highest level of significance are conflict at work (β = -0.210, p = 0.005, p < 0.05) and job environment (β = -0.174, p = 0.014, p < 0.05). Based on the obtained data, it can be inferred that the presence of conflict in the workplace and the overall job environment exert the most significant influences on work-life balance, as indicated by the statistical significance of the p-value being less than 0.05. Even though the correlation coefficient for job requirement and work-life balance was -0.117 (p = 0.116, p > 0.05), the results did not indicate a statistically significant association. This is evidenced by the p-value of 0.116, which is above the threshold of 0.05.

Discussion: The occupational stress questionnaire is a survey consisting of 19 items designed to assess levels of stress experienced by manufacturing employees at involving managerial level in the workplace. Respondents rate their agreement with each item on a Likert scale ranging from 1 to 5, with 1 representing "Strongly Disagree" and 5 representing "Strongly Agree". The survey encompassed three distinct domains: workplace conflict, employment environment, and job requirements. The table displays the mean scores and standard deviations for each domain. Notably, the highest mean score was seen for job requirements, with a substantial standard deviation of (M = 3.67, SD = 1.032). In contrast, the conflict experienced within the workplace exhibited the lowest mean score of 3.20, accompanied by a standard deviation of 0.766. This demonstrated a significant level of consensus and frequency about occupational stress, respectively. The second aim of this study is to examine the extent of work-life balance among private sector employees. Based on the result, it is suggested that most survey participants agreed that their work-life balance scored only in the medium range. The third purpose of this study is to investigate the relationship between occupational stress and work-life balance among employees in the manufacturing industry. Based on the result, the research demonstrates an inverse relationship between occupational stress and work-life balance among these employees. It implied that when individuals experience higher levels of occupational stress stemming from workplace conflicts, employment conditions, and job demands, their ability to maintain a satisfactory work-life balance is likely to diminish.

5. Managerial Implications and Recommendations

The study holds practical significance in the context of developing and executing initiatives aimed at reducing occupational stress among employees within the manufacturing industry. Considering the increasing significance of work-life balance (WLB), it is important for managers to consistently assess the extent to which employees are experiencing favorable levels of WLB. Given that personnel may not always have an immediate awareness of work-life balance (WLB) issues until they have escalated, it becomes a requirement for managers to identify suitable approaches for evaluating the existence of such difficulties.

Conclusion: Considering the context of work-life balance setting, this analysis critically examines the dimensions of internal conflict, work environment, and job requirements. The assessment has undertaken a critical examination of the good and negative ramifications associated with these factors and the concept of work-life balance. In addition, this study has also brought attention to the performance outcome and assessed the associated affecting elements. Even though one hypothesis was not accepted, organizations should take note of the potential impact of occupational stress on employee motivation. To gain a more precise understanding of the factors that contribute to work-life balance, further research should be conducted.

References

Aidoo, A. W. (2017). The Influence of Stress on the Health of Workers in Manufacturing Industry, *Inquiry Journal*, 2(2).

Al-Alawi, A. I., Al-Saffar, E., AlmohammedSaleh, Z. H.; Alotaibi, H. & Al-Alawi, E. I. (2021). A study of the effects of work-family conflict, family-work conflict, and work-life balance on Saudi female teachers' performance in the public education sector with job satisfaction as a moderator. *Journal of International Women's Studies*: 22(1). :https://vc.bridgew.edu/jiws/vol22/iss1/39

Alberdi, A. & Aztiria, A. & Basarab, A. (2015). Towards an automatic early stress recognition system for office environments based on multimodal measurements: A review. *Journal of Biomedical Informatics,* 59. 10.1016/j.jbi.2015.11.007.

Amabile, T. M., Conti, R. & Coon, H., et al. (1996). Assessing the Work Environment for Creativity. *Academy of Management Journal*, 39, 1154-1184. http://dx.doi.org/10.2307/256995

Amran, A., Perkasa, M., Satriawan, M., Jasin, I., & Irwansyah, M. (2019, February). Assessing students' 21st-century attitude and environmental awareness: promoting education for sustainable development through science education. *Journal of Physics: Conference Series,* 1157(2), p. 022025).

Bahkia, A. S., Awang, Z., Afthanorhan, A., Ghazali, P. L., &Foziah, H. (2019). Exploratory factor analysis on occupational stress in the context of Malaysian sewerage operations. The 4th innovation and analytics conference & exhibition (IACE 2019). https://doi.org/10.1063/1.5121111

Baka, Ł, & Bazińska R. (2016). Polish adaptation of three self-report measures of job stressors: the Interpersonal Conflict at Work Scale, the Quantitative Workload Inventory and the Organizational Constraints Scale. *Int J Occup Saf Ergon*, 22(1), 32-9. doi: 10.1080/10803548.2015.1116816.

Balducci, C. & Alessandri, G., Zaniboni, S., Avanzi, L., Borgogni, L. & Fraccaroli, F. (2020). The impact of workaholism on day-level workload and emotional exhaustion and longer-term job performance. Work & Stress. 35. 1-21. 10.1080/02678373.2020.1735569.

Benitez, M., Medina, F. & Munduate, L. (2018). Buffering relationship conflict consequences in teams working in real organizations. *International Journal of Conflict Management*. 29. 10.1108/IJCMA-11-2017-0131.

Bina, J. & Peter, A. (2014). Impact of Emotional Intelligence on Work-Life Balance–A Global Perspective. *Journal of Exclusive Management Science,* 3, 3-2277.

Bodin, T., Çağlayan, Ç., Garde, A. H., Gnesi, M., Jonsson, J., Kiran, S., Kreshpaj, B., Leinonen, T., Mehlum, I. S., Nena, E., Orellana, C., Peckham, T., Seixas, N. & Vanroelen, C. (2020). Precarious employment in occupational health – an OMEGA-NET working group position paper. *Scandinavian Journal of Work, Environment & Health*, 46(3), 321–329.

Caniëls, M. C. J. & Rietzschel, E. F. (2015). Organizing creativity: Creativity and innovation under constraints. *Creativity and Innovation Management,* 24(2),184–196.

Caniëls, M. C. J., & Rietzschel, E. F. (2015). Organizing Creativity: Creativity and Innovation under Constraints. *Creativity and Innovation Management*, 24(2), 184-196. https://doi.org/10.1111/caim.12123

De Dreu, C. K., & Gelfand, M. J. (2008). Conflict in the workplace: Sources, functions, and dynamics across multiple levels of analysis. *The psychology of conflict and conflict management in organizations*, 3-54.

Delecta, P. (2011). Work-Life Balance. *International Journal of Current Research,* 3(4), 186-186.

Demerouti, E & Sanz Vergel, A. (2014). Burnout and Work Engagement: *The JD-R Approach.Annual Review of Organizational Psychology and Organizational Behavior,* 1, 10.1146/annurev- org psych-031413-091235.

Department of Statistics Malaysia. (DOSM), Ministry of Economy. https://www.dosm.gov.my/

Dodanwala, T. C., Santoso, D. S. & Shrestha, P. (2022). The mediating role of work–family conflict on role overload and job stress linkage, *Built Environment Project and Asset Management*, 12(6), 924-939. https://doi.org/10.1108/BEPAM-12-2021-0153

Durodolu, O. O., Chisita, C. T. & Dube, T. V. (2021). Flattening the curve of fake news in the epoch of infodemic: an epistemic challenge, in Blankenship, R. (Ed.), Handbook of Research on Deep Fakes, Fake News, and Misinformation in Online Teaching and Learning Technologies, IGI Global, Los Angeles, 143-161, doi: 10.4018/978-1-7998-6474-5.ch006.

Duxbury, L. & Halinski, M. (2018). It's not all about guns and gangs: role overload as a source of stress for male and female police officers. *Policing and Society,* 28(8), 930–946.

Elsbach, K. D. & Stigliani, I. (2018). Design Thinking and Organizational Culture: A Review and Framework for Future Research. *Journal of Management,* 44, 2274-2306.

Fila, M. & Purl, J. & Griffeth, R. (2017). Job Demands, Control and Support: Meta-Analyzing Moderator Effects of Gender, Nationality, and Occupation. *Human Resource Management Review*. 27.10.1016/j.hrmr.2016.09.004.

Firth, L., Mellor, D. J., Moore, K. A. & Loquet, C. (2004). How can managers reduce employee intention to quit? *Journal of Managerial Psychology, Emerald Group Publishing*, 19(2), 170-187.

Fontinha, R., Easton, S. & Laar, D. (2019). Overtime and quality of working life in academics and nonacademic: The role of perceived work-life balance. *International Journal of Stress Management,* 26, 173-183.

Giorgi G., Arcangeli G., Perminiene M., Lorini C., Ariza-Montes A., Fiz-Perez J, Di Fabio, A. & Mucci N.(2017) Work-Related Stress in the Banking Sector: A Review of Incidence, Correlated Factors, and Major Consequences. Front Psychol. Dec 12;8:2166. doi: 10.3389/fpsyg.2017.02166. PMID: 29312044; PMCID: PMC5733012.

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*. 4. 10.31435/rsglobal_ijite/30092020/7148.

Greenwood, G. & Haar, J. M. (2017). Understanding the Effect of Intragroup Conflict: A test of Moderation and Mediation. *New Zealand Journal of Employment Relations*, 43(1), 14-35.

Hannah, S. T., Perez, A. L. U., Lester, P. B. & Quick, J. C. (2020). Bolstering Workplace Psychological Well-Being through Transactional and Transformational Leadership. *Journal of Leadership & Organizational Studies*, 27(3), 222–240. https://doi.org/10.1177/1548051820933623

Haar, J., Sunyer, A., Russo, M. & Ollier-Malaterre, A. (2019). A Cross-National Study on the Antecedents of Work–Life Balance from the Fit and Balance Perspective. Social Indicators Research, 142. 10.1007/s11205-018-1875-6.

Irawati, R., & Dini Arimbi, C. (2017). Analisis Pengaruh Beban Kerja terhadap Kinerja Karyawan Operator pada PT Giken Precision Indonesia. *Jurnal Inovasi dan Bisnis*, 5(1), 53-58.

Jaharuddin, N. & Zainol, L. (2019). The Impact of Work-Life Balance on Job Engagement and Turnover Intention. *The South East Asian Journal of Management*, 13(10).

Kakar, A. (2017). How do team conflicts impact knowledge sharing? Knowledge Management Research & Practice. 16. 1-11. 10.1080/14778238.2017.1401194.

Kalpna, D. & Malhotra, M. (2019). Relationship of work-life balance with occupational stress among female personnel of Central Industrial Security Force (CISF), India. *International Research Journal of Engineering and Technology (IRJET)*, 6(7), 1380–1387.

Karamchandani, K. and Dubule, V. K. (2020). Job Anxiety and Occupational Stress among Employees of IT Sector: Impact on their Attitude towards Management. (2020). *International Journal of Engineering and Management Research*, Available at SSRN: https://ssrn.com/abstract=3620724

Kiburz, K. M., Allen, T. D. & French, K. A. (2017). Work-family conflict and mindfulness: investigating the effectiveness of a brief training intervention, *Journal of Organizational Behavior*, 38(7), 1016-1037, doi: 10.1002/job.2181.

Mano, R. J. & Sathya, S. D. (2017). Work-Life Balance of Employees and its Effect on Work-Related Factors in Nationalized Banks. S*hanlax International Journal of Management,* 4, 29-35.

Matthews, R. A., Mills, M. J., Trout, R. C. & English, L. (2014). Family-supportive supervisor behaviors, work engagement, and subjective well-being: a contextually dependent mediated process, *Journal of Occupational Health Psychology,* 19(2), 168, doi: 10.1037/a0036012.

Mattarelli, E., Cochis, C., Bertolotti, F. & Ungureanu, P. (2022). How designed work environment and enacted work interactions impact creativity and work–life balance. *European Journal of Innovation Management*, 10.1108/EJIM-01-2022-0028.

Michailidis M. & Georgiou, Y. (2005) Employee occupational stress in banking. Work. 24(2):123-37. PMID: 15860902.

Meier, A., Carr, A., Neimeyer, R. & Currier, J. (2013). Attachment Anxiety and Avoidance in Coping with Bereavement: Two Studies. Journal of Social and Clinical Psychology. 32. 315-334. 10.1521/jscp.2013.32.3.315.

Hemalatha, M. & Rajeswari, P. (2017). Analysis of Occupational Stress Among High School Teachers in Coimbatore District, *Asian Journal of Applied Science and Technology (AJAST),* 1(4), 16-19,

Mohd, I., Shah, M., Anwar, N. & Mahzumi, N. (2016). Work-life Balance: The effect on Absenteeism among Employees in a Malaysian Utility Company. *International Journal of Economics and Financial Issues,* 6, 154-157.

Morshidi, N. A. A. & Norafneeza, N. (2019). Investigating occupational stress among bus drivers in Universiti Teknologi Malaysia, Johor. 7th Conference on Emerging Energy and Process Technology (CONCEPT 2018), 90.

National Institute of Occupational Safety and Health (NIOSH). (2014). Ministry of Human Resources Malaysia. *Journal of Occupational Safety and Health,* 11(1), 1675-5456 PP13199/12/2012 (032005)

Ngo Hang-yue, S. F. & Raymon, L. (2015). Work Role Stressors and Turnover Intentions: A Study of Professional Clergy in Hong Kong. *International Journal of Human Resource Management*, 16(11), 2133–2146.

Panojan, P., Perera, B. & Dilakshan, R. (2022). Work-life balance of professional quantity surveyors engaged in the construction industry. *Int J Constr Manage,* 22(5), 751–768.

Rashmi, K. & Kataria, A. (2021). Work–life balance: a systematic literature review and bibliometric analysis. *International Journal of Sociology and Social Policy*. 10.1108/IJSSP-06-2021-0145.

Sadiq, M. (2020). Policing in a pandemic: is the perception of workload causing work–family conflict, job dissatisfaction and job stress? *Journal of Public Affairs*.

Sak, R. (2018). Gender Differences in Turkish Early Childhood Teachers' Job Satisfaction, Job Burnout and Organizational Cynicism. *Early Childhood Educ J,* 46, 643–653.

Sánchez-Hernández, M., González-López Ó., Buenadicha-Mateos M. & Tato-Jiménez J. (2019). Work-Life Balance in Great Companies and Pending Issues for Engaging New Generations at Work. *Int J Environ Res Public Health*, 16(24), 5122. doi: 10.3390/ijerph16245122.

Saratian, E. T. P., Soelton, M., Ali, A. J., Arief, H. & Risf, L. S. F. (2019). The Implication of Work Load in the Workplace That May Provoke Work Stress. *South East Asia Journal of Contemporary Business, Economics and Law*, 20(5).

Shaffer, M. A., Reiche, B. S., Dimitrova, M., Lazarova, M., Chen, S., Westman, M. & Wurtz, O. (2016). Work and family role adjustment of different types of global professionals: Scale development and validation. *Journal of International Business Studies*, 47(2), 113-139. https://doi.org/10.1057/jibs.2015.26

Shalley, C. E. & Gilson, L. L. (2004). What Leaders Need to Know: A Review of Social and Contextual Factors That Can Foster or Hinder Creativity. *The Leadership Quarterly*, 15, 33-53.

Sidhu, A., Singh, H., Virdi, S. & Kumar, R. (2020). Job stress and its impact on the health of employees: a study among officers and supervisors. *Journal of Management Development.* ahead-of-print. 10.1108/JMD-01-2019-0004.

Siong, Z., Mellor, D., Moore, K., & Firth, L. (2006). Predicting intention to quit in the call center industry: Does the retail model fit? *Journal of Managerial Psychology,* 21, 231-243.

Soomro, A., Breitenecker, R. & Shah, S. A. M. (2018). Relation of work-life balance, work-family conflict and family-work conflict with the employee performance-moderating role of jobsatisfaction. *South Asian Journal of Business Studies,* 7, 10.1108/SAJBS-02-2017-0018.

Ten Brummelhuis, L. L. & Bakker, A. B. (2012). A resource perspective on the work–home interface: The work–home resources model. *American Psychologist,* 67(7), 545–556.

Thilagavathy S. & Geetha S.N., (2021). Work-life balance-A systematic review. Vilakshan - XIMB Journal of Management, 20(2), 258-276.

Timmons, A. C., Arbel, R. & Margolin, G. (2017). Daily patterns of stress and conflict in couples: Associations with marital aggression and family-of-origin aggression. *J Fam Psychol,* 31(1), 93-104. doi: 10.1037/fam0000227.

Wang, F., Duan, F. G. & Kuai, X. X. (2015). Study on the relationship between job stress and job burnout of couriers. *Hum. Resour. Manag*, 5, 300–304.

Wood, J., Oh, J., Park, J., & Kim, W. (2020). The Relationship Between Work Engagement and Work–Life Balance in Organizations: A Review of the Empirical Research. *Human Resource Development Review*, *19*(3), 240–262. https://doi.org/10.1177/1534484320917560

Wong, K., Chan, A. H. S. & Ngan, S. C. (2019). The Effect of Long Working Hours and Overtime on Occupational Health: A Meta-Analysis of Evidence from 1998 to 2018. *Int J Environ Res Public Health,* 16(12), 2102. doi: 10.3390/ijerph16122102.

Yunus, Y. M., Zain, M. Z. M. & Aini A. (2018). Asian *Journal of Accounting and Governance,* 10, 49–59 (2018) ISSN 2180-3838 (http://dx.doi.org/10.17576/AJAG-2018-10-05).

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Awareness of Microtakaful Development among Low-Income Earners in Malaysia

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Abstract: Malaysia is the third largest takaful market globally and the takaful sector in Malaysia shows sound growth in 2022. Takaful had a penetration rate of 20.1% in 2022, up from 18.6% the previous year. However, only 25% of adult employees in the low-income group have some form of life insurance or family takaful cover, in contrast with 59% of those who are employed in the overall population who have takaful or insurance protection. The Malaysian population can be classified into three income segments: the T20 group, comprising the top 20% of income earners; the M40 group, representing the middle 40% of income earners; and the B40 group, encompassing the bottom 40% of income earners. This study will only focus on the B40 group with a median income of RM3,860. The B40 has minimal wealth and ownership of assets, making them heavily dependent on government assistance to improve their living standards if the economy suffers a shock. Microtakaful is a kind of takaful product entailed for addressing the financial needs of households with low incomes in times of significant expenses. The main objective of this study was to examine the factors influencing the awareness of microtakaful development among the low-income group (B40). This study examines the relationship between (i) income level (ii) knowledge, and (iii) loss of exposure to the awareness of microtakaful. Data was collected by distributing 320 questionnaires to the residents in (PPR) Kerinchi Lembah Pantai, Kuala Lumpur. Based on the findings, it can be concluded that the three independent variables, namely income level, knowledge, and loss exposures, have a strong positive relationship with microtakaful awareness. However, it is found that income level has the biggest impact on the awareness of microtakaful.

Keywords: *Takaful, Family Takaful, Low-Income Earners, B40, Malaysia, Insurance.*

1. Introduction and Background

Introduction of Takaful in Malaysia: The early 1980s saw the formation of Malaysia's Takaful sector in response to the need for a Shari'ah-compliant alternative to traditional insurance. The Malaysian National Fatwa Committee considers traditional insurance to be haram due to the existence of uncertainty (gharar), interest (riba), and gambling (maisir). The government organized a special task team in 1982 to investigate the feasibility of establishing an Islamic insurance corporation (Sharifuddin et al., 2016). The Takaful Act 1984 was enacted in response to the task force's recommendations, and Malaysia's first Takaful operator was founded. Takaful is founded on the concepts of group members' mutual cooperation and accountability.

Takaful products are divided into two categories: Family Takaful, which caters to long-term needs such as a pension, death and disability compensation, children's education, and more; and General Takaful, which is typically a short-term policy in which participants contribute and operators manage the risk (Md Razak et al., 2013). Malaysia has a significant Muslim population, comprising 63.5% of the total population by 2022, which amounts to 21,082,000 people. With Muslims constituting the majority of Malaysians, there is a growing awareness of the need to purchase takaful products rather than conventional insurance, particularly following the 1985 Fiqh Academy ruling declaring conventional insurance haram unless it adheres to Shariah compliance (Banthia et al., 2009). Malaysia ranks as the third-largest takaful market globally, and the sector experienced sound growth in 2022, achieving a penetration rate of 20.1%, up from 18.6% in the previous year. However, just 25% of working individuals in the low-income group have some type of life insurance or family takaful cover, compared to 59% of working adults in the overall population who have takaful or insurance protection (Ringgitplus, 2023). Despite Malaysia's position at the forefront of the global takaful sector, micro takaful is still in its early phases and growing slowly (Ahmed, 2016).

Microtakaful and Microinsurance Development in Malaysia: Planning and financial inclusion were emphasized in the Bank Negara Malaysia Financial Sector Blueprint 2011-2020 to ensure healthy and sustainable economic development. One of the major priorities was to ensure that low-income populations have access to the same financial facilities as higher-income groups because they are more vulnerable to

severe losses and need financial protection like other income groups. Micro-takaful (micro-Islamic insurance) was created to meet the needs of low-income people by providing affordable protection for their lives and property. Bank Negara Malaysia (BNM) established a regulatory framework with industry participation to facilitate the growth of micro-takaful in Malaysia. As a result, in 2016, the "Microinsurance and Microtakaful: Discussion Paper" was issued, to facilitate market expansion and innovation while maintaining the quality and sustainability of microtakaful service in the country.

Despite Malaysia's lengthy history of creating takaful and insurance businesses, the micro takaful sector is relatively new to the country. Several microtakaful projects, however, have been created to service the low-income market, encompassing both rural and urban poor populations. For instance, Takaful Ikhlas and the Selangor Zakat Institution collaborated to construct Malaysia's first microtakaful in April 2007, protecting 100,000 members of The Farmers Welfare Federation at a low premium for urgent death expenses and additional benefits (Abdullah, 2021). Similarly, Etiqa Takaful and Angkatan Koperasi Kebangsaan Malaysia (ANGKASA) introduced the Skim Tabarru' Koperasi microtakaful program in March 2009 for all ANGKASA members, providing coverage against death and total permanent disability at a low cost (Mokhtar et al., 2012).

In September 2010, the Malaysian government asked Takaful operators to develop micro-takaful regulations to reach the low-income market, which covers both rural and urban poverty groups. Because they cannot afford regular insurance, this group is frequently vulnerable and disregarded. As a result, the Tenth Malaysia Plan (2011-2015) was created to improve the lifestyles of the poorest 40% of families (B40) and vulnerable groups. The 1Malaysia Micro Protection Plans (1MMPP) were created in 2010 to encourage low-income households to seek insurance and takaful protection by providing a variety of coverage alternatives at reasonable costs (BNM, 2010). Currently, various microtakaful products are available in the Malaysian market to fulfill the needs of the low-income group.

Figure 1: Detail of MicroTakaful

MicroTakaful Scheme	Sponsor	Beneficiaries	Characteristics
1. *Perlindungan Tenang*	Bank Negara Malaysia (BNM)	Was launched on 2017, to assist the B40 group	Contributions are affordable monthly. However, determining the premium rate necessitates a detailed examination of several factors, such as the total amount of family members, savings for emergencies, income and the system for social security.
2. 'MySalam'	Malaysian Government	MySalam was created for individuals who are qualified for the government's Sustenance Allowance (BSH).	Covering the expenses of getting treated in public hospitals or other public-designated facilities. A monetary reward of Ringgit Malaysia eight thousand is also provided if a person has been verified for having any of the Malaysian Ministry of Health's thirty-six serious diseases.
3.Asnaf Takaful Scheme	Federal Territory Islamic Religious Council	For *Asnaf* community members who get monthly financial assistance provided by the Islamic Religious Council of the Federal Territories	The purpose of this scheme is to ease the financial burden on *Asnaf* who has suffered a catastrophe, such as an accident or death.
4. FWD Kasih	Syarikat FWD Takaful Berhad	Households with low income	Death benefits, lifelong disability, burial costs, Badal Haji for Muslims, charity contributions to non-Muslims, and accidental death are all offered.

5. Prisma Etiqa	Takaful Etiqa Keluarga Berhad	Provides family takaful protection for low-income households.	Protection is provided in the event of death and total or permanent impairment.

Source: Adapted from: Rapi, et al. (2022).

Definition of Poor in Malaysia: The Department of Statistics of Malaysia (DOSM, 2023) stated that the population in Malaysia is divided into three income groups comprising of the B40 group, which includes the bottom 40% of income earners; the M40 group, which includes the midd le 40% of income earners; and the T20 group, which includes the top 20% of income earners. The median incomes for these groups are reported as RM13,148, RM6,275, and RM3,860, respectively. The population of the B40 has minimal wealth and possession of assets, making them subject to economic instability and dependent on assistance from the government to better their situation (UNDP, 2020). Due to income loss, company loss, and job loss, the 2019 pandemic has forced many people in Malaysia into lower income brackets. This situation has a direct influence on the livelihoods of Malaysia's B40 communities. Furthermore, twenty-five percent of women in Selangor lost half of their income because their job contracts were canceled, their businesses were forced to close, or they were placed on leave without pay. Income has been proven to have a significant impact on the demand for takaful. (Rapi et al., 2022). Takaful becomes more affordable when income increases therefore it will directly increase the demand for family Takaful. The above statement is supported by (Lo et al., 2011), where a higher-income individual is more likely to use risk-reduction techniques, such as acquiring an insurance policy. In conclusion, an individual with a higher income tends to buy insurance compared to an individual with a lower income.

Program Perumahan Rakyat (PPR): According to the Housing and Local Government Ministry (2022), there are a total of 159 block projects equivalent to 99,196 *Projek Perumahan Rakyat* (PPR) units occupied by individuals categorized in the B40 income group. PPR located across Peninsular Malaysia, Sabah, Sarawak and Wilayah Persekutuan Labuan. To reside in or register for (PPR) residences, applicants must be 18 years or older, married, Malaysian nationals, and the combined earnings of the spouse must not exceed RM3,860. As a result, all of this conforms to the standards for low-income people.

2. Literature Review

Awareness of Microtakaful: According to Sukmana and Hidayat (2015), the microtakaful industry is relatively unknown as compared to the takaful industry as a whole. This lack of recognition poses several challenges to its growth. Firstly, proper and comprehensive regulation is needed to reduce uncertainty and attract investors. However, applying conventional insurance regulations to microtakaful, which operates on the principle of risk-sharing rather than risk transfer, may not be appropriate (Ingram et al., 2011). Secondly, limited public awareness about microtakaful impedes its adoption, as it is mainly taken up by cooperatives rather than Islamic microfinance institutions. Lastly, the lack of skilled human resources dedicated to microtakaful delays its rapid development. To promote growth in the microtakaful sector, a larger pool of specialized professionals is required (Mohamad Puad, 2017). Addressing these challenges can help drive the development and acceptance of micro takaful within the takaful industry.

Abdul Rahman (2008) conducted cross-sectional research on Malaysian awareness of Takaful. The study covered the entire country, with 886 respondents participating to form the sample for the survey. According to the report, 88.6 percent of the people surveyed were knowledgeable about the existence of Takaful in the country. However, more than half of them were unable to identify any Takaful operators in Malaysia. Micro Takaful is defined as "Sharia'h-compliant risk-pooling products intended for the low-wage advertise due to affordable pricing, terms, its scope, and conveying systems.". Microtakaful can be defined as Shariah-compliant risk-pooling products intended for the low-income market, offering affordable costs, terms, coverage, and delivery systems. Despite this, many low-income individuals still resort to alternative, mostly reactive risk management methods, such as out-of-pocket payments, borrowing, or asset selling. These methods severely impact asset ownership and future income streams, pushing people below the poverty line when faced with losses or damages (Cohen and Sebstad, 2006). Research by LoBiondo-Wood & Haber, J (1998) stated that low-income individuals lack the means to invest in their livelihood and healthcare.

Loster and Reinhard (2010) explained that low-income individuals may afford small premium payments but might not commit to them, proving that income level impacts a person's awareness of microtakaful products. The general public's understanding of microtakaful and microinsurance programs is rapidly expanding. In 2006, 78 million low-income individuals in the 100 poorest nations had some form of coverage (Roth et al., 2007). According to Khan (2006), microtakaful offers Shariah-compliant protection to the lower income bracket at an affordable price. The government has also played a significant role in educating and providing extra knowledge to consumers, as Bank Negara Malaysia introduced 'Perlindungan Tenang,' integrating Takaful with features of voluntary almsgiving (sadaqah), endowment (waqf), and almsgiving tax placed on Muslims (zakat) to fund the supply of Takaful coverage to the needy. Lastly, low-income individuals face exposure to losses. As explained by Hubbard (2010), risk represents a state of vulnerability where potential outcomes include loss, catastrophe, or other undesirable results.

Income Level: Income level is critical in the growth of microtakaful. According to Ahmad et al. (1991), both urban and rural informal employment is poor, vulnerable, and less educated. They cannot afford and do not have complete access to essential services such as healthcare, pensions, paid sick leave, insurance, and various perks as a result of their poor income. Hubbard (2010) defines risk as a state of vulnerability where potential outcomes include loss, catastrophe, or other unwanted results. The process of understanding insurance can be complex for people, but they may be prepared to pay if offered a product that meets their needs and provides significant value. However, not all vulnerable people are able to effectively advocate for themselves (LoBiondo-Wood & Haber, 1998). According to Matul (2005), twenty percent of rural households have no fixed source of income and hardly save income due to urgent necessities like groceries, education expenses, and utility bills taking priority. Limited resources hinder effective financial planning for them. Poor households frequently struggle to create consistent and significant income and are more vulnerable to political, financial, and health issues (Brown and McCord 2000), leading to constraints in their purchasing behavior and their ability to contribute to microinsurance schemes. Furthermore, Nyanjom (2006) explained that low income and inability to get out of poverty resulted in disparities in health status as well as health vulnerabilities. This is supported by (Noor & Abdul Rahman, 2012), who noted that impoverished people's health diminishes when they seek poor-quality medical treatment owing to a lack of funds.
H1: There is a relationship between income level and awareness of microtakaful.

Knowledge: Alba and Hutchinson (1987) define knowledge as "information that is learned, organized, represented, and stored in the mind." In this context, financial knowledge can be defined as financial information that a human learns and then cognitively organizes, represents, and remembers. In addition, increasing knowledge leads to higher levels of perception, attitude, and behavior. According to Olejnik and Biaows (2015), insurance knowledge is a set of scientifically informed messages aimed at comprehending the essence and principles of the insurance company and establishing the conditions for its continuing development. Furthermore, insurance knowledge is a subset of financial knowledge that includes all of the information needed to understand all facets of the insurance market's proper operation. To define insurance knowledge correctly, one must consider education, including schooling and training, because it improves the understanding of people who make key life decisions regularly. Education includes both learning and teaching, and it can be studied in a number of settings and at different levels. Insurance education's goal is not only to teach knowledge and illustrate how to use it but also to inspire and raise awareness among those participating in the educational process, so assisting society in becoming more financially literate (Przybytniowski, 2017). Insurance expertise, according to Piekowska-Kamieniecka and Walczak (2016), has a significant influence on the expansion of understanding in this subject, which leads to proper insurance coverage that fulfills customer needs. Many people are still unaware of microtakaful, particularly in the low-income group, where the bulk of people have poor education and financial literacy. According to Haryadi (2007), micro takaful items are comparable to ordinary takaful products but have been tailored to address the requirements of the impoverished while being Shariah-compliant. The most commonly used model by microtakaful operators is the hybrid model or Wakalah Bil Ujrah (Erlbeck et al., 2011). These products are complex for a layman to understand especially to the target market of lower income groups. As per Brown (2001), many insured individuals do not fully understand the coverage they have purchased and struggle to make claims. This is consistent with the findings of the Banking with the Poor Network (2008), which say that the poor are unaware of insurance and believe rates are higher than the real cost. Furthermore, Banthia et al.

(2009) discovered that low-income groups are hesitant about microinsurance programs due to their lack of awareness about the benefits and coverage that may not meet their needs.
H2: There is a relationship between knowledge and awareness of microtakaful.

Loss Exposure: Monetary risk is the possibility of losing financial stability as a result of unexpected events (Anderson and Brown, 2005). Low-income individuals are vulnerable to various hazards due to living in hazardous conditions. Among them, the poor are even more susceptible to dangers as they have limited capacity to cope when emergencies occur. As supported by Churchill (2006), poverty and vulnerability are interconnected. Low-income and impoverished people, whether in rural or urban poverty, are frequently overlooked when it comes to insurance coverage, leaving them vulnerable to financial emergencies (Bank Negara Malaysia, 2010).

Being impoverished in an urban setting can be more difficult to handle than being poor in a rural setting. The cost of life is lower in rural areas, and basic commodities are more readily available, allowing individuals to supplement their food supply by farming and producing their own vegetables or rearing poultry. This is not possible in high-rise residences in urban areas. According to the Khazanah Research Institute's State of Households II (SOH II) study, the nation's poverty rate has decreased from 1.7% of households in 2012 to 0.6% in 2014. Nonetheless, the ringgit's depreciation and growing inflation have hit Malaysians' pockets, affecting their way of life (Khazanah Research Institute, 2016).

According to Llanto et al. (2006), urban and rural workers frequently face poor working conditions, filthy settings, rapid climate changes, disasters, bug infestations, chemical poisoning, and other environmental risks. Cohen and Sebstad (2006) highlight the challenge for the impoverished in overcoming poverty when confronted with even mild shocks. Cheaply constructed buildings in slum areas are especially susceptible to damage from fires and natural calamities, leading occupants to even harsher living conditions (Morduch, 1999). In their daily life, every impoverished person suffers some level of vulnerability. The ability to deal with threats has been classified as individual and family vulnerability. Poverty is a cause as much as a symptom (Cohen and Sebstad, 2006). When income is lost due to a shock, many people withdraw their savings, borrow money, sell items, or even pull their children out of school. Low-income neighborhoods frequently lack access to high-quality food, with establishments offering energy-dense, nutrient-deficient items at low prices. Due to financial constraints, they can only afford cheaper food, compromising on its quality. Consuming low-quality food is connected with a high-calorie, low-nutrient diet, which may result in weight gain (Larson et al., 2009). Furthermore, low-income children are less likely to participate in organized sports, which contribute to the low-income group's higher loss exposure.
H3: There is a relationship between loss exposure and awareness of microtakaful.

3. Research Methodology

The estimated Malaysian population in 2023 is around 33.2 million people, consisting of 30.4 million citizens and 2.8 million non-citizens. However, this study only focuses on 40% of the lower-income group in Malaysia, known as B40, which amounts to 13.28 million people (DOSM, 2023). According to the Ministry of Housing and Local Government (2022), there are a total of 99,196 PPR units occupied by individuals categorized in the B40 income group. The population of interest for this study was 1896 PPR units of occupants of 6 block projects under Projek Perumahan Rakyat (PPR) at Kerinchi Lembah Pantai. The study will utilize a convenient sampling technique, where only individuals from the lower-income group will be selected to participate and answer the questionnaire. Individuals living in (PPR) Kerinchi Lembah Pantai would be the unit of analysis in this study. The purpose of this research is to determine the level of awareness of microtakaful development among low-income earners in (PPR) Kerinchi Lembah Pantai. According to Krejcie and Morgan (1970), for a population size of 1896, a commonly used rule of thumb suggests selecting a sample size of at least 320 for a 95% confidence level and 5%. Therefore, a sample size of 662 was collected from the 1896 occupants of PPR units to achieve a 99% confidence level and a 5% margin of error. The respondent was handed questionnaires with a five-point Likert scale measuring ranging from "strongly disagree (1)" to "strongly agree (7)". The convenience sampling technique, often known as non-probability sampling, was applied. The inquiries are all the same. Data is collected all at once.

4. Results and Discussion

Profile of Respondents: Table 1 summarizes the characteristics of the complete sample of respondents who took part in the study. The table shows the gender of the respondent are almost equal for female and male respondent with 48% and 52% respectively. The majority of responders (33.88%) are between the ages of 30 and 39. As for income level, the income range RM3,001 to RM3,860 contributed the most with 32.3% of the respondents belonging to this income level. The second highest income level is RM1500 and below representing 35.2% of the respondents. The rest of the respondents have an income ranging from RM1501 – RM2000 and RM2001 – RM3000 with 24.1% and 14.1% respectively. Most of the respondents do not have any insurance coverage with 237 respondents saying no to the question 'Do you have life insurance?'

Table 1: Demographic Table

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Male	154	48%
Female	166	52%
Total	**320**	**100%**
AGE		
20-29	62	19.4%
30-39	108	33.8%
40-49	102	31.9%
>50	48	15%
Total	**320**	**100%**
INCOME LEVEL		
RM1500 and below	94	35.2%
RM1501 – RM2000	77	24.1%
RM2001 – RM3000	45	14.1%
RM3001 – RM3,860	104	32.3%
Total	**320**	**100%**
DO YOU HAVE LIFE INSURANCE?		
Yes	83	26%
No	237	74%
Total	**320**	**100%**

Correlation Analysis: Pearson correlation is used to test the significance level of the hypothesis for the variable and measures the strength of the relationship between two variables. The correlation results are displayed in Table 2, Table 3, and Table 4.

Table 2: Independent Variable (Income Level)

Independent Variable 1		Income Level	Awareness of micro takaful	
Income Level	Pearson Correlation	1	.779**	**. Correlation is significant at the 0.01 level (2-tailed).
	Sig. (2-tailed)	320	.000	
	N		320	

Table 2 shows that the level of awareness of microtakaful and income level have a very strong and positive correlation relationship. According to Guttmann's Rules of Thumb, the result of Pearson's Correlation Value is exceptionally solid at 0.779, indicating that the quality of the relationships between each measurement is very strong, and the positive correlation relationship (p-value = 0.000) is significant at the 0.01 between each measurement is very strong, and a positive correlation relationship (p-value = 0. 000) is significant at the 0.01 levels (2 – tailed).

Table 3: Independent Variable (Knowledge)

Independent Variable 1		Knowledge	Awareness of micro takaful	
Knowledge	Pearson Correlation	1	.745**	**. Correlation is significant at the 0.01 level (2-tailed).
	Sig. (2-tailed)	320	.000	
	N		320	

According to the findings in Table 3, knowledge and level of awareness of microtakaful have a positive correlation and extremely strong relationship. The outcome of Pearson's Correlation Value is particularly strong with 0. 745, demonstrating the nature of the relationship among every measurement is strong, and the positive connection relationship is huge at the 0.01 levels (2-tailed).

Table 4: Independent Variable (Loss Exposures)

Independent Variable 1		Loss Exposures	Awareness of micro takaful	
Loss Exposures	Pearson Correlation	1	.753**	**. Correlation is significant at the 0.01 level (2-tailed).
	Sig. (2-tailed)	320	.000	
	N		320	

Table 4 shows that loss exposures and level of awareness of microtakaful have a very solid and positive correlation relationship. The result of Pearson's Correlation Value is especially solid with 0.753 which shows the idea that the relationship between each prediction is very strong, and the positive association relationship (p-value = 0. 000) is huge at the 0. 01 levels (2 - tailed).

Regression Analysis: Regression analysis refers to a set of statistical methods for estimating relationships between the dependent variable and one or more independent variables.

Table 5: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.817	.667	.448	.350834	Predictors: (Constant), Income Level, Knowledge, Loss Exposure

According to Table 5, the coefficient of determination for R Square is 0. 667. This means that the three independent variables, income level, knowledge, and loss exposures, explain 66.7% of the variation in the level of awareness of microtakaful. The remainder of the 33.3% variation in microtakaful awareness cannot be explained by the three variables but can be explained by other variables.

Coefficient of Multiple Regression Model: For the value to be significant, the three variables of income, knowledge, and loss exposure must be less than 0. 05. While the variable with the highest Beta value suggests that it is the most powerful variable.

Table 6: Coefficient of Multiple Regression Model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
Constant	.665	.231		2.882	.05
Income Level	.324	.115	.349	2.818	.006
Knowledge	.283	.095	.295	2.978	.004
Loss Exposure	.217	.109	.283	1.998	.0049

Based on Table 6 above, the result for income level is 0.000, which is less than the significant level of 0.05. As a result, the variable is significant. Income level and awareness of microtakaful have a positive relationship. It can be stated that every one-unit increase in income level will increase awareness by 34.9%. The significant value for the following variable, knowledge, is 0.04, which is greater than the significant level of 0.05. The variable is significant. This shows that knowledge influences awareness of microtakaful. It is possible to illustrate that every one-unit increase in knowledge increases awareness by 29.5%. Finally, the significant value for variable loss exposure is 0.049, which is less than the 0.05 criterion of significance. It may be explained that for every unit increase in loss exposure, demand rises by 28.3%. Therefore, the variable is significant. There is a relationship between loss exposure and awareness. This finding is similar to previous findings by Hassan et al. (2018), which show that understanding takaful items is necessary for market penetration. Only 378 of their 503 respondents are aware of takaful products, and only 38.8% are knowledgeable about takaful products. Overall, it can be concluded that income level has the greatest impact on microtakaful awareness.

Discussion

Figure 2

Hypothesis	Relationship	Finding	Result
HO: There is no relationship between income level and awareness of microtakaful. **H1:** There is a relationship between income level and awareness of microtakaful.	0.006 (Significant)	Reject HO Accept H1	The null hypothesis (HO) was rejected and the alternative hypothesis (H1) was accepted because the p-value is less than 0.05. This suggests that there is a significant statistical connection between income level and knowledge of microtakaful.
HO: There is no relationship between knowledge and awareness of microtakaful. **H2**: There is a relationship between knowledge and awareness of microtakaful.	0. 004 (Significant)	Reject HO Accept H2	The p-value is 0.004, which is less than 0.05. As a result, the null hypothesis (HO) was rejected and the alternative hypothesis (H1) was accepted. This indicates that there is a statistically significant relationship between knowledge and awareness of microtakaful.
HO: There is no relationship between loss exposure and awareness of microtakaful. **H3:** There is a relationship between loss exposure and awareness of microtakaful.	0. 049 (Significant)	Reject HO Accept H3	The p-value is 0.049, which is as well less than 0.05. Hence, the null hypothesis (HO) was rejected and the alternative hypothesis (H1) was accepted. This suggests that there is a statistically significant link between loss exposure and microtakaful awareness.

5. Managerial Implications and Recommendations

Government Perspectives: To begin, the government should implement financial literacy programs in schools and communities, with an emphasis on raising understanding and awareness of microtakaful. Encouraging financial planning among low-income individuals at a young age by introducing basic insurance concepts like takaful can be advantageous. To provide a greater impact, these efforts might be integrated into school curricula and community programs. In addition to educational initiatives, the government can run targeted awareness campaigns in low-income neighborhoods, as well as government low-cost housing programs such as the PPR (People's Housing Project), squatter houses, and the PR1MA (1Malaysia People's Housing Program). This strategy would involve the low-income population directly and raise awareness about the benefits of microtakaful. To reach a wider audience, the government can utilize various media channels, including social media, radio, and television, to communicate the advantages of microtakaful in a

simple and engaging manner. Using these platforms will increase the visibility and accessibility of information about microtakaful to the target market. Furthermore, the government can provide incentives to takaful operators that actively participate in offering micro takaful products to the low-income market. This can include tax exemptions, reduced regulatory barriers, or financial support for product development and marketing. These incentives can encourage insurance companies to develop innovative and affordable microtakaful products, increasing the options available to low-income earners. The government can play a vital role in boosting knowledge and comprehension of microtakaful among the low-income population, supporting financial inclusion and empowerment, by implementing these ideas.

Takaful Operator Perspectives: Takaful providers can provide microtakaful solutions that are customized to low-income consumers, providing flexibility in coverage options, affordability, and simple policies. Furthermore, takaful operators should use digital technology to reach a larger audience. Creating mobile applications or online platforms that allow easy access to information on microtakaful and promote simple insurance buying and claims processes can help the target market gain access. Understanding the tastes of different age groups is critical for attracting them. Because millennials value simplicity, newness, and comfort, social media is a powerful technique for gaining their attention. Older age groups, on the other hand, value thorough, emotive, and exact information. Using TV commercials, magazines, newspapers, or radio to promote microtakaful products to this demographic can be more effective. Furthermore, takaful operators might participate in social responsibility projects to help low-income earners' financial inclusion and empowerment. Sponsoring financial literacy courses, community events, and other efforts to raise awareness of microtakaful can reflect a company's dedication to serving the low-income market. Insurance firms and takaful operators may play a significant role in improving knowledge and accessibility of micro takaful among low-income workers, ultimately providing them with much-needed financial safety and security, by applying these techniques.

Future Researcher Perspectives: The study was conducted only in (PPR) Kerinchi Lembah Pantai, which involved 1896 units out of 99,196 PPR units. To increase the generalizability of the research, future researchers are recommended to include all PPR units across Peninsular Malaysia and those in Sabah and Sarawak. Additionally, other government low-cost housing plans available in Malaysia can be included in the study. Furthermore, the focus should not be limited to only three independent variables: income level, knowledge, and loss exposures. It would be beneficial to include more variables to identify factors affecting awareness of microtakaful comprehensively. For instance, future researchers can consider variables such as education level, demographic factors, and exposure to financial education. Moreover, future researchers can collaborate with *Jabatan Kebajikan Masyarakat* (JKM) and other relevant bodies that deal with the lower-income group to obtain a comprehensive list of participants. This would allow for a more representative and diverse sample of the target population. Expanding the scope of the study to encompass a broader range of participants and variables would enhance the overall robustness and applicability of the findings, providing valuable insights into the awareness of microtakaful among various low-income groups in Malaysia.

Conclusion: The first objective is to investigate the relationship between income level and awareness of MicroTakaful. The correlation for income level is 0.779, indicating a strong correlation between level of awareness and income level. The following step is to calculate the correlation between awareness and income level. The value of significance must be below 0.05 for the variable to be significant. Since the variable income level is 0.006, it is therefore significant.

The second objective is to ascertain the relationship between knowledge and awareness of MicroTakaful. The correlation for the variable, knowledge, is 0.745, indicating a strong correlation. Moving on, the significant value must be less than 0.05 for the variable to be significant. Because the knowledge variable is 0.004, it is significant.

The third objective is to investigate the relationship between loss exposures and MicroTakaful awareness. The correlation for variable loss exposures is 0.753, demonstrating a strong correlation once again. Next, the significant value must be less than 0.05 for the variable to be significant. Since the variable of loss exposures is 0.049, it is significant.

In conclusion, all three variables in this study were statistically significant in explaining the awareness of microtakaful among the low-income group in Malaysia. However, the total awareness of microtakaful remains low. Therefore, the government, takaful operators and other related bodies should take measures seriously to combat these issues such as implementing financial literacy programs in schools and communities, using digital technology and numerous media outlets to reach a larger audience. The government also has to give incentives such as tax breaks that can encourage takaful operators to create low-cost micro takaful products. Raising awareness of micro takaful would enable low-income earners group to protect their financial futures while also promoting inclusive economic growth, especially in the takaful sector.

References

Ab Rahman, A., Mohamad, S., Wan Ahmad, W. & M. (2011). Development of the Islamic Insurance Business in Malaysia. Retrieved July 9, 2018, from http://eprints.um.edu.my/12767/1/v77-241.pdf.

Abdullah, I. & Rashid, Y. (2014). Poverty, Conventional Insurance and Takaful: A Journalistic Review. *Research Journal of Recent Sciences,* 3(10), 108-112.

Abdullah, I, N. (2021). Impactful and Collective Microtakaful in Addressing the Impact of the COVID-19 Pandemic. *Journal of Islamic Finance*, 10(1), 117–126.

Ahmed, M. (2016). Micro Takaful Insurance as a Tool to Guaranteeing Financing and Protecting Micro Enterprises. *Journal of Business & Financial Affairs*, 05(04). https://doi.org/10.4172/2167-0234.1000228

Alba, J. W. & Hutchinson, J. W. (1987) Dimensions of Consumer Expertise. *Journal of Consumer Research,* 13, 411-454. http://dx.doi.org/10.1086/209080

Abdul Rahman, Z. (2008). The Role of Islamic Financial Institutions in Wealth Accumulation, Ownership and Protection by the Ummah: Conceptual and Implementation Challenges. Shah Alam: Universiti Teknologi MARA.

Anderson, J. F. & Brown, R. (2005). Risk and Insurance. Retrieved from https://www.soa.org/files/pdf/P-21-05.pdf

Bank Negara Malaysia. (2010). Development of the financial sector. https://www.bnm.gov.my/files/publication/fsps/en/2010/cp02.pdf

Bank Negara Malaysia. (2016). Microinsurance and Microtakaful Discussion Paper. Retrieved from http://www.bnm.gov.my/guidelines/50_others/dp_microinsuranceandmicrotakaful_Apr2016.pdf B.

Brown, W. (2001). Micro-insurance-the risks, perils and opportunities. *Small Enterprise Development,* 12(1), 11-24(14).

Brown, W. & McCord, M. J. (2000). 'Virtual Conference on Microinsurance, Oct 9th – Oct 27th, 2000'. USAID Microenterprise Best Practices (MBP) Project, Development Alternatives / USAID 2000.

Banking with the Poor Network. (2008). Microfinance Industry Report-Vietnam. Available at http://www.bwtp.org/files/MF_Industry_Report_Vietnam

Banthia, A., Johnson, S., McCord, M. J. & Mathews, B. (2009). Microinsurance that works for women: Making gender-sensitive microinsurance programs. Microinsurance Paper No. 3. International Labor Organization

Cohen, M. & Sebstad, J. (2005). Reducing vulnerability: The demand for microinsurance. *Journal of International Development,* 17(3), 397-474.

Churchill, C. (2006). What is insurance for the poor? Protecting the Poor: A Microinsurance Compendium. International Labor Organisation, 12-22.

DOSM (2023, February 9**).** Demographic Statistics Fourth Quarter 2022, Malaysia. Department of Statistic Malaysia Official Portal. Retrieved February 28, 2023, from https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=430&bul_id=VndFcmkvVTZoVTNYOTN2MzRtNy9zQT09&menu_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09

Erlbeck, A., Altuntas, M. & Berry-Stölzle, T.R. (2011). Microtakaful: Field Study Evidence and Conceptual Issues. Department of Risk Management and Insurance, University of Cologne.

Hassan, R., Salman, S. A., Kassim, S. & Majdi, H. (2018). Awareness and Knowledge of Takaful in Malaysia: A Survey of Malaysian Consumers. *International Journal of Business and Social Science*, 9(11). https://doi.org/10.30845/ijbss.v9n11p6

Haryadi, A. (2007). Reaching out to the Poor with Microtakaful. Middle East Insurance Review, 62-63.

Hubbard, T. L., Hutchison, J. L. & Courtney, J. R. (2010). Boundary extension: Findings and theories. *Quarterly Journal of Experimental Psychology*, 63(8), 1467–1494. https://doi.org/10.1080/17470210903511236

Ingram, M. & McCord, M. (2011). Defining "Microinsurance": Thoughts for a journey towards a common understanding. Appleton, WI: Micro Insurance Centre.

Kementerian Pembangunan dan Kerajaan Tempatan. (2022). Program Perumahan Rakyat (PPR). https://www.kpkt.gov.my/index.php/pages/view/256

Khan, M. J. A. (2006). Micro-takaful, the way forward. Academy for International Modern Studies. Available at www.LearnIslamicFinance.com

Khazanah Research Institute. (2016, August 1). The State of Household II. *Khazanah Research Institute*.

Krejcie, R. V. & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement,* 30, 607-610.

Lo, A. S., Cheung, C. & Law. R. (2011). Hong Kong residents' adoption of risk reduction strategies in leisure travel. *Journal of Travel & Tourism Marketing*, 28, 240–260.

Loster, T. & Reinhard, D. (2010). Micro-insurance and Climate Change, in Morelli E., Onnis G.A., Ammann W.J., Sutter C. (Eds.) (2010), Micro-insurance - an Innovative Tool for Risk and Disaster Management. Global Risk Forum GRF Davos, Switzerland, 39-42.

Llanto, G. M., Almario, J. & Llanto-Gamboa, M. G. (2006). Microinsurance: Issues, Challenges and Policy Reforms. Discussion Paper Series No. 2006-25. Philippine Institute for Development Studies. Available at http://www.pids.gov.ph

Larson, N. I., Story, M. T. & Nelson, M. C. (2009). Disparities in Access to Healthy Foods in the U. S. American *Journal of Preventive Medicine*, 36(1). doi:10.1016/j.amepre.2008.09.025

LoBiondo-Wood, G. & Haber, J. (1998). Nursing research: Methods and critical appraisal for evidence-based practice. Elsevier Health Sciences.

Md Razak, M., Idris, R., Md Yusof, M. & Jaapar, W. E. (2013). Acceptance determinants towards takaful products in Malaysia. *International Journal of Humanities and Social Science*, 3(17), 243–252.

Matul, M. & Pawlak, K. (2005). Evaluation of pilot financial literacy workshops in Poland. MFC Research Paper

Mohd Fauzi, P. N. F. N. & Laldin, M. A. (2022). Micro-takāful scheme for the protection of houses belonging to low-income groups in Malaysia, *ISRA International Journal of Islamic Finance,* 14(3), 303-314. https://doi.org/10.1108/IJIF-05-2021-0090

Mohamad Puad, N. A. (2017). Issues and Challenges in Developing Microtakaful in Muslim Country. 4th International Conference on Management and Muamalah 2017, (e-ISBN: 9978-967-2122-15-9).

Noor, M. & Abdul Rahman, Z. (2012). Financial Protection for the Poor in Malaysia: Role of Zakah and Micro-takaful. *Journal of King Abdulaziz University: Islamic Economics,* 25(1).

Mokhtar, M., Sulaiman, R. & Ismail, A. (2012). Towards developing a sustainable microtakaful program in Malaysia. Islamic Finance in a Challenging Economy: Moving Forward, (November), 1–32.

Morduch, J. (1999). Between the State and the Market: Can Informal Insurance Patch the Safety Net? *The World Bank Research Observer*, 14(2), 187-207.

Nyanjom, E. (2006). Inequality in Kenya's Health Sector. Readings on Inequality in Kenya: Sectoral Dynamics and Perspectives. Available at http://www.hennet.or.ke/downloads/humanrights/InequalityKenya.pdf

Olejnik, I. & Białowąs, S. (2015). Pension Literacy and Consumers' Decisions in the Context of Pension System Reforms. *Problemy Polityki Społecznej,* (2), 13–33.

Pieńkowska-Kamieniecka, S. & Walczak, D. (2016). Willingness of Polish households to save for retirement. European Financial Systems 2016. Proceedings of the 13th International Scientific Conferences, Brno, June 27–28, 588–595.

Przybytniowski, J. W. (2017). Issues and Challenges in Developing Microtakaful in Muslim Country. *Jagiellonian Journal of Management,* 3(2), 107–121. https://doi.org/10.4467/2450114XJJM.17.008.7738

Rapi, M. Z. H., Salaudeen, A. O., Muhammad Rawi Ravi, M. I., Wongsangiam, R. & Redzuan, N. H. (2022). Micro Takaful Programs for the Poor: The Malaysian Experience. *International Journal of Accounting, Finance and Business (IJAFB)*, 7(45), 65 - 81.

Ringgitplus. (2023, February 22). MTA: Digital Insurers, Takaful Operators Can Boost Takaful Penetration Rate To 30%. Retrieved July 5, 2023, from https://ringgitplus.com/en/blog/insurance/mta-digital-insurers-takaful-operators-can-boost-takaful-penetration-rate-to-30.html

Rom, N. A. M. & Rahman, Z. A. (2012). Financial protection for the poor in Malaysia: Role of zakah and micro-takaful. *Journal of King Abdulaziz University, Islamic Economics*, 25(1), 119–140. https://doi.org/10.4197/Islec.25-1.5

Roth, J., Mccord, M. J. & Liber, D. (2007). 100 poorest nations had some form of coverage. Microinsurance Centre.

Sukmana, R. & Hidayat, S. E. (2015). Challenges and Opportunities in Developing Microtakaful in Muslim Majority Country: A Case Study of Indonesia. Retrieved from https://www.researchgate.net/publication/270284881_Challenges_and_Opportunities_in_Developing_Microtakaful_in_Muslim_Majority_Country_A_Case_Study_of_Indonesia.

Sharifuddin, S. S., Kasmoen, N. A., Mat Taha, N. H., Ahmad Talaat, N. S. M. & Ahmad Talaat, A. Z. M. (2016). The Concept of Takaful (Islamic Insurance) and Its Functions in the Establishment of Syarikat Takaful Malaysia; the First Takaful Operator in Malaysia. *International Journal of Humanities and Social Science Invention*, 5(12), 43-48. https://doi.org/https://www.ijhssi.org/papers/v5(12)/G05124348.pdf

Sheila, N. H., Nur Shazwani, S. & Hanudin, A. (2015). An analysis of the viability of micro health takaful in Malaysia, *Qualitative Research in Financial Markets,* 7(1), 37-71. Poverty, Conventional Insurance and Takaful: A Journalistic Review. *Research Journal of Recent Sciences*. 3(10). 108-112. https://doi.org/10.1108/QRFM-09-2013-0030

Tabachnick, B. G. & Fidell, L. S. (1996). Using Multivariate Statistics (3rd ed.). New York: Harper Collins College Publisher

United Nation Development Program. (2020, November 6). Stories from a Fresh Market: How Digital Access Helped Malaysian B40 Traders Transform During the COVID-19 Pandemic. UNDP. Retrieved July 23, 2023, from https://www.undp.org/malaysia/blog/stories-fresh-market-how-digital-access-helped-malaysian-b40-traders-transform-during-covid-19-pandemic

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Instructional Elements Assessments of Entrepreneurship Education in a Technical University in Malaysia

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Abstract: The technical and vocational education and training (TVET) program occupies the national education system to allow the students to learn practical, hands-on skills aligned with the industries' needs, ultimately preparing the students for the inexorable integration of technology brought about by the Fourth Industrial Revolution (IR 4.0). The rapid pace of change and broad impacts featuring IR 4.0 demand specific critical thinking skills, creativity, and readiness for risks, the qualities that are connected to entrepreneurship. Thus, it clarifies offering entrepreneurship education (EE) alongside a TVET program. There are arguments that EE is poorly embedded into the TVET program in Malaysia. The instructional elements concerned with the content, techniques, and activities through which students engage in creating entrepreneurial knowledge and value are considered essential for EE's success in a TVET program. This study assesses the state of instructional elements (i.e. content, teaching methods, infrastructure facilities, and learning assessments) of EE offered within a TVET program in Malaysia. Data were obtained from 37 students of a private technical university in Malaysia who enrolled for their entrepreneurship course through a series of group interviews. The study enlightens a few meaningful findings to propagate the entrepreneurial culture within a TVET program: (1) the content should be tailored to the readiness of the students, (2) action-based teaching methods should be engaged, (3) prior entrepreneurship experience should be specified for the entrepreneurship lecturer; (4) presence of ideal infrastructure facilities, and (5) learning assessments must be focusing in developing attributes of entrepreneurs.

Keywords: *Entrepreneurship Education (EE), Technical and Vocational Education and Training (TVET), Instructional Elements, Malaysia.*

1. Introduction and Background

The Fourth Industrial Revolution (IR 4.0) represents new ways in which technology has become embedded within societies. It marks a conspicuously unusual emerging technology breakthrough of The Internet of Things, robotics and artificial intelligence, transforming human and machine interactions to a new level. Many businesses have shifted their operations to automation, where computerized machines, robotics and artificial intelligence have displaced the traditional jobs manned by human labor. This circumstance has raised concerns worldwide about the great impact that IR 4.0 could have in disrupting the future employment landscape. Many jobs will no longer exist, leading to a possible increase in unemployment and the emergence of socioeconomic problems.

In response to IR 4.0 (strong demand for highly skilled workers), Malaysia has embarked on a comprehensive Technical and Vocational Education and Training (TVET) program in its education system. The TVET program emphasizes competent development, allowing the students to learn practical and hands-on skills aligned with industries' needs. The program is expected to lift future talents into new collective skills and consciousness parallel to IR 4.0.

Fueled by the velocity of surprises, IR 4.0 challenges the traditional assumptions of business operations which are very much linear and mechanistic. Businesses must relentlessly adapt to the fast-changing environment and reinvent themselves by embracing agility and innovation, typified by entrepreneurship (Lenita & Taina, 2015). In the realm of IR 4.0, the TVET program and entrepreneurship education (EE) are both seen as crucially significant. Many consider EE a platform for TVET students to learn the concept of 'survival' and 'competition', a situation that emulates IR 4.0 (Daniele & Annamaria, 2016; Othman & Nasrudin, 2016). The Malaysian government has been very forward in promoting EE into the TVET program. It includes policy changes, grant allocations, scholarships and industry collaborations (TheSunDaily, 2017).

In a recent movement, the government has stepped up its efforts to reform the TVET program and establish a TVET task force team, to streamline and re-organize TVET functions in the country (Surendran, 2018). The objectives of embedding EE successfully into the TVET program should be rendered; otherwise, the great efforts will be in peril, and future labor will be unable to endure IR 4.0, depriving nation-building. Nkirina (2010) highlights that EE has been poorly embedded into the TVET program with no meaningful impact despite the importance of EE for the economic survival of a country. The bottom line is that the holistic design of EE that is compatible with a TVET program must be put in place for tangible results.

Instructional elements that include content, teaching methods, infrastructure facilities, and learning assessments are asserted as quintessential to EE (Abdullah, 2020; Othman & Nasrudin, 2016; Shirandula, 2022). The elements should be captivating to enthuse TVET students' interest in EE. The entrepreneurship contents and modules must contain real-world entrepreneurial experiences and business practices (Samuel et al., 2013). Teaching delivery needs to engage in more practical-oriented activities with an emphasis on hands-on experience to make students more realistic and creative in developing their entrepreneurship skills (Nkirina, 2010). Furthermore, action-based teaching methods (instructor as a facilitator) that enable students' self-discovery should be conducted for entrepreneurship classes (Ernest, 2010). Adequate facilities must be presented for the effective teaching of an EE program that includes appropriate classrooms, computer laboratories, Internet access and a resource room, and these facilities should not only exist but must be the best in terms of quality (Ajigo et al., 2018). Learning assessments must be designed in such a way able to appropriately measure the acquisition of entrepreneurial skills (Mwasalwiba, 2010; Shirandula, 2022; Syed, 2015).

Research shows little effect of EE on TVET students in Malaysia. Ismail (2010) reported that TVET students (Polytechnic) did not have the minimum entrepreneurial skills and competencies. Mansor and Othman (2011) concurred the same, where they found the level of entrepreneurship knowledge among TVET students (Polytechnic) moderate and several elements involving entrepreneurship skills or knowledge have yet to be mastered by most students. Similar findings are disclosed by Othman and Nasrudin (2016), where most TVET students (Polytechnic) did not efficiently master basic entrepreneurship knowledge. These discoveries herald some forms of impotence in the current EE of the TVET program, and institutions' instructional elements are regarded as the underpinned cause (Ajigo et al., 2018; Ernest, 2010; Nkirina, 2010; Othman & Nasrudin, 2016; Samuel et al., 2013). This study, therefore, seeks to assess the extent of the four instructional elements, i.e. content, teaching methods, infrastructure facilities and learning assessments of EE in a TVET program of a private technical university in Malaysia. Research on EE and TVET in Malaysia is primarily found within Polytechnic institutions (Ismail, 2010; Mansor & Othman, 2011; Othman & Nasrudin, 2016). Little, however, are focused on other higher TVET institutions, i.e. technical universities. It is imperative to have investigations conducted into other higher TVET institutions for a greater picture of the state of EE when offering alongside a TVET program.

2. Literature Review

Entrepreneurship Education (EE): UNESCO/ILO Global (2006) refers to EE as a set of formalized teachings that informs, trains, and educates learners interested in contributing to socioeconomic development via a project that promotes entrepreneurship awareness, business creation or small business development. Wilson (2009) regards EE as the development of attitudes, behaviors and capacities that can be applied during an individual's career as an entrepreneur. Ndofirepi (2020) argues that the EE notion stretches beyond merely teaching students to start a new business to incorporate other rich learning experiences that are gained from an educational environment – EE is interventions that promote self-reliance, awareness of opportunity, adaptability to change, tolerance of risk and ambiguity, creation of something of value, and gain financial independence. A more recent perspective of EE is offered by Ratten and Usmanij (2021), who view EE as an experience-based learning approach characterized by interactive learning that is linked to business and community initiatives. According to Johannisson (1991), the objective of EE is to generate the right attitude and motivation toward entrepreneurship, reassure networking and contexts, awareness to act at the right time, gain knowledge and information about new business, and acquire technical and appropriate skills to develop a business.

EE cultivates innovative talents, an essential driving force for future development (Wei et al., 2019). As such, it is unsurprising to observe EE's blooming in many countries' education systems, particularly at the tertiary level. Grecu and Denes (2017) regard EE as a useful, applied approach to creating links between the academic and business communities. They believe EE equips students with abilities that increase their employment potential, abilities to solve problems, critical thinking, risk-taking and also to develop social interaction – abilities that are indispensable in navigating through the dynamic market economies given the intensified technological change and global competition brought about by globalization and economic liberalization. EE has advanced as a means to educate the new twenty-first-century workforce by giving students the skills to take any area of study or discipline and be creative, innovative, and entrepreneurial to succeed as the workforce demands change over time (Welsh et al., 2016). In their study, Rae and Woodier-Harris (2013) revealed that EE was found to influence personal growth, confidence and identity development, new career intentions and learning applications (Welsh et al., 2016). Shirandula (2022) offers interesting remarks about the benefits of EE:

"The benefits of EE are not limited to start-ups, innovative ventures, and new jobs' but rather to 'an individual's ability to turn ideas into action, and it is, therefore, a key competence for all, helping young people to be more creative and self-confident in whatever they undertake".

Entrepreneurship Education and TVET: The advent of the Fourth Industrial Revolution (IR 4.0) transformed the integration between human and machine relations. Given this and to ensure that Malaysia is not left behind in adapting to IR 4.0, the government is now placing more emphasis on technical and TVET and the strong commitment to the TVET revolution is reflected in its yearly budget – a total of RM6.6 billion (the largest allocation) has been set aside to empower TVET sector (Malaysian Investment Development Authority, 2022). The TVET prepares the students for the inexorable integration of technology brought by IR 4.0 by allowing the students to learn practical, hands-on skills that align with the needs of the industries. The rapid pace of change and broad impacts brought by IR 4.0 have challenged the labor market to an unprecedented degree, demanding specific knowledge and skills of critical thinking, creativity, and readiness for risks, all qualities connected to entrepreneurship. Consequently, through many initiatives, the Malaysian government demonstrates its compelling commitment to strengthening the EE in Malaysia within a TVET program, foreseeing the entrepreneurship potential of the TVET program.

Ibrahim et al. (2015) argue the plentiful benefits of EE to TVET students. These include increased understanding and awareness of opportunities and responsibilities to the economy and providing a solid understanding of business fundamentals. In support of innovation and employability, UNESCO-UNEVOC (2019) emphasizes the importance of EE and TVET, where EE is recognized to foster capabilities vital for work and life that may be obtained through the TVET program (Shirandula, 2022). Abdullah (2020) aptly notes that EE could open up the scope for employment for TVET graduates, and enterprising skills acquired through EE would help integrate TVET into general education and workplace learning. Most importantly, EE and TVET provide a solution to unemployment problems and a means to eradicate poverty.

Moreover, the volatile changes in the economy call for the diversification of portfolios, which necessitates technical students to have some basic managerial knowledge that will assist them in navigating the economic challenges – thus, EE is seen as beneficial to technical students (Adelaja, 2021). Byers et al. (2013) confirm that engineering students need technical knowledge and a combination of technical and managerial knowledge to survive in the dynamic market. A study by Militaru et al. (2015) revealed that EE offered to technology students enhances their creativity, innovativeness, risk-taking and intention to launch new ventures, implying the great potential of EE for the TVET program.

Despite emphasis and positive claims about the EE within a TVET program in Malaysia, findings on the research of Malaysian polytechnics, however, show that EE has little or no impact in promoting entrepreneurial behavior among the students of Malaysian polytechnics (Harun & Karim, 2004 as cited in Ismail, n.d.). Furthermore, these students are reported not to have the confidence to engage in business ventures because of inadequate entrepreneurship skills, creativity, innovation and abilities. Ismail and Ahmad (2013) describe the attributing causes as follows:

"the teaching method is not fully utilized, and the concept of entrepreneurship has been explained in a manner that is too vague, abstract and therefore is difficult to understand. Only entrepreneurship theory is taught, but no practical training and implications are discussed in lectures series".

Juhari et al. (2023) highlight that Malaysia's technical-vocational colleges have not fully acknowledged the importance of EE. According to a study by the Institute of Labour Market Information and Analysis (an independent, national center of excellence under the direct purview of the Ministry of Human Resources, Malaysia) in 2018, TVET graduates had reported low adaptability and critical thinking skills (Halik Bassah & Mohd Noor, 2023), the two essential employability skills that highly connected to entrepreneurship. These shed grave concerns about the successful embedding of EE within a TVET program in Malaysia, thus warranting more evidence of research to clarify the issues.

Entrepreneurship Education and Instructional Elements: A central element of facilitating sustainable and effective EE, including content, teaching methods, resources (i.e. infrastructure facilities) and assessments (Jones & English, 2004; Taatila, 2010). Shirandula (2022) believes that the success of EE subject is contingent not only on selecting an appropriate model but also on the instructional elements, namely the content, teaching techniques, learning resources and evaluation methods. Abdullah (2020) highlights the four main components of the implementation model within a TVET program: content, teaching methods, resources and assessment. In a similar view, Othman and Nasrudin (2016) claim that instructional elements such as contents, methods of program delivery and infrastructure facilities in any entrepreneurship program are essential in supporting EE. Sequel to these assertions, this study will focus on the four essential instructional elements of EE, i.e. (1) content, (2) teaching methods, (3) infrastructure facilities, and (4) learning assessments. The following section offers a description of these four elements.

The Instructional Elements-Content: Abdullah (2020) defines content as the knowledge, skills, attitudes, and values to be learned and describes the content of EE in the TVET environment can be categorized into three: (1) the personal development (delves into the concepts entrepreneurship), (2) skills development (highlights characteristics of an entrepreneur) and (3) enterprise development (initiation and management of business venture). Syed (2015) asserts that the content of EE subjects has been identified as a crucial factor in EE fostering entrepreneurial abilities. Fayolle and Gailly (2008) offer specific design criteria that should be embedded in the EE content – the contents should cover skills and knowledge related to four domains:

- Know-what: aspects that clarify the what of being an entrepreneur;
- Know-how: the ability to handle diverse situations;
- Know-who: the capacity to network;
- Know-why: the ability to contextualize the psychology and behavior of entrepreneurs; and
- Know-when: the intuition to know when to seize entrepreneurial opportunities.

It is believed that the contents of EE should offer a real-world entrepreneurial experience, thereby increasing students' interest in deepening their knowledge and entrepreneurial skills (Othman & Nasrudin, 2016).

The Instructional Elements–Teaching Method: Teaching methods have long been acknowledged as critical instructional elements of methodologies that support educational ideals (Shirandula, 2022). Johnson et al. (2015) argue that the best way to develop entrepreneurial skills is to expose students to real work environments where they can practice what they have learned in class to allow them to embrace a culture of flexibility and experimentation. Abdullah (2020) highlights some of the teaching methods of EE that are appropriate within a TVET program, among others, are apprenticeship, case-based, field studies, boot camp, and make a pitch. Mansor and Othman (2011) found that teaching methods based on consulting could positively affect EE from the perspective of providing awareness and guidance to students to run real businesses.

According to Othman & Nasrudin (2016), practical education through experience is as important as the theoretical and cognitive factors that should be emphasized in the EE programs. Hägg and Kurazewska (2020) highlight the importance of the suitability of EE teaching methods to correspond to learners' abilities. Three aspects of entrepreneurship teaching methods are highlighted by Esmi et al. (2015):

- **Direct:** methods that promote direct exposure, which includes mentorship, guest entrepreneurs, video shooting and shows;
- **Interactive:** includes methods such as networking and group discussions; and
- **Practical-operational:** includes methods of site visits, internships, research projects, business planning, investment projects, starting a business, and role-playing.

The Instructional Elements–Infrastructure Facilities: According to Luthjie and Franke (2003), education institutions must offer entrepreneur initiatives by creating physical convenience facilities to facilitate entrepreneurship training programs. In his research, Kamarudin (2010) demonstrated the importance of ideal infrastructure facilities for enhancing student achievement in a community college in Malaysia. These emphasized the essential ambiance in developing entrepreneurship infrastructure facilities to accommodate students' entrepreneurship work. It can be safely deduced that infrastructure facilities provide opportunities for students to attain an ideal entrepreneurship experience (Idogho & Omozuawo, 2011; Kamarudin, 2010; Othman & Nasrudin, 2016).

Much literature identifies infrastructure facilities as imperative to the effective implementation of EE. Othman (2002) found that infrastructure facilities and resources available in polytechnics were less conducive toward entrepreneurship when the administrative departments provided less focus on the aforementioned facilities, thus hindering EE implementation's optimization. According to Abdullah (2020), some resources that need to be carefully planned and managed to facilitate EE implementation are the library, lecturers, finances, workshops and equipment. Bwisa (2017) suggested that institutions provide information resource centers to expose students to start-up businesses, such as business incubators, which can help them acquire and develop entrepreneurial skills (Shirandula, 2022). Othman and Nasrudin (2016) confirm that entrepreneurship incubators provide opportunities for students to acquire hands-on entrepreneurship experience.

Lack of adequate resources limits teaching effectiveness, lowering students' self-efficacy (Mkala & Wanjau, 2013). Institutions, therefore, must recognize that adequate and high-quality resources are crucial to providing quality EE (Wibowo et al., 2018), mainly when offered alongside a TVET program, and institutions should prioritize investing in high-quality resources (Shirandula, 2022).

The Instructional Elements–Learning Assessments: Written exams are frequently used to assess EE courses (Shirandula, 2022). Nevertheless, written tests have been criticized for their failure to accurately and efficiently measure the learning of entrepreneurial skills in EE (Mwasalwiba, 2010). Given the constraints of written exams, business plans or projects are regarded as a more realistic and successful alternative to evaluate the acquisition of entrepreneurial abilities (Syed, 2015).

Pittaway and Edwards (2012) indicate that the conceptualization of evaluation methods should be based on three key entrepreneurship learning outcomes: (1) learning about, (2) learning in, and (3) learning for. Shirandula (2022) explains the first outcome as assessments, including tests, examinations, class participation, and writing essays/term papers on entrepreneurship. The second outcome is measured through group/individual presentations, case studies and interpretation of financial statements, whilst the third outcome consists of assessments such as business plans, business reports, entrepreneurship projects, and entrepreneurship attachment field reports.

3. Research Methodology

This study is based on an interpretive approach, employing a qualitative method of group interviews. The interview is aimed at obtaining students' impressions and opinions about the four instructional elements of EE, i.e. content, teaching methods, infrastructure facilities, and learning assessments following the prevailing themes as suggested by Abdullah (2020), Othman and Nasrudin (2016), and Shirandula (2022). The method was deemed to be appropriate for the study as it allows the students to be spontaneous and, therefore, would reflect their genuine opinions and feelings about the topic under discussion, apart from the fact that it provides reasonably dependable data within a short time frame.

The purposive sample was drawn from a group of students from a private technical university in Kuala Lumpur, Malaysia, who were enrolled in an entrepreneurship course alongside TVET courses. The private technical university is one of the leading universities in engineering technology, established in the last two decades in Malaysia. The university molds its graduates with strong technological knowledge and astute entrepreneurial skills to fulfill the demands of the industries. By specializing in engineering technology, the technical university aims to provide entrepreneurial technopreneurs and technologists in the electrical, electronics, medical electronics and telecommunications sectors. With the vision to be the leading entrepreneurial technical university, this university aims to produce more global technopreneurs with an advantage of its technical and vocational knowledge. The university offers various foundation, diploma, undergraduate and postgraduate programs. A total of four group interviews were conducted during the period of two tutorial classes. Each group comprises six to ten students, totaling 37 TVET students, with 20 males and 17 females. These students were in their year three and attended an entrepreneurship course, technopreneurship of two credit values. Every interview session was tape-recorded and took approximately one hour to complete. Written consent was obtained from each student, including the lecturer, prior to the interview.

The interview was structured into two parts. The first part aims for the ice-breaking session and generally seeks demographic information about the students and their previous ENT exposure (if any). The second covered questions on the four instructional elements. The content includes questions on the compatibility of the course contents with the program objectives and the sufficiency of entrepreneurship skills exposure. Teaching methods deal with questions on teaching delivery and the student's learning experiences. Infrastructure facilities questions delve into the availability and adequacy of resource support for the EE. Whilst learning assessment questions concern the existing assessments of the entrepreneurship course.

To ensure the reliability and validity of the findings, each step of the data-gathering process was documented, all transcripts were transcribed and codified as soon as possible, and the transcriptions were checked by the interviewers by iterative listening to the audio recordings. The data were analysed to the thematic approach uses six steps of data analysis (Braun et al., 2019):

Step 1: Familiarising with the data.
The output from the group interviews was analyzed by reading and re-reading the data to gain a sense of its content. This first step has familiarised and identified sections discussing EE's instructional elements.
Step 2: Generating initial codes.
The second step allowed the process of coding the data. We extracted quotes or sections relevant to EE's instructional elements by generating initial codes.
Step 3: Searching for themes and collating codes.
This step showed a diversity of themes, including references to specific contents and teaching methods, infrastructure facilities, learning assessments, challenges, feedback, and recommendations. We searched for themes by looking at the relevant patterns, repetitions and similarities as our collating coded data.
Step 4: Scrutinising themes and subthemes.
Within the identified themes, we reviewed and refined our emerged themes against our coded data. This step includes closely scrutinizing themes and subthemes and ensuring that each theme captures a coherent and meaningful aspect of instructional elements of EE.
Step 5: Clarifying themes.
The evaluation and clarification of themes allowed our team to define each theme based on the repetitive patterns of our data. For example, the identified themes could encompass codes for how students appreciate the contents and teaching methods that accommodate diverse student backgrounds and learning styles. We gave each theme a clear and relevant name that directly reflects its content.
Step 6: Reporting the analysis.
We structured our report around each emerging theme from our collected data. For each theme, we provided an introduction, showed linkages, and explained its relevance to our research context. To add credibility and rigor to our data analysis, we supported our findings and reported the analysis with suitable and relevant quotes or excerpts from the data in the voices and experiences of our participants, which illustrate the clarifying themes. We presented the evidence from our data (quotes, excerpts, descriptions) that support the

existence and importance of each theme. The following section will present and discuss the empirical findings and discussions.

4. Results and Discussion

The group interviews resulted in meaningful contributions to exploring the state of the four instructional elements of EE in a TVET program. Following are the results and discussion presented in the respective instructional elements section.

The Contents: Contents refer to the suitability, exposure, development, theories, practical aspects and cultivation of entrepreneurship (Othman & Nasrudin, 2016). The content for EE should equip students with the knowledge and skills to start a business or change how they think and behave to be an entrepreneur (Rakesh et al., 2015). Specifically, content for EE explores whether sufficient exposure to entrepreneurship skills and concepts is imparted.

Some students described how EE has helped them change their thinking and mindset as TVET students toward entrepreneurship. A student has clearly explained how one of the contents helped with entrepreneurship knowledge by preparing and presenting a poster. S/He explained,

"We must create one project like our Final Year Project (FYP). In my project, we want to introduce travel bags for travellers. We need to think about the benefits of having travel bags that are different from other travel bags. The subject makes us think about the future: what is the prospect of that travel bag".

Thinking for the future shows the entrepreneur learning process as an entrepreneurial way of acting (Lenita & Taina, 2015). Hunter and Lean (2018) acknowledge EE learning process delves deeper towards entrepreneur skills for self-reliance and success in business. As a result, contextual learning in EE is a method of thinking and acting where students can reflect on their abilities to practice entrepreneurial activities.

Holcomb et al. (2009) identify the entrepreneurial learning process, which emphasizes exploring opportunities, reflection, managing new information and organizing knowledge to support decisions and actions. EE maintains an integral basis for expanding and acquiring new knowledge on entrepreneurship. This is supported by many students who focus on the relevance of EE. S/he said,

"By having entrepreneurship knowledge, who knows, one day, we will become an entrepreneur and have our own company. As my other friend said, we might just hire other professionals to do accounting jobs. However, as the company's owner, we need to know at least the basic information about accounting. Not so in-depth, but you must have the knowledge and awareness".

Previous research has highlighted that EE helps to facilitate economic growth and development (Gorman et al., 1997; Milius & Sarkiene, 2008). Promoting EE among students has helped foster entrepreneurial attributes, behaviors and attitudes, and the entrepreneurial process could bring several economic benefits in return. Several students acknowledged the importance of learning EE together with their technical studies. One student indicated,

"This subject is closely related to business. We can benefit from the subject if we cannot get any technical jobs in the future. At least, it serves as a backup plan for us if we cannot get any engineering job".

This supports the suggestion that EE could bring several economic benefits in return when the technical students are willing to enter the job market with some business-oriented ideas in their minds. Indeed, some students acknowledge the economic benefits in return as they specify the entrepreneurship mindset upon graduation. Thus, the students are open to any job opportunities, including business, not only focusing on technical or engineering jobs.

In one area, students compare EE with another non-TVET subject. The non-TVET subject includes the Essential Management Principle (EMP), as many students feel it helps them to initiate engagement for ENT learning. One student clarified,
"So, it starts with the EMP subject, then technopreneurship and after this innovation. Nevertheless, based on our previous syllabus, we have less exposure to financial management. As for this semester, we learn more detail about financial management in technopreneurship. We link directly to entrepreneurship and becoming more efficient towards it".

The content, in particular, indulges the students with various entrepreneurship skills and traits, i.e., critical thinking, willingness to take risks, and business thinking patterns (Daniele, 2017; Hunter & Lean, 2018). A student admits that,

"TVET students benefit so much in learning entrepreneurship subjects. As technical students, we learn everything about technical things. Having knowledge of entrepreneurship and how to do business aids our curiosity about whether the product that we are going to produce is worth selling. We can be an entrepreneur engineer".

Some students, however, expressed different views about the content. They felt that the content was inadequate to equip them with entrepreneurship skills due to other subjects' commitment,

"There are many unfamiliar entrepreneurship areas which we found difficult to comprehend. We have to accommodate plenty of assignments and projects that ran simultaneously".

Several others pointed out that the entrepreneurship subjects are not appealing to them,

"The content is pretty boring. But it depends on the individual lecturer…their teaching delivery. Few are good…they managed to make the subject more interesting".

"I will have no intention of attending the entrepreneurship class if the attendance is made voluntarily. I feel the focus should be given to the core subjects (i.e. TVET subjects)".

Some students even expressed less enthusiasm for the subject when comparing it with their other technical subjects as having more priority,

"I must attend the class for my technical subjects because we need to do the practical subjects in class. Or else we do now know how to do it. However, for entrepreneurship subject, although I do not come to class, I can just read it from books".

The findings on the content confirm a mixture of views from the students. Some were fascinated by entrepreneurship, whilst others were not. Within the study context, the findings provide evidence that the program content should be redesigned to cultivate passion among TVET students to pursue entrepreneurship. Suitable entrepreneurship content geared toward the non-business (TVET) background can change the perception and enhance the student's interest in entrepreneurship (Othman & Nasrudin, 2016).

Teaching Methods: EE teaching methods generally include lecture tutorials and class discussions. It also refers to the student-centered learning strategy: learning based on experience, visits, training, simulations and projects (Othman & Nasrudin, 2016).

One area that is pertinent to highlight indicates the importance of prior entrepreneurship experiences and relevant education of the entrepreneurship lecturer. In this study, the entrepreneurship lecturer is a Master of Business Administration (MBA) holder and owns a printing business. While the lecturer needs to be exposed to the 'technical minded' of TVET students, her knowledge and experience in the entrepreneur field significantly impact her students.

As the subject is complicated enough for the TVET students, they verify that the lecturer plays an essential role for them to get familiar with the subject. One view responds,

"Our lecturer will guide us one by one on how to do the business plan, the report, presentation slides and many others".
Another student supports the view,

"Although we think this subject is boring for a technical student, however, lecturer plays a role in motivating and encouraging us to learn this subject. Then, it should not be any problem".

It is argued that the effectiveness of learning EE subjects cannot be successfully achieved as most lecturers still use conventional teaching and apply less experience-oriented methods to save time (Othman & Nasrudin, 2016). This argument has implications for some students as some lecturers still maintain the conventional way of teaching and do not use experience-based teaching and learning methods. In a similar view, other student highlights:

"Some lecturers tend to read slides during the lecture. We look forward to young lecturers, particularly those with entrepreneurship experiences".

Some other students also comment that,

"Some lecturers like to talk about the big world problems and concepts. I think they must adapt to the latest trend and economic position to keep up with us".

A competent and knowledgeable lecturer to teach EE is needed by TVET students to 'spark' the interest and motivation to engage more with entrepreneurial learning. This finding goes further with a study by Nasrudin and Othman (2012). The study speculates that problems in EE somehow result from the incompetence of an educator, being less skilled in practicalities; less committed and had less experience in the business. Ismail and Ahmad (2013) found that most of the instructors needed to be better equipped in entrepreneurship, and some of the coordinators of entrepreneurship activities were not trained in entrepreneurship but in engineering or other disciplines, results that somewhat corroborated with the study.

Further investigation revealed a lack of various teaching approaches employed by the entrepreneurship lecturer:

"None of our class activities includes sharing knowledge by real entrepreneurs…but…university sometimes offers talk session where entrepreneurs are invited as speaker".

"We do have company visit before, but it was arranged under a different subject. The focus is on human resource areas, not entrepreneurship".

The above findings signify that most students expect their entrepreneurship lecturers to have prior business experiences. Favorable teaching methods for entrepreneurship, such as experiential learning, case studies and simulation, should be attempted (McLarty et al., 2010). Entrepreneurship lecturers should also limit the use of textbooks and lecture materials, instead inviting real entrepreneurs to be lecture guests to motivate and share real-life experiences with the students so that they can set an example of success and act as role models (Othman et al., 2012).

Infrastructure Facilities: Lenita and Taina (2015) describe infrastructure facilities are essential for the students to acquire a conducive learning atmosphere to learn EE. Having 'conducive' infrastructure, facilities, and resources influences the students' development to attain hands-on entrepreneurship experience.

Most students are being modest when talking about infrastructure facilities. Although EE is mostly theoretical based compared to other TVET subjects, most students perceived the infrastructure facilities provided by the institution as average. One student in particular said,

"I believe the facilities and resources for the subject are sufficed as it is mostly theoretical and less practical than any other subject".

To stress their modesty,

"Although the facilities are not superb, we accept it at par as long we can finish and enjoy the subject".

To further signify the average infrastructure facilities in the institution, one student claims:

"For printing, we prefer to have it done outside. Service is friendlier, cheaper and faster".

Some recommendations, however, have been highlighted. One student suggests that,

"The management needs to create a platform for us to start our business. For example, by providing more stalls to sell our product. With more stalls, the students will have the opportunity to do business and also create networking. It is called business networking".

In another area, some students claim that the current cooperative shop on the campus serves an 'outdated' product with less attractive stock. The customer service also needs to be improved as the students can evaluate the services delivered by the cooperative shop. The suggestions indirectly indicate that the students observe the conduct of operating businesses on campus. It demonstrates a deeper understanding of EE by connecting a business operation with human interaction (Grytnes et al., 2018). Analysis and observation highlights from the findings promote various skills and traits for an entrepreneur.

Students mentioned the critical role of the Technopreneurship Club on campus. They strongly believe the club plays a vital role in cultivating entrepreneurship experience. One student implies,

"Sometimes the club will invite our alumni who became an entrepreneur. If I'm correct, for a printing company. They tell us their story of becoming entrepreneurs, and we got a free coupon!"

The session presents a platform for the students to learn about the entrepreneurial experience from their seniors. Thus, entrepreneur learning based on experience is closely connected to the implementation of EE (Ruskovaara & Pihkala, 2013).

Overall, most students perceived the current infrastructure facilities offered in their institution as average and expected improvement. Infrastructure facilities are significant to facilitate the EE. Research confirmed the association between ideal infrastructure and facilities and students' entrepreneurship development (Kamaruddin, 2010; Othman et al., 2012).

Learning Assessment: It is essential to note that the learning assessment for EE cannot be 'one size fits all' because it needs to be tailored to where the learning environment is operated (Morselli, 2019). Because the private technical university is a leading university in engineering technology, the focus on learning assessment of EE needs to be assessed on initiative and entrepreneurship among students in their educational settings of engineering technology. The entrepreneurship subject enrolled is widely known as technopreneurship. Students competently explained their EE project by reconsidering the usage of future engineering technology. One particular example,

'We need to create a prototype model of a travel bag. While considering how to do that model prototype, we must also consider the prospect of selling that product as a business. We need to consider all aspects of entrepreneurship, our (potential) or target customer, the marketing activities and many others.

By combining the student's core knowledge of technology engineering with EE, students can value learning assessment that promotes a sense of initiative and entrepreneurship (Pittaway, 2019). Thus, it promotes learning EE among engineering students.

The critical competencies in EE also be tested for its learning assessment. Introducing EE to technical and engineering students can imply a shift in knowledge, skills and attitudes essential to developing students' competencies. Looking at the background of her family business, one student competently explained how and what EE has impacted her as an engineering student.

'The assessment from this subject made me learn much about doing business. Especially on pricing, I learned how to put an appropriate price, the pricing strategy, the product's location, how we should deliver the product and many more.

Indeed, the learning assessment represents the learning outcomes for the EE subject: to focus on developing attributes of entrepreneurs seeking viable opportunities into a successful business.

5. Managerial Implications and Recommendations

This study offers relevant inputs for the TVET stakeholders, including regulators, policymakers, industries, communities and TVET institutions, in particular, for EE to be effectively positioned within a TVET program. It is worth noting that RM4.5 billion is spent yearly by the government on TVET (Surendran, 2018). Thus, poor integration of EE into the TVET program could result in a potential loss of investment. This study also enlightens researchers seeking to further examine EE within a TVET institution.

Whilst this study may have provided empirical contributions in several respects, it is subject to certain limitations in terms of the scope and extent of the sample drawn. The coverage of the TVET students included was constrained by practical issues concerning access to the TVET institution and the time available. Certainly, confinement to a single TVET institution restricts the findings reported in this study. Future research could expand the number of TVET students to include TVET students from different technical programs and extend to other higher TVET institutions, such as community and vocational colleges, to offer rigorous grounds of assessment.

Conclusion and Recommendations: This study analyzed the extent of the four instructional elements, i.e. content, teaching methods, infrastructure facilities, and learning assessment of EE in a private technical university in Malaysia. The findings mark a few meaningful points. First, it supports that the four instructional elements as significant in facilitating the development of entrepreneurship skills among TVET students. Secondly, the content should be redesigned and tailored to the readiness of TVET students. Enterpreneurship subjects should be positioned as equally crucial to the TVET subjects. The number of course assessments (including TVET and entrepreneurship courses) should be rethought, focusing on their quality rather than quantity. Too many assessments would lead the students to neglect their entrepreneurship course to a certain degree, whilst the focus will be their TVET courses, consequently hampering the development of EE. Third, more favorable (i.e., action-based) and a variety of teaching approaches should be conducted to entice the TVET students towards entrepreneurship. Teaching delivery that accommodates the preferences of Generation Y (the generation that participated in the study) and the younger generation should be devised. Collaborative efforts with other higher TVET institutions or non-TVET institutions (universities that offer entrepreneurship programs) should be accounted for. Fourthly, the TVET institutions must specify prior entrepreneurship experiences and relevant business qualifications to qualify as an entrepreneurship lecturer. Finally, infrastructure facilities must be ideal for entrepreneurship culture to take effect in the TVET institution. TVET institutions should consider architecting their landscape that simulate an entrepreneurship environment to instill entrepreneurial spirit and attitudes.

In conclusion, this study, at least within its context, renders the need for EE in the TVET program to be rejuvenated. The current threshold of the four instructional elements should be lifted to yield greater potential for EE when offered alongside the TVET program. The efforts, however, demand multi-level engagements and links between the TVET stakeholders collectively to prevail in the greatness that EE could bring into the TVET program.

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References

Abdullah, S. (2020). Entrepreneurship education in technical vocational education and training (TVET) and models of implementation [Unpublished manuscript]. Commerce Department, Politeknik Ungku Umar, Ipoh, Malaysia.

Adelaja, A. A. (2021). Entrepreneurial education exposure: A comparative investigation between technical and nontechnical higher education. *Journal of Small Business and Enterprise Development,* 28(5), 711-723.

Ajigo, I., David Asuquo, E. & Christiana Oliver, A. (2018). Quality implementation of technical and vocational education and entrepreneurial skill acquisition for technology and economic development in Nigeria. *International Journal of Scientific Research and Management,* 6(1).

Braun, V., Clarke, V., Hayfield, N. & Terry, G. (2019). Thematic analysis. In P. Liamputtong (Eds.), Handbook of Research Methods in Health Social Sciences. Springer.

Byers, T., Seelig, T., Sheppard, S. & Weilerstein, P. (2013). Entrepreneurship: Its role in engineering education. *The Bridge,* 43(2), 35-40.

Daniele, M. (2017). How do Italian vocational teachers educate for a sense of initiative and entrepreneurship? Development and initial application of the SIE questionnaire. *Education + Training*, 60(7/8), 800-818.

Daniele, M. & Annamaria, A. (2016). Assessing the sense of initiative and entrepreneurship in vocational students using the European qualification framework. *Education + Training,* 58(7/8), 797-814.

Ernest, S. M. (2010). Entrepreneurship education: A review of its objectives, teaching methods and impact indicators. *Education +Training,* 52(1), 20-47.

Esmi, K., Marzoughi, R. & Torkzadeh, J. (2015). Teaching-learning methods of an entrepreneurship curriculum. *Journal of Advances in Medical Education & Professionalism,* 3(4), 172-177.

Fayolle, A. & Gailly, B. (2008). From craft to science: Teaching models and learning processes in entrepreneurship education. *Journal of European Industrial Training,* 32(7), 569-593.

Gorman, G., Hanlon, D. & King, W. (1997). Some research perspectives of entrepreneurship education, enterprise education and education for small business management: A ten-year literature review. *International Small Business Journal,* 15(3), 56-77.

Grecu, V. & Denes, C. (2017). Benefits of entrepreneurship education and training for engineering students. MATEC Web Conference. https://www.matec-conferences.org/articles/matecconf/pdf/2017/35/matecconf_mse2017_12007.pdf

Grytnes, R., Grill, M., Pousette, A., Törner, M. & Nielsen, K. J. (2018). Apprentice or student? The structures of construction industry vocational education and training in Denmark and Sweden and their possible consequences for safety learning. *Vocations and Learning,* 11(1), 65-87.

Hägg, G. & Kurazewska, A. (2020). Guiding the student entrepreneur – Considering the emergent adult within the pedagogy-andragogy continuum in entrepreneurship education. *Education + Training,* 62(7/8), 759-777.

Halik Bassah, N. A. & Mohd Noor, M. A. (2023). Employability skills needed for TVET graduates in Malaysia: Perspective of industry expert. *Online Journal for TVET practitioners,* 8(1), 52-59.

Holcomb, T. R., Ireland, R. D., Holmes JR, R. M. & Hitt, M. A. (2009). Architecture of entrepreneurial learning: Exploring the link among heuristics, knowledge, and action. *Entrepreneurship Theory and Practice,* 33, 167-192.

Hunter, L. & Lean, J. (2018). Entrepreneurial learning–a social context perspective: evidence from Kenya and Tanzania. *Journal of Small Business and Enterprise Development*, 25(4), 609-627.

Ibrahim, W. N. Z., Bakar, A. R., Asimiran, S., Mohamed, S. & Zakaria, N. S. (2015). Impact of entrepreneurial education on the entrepreneurial intention of students in technical and vocational education and training institutions (TVET) in Malaysia. *International Education Studies,* 8(12), 141-156.

Idogho, P. P. & Omozuawo, S. E. (2011). Challenges and prospects in the training of youths in entrepreneurial skills. *Discourse: An International Journal,* 11(33), 66-74.

Ismail, M. Z. (2010). Developing entrepreneurship education: Empirical findings from Malaysian polytechnics [Unpublished doctoral dissertation]. University of Hull.

Ismail M. Z. (n.d.). Entrepreneurship education in Malaysian Polytechnic: A pedagogical approach. https://www.academia.edu/11903866/Entrepreneurship_Education_in_Malaysian_Polytechnic_A_Pedagogical_Approach

Ismail, M. Z. & Ahmad, S. Z. (2013). Entrepreneurship education: An insight from Malaysian polytechnics. *Journal of Chinese Entrepreneurship,* 5(2), 144-160.

Johnson, S., Snowden, N., Mukhuty, S., Fletcher, B. & Williams, T. (2015). Entrepreneurship skills: Literature and policy review. Department for Business Innovation and Skills. Hull University Business School Research Report no. 236.

Johannisson, B. (1991). University training for entrepreneurship: A Swedish approach. *Entrepreneurship and Regional Development,* 3(1), 67-82.

Jones, C. & English, J. (2004). A contemporary approach to entrepreneurship education. *Education + Training,* 46(8/9), 416-423.

Juhari, H. S., Ismail, N., Roslan, S. & Zaremohzzabieh, Z. (2023). Personality traits, entrepreneurial self-efficacy, and entrepreneurial intention among vocational students. *International Journal of Evaluation and Research in Education,* 12(1), 9-14.

Kamarudin, M. T. (2010). Penilaian Pembangunan Kemahiran Generik dalam Kalangan Pelajar Tahun Akhir Kolej Persekitaran Luar Kementerian Pengajian Tinggi [Unpublished doctoral dissertation].Universiti Kebangsaan Malaysia.

Lenita, H. & Taina, J. (2015). Contextualizing entrepreneurial learning in basic and vocational education. *Journal of Enterprising Communities: People and Places in the Global Economy,* 9(1), 45-60. doi:10.1108/JEC-03-2013-0006.

Luthje, C. & Franke, N. (2003). The making of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT, *R&D Management,* 33(2), 135-147.

Malaysian Investment Development Authority. (21 February 2022). Not second-class: In the world of I.R 4.0, TVET is vital to meet the industry needs. https://www.mida.gov.my/mida-news/not-second-class-in-the-world-of-ir4-0-tvet-vital-to-meet-industry-needs/.

Militaru, G., Pollifroni, M. & Niculescu, C. (2015). The role of technology entrepreneurship education in encouraging to launch new ventures, November, Balkan Region Conference on Engineering and Business Education, 1(1). De Gruyter Open, available at: https://www.researchgate.net/profile/Massimo_Pollifroni/publication/291952113_The_Role_of_Technology_Entrepreneurship_Education_in_Encouraging_to_Launch_New_Ventures/links/56af508b08aeaa696f2fe3b6.pdf.

Milius, P. & Sarkiene, J. (2008). Entrepreneurship Training for Innovative Start-Ups: The KTC Case. In: van der Sijde, P., Ridder, A., Blaauw, G., Diensberg, C. (Eds.) Teaching Entrepreneurship. Contributions to Management Science. (pp. 23-33). Physica-Verlag HD.

Mansor, M. & Othman, N. (2011). CoBLAS: Inculcating Entrepreneurial Culture among Higher Education Institutions' Students. *International Journal of Social Science and Humanity,* 1(1), 86-91.

Mkala, D. M. & Wanjau, K. (2013). Transforming Implementation of Entrepreneurship Education Program in Technical Training Institutions in Kenya. *European Journal of Business and Innovation Research,* 1(3), 18-27.

Mwasalwiba, E. (2010). A review of its objectives, teaching methods, and impact indicators. *Journal of Education and Training,* 52(1), 20-47

McLarty, L., Highley, H. & Alderson, S. (2010). Evaluation of enterprise education in England, Research Report No. DFE-RR015, available at: http://dera.ioe.ac.uk/837/1/DFE-RR015.pdf.

Morselli, D. (2019). The Assessment of Entrepreneurial Education. In: The Change Laboratory for Teacher Training in Entrepreneurship Education. SpringerBriefs in Education. Springer, Cham. https://doi.org/10.1007/978-3-030-02571-7_2

Nasrudin, N. & Othman, N. (2012). Entrepreneurship Program Evaluation in Polytechnics: Teaching Staff's Perspectives. International Conference on Economics, Trade and Development, Singapore.

Nkirina, S. P. (2010). The challenges of integrating entrepreneurship education in the vocational training system: An insight from Tanzania's vocational education training authority. *Journal of European Industrial Training,* 34(2), 153-166.

Ndofirepi, T. M. (2020). Relationship between entrepreneurship education and entrepreneurial goal intentions: Psychological traits as mediators. *Journal of Innovation and Entrepreneurship*, 9(1), 1-20. https://doi.org/10.1186/s13731-020-0115-x.

Othman, N. (2002). Keberkesanan programme keusahawanan remaja di sekolah menengah [Unpublished doctoral dissertation]. Universiti Putra Malaysia, Serdang.

Othman, N. & Nasrudin, N. (2016). Entrepreneurship education programs in Malaysian polytechnics. *Education + Training,* 58(7/8), 882-898. doi:10.1108/ET-11-2014-0136.

Othman, N., Hashim, N. & Ab Wahid, H. (2012). Readiness towards entrepreneurship education. *Education+Training,* 54(8/9), 697-708.

Pittaway, L. (2019). Assessment in Entrepreneurship Education. In: Peters, M., Heraud, R. (Eds.) Encyclopedia of Educational Innovation. Springer, Singapore. https://doi.org/10.1007/978-981-13-2262-4_175-1

Pittaway, L. & Edwards, C. (2012) Assessment: examining practice in entrepreneurship education. *Education + Training,* 54(8/9), 778-800.

Rae, D. & Woodier-Harris, N. R. (2013). How does enterprise and entrepreneurship education influence postgraduate students' career intentions in the New Era economy? *Education + Training*, 55(8/9)926-948.

Ratten, V. & Usmanij, P. (2021). Entrepreneurship education: Time for a change in research direction? *The International Journal of Management Education,* 19(1). https://doi.org/10.1016/j.ijme.2020.100367.

Ruskovaara, E. & Pihkala, T. (2013). Teachers implementing entrepreneurship education: classroom practices. *Education+ Training,* 55(2), 204-216.

Samuel, Y. A., Ernest, K. & Awuah, J. B. (2013). An assessment of entrepreneurship intention among Sunyani Polytechnic marketing students. *International Review of Management and Marketing,* 3(1), 37-49.

Shirandula, D. (2022). Influence of entrepreneurship education instructional elements' on food and beverage students' level of entrepreneurial skills acquisition in technical and vocational colleges in the Nairobi Metropolitan Region, Kenya [Unpublished doctoral dissertation]. Moi University Kenya.

Surendran, S. (2018, June 25). Government steps up efforts to reform TVET in Malaysia. The Edge Malaysia. https://theedgemalaysia.com/article/government-steps-efforts-reform-tvet-malaysia

Syed, Z. A. (2015). Entrepreneurship Education in Tourism and Hospitality Programs, *Journal of Hospitality & Tourism Education,* 27(1), 20-29.

Taatila, V. P. (2010). Learning entrepreneurship in higher education. *Education + Training,* 52(1), 48-61.

TheSunDaily. (2017). TVET providers to ensure IR 4.0 well understood: Riot. The Sun. Retrieved from http://www.thesundaily.my/news/2017/12/20/tvet-providers-ensure-ir-40-well-understood-riot.

UNESCO. (2016). United Nations Educational Scientific and Cultural Organization. Retrieved from http://unesdoc.unesco.org/images/0024/002480/248073e.pdf.

UNESCO/ILO Global. (2006). In UNESCO-UNEVOC (n.d). Entrepreneurship education/training.

Wei, X., Liu, X. & Sha, J. (2019). How does the entrepreneurship education influence the students' innovation? Testing on the multiple mediation model. Frontiers in Psychology, 10, https://doi.org/10.3389/fpsyg.2019.01557

Welsh, D. H. B., Tullar, W. L. & Nemati, H. (2016). Enterpreneurship education: Process, method or both? *Journal of Innovation & Knowledge,* 1(3), 125-132.

Wibowo, A., Saptono, A. & Suparno. (2018). Does teachers' creativity impact on vocational students' entrepreneurial intention? *Journal of Entrepreneurship Education,* 21(3) 139-155.

Wilson, K. (2009). Educating the next wave of entrepreneurs: World Economic Forum Global Education Initiative. Geneva: World Economic Forum.

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The Relationship between Employability Skill and Job Mismatch towards Graduates' Unemployment

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Abstract: Academic graduates are expected to contribute more significantly to industry and the national economy by bringing in skills, knowledge, innovation, and productivity. Their role is essential in driving industrial growth, sustainability, and overall development for economic growth. However, in Malaysia, the difficulty of finding employment for graduates has become a major problem, not only from the graduates' point of view but also from the employer. While the graduates are struggling to find job openings that match their skills, the employers at the other end find it difficult to locate people who are compatible with their businesses' vision. In Malaysia, several causes contributed to an increase in the unemployment rate for recent graduates including graduates' lack of employability skills and job mismatches. Quality such as communication, soft skills, problem-solving, and creative abilities, are shown to be weak in unemployed graduates. This research attempts to examine the relationship between employability skills and job mismatches towards the graduate's unemployment. A questionnaire has been developed to gather the data. Graduates of the Faculty of Business and Management (FBM), UiTM have been identified as the population. Descriptive and regression analyses were run using SPSS software. Findings suggested that both independent variables (employability skills and job mismatches) contributed significantly towards the graduate's unemployment. This study is significant as it highlights the need for graduates to improve necessary skills such as leadership, communication, and interpersonal skills (Briones, G. et al., 2021) needed within the industry to land a job.

Keywords: *Employability, Skills, Job Mismatch, Graduates, Unemployment.*

1. Introduction and Background

Most developing countries face the issue of unemployment which has significantly affected their ability to sustain their economies (Omar & Rajoo, 2016). Unemployment is typically understood when a person is unable to secure employment that will allow them to support themselves (Chen & Chan, 2019). Greater unemployment demonstrates that its human resources are not being used effectively. Every increment in the unemployment rate will negatively affect a country's GDP significantly. Due to these adverse effects, countries should manage unemployment in the labor market. In Malaysia, unemployment among graduates has been a hot issue for many years. Graduate unemployment is defined as unemployment among people with a qualified degree of academic (Van der Berg & Van Broekhuizen, 2012). Many of them need to wait for a long time after graduation period to find a job. Usually, they need to wait for at least 6 months and more than that. According to a Malay Mail article, the number of unemployed graduates increased by 22.5% to 202,400 in persons in the year 2020 compared to 165,200 in 2019 (DOSM, 2021). Graduates Statistics 2020 reported an increment in the number of job losses and keeping rise in the country's amount of unemployment by 200,000 to 718,100 persons in 2020 (Mahidin, 2021).

Various factors lead to an increase in the unemployment rate for recent graduates in Malaysia, but the most common ones include graduates' lack of employability skills and job mismatches. Many employability skills, such as communication, soft skills, problem-solving abilities, and creative talents, are lacking in unemployed graduates (Omar & Rajoo, 2016). Thus, the mismatch occurred when there was a weak "match" between the organization's expectations of characteristics (skills required) and the graduates' expectations of characteristics (Velciu, 2017). Graduate qualities have been highlighted as a critical component in developing graduates' skills, and so educational level influences graduate unemployment. Graduates enter an organization with preconceived notions about what they can expect to receive from the firm that employs them, as well as what they believe they can contribute to the company (Nel et al., 2013). In any event, graduates anticipate the sector to provide a meaningful and demanding career, recognition, a promotion, aid from team management, and training to build soft skills (Smith & Krüger, 2005). Graduates should be able to enhance their abilities and skills in carrying out activities, assisting the company in accomplishing its goals and objectives, and maintaining a positive public image.

There are numerous reasons why graduates' unemployment remains high. One of the factors contributing to Malaysian graduates' unemployment has been recognized as graduate quality. Previous study has shown that Bangladeshi business graduates significantly lacked employability skills, including poor teamwork, poor communication and interpersonal skills, poor ability to learn and adapt to a new environment, poor negotiation skills, and poor organizing skills (Milon, M et al., 2021). Employers in the industry may give graduates negative feedback since they lack the requisite skills and talents for the position. Furthermore, graduates lack employability skills and perform poorly on work tasks (Mohd Abdul Kadir et al., 2020) Ismail & Wei Sieng, 2011). Graduates typically lack communication skills, are not fluent in the English language, lack technical knowledge and skills, and lack problem-solving abilities. According to Azman Seri Haron, president of the Malaysian Employers Federation (MEF), in Malaysia World News (2019), 73.2% of respondents' organizations stated that most graduates lacked needed skills such as problem-solving and communication abilities. Many surveys have been conducted, and the results show that graduates need to enhance their English ability to communicate effectively, and Malaysian graduates are not job-ready (Britshi, 2019). It illustrates the low level of job readiness among Malaysian graduates as a problem that must be addressed and can be described as an example of supply failing to meet demand. In this case, graduates are applying for jobs without having taken the necessary steps to acquire the skills that employers require.

In line with previous research and empirical findings, there is a link between job mismatch, employability skills, graduate qualities, and educational level and workplace unemployment concerns (Hamid, 2014). However, graduate expectations and employer expectations may differ greatly. Employers will always be looking for someone who can fit into their organization and grow into a human asset, and this truth must be embraced. Most employers will be looking for job-specific talents, but they also expect graduates to have developed a few generic skills (Rehman, 2014). Throughout the hiring process, employers may seek both employability skills and job-specific abilities. Throughout this study, unemployment reasons are examined from the perspective of graduates. Even though various factors lead to an increase in the unemployment rate for recent graduates in Malaysia, the most common ones include graduates' lack of employability skills and job mismatches. To further comprehend this issue, aspects such as employability skills and job mismatches are investigated to further imply whether these factors could explain the graduate unemployment scenario in Malaysia.

2. Literature Review

Graduate Unemployment: The factors that affect graduate unemployment have been studied by several studies formany years. Graduate unemployment is defined as unemployment among people with a qualified degree of academic (Van der Berg & Van Broekhuizen, 2012). Many of them need to wait for a long time after graduation period to find a job. Usually, they need to wait for at least 6 months and more than that. With a more difficult economic climate, it appears likely that unemployment among graduates in Malaysia will continue to rise (Husin, 2021). As mentioned by (Singh & Singh, 2008), although there is a sufficient supply of graduates in Malaysia, there is still a low level of demand. Graduate unemployment occurs when the supply of graduates is high, but the demand from the labor market is low in a particular industry, resulting in fewer jobs available in the market or industry. Competition arose because of the large number of graduates from Malaysia's many universities. Graduates must compete for jobs that are appropriate for their educational background or competence. Most graduates have no prior work experience when they begin their careers. Most job advertisements state that businesses prefer candidates with prior work experience, making it more difficult for graduates to find jobs. Some graduates who are having difficulty finding work will simply take whatever positions are available or offered to them because it takes longer to be hired in the industry that matches their education. According to a prior study, recent graduates' lack of employability skills, low English proficiency, and being overly picky on the job while requesting a higher income are all key causes of graduate unemployment (Zahiid, 2015).

Employability Skills: SCANS (1991) defines employability skills as "transferable abilities that reflect the enabling knowledge, abilities, and attitudes required for success in the workplace in the twenty-first century." Graduates must have employability skills in the twenty-first century (Humburg, Velden & Verhagen, 2013). ICT skills, technical thinking and skills, interpersonal skills, communication skills, and a willingness to learn new things are all important. A set of critical skills that will be strengthened in terms of knowledge expansion,

level of competence, and work success capabilities. Employability skills are essential qualifications for many job tasks; thus, it may be critical for a person's employment to flourish at any professional level. Being unskilled in English is one of the key causes of the high unemployment rate among Malaysian local graduates (Zainuddin, 2019). Furthermore, (Lan, et al., 2011) revealed that graduates from public colleges face difficulty with job-related tasks at the workplace, such as speaking, writing, listening, and reading in English. Following that, Malaysia realized the crucial importance of English. Students entering this program are required to be well-prepared for future professional work. A command of the language is required to properly communicate and connect with others. Graduates who succeed in relevant talents, such as communication and interpersonal skills, have a better chance of getting hired and advancing faster to the international level, but it may be difficult to anticipate those requirements from graduates.

Three types of talents are needed for 21st-century employability and are generally applicable to most jobs. Interpersonal skills are the ability to communicate with others, including teamwork and leadership qualities, which can aid in the interaction of others, which is human capital. As a result, they can aid in improving workplace performance. Intrapersonal talents include motivation, willingness to learn and embrace new developments, decision-making abilities, and analytical thinking. These abilities are essential for graduates to be more creative and to improve their general knowledge in the workplace. ICT skills entail the application of technology in accordance with the graduates' abilities, as well as the operation of ICT software and tools. These competencies are critical for determining graduates' talents and their ability to use technology in their employment. As a result, most businesses prefer to hire graduates who already have competence in Information and Communication Technology (ICT), can operate in a group team, have good interpersonal skills, and are fluent in English (Singh & Singh, 2008). Furthermore, graduates have lower employability skills and lack the ability to perform well on the job (Hossain, 2018). A graduate's employability, which may be defined as a set of employment achievements in terms of abilities, knowledge, and personal attributes (Rehman, 2014), can demonstrate the ability to be employed and prosper in one's profession, which benefits both the business and the individual.
H1: There is a significant relationship between employability skills and graduates' unemployment.

Job Mismatch: Concern over the problem of job mismatch and its effects on graduate unemployment has risen in recent years. Job mismatch is another factor contributing to the graduate unemployment crisis (Mohd Abdul Kadir, 2020; Singh, 2022; Steed, 2018; Kakooza et al., 2019 and Pitan & Muller, 2023). Employment mismatches are a new, complicated, and dynamic notion that has an impact on the employment market and the whole economy (Velciu, 2017). The role that job mismatches play in increasing graduate unemployment rates has been noted in numerous researches (Kakooza et al., 2019). A work mismatch occurs when there is an imbalance between the jobs available and the job seekers. One of the main reasons for job mismatch is the excess of graduates in some industries, which results in a lack of suitable employment possibilities for individuals with specific qualifications. It might happen when a position is listed that demands specific qualities that candidates do not have. The original definition of the word "job mismatch" was a lack of a degree in the workplace, which was associated with unemployment. It could be seen as a mismatch between job supply and demand. This oversupply of graduates has been identified as one of the key reasons for the higher unemployment rates seen in recent years. Some competitions emerge to boost job productivity and better match personnel's abilities, capabilities, and expertise.

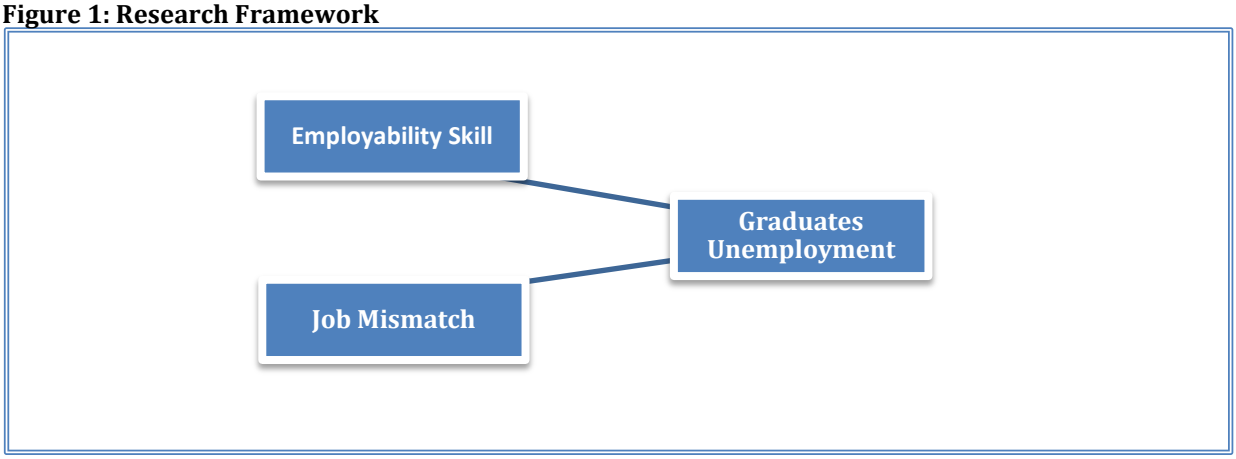
There is a significant mismatch between the workforce produced by universities and the demands of the industrial sector. The mismatch between university training and the skill sets needed by the labor market is a primary factor causing job mismatches in addition to the oversupply problem. It has been highlighted as the critical missing link in the field of education. The nation has focused a lot of attention on specialized education. According to Prof. Dr. Yeah Kim Leng of Sunway University, technical and vocational training must be provided to meet industry expectations, and the government intends to develop Technical and Vocational Education and Training (TVET) to meet industry-specific requirements (Singh, 2022). Higher education institutions must recognize the needs of the labor market and modify their courses accordingly to prevent skill mismatch which subsequently leads to graduate unemployment (Mohd Abdul Kadir, 2020). The emerging difficulty of job mismatch in the labor market is focusing on managers and human resources specialists at firms. Businesses prioritize hiring workers with job-relevant abilities when looking to cut costs and boost output. However, when graduates lack the skills needed for the open positions, there is a mismatch

between the firms' requirements and their qualifications. This matching process may take longer when there is a considerable talent mismatch, which exacerbates the problem of graduate unemployment. A dynamic labor market depends on the process of employers and graduates matching employment roles. The large quantity of talent mismatch that occurs, nevertheless, makes this matching process difficult (Chowdhury & Islam, 2021).

Finding the appropriate individuals for the right positions is becoming increasingly difficult. Qualifications and skill requirements are always evolving. Mismatching occurs when there is a lack of equilibrium between job seekers and workplaces but with a greater possibility of obtaining another job that meets the job requirements (Velciu, 2017). Education-job mismatch, qualification-job mismatch, and experience-job mismatch are the three categories of job mismatch (Mohd Abdul Kadir, 2020). Graduates who are overqualified or underqualified for the job are referred to as having a qualification-job mismatch. A mismatch between a degree earned and a job requirement is referred to as an education-job mismatch. There are worries that graduates are not adequately prepared before entering the workforce in terms of skills and knowledge. A study conducted in Nigeria found that among hired graduates in Nigeria, the skills mismatch was 60.6% with graduates' weaknesses coming from communication, information technology, decision-making, critical thinking, interpersonal relationships, entrepreneurial skills, and numeracy (Pitan & Muller, 2023). According to a study conducted by a UK university, the main issue with having a job mismatch is that the number of graduates confronted with abundance from similar courses will be limited to a few select graduates who are regarded as worthy of the position. The true problem is job mismatch, which occurs when many graduates graduate from the same course, causing companies to be more selective in hiring graduates who deserve the position (Steed, 2018). To address the issue of job-skills mismatch and reduce graduate unemployment, graduates must enhance their employability skills. By improving their skills in areas that are in high demand by employers, graduates can increase their opportunities to land a job successfully.
H2: There is a significant relationship between job mismatch and graduates' unemployment.

3. Research Methodology

Figure 1: Research Framework



As a quantitative research method, a descriptive study with a single cross-sectional design was proposed in this study. A single sample represents the respondents' target population. Information for the descriptive research on unemployment worries is acquired through questionnaire surveys. Graduates who received the survey via Google Form (GF) were asked to submit feedback on closed-ended questions. This study employs statistical methodology to analyze data, with the implementation of SPSS serving as a baseline for numerical values. The outcomes were measured using the Likert Scale and the Nominal Scale. The population consisted of graduate students from the Faculty of Business and Management (FBM) of the Universiti Teknologi MARA (UiTM) Selangor, Puncak Alam campus. In this study, the whole population consists of 1686 graduates from various courses such as Insurance, Business Economics, Finance, and many more. A total of 310 people responded to the surveys. The sample size for this investigation was calculated using Krejcie and Morgan's Table (Krejcie & Morgan, 1970).

To disseminate the questionnaires, the respondents were chosen using a random sample approach. The convenience sampling technique was used to select respondents from specific population groups. Convenience sampling was chosen since it just involves picking people who are accessible and freely available (Taherdoost, 2016). Convenience sampling is known as a fair method of gathering samples because, when done correctly, it helps to lessen the problem of biases when compared to other sampling methods. Because the researcher has their own targeted sample that is reachable, the convenience sampling method is applied. As a survey instrument, a questionnaire has been used. The SPSS software was used to analyze the data. Descriptive analysis was used to describe, analyze, examine, and determine the primary properties of the quantitative data acquired. A reliability analysis was also performed to assess the data's quality and consistency. Finally, multiple regression analysis was performed to determine the fraction of dependent factors that could influence the independent variable.

4. Results

Survey Response Rate: A total of 500 surveys were distributed to respondents who graduated from the Faculty of Business and Management, UiTM in 2020. The researcher then summed the total number of respondents to make the results more reliable. The desired total number of responders, according to Krejcie and Morgan Table (1970), was 310. The total number of returned questionnaires in this study was 349. After 22 outliers were removed, only 327 of the datasets remained valid.

Demographic: Respondents were classified into six (6) demographic groups based on their age, gender, marital status, educational background, current employment situation, and unemployment difficulties. Demographic information provides a historical perspective on the responses. For the demographic variable, the descriptive statistic was used. The following are the findings: 137 graduates (41.9%) were between the ages of 19 and 23, 136 graduates (41.6%) were between the ages of 24 and 28, and 54 graduates (16.5%) were between the ages of 29 and 33. There were 129 men (39.4%) and 198 women (60.65%). According to the table, 327 graduates provided more cooperation and consent to participate in this study. 161 people (49.2%) are single, while 166 people (50.8%) are married.

Next, the highest program was the Bachelor of Business Administration (Hons) Finance (BA242) with a total number of 54 graduates (16.5%), followed by the Bachelor of Business Administration (Hons) Human Resource Management (BA243) and the Bachelor of Business Administration (Hons) Marketing (BA240) with a total number of 32 respondents (9.8%). For Bachelor of Business Administration (Hons) in Operations Management (BA244) and Bachelor of Business Administration (Hons) in Insurance (BA241) involved a same total of 30 respondents (9.2%). Thus, Bachelor of Business Administration (Hons) in Islamic Banking (BA249) involved a total of 29 respondents (8.9%), Bachelor of Business Administration (Hons) in International Business (BA246) has a total number of 27 respondents (8.3%), followed by Bachelor of Business Administration (Hons) in Retail Management (BA245) and Bachelor of Business Administration (Hons) in Entrepreneurship (BA233) with a total number of 23 respondents (7.0%). Next, the Bachelor of Business Administration (Hons) in Business Economics (BA250) involved a total of 17 graduates (5.2%) and the Bachelor of Customer Service Management (Hons) (BA234) showed a total number of 16 graduates (4.9%) and the lowest number of respondents was in the Bachelor of Office Management (Hons) (BA232) with a totalnumber of 14 respondents (4.3%). In terms of respondents' current employment status, the data shows that 101 respondents (30.9%) were employed, while 226 respondents (69.1%) were unemployed. The statistics under the causes of being unemployed inquiry reveal that 123 respondents (37.6%) are having difficulty finding work. Following that, the findings show that 84 respondents (25.7%) decided to become self-employed, while 83 respondents (25.4%) expressed no interest in working. The lowest result (11.3%) was based on the economic downturn and included 37 respondents.

Descriptive Analysis: Two variables in descriptive analysis are employed in assessing both the independent factors and the dependent variables, namely the mean and standard deviation. Descriptive statistics are very useful for properly concluding data by studying the link between two different variables, which are independent variables with a dependent variable in a specific sample size and population (Yellapu, 2018). Table 1 below shows the mean and standard deviation of the variables.

Table 1: Descriptive Analysis (n=327)

Variables	Mean	Standard Deviation
Dependent Variable		
Unemployment among Graduates	4.1995	0.52592
Independent Variables		
Employability Skills	1.7450	0.43880
Job Mismatch	4.2599	0.54062

Normality Analysis: The analysis is to determine the shape of the distribution; a normality test must be performed. Blanca et al. (2013) state that when the values of skewness and kurtosis for each variable are less than 3, the normality test typically indicates that the data is normally distributed. When the value was less than or equal to 7, it was still within an acceptable range (Hair et al., 2013). Table 2 below depicts the normality results for Skewness and Kurtosis of the variables.

Table 2: Normality Outcomes: Values for Skewness and Kurtosis (n=327)

Variables	Skewness	Kurtosis
Dependent Variable		
Unemployment among Graduates	-0.404	0.261
Independent Variables		
Employability Skills	0.116	0.027
Job Mismatch	-1.652	7.787

Reliability Analysis: The analysis was performed to assess the data's quality and consistency. Cronbach's Alpha value of >0.7 is reliable (Bahammam et al., 2015). Table 3 below shows the Cronbach's alpha values of the variables.

Table 3: Reliability Analysis

Variables	Cronbach's Alpha
Dependent Variable	
Unemployment among Graduates	0.728
Independent Variables	
Employability Skills	0.804
Job Mismatch	0.832

Multiple Regression Analysis: The analysis attempts to investigate which factor most influenced the graduate's unemployment. The results of the multiple regression analysis utilized in this investigation are shown in Table 4 below.

Table 4: Regression Analysis

Independent Variables	Standard Coefficients BETA	T	Sig.	Collinearity Statistics TOLERANCE	VIF
Employability Skills	-0.539	9.120	0.000	0.636	1.572
Job Mismatch	-0.237	3.900	0.000	0.636	1.572
R Square	0.391				
Adjusted R Square	0.387				
F	111.045				
Sig. of F Value	<0.000				

Dependent Variable = Unemployment among Graduates.

Discussion

H1: There is a significant relationship between employability skills and graduates' unemployment.
It is shown in Figure 4 that the value of Beta = -0.539, *p*-value=0.000. Employability skills have a negative beta value which means the increase in employability skills will decrease the unemployment among graduates. With the *p*-value=0.000, less than the alpha value 0.05, thus, H1 was supported in this investigation. Therefore, results suggest a significant negative relationship between employability skills and graduates' unemployment. Mohd Abdul Kadir et al. (2020), suggested that graduates must possess employability skills to obtain work and compete in the labor market.

The significant negative relationship between employability skills and graduates' unemployment was also validated by Rehman (2014). The findings revealed that a lack of employability skills has an impact on graduates' unemployment in Malaysia and that requisite skills are required to develop graduates who are employable in the job market. The required skills determine a person's capacity to succeed in their profession and become an expert in a specific task or job area.

H2: There is a significant relationship between job mismatch and graduates' unemployment.
It is shown in Figure 4 that, the value of Beta= -0.237, p-value=0.000. With the significant *p*-value=0.000, less than the alpha value 0.05, thus, H2 was supported in this investigation. Therefore, results suggest a significant negative relationship between job mismatch and graduates' unemployment. According to (Razak et al., 2014), job mismatch and graduates' unemployment among graduates have a significant relationship. This happens when a person's qualifications do not match the job requirements.

The significant relationship between job mismatch and graduates' unemployment was also validated by Hossain et al. (2018). The findings revealed that job mismatch has an impact on graduate unemployment in Malaysia since there are many essential skills in the job market and an imbalance occurs between skill demand and skill supply. As a result, over-qualification makes it difficult to get work (Büchel & Battu, 2003). To summarize employment mismatch, too many required skills in the market and over qualifications make graduates more difficult to obtain work (Boulos, 2016).

5. Conclusion and Recommendations

Two recommendations are made for future research. First, conduct research on other potential factors that may influence graduates' unemployment. The utilization of independent elements such as unreasonable pay, a weak command of English, a lack of digital abilities, and so on. There were limited studies on these factors in the Malaysia setting, hence, thwarted generalization. Aside from that, future research could use the new dimensions to measure the dependent variables.

It is also suggested that higher learning institutions or universities make greater use of these research findings to improve the curriculum and formulate it based on industry needs to improve not only their academic programs but also the personal quality of their graduates. The university may plan additional activities to provide students with opportunities to grow in terms of their communication abilities and personality traits.

Conclusion: The labor market is becoming increasingly competitive. Most graduates must compete with one another by honing a variety of abilities, particularly communication skills, critical thinking skills, and the capacity to operate in a team. All these skills are always valuable while working with organizations, demonstrating the graduates' excellence. If someone lacks the requisite skills, a higher educational level will not decide whether they are hired. Employers will always search for people who can do their tasks well, not just in theory throughout their studies, but also in reality. Employers are continually searching for graduates with the ability to transition between different sorts of tasks and task-drawing skills.

In this paper, we examine the relationship between employability skills and job mismatch towards the graduates' unemployment. The results show that the variables are significantly associated with the graduate's unemployment, suggesting that graduates should improve necessary skills such as leadership, communication and interpersonal skills (Briones, G. et al., 2021) needed within the industry to land a needed job. Furthermore, findings from this study could serve as evidence that graduates in a certain field are oversupplied and need attention from the Ministry of Higher Education in finding a formula for greater job creation or giving incentives for advanced training to unemployed graduates.

References

Abdullah, M. S., Kassim, M. A. M., Mustafa, W. M. W. & Yahya, A. K. (2020). Starting a Career Crossroad: Exploring Choosiness Behavior among Malaysia First-Time Job Seekers. *Journal of Social Science and Humanities*, 3(5), 23-28.

Bahammam, A. S., Al-Aqeel, A. M., Alhedyani, A. A., Al-Obaid, G. I., Al-Owais, M. M. & Olaish, A. H. (2015). The Validity and Reliability of An Arabic Version of The Stop-Bang Questionnaire for Identifying Obstructive Sleep Apnea. *The Open Respiratory Medicine Journal*, 9, 22.

Blanca, M. J., Arnau, J., López-Montiel, D., Bono, R. & Bendayan, R. (2013). Skewness and Kurtosis in Real Data Samples. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences*, 9(2), 78.

Briones, G., Elaine Joy C., Apat, D. G. I., Lorica, Marierose P. & Valenzuela. (2021). Employers' Preference on Employability Skills of Business Management and Accounting Graduates. *International Journal of Academe and Industry Research.*

Britshi, Z. A. (2019, 1 December). Malaysian Graduates Lack Skills in Problem Solving and Communication. Malaysia World News. Https://Www.Malaysiaworldnews.Com/Malaysian- Graduates-Lack-Skills-In-Problem-Solving-And-Communication/

Büchel, F. & Battu, H. (2003). The Theory of Differential Over Qualification: Does It Work? *Scottish Journal of Political Economy*, 50(1), 1-16.

Chen & Chan (2019). Unemployment Insurance: A Case Study in Malaysia. *AIP Conference Proceedings.*

Chowdhury & Islam (2021). Effects of Cognitive and Non-Cognitive Skills on Employment Conditions of Tertiary Graduates. Journal of Service Science and Management, 2021, 14, 530-539.

Hamid, M. S. A., Islam, R. & Hazilah, A. M. N. (2014). Malaysian Graduates' Employability Skills Enhancement: An Application of the Importance Performance Analysis. *Journal for Global Business Advancement*, 7(3), 181-197.

Hossain, M., Yagamaran, K., Afrin, T., Limon, N., Nasiruzzaman, M. & Karim, D. A. (2018). Factors Influencing Unemployment Among Fresh Graduates: A Case Study in Klang Valley. *International Journal of Academic Research in Business and Social Sciences*, 8, 1494-1507.

Husin, N. A., Rasli, S., Kumar, G. & Suppiah, G. (2021). Unemployment Crisis Among Fresh Graduates. *American International Journal of Social Science Research.*

Humburg, V. & Verhagen, (2013). The Employability of Higher Education Graduates: The Employer's Perspective. Publications Office of the European Union.

Ismail, R. & Wei Sieng, L. (2011). Employers' Perceptions on Graduates in Malaysian Services Sector. International Business *Management*, 5, 184-193.

Kadir, J. M. A. (2017). Impact of Goods and Services Tax on The Malaysian Economy. Doctoral Dissertation, University of Malaya, Malaysia.

Kakooza, V., Warmala, R., Wokadala, J. & Bwire, T. (2019). A Causal Model to Compare the Extent of Undergraduates'- Postgraduates' Impact on Unemployment in Uganda. *International Journal of Higher Education*, 8(5), 110.

Krejcie, R. V. & Morgan, D. W. (1970). Determining Sample Size for Research Activities. Educational and Psychological Measurement.

Lan, O. C., Kuaun, C. L. A. & Singh, S. K. P. (2011). Employer Expectations of Language at the Workplace. *Malaysian Journal of ELT Research*. 7 (2).

Mahidin, D. S. D. M. U. (2021). Graduates Statistics 2020. Retrieved 27 July From Https://Www.Dosm.Gov.My/V1/Index.Php?R=Column/Cthemebycat&Cat=476&Bul_I=U1ltvwpwnxr nrur2nlhrshzmenrmut09&Menu_Id=Tm8zcnrjdvrnwwlpwjrlbmtlad K1ut09

Milon, M., Islam, M. R. & Khan, A. R. (2021). Employability Skills of Business Graduates in Job Markets of Bangladesh: Investigating Weaknesses and Suggesting Improvements. *International Journal of Management and Accounting.*

Ministry of Higher Education Malaysia. (2016). Graduate Tracer Study 2015. Putrajaya: Ministry of Higher Education Malaysia.

Mohd Abdul Kadir, J., Naghavi, N. & Subramaniam, G. (2020). Unemployment Among Graduates – Is There a Mismatch? *International Journal of Asian Social Science*, 10.

Nel, H. and Neale-Shutte, M. (2013). Examining the Evidence: Graduate Employability at NMMU. *South African Journal of Higher Education.* Vol.27, No.2, pp437–453.

Omar, Z. M. & Rajoo, S. (2016). Unemployment among Graduates in Malaysia. *International Journal of Economics, Commerce and Management.* 4(8).

Pitan, S. O. & Muller, C. (2023). Assessment of strategies for preparing graduates for the disruptive workplace: Evidence from Nigeria and South Africa. *Journal of Teaching and Learning for Graduate Employability.*

Rehman, S. (2014). Employability Skills: The Need of the Graduates and the Employer. VSRD International *Journals of Business and Management Research, IV.*

SCANS (1991). What Work Requires of Schools. A Secretary's Commission on Achieving Necessary Skills (SCANS). *Report for America 2000*. U.S. Department of Labor.

Singh, H. (2022). Graduates Mismatch Affecting Investments. The Sun. Retrieved: https://www.thesundaily.my/home/graduates-mismatch-affecting-investments-NI9785825

Singh, G. K. G. & Singh, S. K. G. (2008). Malaysian Graduates' Employability Skills. *UNITAR E-Journal*. 4(1).

Smith, E. E. & Krüger, J. (2005). Perceptions of Graduates Regarding Workplace Expectations: An Exploratory Study. *South African Journal of Business Management*. 36(1).

Statistics Dept: Number of Unemployed Graduates in Malaysia Rose in 2020. Malaymail. Https://Www.Malaymail.Com/News/Malaysia/2021/07/27/Statistics-Dept-Number-Of Unemployed-Graduates-In-Malaysia-Rose-22.5pc-In 2/1993051

Steed, S. (2018). Too many graduates are mismatched to their jobs. What's going wrong? https://www.theguardian.com/higher-education-network/2018/jan/25/too-many-graduates-are-mismatched-to-their-jobs-whats-going-wrong.

Taherdoost, H. (2016). Validity And Reliability of The Research Instrument; How to Test the Validation of a Questionnaire/Survey in Research. *International Journal of Academic Research in Management*, 5, 28-36.

Van der Berg, S. & Van Broekhuizen, H. (2012). Graduate unemployment in South Africa: A Much Exaggerated Problem," Working Papers 22/2012. Stellenbosch University. Department of Economics.

Velciu, M. (2017). Job Mismatch - Effects on Work Productivity *Sea: Practical Applicationof Science*, 5(3).

Velciu, M. (2017). Job Matching as a New Challenge for Work Performance. *Balkan Region Conference on Engineering and Business Education, 3.*

Yellapu, V. (2018). Descriptive Statistics. *International Journal of Academic Medicine*, 4, 60.

Zahiid, S. J. (2015). PM: Poor English Eroding Malaysian Graduates' Self-Belief. Malaymail Online. Retrieved From: Http://Www.Themalaymailonline.Com/Malaysia/Article/Pmpoor-English-Eroding-Malaysian-Graduates-Self-Belief

Zainuddin, S. Z. B., Pillai, S., Dumanig, F. P. & Phillip, A. (2019). English Language and Graduate Employability. *Education + Training*, 61(1), 79-93.

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Policies, Technology and Leadership Supports on Work-Life Balance among Employees of Selected Private Hospital in Klang Valley

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Abstract: Work-life balance experience has significant consequences on employees' engagement towards the organization. Hence, the objective of this research was to investigate the relationship between organizational support namely policy support, technology support and leadership support on work-life balance. The researcher conducted quantitative research and used a structured survey by distributing electronic questionnaires to a sample size of 225 employees of in private hospital. To assess and measure the level of the relationship under investigation, descriptive analysis, normality analysis, reliability analysis, Pearson's correlation analysis and linear regression were used to assess the significance of the relationship between the independent variables and dependent variable of this study. The result of the finding concluded that the most influential independent variable to the work-life balance was the leadership support, followed by the technology support. This result suggested that the better the leadership and technology support on the employees the better the work-life balance can be. The leadership passion for providing tangible and non-tangible support and making available relevant technology infrastructure, and the leader's ability to drive effective work-life balance policies for the employees to enable them to effectively perform their jobs are essential for an engaged employees and productive organization. As the outcome of this research, it is hoped that the organization will be able to make a decisive decision in helping its employees improves their work-life balance by providing clear guideline in term of written policy, appropriate leadership supports and the right technology tool which in turn will enhances the employee's engagement and organizational efficiency.

Keywords: *Work-life balance, Organizational Support, Policies, Technology, Leadership Supports.*

1. Introduction and Background

A good work-life balance can improve employee well-being, positive job-related attitudes, job satisfaction, organizational commitment, and job performance (Hayman, 2009). In the hospital working environment, the management is keen to explore appropriate organizational policies, technology, and leadership support to achieve a positive work balance as one of the strategies for reducing turnover among the employees in the hospital. Vyas (2022) also reported that the labor force today is composed of more workers who look for flexibility in work hours to ensure work-life balance. As the work and family context evolves, recent findings indicate a significant upward trend in healthcare providers who desire a better work-life balance for their employees. Greenhaus, Collins and Shaw (2003) refer to work-life balance as an activity carried out by an individual. Hence, he or she gets equal satisfaction and uniform self-engagement with both work and life as an individual. In the past, the trend in work-life balance evolved around work, life and balance as a whole (Deery, 2008). Employees were looking into a trade-off between work commitment and the ability to fulfil the commitment to the family only. Work and family are perceived as two important domains for those employed (Gragnano, Simbula & Miglioretti, 2020). Later, Pinson (2023) depicted the complexity of the relationship between a leader's work-life policy adoption, employee perception and work-health outcome.

Other researchers further emphasized the importance of educating the supervisors, as the key person between employers and employees, to effectively communicate and support policies (Hopkins, 2005). Employers can find ways to reduce workload, overtime and business travel. Employers can make provisions to its policies and implement career development and advancement programs. Employees are similarly responsible for limiting the amount of job-related work at home, limiting the reliance on overtime hours, reducing business travel and becoming more knowledgeable about work-life policies. Similarly, few studies focused mainly on technologically assisted tools at work (Siraskar, Kumar, Patil, Bongale, & Kotecha, 2023). Due to this, companies tend to have an excellent work-life balance that can improve an employee's health, attitude towards their job, job happiness, commitment to the organization, and performance on the job (Hayman, 2009). According to Ivasciuc, Epuran, Vuţa & Tescaşiu, 2022) the change in generation age shows

that technology has made it easier to manage responsibilities and different areas of life. However, the researcher also said that more research was needed to understand how technology affects work-life balance (Wiradendi, Solikhah, Fidhyallah & Lestari, (2020). Work-life balance is tricky for the company because of the nature of the job and the need for stable technology tools before employees can choose flexible working arrangements like working from home. Managers' support for the implementation is also significant for the hospital.

Also, earlier studies in this area found that how a leader acts positively affects their employees' engagement (Armstrong, 2009). Haar, Sune, Russo, & Ollier-Malaterre (2019) said that how leaders act has also been mentioned as a significant factor in how well employees balance their work and personal lives. Previous studies in this area found that how an employer acts positively affects their employees' engagement (Armstrong, 2009). Leaders act has also been mentioned as a significant factor in how well employees balance their work and personal lives. Previous studies in this area found that how a leader acts has a direct, positive effect on how engaged their employees are Armstrong, (2009). Haar, Sune, Russo, & Ollier-Malaterre (2019) said that how leaders act has also been mentioned as a significant factor in how well employees balance their work and personal lives.

2. Literature Review

Work-Life Balance: The term work-life balance, as used here, is taken from a definition offered by Singh and Khanna (2011) and refers to the desire of both employees and their employers to find a happy medium between them. Similarly, Visser and Williams (2006) defined work-life balance as an individual's ability to meet their obligations in and out of the workplace while maintaining a healthy work-life balance. Work-life balance is the harmony between one's professional and private responsibilities, as defined by Higgins (2002). A lack of work-life balance programs has been linked to lower levels of employee engagement, which can harm an organization's productivity (Abdulaziz, Bashir, & Alfalih, 2022). Employee loyalty and output can improve by creating a work atmosphere where employees feel safe juggling their professional and personal lives. It refers to the degree to which one's personal and professional lives are equally active and satisfying. Employees who can strike a healthy balance between work and personal life significantly impact a company's bottom line because their productivity and creativity translate into better customer service. The modern family structure can range from the nuclear family to single-parent households to dual-income households to parents who work in different fields, all of which might affect a person's ability to strike a healthy work-life balance (Muralidhar, Prasad & Mangipudi, 2020). Another scholar writing in the Journal of work-life balance emphasized the need to find a middle ground between the stresses of caring for one's family and those of performing one's job effectively.

The results of numerous studies on the critical topic of workers' ability to strike a healthy work-life balance have been compiled. An employee's output can be affected by many factors, including the quality of their work-life balance. Workers who can strike a good work-life balance tend to be more productive than their colleagues who struggle to do so. Job and life satisfaction are significantly impacted by an individual's capacity to balance professional and personal commitments (Omar et al., 2015). The importance of the employee as a critical player in the company's success must be one of the company's top priorities. An employee's health and happiness benefit from a strong work-life balance, whereas the opposite is true when the two are out of whack (Nwagbara, 2020). Employees who feel their managers have their backs are less likely to quit, but this can only happen if they enjoy their jobs and can strike a healthy work-life balance. Aruldoss, Kowalski, and Parayitam (2020) define work-life balance as "the degree to which one's personal and professional lives are harmonious." A person's life consists of everything they do outside of their paid employment, such as maintaining their home and caring for their children, as well as their parents and other relatives. People can work long hours and be productive and healthy if they have a life outside of work, so the argument goes.

Policies: Guidelines, policies, and information are all terms used to describe the organizational policies that exist within an organization to establish norms for implementing corporate plans and objectives. Well-written policies and procedures are crucial to the success of any program inside an organization. Employees benefit from a more balanced life thanks to a more flexible work strategy, decreasing stress, boosting morale,

and decreasing turnover. For the study of female police officers in Sarawak (Omar, Mohd, & Ariffin, 2015). For RSD Hospital to function, the management and staff require a work-life balance policy to guide the organization's central operations, planning, activity, and decision-making. Greater work-life balance awareness is required in today's competitive labor market to attract and maintain highly valued personnel. The advantages of a flexible work arrangement vary from one type of employer to another.

The ability to set one's work schedule is an example of time flexibility; working from several locations illustrates space flexibility, and customizing one's work approach illustrates performance flexibility (Hill, 2008). However, organizations should explicitly establish and adopt work-life balance policies, which human resources directors and managers often draft. In contrast, such policies are typically implemented and controlled by line managers or supervisors at the unit level (Trullen, Bos-Nehles, & Valverde, (2020). Work-life balance policies can operate relatively differently across different organizational units/sections, managers, and locations, posing obstacles to implementation and consistency in practice. The multi-perspective addition to the theory of work-life balance policy and practices suggests the necessity for nuanced approaches to accommodate various individual circumstances and demographics. Consequently, the following hypothesis follows from that finding: Work-life balance is influenced by policies, according to **Hypothesis 1:** Policies have a significant relationship towards work-life balance.

Technology: As defined by Easmin, Anwar, Dovash, and Karim (2019), technology entails the technological infrastructure that allows workers to access their work from anywhere at any time, using devices such as smartphones, tablets, and laptops. Technology is widely employed in the workplace to facilitate problem-solving and information dissemination. Because workers may talk to their colleagues from any location, their productivity rises (Hu, Santuzzi, & Barber, 2019). Existing research conducted by Erkılınç, (2023) found that companies can offer more work-life balance-friendly schedules thanks to technological advancements, including digitization of work processes and meeting platforms. Using mobile technologies in business has been studied and praised for its many advantages. These include increased mobility, greater access to information and people, and greater efficiency. Enhanced capacity to work together, more efficient use of time thanks to adaptable scheduling, more fun and entertainment options, and a more comprehensive range of media and forms of expression to meet varying demands.

Samat, Zaki, Rasidi, Roshidi & Ghul, (2020) state that a virtual work program can help employees achieve a better work-life balance and boost workplace productivity. Employees can save on transportation costs and office space by using a virtual program that allows them to operate from anywhere at any time. This has also been tested during the recent MCO (Movement Curfew). The pilot study for this research involved corporate office support functions working remotely from March 18, 2020, to May 13, 2020, when the MCO was lifted. They can do their jobs from the comfort of their own homes. This demonstrates that some employees in the Company benefit from the availability of technology help, which benefits their work-life balance. According to Holden and Sunindijo (2018), employees who use ICTs are more likely to strike a healthy work-life balance since the tools they have at their disposal make it easier for them to get their jobs done outside of regular business hours. In addition to telework, most meetings and communications during the most recent MCO period took place online, using tools like Google Meet, Zoom, and Google Meetings. Consequently, the following hypothesis follows from that finding: Second, there is a strong correlation between technology and the concept of work-life balance.
Hypothesis 2: Technology has a significant relationship with work-life balance.

Leadership Support: According to Easmin, Anwar, Dovash, and Karim (2019), "technology" is the network of computers, servers, and other electronic devices that allow workers to access their files and communicate with one another at all times. Robijn, Euwema, Schaufeli, & Deprez, (2020) found that a leader's approach to inspiring and motivating their team has a significant impact on employee engagement. Haar (2019) argues that leadership style is a significant factor in whether or not workers can strike a healthy work-life balance. In addition, Haar (2019) posited that of the three (3) dimensions of leadership behavior—relation-oriented (focused on consideration, trust, and socialization), structure-oriented (focused on clear goals, instructions, and follow-up of performed work), and change-oriented (focused on novel approaches to work, new visions for the future, and development—relation-oriented leadership was found to be the key to a healthy work-life balance). According to this theoretical study on work-life balance, leadership support is seen as supportive of

employee engagement. This could be explained that the organizational cultures recognize the importance of work-life balance to employee engagement and retention. In addition, Susi and Jawaharrani (2011) emphasized the significance of a healthy work-life balance for motivation and continued success. Consequently, the following hypothesis follows from that finding:
Hypothesis 3: Technology has a significant relationship towards work-life balance.

3. Research Methodology

This study aims to investigate the relationship that exists between the independent variables (policies, technology, and leadership support) and the dependent variable (work-life balance). In that case, the descriptive analysis is used to look at and describe the set of measurements. The research design helps academics gather, analyze, and make sense of the study's pragmatic point. That study design, according to Zikmund (2013), was a master plan that laid out the steps that would take to collect and analyze the data.

Population and Sampling: The sampling frame was used to choose the people as the sample for this study. For this study, the sample frame was made up of all workers at a private hospital in Kuala Lumpur, and the researcher used non-probability sampling to get information from them. Surveys were sent randomly to 225 workers via email, and the Human Resources department permitted this to happen.

Measurement: Based on Ajmal and Khan, (2023) the five-item work-life balance scale was created. These five policies were taken from Oyewobi, Oke, Adeneye, Jimoh, & and Windapo (2020), these five technology items and five policy items were taken with a 1 for "Strongly Disagree," 2 for "Disagree," 3 for "Moderate," 4 for "Agree," and 5 for "Strongly Agree," all five questions used the Likert scale. A dependability analysis was done to make sure that this study was strong. Variables with a Cronbach's Alpha value of more than 0.7 are statistically accurate, according to Peterson (1994). An instrument with a Cronbach's Alpha value of more than 0.6, on the other hand, was considered safe by Sekaran (2006) in his research. Table 1 shows that all of the items used in this study have high internal uniformity.

Table 1: Reliability Analysis

Variable	No of Item	Cronbach Alpha Value
Work-Life Balance	5	0.688
Policies	5	0.688
Technology	5	0.857
Leadership Support	5	0.903

4. Results and Discussion

The result presented the demographic analysis of the respondents. Table 2 summarizes the characteristics of the total sample of customers or subscribers who participated in the study. For this study, the researcher electronically distributed the questionnaires to 225 employees working at a private hospital in Kuala Lumpur. Out of 225 total questionnaires distributed, 181 employees responded and completed the survey, equivalent to 80.44% of the response rate. As a result, 181 (80.44%) were taken as valid and continued for the subsequent analysis. The finding shows that most respondents were females, 132 (72.9%). On the other hand, 49 (27.1%) were male, which is lower than the number of female respondents. This study shows that female dominates the employees.

In addition, the majority of the respondents are age between 26 years old to 35 years old (71 respondents, 39.2%). The second highest number of respondents was aged between 36 years and 45 years old, equivalent to 54 employees (29.8%). The third group comprised 28 respondents; 15.5% were between 20 and 25 years old and those above 45. Only 28 (15.5%) employees were reported to be 45 years old and above. Most of the respondents are married, with 107 (59.1%) respondents. This was followed by the single status of 70 (38.7%) respondents, and finally, only 4 (2.2%) of the respondents fell under the “other” category of marital status. Most of the respondents have one to four children, with a total of 94 employees (51.9%). Secondly, 83 (45.9%) employees are not childbearing, and only 4 employees have several children, more than four (2.2%).

More demographic analysis showed that most respondents were in management and administration positions, with 86 (47.5%) employees. They are followed by employees in allied health, 57 (31.5%) and 38 (21.0%). The analysis indicated that most employees have worked between 2 years and seven years, representing 70 (38.7%) respondents at RSD Hospital. Secondly, followed by 62 (34.3%) of the employees have been working for less than 2 years in the company. There were 32 (17.7%) employees who have worked between 8 years and 14 years of service. Finally, only 17 (9.3%) employees have stayed longer in the company for more than 14 years of service.

Table 2: Demographic Analysis

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	49	27.1
Females	132	72.9
Total	**181**	**100%**
AGE		
20-25 years old	28	15.5
26-35 years old	71	39.2
36-46 years old	54	29.8
More than 46 years old	28	15.5
Total	**181**	**100%**
MARITAL STATUS		
Single	70	38.7
Married	107	59.1
Others	4	2.2
Total	**181**	**100%**
NUMBER OF CHILD		
1-4 Children	94	51.9
More than children	4	2.2
None	83	45.9
Total	**181**	**100%**
POSITION		
Nursing	38	21.0
Allied Health	57	31.5
Management	86	47.5
Total	**181**	**100%**
WORKING EXPERIENCE		
Less than 2 years	62	34.3
2-7 years	70	38.7
8-14 years	32	17.7
More than 14 years	17	9.3
Total	**181**	**100%**

Descriptive Statistics: Descriptive statistics analyze the preliminary analysis consisting of normality and factor analysis, as shown in Table 3. Normality Testing was conducted to ensure each variable was within the normal distribution (Coakes, Steed & Ong, 2010). The data collected was therefore tested for normality in determining the distribution shape. Normality was measured using the skewness and kurtosis values to assess the result's normality. The distribution is considered approximately normal when the value of the skewness and kurtosis is within the range of +/-3 on each variable. From Table 3, the independent variables of organizational supports, the skewness was within the range of -0.291 to -0.707, and for the dependent variable, is -0.707. The result of the kurtosis is positively distributed within the range of 0.029 to 0.090 for the independent variable and 0.079 for the dependent variable. The result of the research is based on the table below; the normality distribution of the data was considered normal as the value of the skewness and kurtosis were between +/-3, ranging from 0.090 to 0. 979. Next, is the result of factor analysis? The analysis result is measured The Kaiser-Meyer-OIkin (KMO) measure should be greater than > 0.5. A score of KMO >0.6

is preferred. The KMO result indicates whether or not each factor predicts enough items. The Bartlett test should be significant (i.e., a significance value ≤0.5. The result of this study. Indicates the KMO value was 0.899, and the Bartlett test was significant as the significance value was 0.000 (p<0.001). This means that the variables are correlated significantly to provide a reasonable basis for factor analysis.

Table 3: Normality Analysis

Variable	Skewness	Kurtosis
Policies	-0.307	0.090
Technology	-0.307	0.090
Leadership Support	-0.707	0.979
Work-Life Balance	-0.291	0.029

In addition, the mean and standard deviation were also calculated and analyzed as presented in Table 4. The analysis presented that the practice of the policies (Mean=3.667, Std= 0.778), technology support (Mean=3.667, Std= 0.778), leadership support (Mean=3.733, Std= 0.819) and work-life balance (Mean=3.479, Std= 0.821), the result explained was moderately practiced by the management.

Table 4: Descriptive Statistics

Variable	Mean	Std. Dev.
Policies	3.667	0.778
Technology	3.667	0.778
Leadership Support	3.733	0.819
Work-Life Balance	3.479	0.821

Correlation Analysis: The correlation analysis was analyzed to explain the relationship between one independent variable and the dependent variable. From Table 5, the policies (r=0.440, p<005), technology (r=0.440, p<005), and leadership support (r=0.488 p<005) were significant influences towards work-life balance. All the hypotheses H1 to H3 were supported in this study. In addition, regression analysis was conducted to analyze which of the following variables were most influenced towards work-life balance. The regression result shown in Table 6 indicates that the R square (R2) was 0.265, which indicated that policies, technologies and leadership support explained 26.5% of the variance in the work-life balance. 73.5% were predicted to be influenced by other factors among the employees with the Sig. of F .000.

In the previous study, Omar, Mohd, and Ariffin (2015) stated that well-written policies and procedures play an essential part in implementing any program. A flexible working policy helps to balance work life, reduce stress among employees, reduce the number of turnover and increase employees' commitment towards the organization. Further, according to Downes & Koekemoer (2011), as an organization, clear policies, guidelines and information about flexible working arrangements are essential for the effective use of flexible working arrangements. Offering a wide range of family-friendly policies and program help the organization to improve retention and reduces turnover (De Cieri, Holmes, Abbott & Petit, 2005). In relation to the finding on the correlation analysis between policy support and work-life balance for employees at the Hospital, it shows that the policies have a significant moderate and positive relationship with employees' work-life balance. The better the support provides clear and compelling guidelines and policies, the better it serves the employees in terms of their work-life balance.

Most companies offer flexible work arrangements to accommodate their employees to balance home and family concerns with professional lives. In addition, Samat et.al (2020) suggested that the flexible work arrangement was supposed to be good for using information and communication technology (ICTs). It increased the employee's flexibility, allowing them to fulfil work in a non-work environment, facilitating social and family needs. In the other study, Allvin (2011) revealed in his finding that "technological advancement in the digitization of work process, meeting platform enables the company to offer flexible work arrangement that creates both opportunity and challenges for workers work-life balance". The finding on the correlation analysis between technology support and work-life balance for employees at the Hospital shows

that technology support has a significantly moderate and positive relationship with employees' work-life balance.

Moreover, previous literature that supported this finding were Easmin, Anwar, Dovash, and Karim (2019), and Robijn, Euwema, Schaufeli, & Deprez, (2020) which revealed that leadership style has a direct positive influence on employee engagement. Dixon & Sagas (2007) earlier suggested that perceived organizational support can positively impact organizational commitment, job satisfaction, employee retention and performance. Leadership support is an essential people-oriented behavior that influential leaders must demonstrate. The finding result from the correlation analysis done on RSD Hospital at Desa Park City, Kuala Lumpur, was supported by the Employee Engagement Survey conducted in 2019, which revealed that supportive management would be perceived as highly engaged leaders in the case of RSD Hospital employees.

Table 5: Correlation Analysis

Variable	Coefficient Value (r)	Significant Value (p-value)	Result
Policies- Work-Life Balance	0.440	<0.05	H1: Supported
Technology- Work-Life Balance	0.440	<0.05	H2: Supported
Leadership Support-Work-Life Balance	0.488	<0.05	H3: Supported

Table 6: Regression Analysis

Variable	Beta Value (β)	Significant Value (p-value)
Policies- Work-Life Balance	0.115	<0.05
Technology- Work-Life Balance	0.214	<0.05
Leadership Support-Work-Life Balance	0.349	<0.05

(*p<0.05; **p<0.001).

Discussion: Several studies in the past have shown that companies have paid more attention to how the support they give their workers affects their work-life balance. A good work-life balance can improve an employee's health, attitude towards their job, happiness, commitment to the company, and performance on the job. More recent research, like Oyewobi et al. (2022) has shown a significant rise in healthcare workers who want a better work-life balance. Employers understand that organizational support, especially leadership support, plays a significant role in how well employees handle their work and personal lives. As the first statistic shows, researchers found that leadership dramatically affects how well workers at a private hospital in Kuala Lumpur balance their work and personal lives. Regarding technology support, Haeger and Lingam (2014) found that the change in generation age shows that technology has helped employees balance their work and personal lives. Several studies in the past have shown that companies have paid more attention to how the support they give their workers affects their work-life balance. The employee feels that their boss can have a good effect on their commitment to the company, their happiness at work, their decision to stay with the company, and their performance—one of the essential people-focused traits that good leaders should have, and the show is leadership support.

A good work-life balance can improve an employee's health, attitude towards their job, happiness, commitment to the company, and performance on the job. Hayman (2009). More recent research, like Samat et al., (2020) has shown a significant rise in healthcare workers who want a better work-life balance. Employers realize that organizational help, especially leadership support, plays a significant role in how well employees balance their work and personal lives. As the first statistic shows, researchers at one private hospital in Kuala Lumpur found that leadership significantly affects how well workers can balance their work and personal lives. Regarding technology support, Haar et.al (2019) found that the change in generation age shows that technology has made it easier to handle responsibilities and different areas of life. Therefore, work-life balance was good when using information and communication technologies (ICTs) because it gave employees more freedom and let them do work in places other than work, which helped with their social and family needs. However, some experts have said that more research is needed to fully understand how technology affects the balance between work and life. The results of this study agreed with those of earlier research that found that technology support is not as important as support for leadership. There is a weak but

vital link between the two independent variables. Improving work-life balance in the organization has been getting much attention. This is common because more research has been done on work-life balance.

5. Managerial Implications and Recommendations

The findings offer valuable insights that can assist the organization in addressing its challenge of employee turnover within the hospital context. Moreover, the finding implies it serves as a basis of application in other Selangor hospitals, contributing to improving work-life balance arrangements. Presently, inconsistencies in policies and practices exist across these hospitals.

The study's outcomes promise substantial benefits for the organization, encompassing comprehensive research on work-life balance strategies tailored to its specific needs. Moreover, they cultivate a deeper appreciation for the paramount importance of well-crafted and documented policies regarding work-life balance. This newfound appreciation empowers the management, enabling them to assert their active involvement and authoritative role in the execution of work-life balance initiatives within the organization.

Additionally, these findings catalyze the management to exercise foresight in future technological planning, considering technologies that predominantly amplify operational processes and employee well-being. Notably, digitization and telecommuting have emerged as potent tools, ensuring seamless employee connectivity irrespective of geographical location. This strategic technological orientation underscores the organization's and its employees' mutual benefits.

The study's outcomes promise substantial benefits for the organization, encompassing comprehensive research on work-life balance strategies tailored to its specific needs. Moreover, they cultivate a deeper appreciation for the paramount importance of well-crafted and documented policies regarding work-life balance. This newfound appreciation empowers the management, enabling them to assert their active involvement and authoritative role in the execution of work-life balance initiatives within the organization.

Conclusion: In conclusion, achieving work-life balance is a primary objective for organizations, which may influenced by several factors such as policies, technology, and leadership support. Implementing rules that prioritize assisting employees in achieving a work-life balance and mitigating stress levels could enhance organizational productivity. Management must prioritize the well-being of employees to foster their dedication and commitment to their work. The consequence enhances organizational performance and increases employee satisfaction and happiness.

References

Abas, N. H., Saharan, N. A., Rahmat, M. H., Ghing, T. Y., & Abas, N. A. Work-Life Balance Practices Among Professionals In Malaysian Construction Industry. Malaysian Construction Research Journal (MCRJ), 103.

Abdulaziz, A., Bashir, M., & Alfalih, A. A. (2022). The impact of work-life balance and work overload on teacher's organizational commitment: do Job Engagement and Perceived Organizational support matter? *Education and Information Technologies*, 27(7), 9641-9663.

Ajmal, M., & Khan, I. (2023). E-2: Knowledge Management Dimensions and Job Satisfaction: Moderating Role of Perceived Organizational Support. *International Journal of Islamic Business, Administration and Social Sciences* (JIBAS), 3(1), 09-32.

Armstrong, M. (2010). A handbook of human resource management practices (10th Ed.). Philadelphia, NE: Kogan Page.

Aruldoss, A., Kowalski, K. B. & Parayitam, S. (2020). The relationship between quality of work life and the work-life-balance mediating role of job stress, job satisfaction and job commitment: evidence from India. *Journal of Advances in Management Research*.

Bell, A. S., Rajendran, D. & Theiler, S. (2012). Job stress, wellbeing, work-life balance and work life conflict among Australian academics. *E-Journal of Applied Psychology,* 8(1), 25–37. https://doi.org /10.7790/ ejap.v8i1.320

Christinah, H. M. (2015). The Relationship Between Manager Support, Work-life Balance and Talent Retention In A South African Utility Organization, University of Pretoria, ProQuest LLC.

Coakes, S. J., Steed, L. & Ong, C. (2010). SPSS: Analysis without Anguish. John Wiley and Sons. Australia Ltd.

Day, A., Paquet, S., Scott, N. & Hambley, L. (2012). Perceived information and communication technology (ICT) demands on employee outcomes: The moderating effect of organizational ICT support. *Journal of Occupational Health Psychology,* 17(4), 473-491. doi:10.1037/a0029837

Deery, M. (2008). Talent management, work-life balance and retention strategies. *International Journal of Contemporary Hospitality Management*, 20(7), 792–806. https://doi.org/ 10.1108/09596110810897619

Deery, M. & Jago, L. (2009). A framework for work–life balance practices: Addressing the needs of the tourism industry, *Tourism and Hospitality Research*, 9, 97-108.

Downes, C. & Koekemoer, E. (2011). Work-life balance policies: Challenges and benefits associated with implementing flextime. *SA J. Jum. Resour Manag,* 9, 1-13.

Easmin, R., Anwar, T., Dovash, R. H., & Karim, R. (2019). Improving Work-Life Balance: A Study on Employees in Private Commercial Banks of Bangladesh. IOSR Journal of Business and Management.

Erkılınç, G. (2023). Work-life balance study between generations and gender (Master's thesis, Işık Üniversitesi).

Gragnano, A., Simbula, S., & Miglioretti, M. (2020). Work–life balance: weighing the importance of work–family and work–health balance. International journal of environmental research and public health, 17(3), 907.

Greenhaus, J. H. & Allen, T. D. (2003). Work-family balance: Exploration of a concept. Paper presented at the Families and Work Conference, Provo, UT. Ali, I (2018). Personality traits, individual innovativeness and satisfaction with life. Journal of Innovation & Knowledge, 1-11, https://doi.org/10.1016/j.jik.2017.11.002

Greenhaus, J. H., Collins, K. M., & Shaw, J. D. (2003). The relation between work-family balance and quality of life. Journal of Vocational Behavior, 63(3). https://doi.org/10.1016/S0001-8791(02)00042-8

Haar, J. M., Sune, A., Russo, M. & Ollier-Malaterre, A. A. (2019) Cross-National Study on the Antecedents of Work-life Balance from the Fit and Balance Perspective. *Soc.Indc.Res*, 142, 261-282.

Hayman, J. R. (2009). Flexible work arrangements: Exploring the linkages between perceived usability of flexible work schedules and work/life balance. *Community work fam,* 12, 327-338.

Hill, E. J., Gryzwacz, J. G., Allen, S., Blanchard, V. L., Matz-Costa, C., Shulkin, S. & PittCatsouphes, M. (2008). Defining and conceptualizing workplace flexibility. *Community Work Fame,* 11, 149-163.

Hopkins, K. (2005). Supervisor support and work-life integration: a social identity perspective. In: Kossek. E, Lambert, S, editors. Work-life integration: in individual, organizational and cultural perspectives, New Jersey (NJ): LEA Press; 423 – 44.

Hu, X., Santuzzi, A. M., & Barber, L. K. (2019). Disconnecting to detach: The role of impaired recovery in negative consequences of workplace telepressure. Revista de Psicología del Trabajo y de las Organizations, 35(1), 9-15.

Ivasciuc, I. S., Epuran, G., Vuţă, D. R., & Tescaşiu, B. (2022). Telework Implications on Work-Life Balance, Productivity, and Health of Different Generations of Romanian Employees. Sustainability, 14(23), 16108.

House, J. S., Umberson, D. & Landis, K. R. (1981). Structures and Processes of Social Support, Annual Review of Sociology, Vol. 14; 293-318. JobStreet.com (Feb 2016), Hiring Demand Improves in Q1 2016 Despite Key Concerns. Retrieved Feb 17, 2016, from http://www.jobstreet.com.my/career-resources/hiringdemand-improves-q1-2016-despite-key-concern/#.WGEZzfn971U.5657

Kossek, E. E., Pichler, S., Bodner, T. & Hammer, L. B. (2012). Workplace social support and work-family conflict: A meta-analysis clarifying the influence of general and work-family specific supervisor and organizational support. *Pers Psychology,* 64(2), 289-313. doi: 10.1111/j.17446570.2011. 01211.x. Workplace

Lee, M. I. (2018). Supervisory coaching and performance feedback as mediators of the relationships between leadership styles, work engagement and turnover intention.

Muralidhar, B., Prasad, D. K. & Mangipudi, D. M. R. (2020). Association among Remote Working Concerns and Challenges on Employee Work-Life Balance: An Empirical Study Using Multiple Regression Analysis with Reference to International Agricultural Research Institute, Hyderabad. *International Journal of Advanced Research in Engineering and Technology*, 11(6).

Nwagbara, U. (2020). Exploring how institutions shape managerialist employment relations and work-life balance (WLB) challenges in Nigeria. Employee Relations: The International Journal, ahead-of-p(ahead-of-print). https://doi.org/10.1108/er-07-2019-0269

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), 52-57.

Oyewobi, L. O., Oke, A. E., Adeneye, T. D., Jimoh, R. A., & Windapo, A. O. (2022). Impact of work–life policies on organizational commitment of construction professionals: role of work–life balance. International Journal of Construction Management, 22(10), 1795-1805.

Pinson, D. A. (2023). A Correlational Study of the Relationship Between Steward Leadership Climate & Employee Work–Life Balance in For-Profit Organizations (Doctoral dissertation, Columbia International University).

Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. Journal of Consumer Research, 21(2), 381-391.

Robijn, W., Euwema, M. C., Schaufeli, W. B., & Deprez, J. (2020). Leaders, teams and work engagement: a basic needs perspective. Career Development International, 25(4), 373-388.

Samat, M. F., Zaki, F. S. M., Rasidi, E. R. M., Roshidi, F. F., & Ghul, Z. H. (2020). Emotional Intelligence, Social Supports, Technology Advancement, Work Condition and Work-Life Balance among Employees. International Journal of Academic Research in Business and Social Sciences, 23-32.

Siraskar, R., Kumar, S., Patil, S., Bongale, A., & Kotecha, K. (2023). Reinforcement learning for predictive maintenance: a systematic technical review. Artificial Intelligence Review, 1-63.

Sekaran, U. (2006). Research Method for Business: A Skill Building Approach. United Kingdom: John Wiley & Sons, Inc.

Sung Kim, J. & Ryu, S. (2017). Employee satisfaction with work-life balance policies and organizational commitment: A Philippine study. *Public Administration and Development,* (37), 260–276. https://doi.org/10.1002/pad.1794

Singh, P. & Khanna, P. (2011). Work-life balance a tool for increased employee productivity and retention. *Lachoo Management Journal*, 2(2), 188-206.

Stokes, Yolanda Antoinette. (2019). Technology Tool Use and Work/Life Balance Among Millennial Workers: A Correlational Study, *Journal of Chemical Information and Modeling*, 53(9), 1689-1699.

Suprateek, S., Saonee, S., Xiao, X. & Manju, A. (2012). Managing Employees' Use of Mobile Technologies to Minimize Work-life Balance Impact, ThinkIR: The University of Louisville's Institutional Repository. *MIS Quarterly Executive,* 11(4), 143 – 157.

Susi, S. J. (2011). Work-life balance: The key driver of employee engagement. Asian Journal of Management Research, 474-476.

Trullen, J., Bos-Nehles, A., & Valverde, M. (2020). From intended to actual and beyond: A cross-disciplinary view of (human resource management) implementation. International Journal of Management Reviews, 22(2), 150-176.

Vyas, L. (2022). "New normal" at work in a post-COVID world: work–life balance and labor markets. Policy and Society, 41(1), 155-167.

Wiradendi Wolor, C., Solikhah, S., Fidhyallah, N. F., & Lestari, D. P. (2020). Effectiveness of e-training, e-leadership, and work-life balance on employee performance during COVID-19. Journal of Asian Finance, Economics and Business, 7(10).

Zhang, S., Sunindijo, R. Y., Frimpong, S., & Su, Z. (2023). Work stressors, coping strategies, and poor mental health in the Chinese construction industry. Safety Science, 159, 106039.

Zikmund, W. G. (2013). Exploring Marketing Research. South Western: Cincinnati, Ohio.

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Determinants of Using Reusable Eco-Friendly Shopping Bags among Gen-Y

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Abstract: Reusable eco-friendly shopping bag usage among consumers in Malaysia as well as in the world is on the rise considering the requirement for environmental sustainability. Therefore, this study explores the Gen-Y intention towards reusable eco-friendly shopping bags and finds the reasons for them to buy and use them. Data was collected from 385 Malaysian Gen-Y in Kuala Lumpur via structured questionnaires. Applying the Theory of Planned Behavior, this study's results demonstrated that many respondents were not aware of the reusable eco-friendly shopping bags. The findings also highlight that the shopping bag price and design influence the intention to use reusable eco-friendly shopping bags. The results of this study will be useful not only for policymakers, NGOs, and business owners but also for marketers to find ways to improve their marketing policies and create awareness among consumers.

Keywords: *reusable eco-friendly shopping bags, sustainability, theory of planned behavior, Gen-Y.*

1. Introduction and Background

Generation Y (Gen-Y) constitutes more than 30% of the worldwide population and is unequivocally regarded as the generation most deeply invested in matters of environmental sustainability and social concerns. Gen-Y represents the initial cohort to come of age in a global context where the discourse surrounding climate change has become a regular and pervasive topic of discussion on an international scale. Gen-Y are compelled to confront the realities of catastrophic weather patterns, rising sea levels, the rapid expansion of genetically modified organism (GMO) agriculture, and species extinction, among other pressing concerns. The current situation has given rise to a cohort of individuals who advocate for more sustainability within popular culture. A significant portion of the current generation believes that they are compelled to actively participate in facilitating societal transformation. This study aims to examine the level of awareness among Malaysian Gen-Y regarding reusable eco-friendly shopping bags and to explore the factors that influence their preference for such bags.

Gen-Y refers to people born between 1981 and 1994, now aged 25 to 39 years, albeit subject to regional variations. The individuals of the present generation exhibit distinct attributes such as their values, life experiences, motives, and reliance on technology in their everyday routines, which in turn influence their collective consumer behaviors. Gen-Y has different behaviors, leading to various perspectives when choosing green or environmentally friendly products (Wijayaningtyas et al., 2019). On the other hand, some are also influenced by the culture of using plastic bags in their daily purchasing activities. They are less knowledgeable or do not know the purpose of reusable shopping bags or other environmentally friendly products. Generation Z (Gen Z) are individuals born in 1995 or after and are considered a “green generation” who demonstrates higher environmental consciousness than older generations (Wang et Al., 2022), which draw the attention of researcher to study other generation i.e., Gen-Y of not becoming as environmentally friendly as Gen-Z.

The primary objective of this study is to study the relationship between price, awareness, design, and quality factors and the preferences of Malaysian Gen-Y regarding reusable eco-friendly shopping bags. This study commences by presenting the foundational theoretical framework of the pertinent literature, drawing from the research conducted by SD. Rajendran et al. (2019), it is identified that Malaysian Gen-Y's purchasing decisions regarding green packaging products are influenced by four primary factors: price, knowledge, quality, and design. Gen-Y has been recognized for its notable inclination towards the utilization of reusable eco-friendly shopping bags, in contrast to older generations. Ibrahim (2020) observes that individuals commence articulating their emotions of rage and discontent with plastic garbage pollution.

2. Literature Review

Price is a critical determinant in a consumer's purchasing decision. The price is the monetary value a consumer is willing to exchange for a product. According to Kong et al. (2014), the cost of a product is identified as the primary determinant influencing consumers' propensity to purchase eco-friendly products. Price is identified as the primary determinant of customer purchase intent for reusable shopping bags, as supported by various scholarly sources (Agyeman, 2014; Chen & Chai, 2010; Kong et al., 2014). The price factor exerts a substantial influence on the purchasing power of Malaysian Gen-Y. Consumers prefer obtaining the most favorable price on a product, often seeking discounts or reduced prices. The reusable eco-friendly shopping bags are considered a costly commodity in the market because they adhere to eco-friendly practices, safety measures, and high-quality standards, and have little environmental impact (Jaafar, 2012; Sharaf et al., 2015; Nguyen & Gizaw, 2014). Another element that adds to the elevated pricing is the diminished demand from the substantial expenses associated with reusable, environmentally conscious shopping bags. According to Ksenia (2013), the financial aspect of a consumer's decision to engage in a green initiative holds significant importance.

According to Rokka and Uusitalo (2008), individuals with higher income levels prefer purchasing environmentally friendly products due to their safety concerns. Munnukka (2008) supports this assertion, contending that higher-income individuals exhibit more remarkable courage and openness in modifying their attitudes towards reusable eco-friendly shopping bags. Several firms are known for their commitment to producing reusable and eco-friendly shopping bags. One example is the Polypropylene Bag provided to customers when purchasing at IKEA shopping malls. The subconscious mind has a role in influencing consumers' purchase intentions, as it impacts their willingness to pay. The buying intention is controlled by the variable of desire to pay (Toklu & Kucuk, 2016).

According to Barber et al. (2012), marketing managers must consider factors beyond purchase intention data when making strategic decisions about existing items or introducing new products. The authors further emphasized that placing exclusive reliance on purchase intention as a marketing strategy is an imbalanced approach. To comprehensively analyze, comprehend, and forecast consumers' purchasing behaviors, marketers must extend their focus beyond mere buy intention. According to the studies conducted by Karbala & Wandebori (2012) and Agyeman (2014), the price of reusable eco-friendly shopping bags significantly influences consumers' purchase intentions. According to Rashid (2009), Malaysians are experiencing a gradual change in their purchasing patterns and aspirations towards reusable eco-friendly shopping bags because of the country's escalating pollution levels.
H1: Price has a significant positive relationship with Malaysian Gen-Y's intention to use reusable eco-friendly shopping bags.

The concept of awareness pertains to an individual's capacity to acquire knowledge about the accessible information and their level of comprehension regarding the information related to specific items (Karbala & Wandebori, 2012). Consumer perception is a manifestation of cognitive recognition, serving as a valuable instrument in facilitating customers' deliberation and resolution-making processes regarding purchasing behaviors. Consumers' expectations about product quality and price, especially for eco-friendly things, are influenced by their level of knowledge (Munnukka, 2008). According to the study by Junior et al. (2018), clients with a limited understanding of environmental problems tend to exhibit consistent purchasing behavior primarily influenced by their past experiences. Customers are prone to repeat purchases due to their lack of knowledge or awareness. The authors further emphasize that the triggering factor may be attributed to a lack of awareness regarding the correlation between altering consumption habits and the potential reduction of the greenhouse effect.

To promote environmental sustainability, manufacturers must be responsible for educating their customers on the decision-making process. This educational initiative aims to contribute to the preservation and protection of the Earth's natural resources. In the context of public education on environmental issues, manufacturers must assume accountability by incorporating responsible practices into their business strategy. This awareness campaign aims to educate the general people about the significance of environmental conservation for the well-being of future generations. Mansaray and Abijoye (1998) assert

that the degree of consumer knowledge regarding the utilization of reusable eco-friendly shopping bags exerts a substantial influence on the overall state of the environment. This discovery holds advantages for firms in strategizing and implementing more environmentally friendly items within their supply chain. The necessity for the awareness effort is evident.
H2: Awareness has a significant positive relationship with Malaysian Gen-Y's intention to use reusable eco-friendly shopping bags.

The influence of quality on the shopping decisions of Malaysian Gen-Y is substantial. Most customers estimate a product's quality based on their evaluation. According to Agyeman (2014), quality is the third most significant factor influencing consumers' purchasing intentions, following environmental concerns and price. The quality of reusable eco-friendly shopping bags indicates the product's overall quality. Consequently, the level of quality significantly influences consumers' intentions to make a purchase and plays a crucial role in realizing those intentions.

The involvement of the Malaysian government in the green initiative has led to enhanced trust among Malaysians in the quality of eco-friendly products (Abidin et al., 2015). To improve the consumer experience, it is imperative to ensure the appropriate development and regulation of reusable eco-friendly shopping bags, with particular attention to critical elements such as color, design, pricing, shape, and environmentally conscious manufacturing processes. Additionally, it will increase customer purchasing intention within the market. The likelihood of customer purchase rises in proportion to the originality and impressiveness of the design of reusable eco-friendly shopping bags. Rajendran et al. (2018) and Asgharian et al. (2012) believe a positive correlation exists between the quality level and consumer satisfaction and loyalty.
H3: Quality has a significant positive relationship with Malaysian Gen-Y's intention to use eco-friendly shopping bags.

Design can be conceptualized as a human-driven process that involves the amalgamation of several concepts to generate novel ideas, facilitate interaction, disseminate information, and encompass numerous other elements (Lee, 2008). Design can be conceptualized as the systematic procedure of converting an abstract concept into a visual or tangible form, thereby imbuing it with a significant aesthetic appeal or showcasing its practical functionality. Design is seen as a crucial performance indicator across all sectors. The prevalence of mobile usage and internet connection among Malaysian Gen-Y consumers is steadily rising in the contemporary day. Therefore, many companies employ design as the primary instrument for enhancing the performance of their goods. The primary objective of design is to improve the appeal of a product and attract a more extensive consumer base. The sales of the product being sold are expected to experience a notable increase due to implementing an exceptional design. Consequently, the purchasing intention of consumers is impacted by design.

According to Lee (2008), the eco-friendly logo holds significant importance as a design component. According to Abidin et al. (2015), incorporating eco-friendly design is expected to be an effective marketing strategy. According to Barber (2010), adopting eco-friendly practices will likely lead to increased consumer purchasing. The material used for reusable eco-friendly shopping bags is relatively expensive, primarily because of insufficient demand and awareness (Abdalkrim & Al-Hrezat, 2013). The purchasing behavior of consumers can be impacted by the distinct labeling of products (Rokka & Uusitalo, 2008). Furthermore, it is worth noting that the eco-label will encompass essential details about environmentally friendly products (Jaafar, 2012).
H4: Design has a significant positive relationship with Malaysian Gen-Y's intention to use reusable eco-friendly shopping bags.

Figure 1: Conceptual Framework

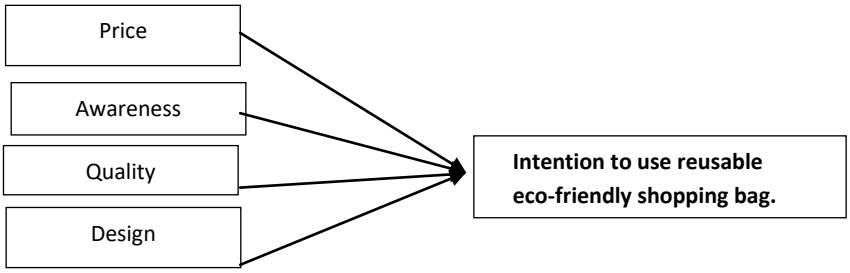


Figure 1 Conceptual framework of determinants of intention to use reusable eco-friendly shopping bags.

3. Research Methodology

The data collection for this study was conducted using Google Forms. The form was distributed to 400 individuals aged 20-39 years using various internet sites and social networking systems. The sample size for the population of this study is 385, reaching the minimum number of more than 100,000 population as suggested by Krejcie & Morgan (1970). The process of data gathering is carried out using the convenient sampling technique. To streamline the process of sample collecting, the social media platform has been chosen as the preferred method. The formulated inquiries have been transformed into a Google Form to facilitate sharing and dissemination. The questionnaire was disseminated and after that redistributed through many social media platforms over no less than fourteen days to aid the acquisition of the sample.

The factors of the survey instrument, which includes price, awareness, design, and quality influencing Malaysian Gen-Y's preference towards reusable eco-friendly shopping bags as independent variables and dependent variables were adapted and modified to suit the context of the research study (Shalini, Minder & Siti Noraida, 2019). This research employs three data analysis techniques: descriptive analysis, correlation, and regression. The hypothesis of intention towards reusable eco-friendly shopping bags posits the existence of five variables. The data that is obtained will be subjected to analysis utilizing a statistical analysis tool. SPSS Statistics is a software package that is commonly employed for conducting interactive or batched statistical analysis. The data analysis in this study was conducted using SPSS version 26 software.

4. Results

To gain a comprehensive understanding of the demographic and background characteristics of the participants in this survey, pertinent information about their age, gender, educational background, occupation, and preference for eco-friendly bags was collected. The findings were classified as a descriptive analysis in Table 1: Profile of the Respondents.

Table 1: Profile of the Respondents

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	138	35.8%
Females	247	64.2%
Total	**385**	**100%**
A.G.E.		
25-30	68	17.7%
31-35	139	36.1%
36-40	140	36.4%
Total	**385**	**100%**
EDUCATION		
No formal education	1	0.3%
Primary school	10	2.6%
High school	148	38.4%

Certificate/Diploma/Degree	214	58.6%
Post-graduate qualification	12	0.1%
Total	**385**	**100%**
OCCUPATION		
Student/Unemployed	57	14.8%
Public Sector	52	13.5%
Private Sector	215	55.8%
Self -employed	61	15.8%
Total	**385**	**100%**

Descriptive Statistics: Descriptive statistics for price, awareness, design, and quality were conducted and Table 2 below displays the outcome. These provide the average mean scores of the variables tested in this study.

Table 2: Descriptive Statistics

Variable	Descriptive Statistics Factor Name	Mean	Std. Dev.
P	Price	4.48	0.559
A	Awareness	4.43	0.582
D	Design	4.54	0.612
Q	Quality	4.46	0.586

The mean scores ranging from 4.48, 4.43, 4.54, and 4.4.6 were obtained from the price, awareness, design, and quality. These results indicate that respondents on average the preferences for using friendly and reusable shopping bags. The data obtained from this case study has been analyzed to assess its normality using the numerical perspective approach. All variables have been carefully considered to get a satisfactory outcome in the reliability test. Based on the evidence presented, it may be inferred that the outcome is nonparametric, given that the findings are displayed for all variable probabilities that are lower than 0.05.

The model summary for the regression analysis is shown in Table 3. The value of the multiple correlation coefficient, R (0.615) indicates a good level of prediction between independent variables and dependent variables.

Table 3: Regression Analysis

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.615	0.378	0.372	0.40163

Regression analysis is employed to elucidate the influence of alterations in the independent variables on the dependent variable. The regression analysis findings in Table 4 examined the influence of awareness, price, design, and quality on individuals' intention to use reusable eco-friendly shopping bags. The dependent variable in this study pertains to the preferences for reusable eco-friendly shopping bags. It serves as a measure to elucidate the connection between the dependent and independent variables.

Upon examining the findings presented in Table 4 Regression Analysis, it is evident that price and design emerge as two independent variables that exhibit a statistically significant positive relationship with consumer preference for green packaging, as indicated by a p-value of less than 0.05. Conversely, the remaining two independent variables, awareness, and quality do not demonstrate a significant relationship with consumer preference for reusable eco-friendly shopping bags, as indicated by a p-value greater than significant alpha 0.05.

Table 4: Analysis Results

Hypothesis	Result	Regression Coefficients
H1: Price has a significant positive relationship with Malaysian Gen-Y's intention to use reusable eco-friendly shopping bags.	Supported	B=0.410 P=0.0001
H2: Awareness has a significant positive relationship with Malaysian Gen-Y's intention to use reusable eco-friendly shopping bags.	Not supported	B=0.08 P=0.1951
H3: Quality has a significant positive relationship with Malaysian Gen-Y's intention to use reusable eco-friendly shopping bags.	Not supported	B=0.19 P=0.0751
H4: Design has a significant positive relationship with Malaysian Gen-Y's intention to use reusable eco-friendly shopping bags.	Supported	B=0.496 P=0.0000

Discussion: The significance of this research lies in its ability to offer a plausible solution to the stated objectives. These ultimate aims were to analyze the attitudes of Gen-Y towards reusable eco-friendly shopping bags and examine the associated environmental ramifications. It will consider all pertinent factors related to the purchasing intentions of consumers towards the various parts of reusable eco-friendly shopping bags and their interconnectedness. This study examined the correlations between design, awareness, price, and quality concerning customers' inclination toward reusable eco-friendly shopping bags. The findings indicate a statistically significant positive link between the parameters mentioned and Gen-Y customers' intentions to use reusable eco-friendly shopping bags.

The impact of pricing on the purchasing power of Malaysian Gen-Y is significant. Consumers consistently seek the most advantageous arrangement when acquiring a product. Reusable eco-friendly shopping bags are considered a costly product on the market due to their environmentally friendly attributes, superior quality, and reduced negative environmental impact. Marketers must extend their analysis beyond mere purchasing intentions to comprehensively assess, comprehend, and forecast customer purchasing behaviors. The price factor significantly impacts consumers' purchasing intentions regarding reusable eco-friendly shopping bags.

The desire of Malaysian Gen-Y to utilize reusable eco-friendly shopping bags is influenced by various factors, with knowledge being one of them. Knowledge can be defined as an individual's capacity to acquire further information and their level of comprehension of specific items. The consumer's degree of awareness significantly influences the expectations about product quality and pricing, particularly in the context of reusable eco-friendly shopping bags. However, the current study depicted that consumer within the parameter of Gen-Y was not well equipped with the knowledge of eco-friendly products thus their awareness.

Design influences the desire of Malaysian Gen-Y for reusable eco-friendly shopping bags. Mixing concepts and developing new ideas, interaction, information, and many other things is often called design. In the twenty-first century, the number of mobile phone and internet users in Malaysia is increasing among Gen-Y. In most industries, design is the most critical tool for their goods. Design wants to make a product more appealing to potential customers. The product's design is so good that the product will sell more.

The significance of product quality in influencing the purchasing decisions of Malaysian Gen-Y is noteworthy. The study reported that the quality of shopping bags is less important among Gen-Y consumers. They evaluate a product by forming subjective judgments regarding its perceived quality. Following environmental concerns and price, customer happiness emerges as the third most potent determinant of customers' purchasing decisions. In addition, the government's participation has influenced the faith in the quality of reusable eco-friendly shopping bags among Malaysians in the green program. The production and quality control of reusable eco-friendly shopping bags should be conducted with meticulous attention to vital

components such as color, design, pricing, form, and green injection, to enhance the overall customer experience.

In summary, the preferences of Gen-Y towards environmental sustainability significantly influence their inclination towards utilizing reusable eco-friendly shopping bags to a certain degree. Moreover, this can lead to a deliberate inclination towards reusable, environmentally-friendly shopping bags. Conversely, an individual's stance on environmental matters can significantly influence their inclination to purchase reusable, environmentally friendly shopping bags. It may also shape their perspective on embracing sustainable practices and protecting the natural environment. Consumers' likelihood of purchasing is positively influenced by their favorable perception of reusable eco-friendly shopping bags, ultimately leading to their decision-making process.

Additionally, this study offers policymakers and the public the necessary information to execute laws to promote environmentally sustainable effective practices. Hence, marketers possess the ability to devise informative promotional initiatives about reusable environmentally conscious shopping bags to safeguard the planet, utilizing social media platforms or adverts as channels for dissemination. These campaigns would underscore the utilitarian aspect of eco-friendly bags in their capacity to contribute towards preserving the Earth. To enhance consumer conviction, it is imperative to provide comprehensive and unambiguous information regarding reusable eco-friendly bags through social media platforms. This campaign is also in line with the initiative by the Malaysian government, to be specific, the Ministry of Science, Technology, and Innovation of Malaysia to use usable plastic bags.

5. Managerial Implications and Recommendations

Gaining a comprehensive understanding of this subject can yield significant marketing value for professionals in the field. Understanding consumers' decision-making processes is vital in promoting environmentally friendly products. Due to the abundance of natural resources within their respective cultures, developing nations possess a distinctive advantage in serving as potential consumers of ecologically sustainable products. This study provides policymakers with valuable information that can enhance their decision-making processes. Examine and formulate optimal strategies for augmenting environmentally sustainable endeavors in forthcoming periods. Implementing an ecologically conscious policy can stimulate enterprises to develop novel marketing strategies that target promoting and selling eco-friendly products to customers.

Given that most Malaysian population comprises Gen-Y, it is imperative to direct policies and strategies toward this demographic. Moreover, Gen-Y should be actively encouraged to play a pivotal role in promoting environmentally sustainable practices. The manifestation of conscious behavior within emerging economies is poised to materialize imminently. Moreover, this study has the potential to provide valuable insights for organizations seeking to establish a novel business model centered on an emerging environmentally sustainable movement.

Researchers can conduct a comparable investigation by directing their attention toward a distinct sort or classification of ecologically sustainable products. The data obtained from the study can afterward be analyzed to ascertain the variations in attitudes and preferences across different categories. Jobber (year) suggests that to gain insight into consumer responses towards various sorts of products, researchers should conduct tests to assess purchase preferences for both high-participation and low-involvement products in the market. The consistent buying of reusable eco-friendly shopping bags can be attributed to the enduring influence of consumers' value orientations. Moreover, scholars can carry out comparable investigations across other cohorts, extending beyond the confines of the Gen-Y. Researchers may include individuals from the Generation X and Baby Boomer cohorts in their study. This study enables researchers to examine and contrast the environmental behaviors of self-proclaimed and non-green consumers, hence facilitating a deeper understanding of the factors behind the latter's reluctance to purchase ecologically friendly products. It is conceivable to analyze additional preferences and situational conditions comprehensively. Each successive generation will possess distinct perspectives regarding reusable, environmentally friendly shopping bags. It is crucial to consider the potential for utilizing alternative social media platforms as a means

of data gathering in future research endeavors. For instance, Facebook, LinkedIn, and Google+ are social media networks that might serve as data-collecting platforms.

Conclusion: The present study effectively identified the preferences of Malaysian Gen-Y for reusable eco-friendly shopping bags, with purchase intention serving as a mediator, ultimately influencing the buying behavior of environmentally friendly items among Malaysian Gen-Y. Consequently, it can be observed that there exists a significant association between the preferences and all components, excluding the independent variables. Ultimately, an examination of the ramifications and constraints of this investigation was undertaken, accompanied by the formulation of suggestions for prospective scholars who may be inclined to pursue analogous research endeavors.

References

Abdalkrim, G. M. & Al-Hrezat, R. S. (2013). The role of packaging in consumer's perception of product quality at the point of purchase, *European Journal of Business and Management,* 5(4), 69–82.

Abidin, S. Z., Effendi, RAARA, Ibrahim, R. & Idris, M. Z. (2015). 'Consumer perception on brand and packaging quality: a case study of Kedai Rakyat 1 Malaysia', Proceedings of 4th Global Business and Finance Research Conference, Melbourne, Australia, 25–27 May.

Agyeman, C. M. (2014). Consumer buying behavior towards green product: an exploratory study, *International Journal of Management Research and Business Strategy, January,* 3(1), 188–197.

Asgharian, R., Salehi, M., Seyed Saleki, Z., Hojabri, R. & Nikkheslat, M. (2012). Green product quality, green customers satisfaction, green customers loyalty, *International Journal of Research in Management & Technology,* 2(5), 499–503.

Barber, N. (2010). Green Wine Packaging: Targeting Environmental Consumers. *International Journal of Wine Business Research,* 22(4), 423-444.

Barber, N., Kuo, P. J., Bishop, M. & Goodman, R. J. (2012). Measuring Psychographics to Assess Purchase Intention and Willingness to Pay. *Journal of Consumer Marketing,* 29(4). DOI: 10.1108/07363761211237353

Chen, T. B. & Chai, L. T. (2010). Attitude towards the Environment and Green Products: Consumers' Perspective. *Management Science and Engineering,* 4(2), 27-39.

Jaafar, S. N. (2012). Consumers perceptions, attitudes and purchase intention towards green packaging', *Asian Journal of Business and Management Sciences*, 2(76), 2047–2528.

Junior, S. S. B., Silva, D. & Gabriel, M. L. D. (2018). The Influence of Environmental Concern and Purchase Intent in Buying Green Products. *Asian Journal of Behavioral Studies,* 3(12), 183. DOI: 10.21834/ajbes.v3i12.134

Karbala, A. & Wandebori, H. (2012). Analyzing the factors that affect consumer's purchase intention in Toimoi Store, Indonesia', 2nd International Conference on Business, Economics, Management and Behavioral Sciences, Bali, Indonesia, 13–14 October

Kong, W., Harun, A., Sulong, R. & Lily, J. (2014). The Influence of Consumers' Perception of Green Products on Green Purchase Intention. *International Journal of Asian Social Science,* 4, 924-939.

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

Ksenia, P. (2013). Packaging Design as a Marketing Tool and Desire to Purchase.

Lee, K. (2008). Opportunities for green marketing: Young consumers, *Marketing Intelligence and Planning,* 26(6), 573–586.

Mansaray, A. & Abijoye, J. O. (1998). Environmental Knowledge, Attitude, and Behavior in Dutch Secondary School. *Journal of Environmental Education*, 30(2), 4-11.

Munnukka, J. (2008). Customers purchase intentions as a reflection of price perception', Journal of Product & Brand Management, 17(3), 188–196.

Nguyen, T. H. & Gizaw, A. (2014). Factors that Influence Consumer Purchasing Decision of Private Label Food Product: A Case Study of ICA Basic.

Nur Raudhah Ibrahim, N. N. (2020). Understanding the Issue of Plastic Waste Pollution in.

Rajendran, S., Wahab, S., Ling, Y. & Yun, L. (2018). The Impact of Logistics Services On the E-*Shoppers' Satisfaction,* 7, 461-469.

Rashid, N. (2009). Awareness of eco-label in Malaysia's green marketing initiative, *International Journal of Business and Management*, 4(8), 132–141.

Rokka, J. & Uusitalo, L. (2008). Preference for green packaging in consumer product choices – do consumers care? *International Journal of Consumer Studies,* 32(5), 516–525.

Salini Devi Rajendran, S. N. (2019). Malaysian consumers' preference for green. *International Journal of Society Systems Science*, 21.

Sharaf, M., Isa, F. & Al-Qasa, K. (2015). Factors Affecting Young Malaysians' Intention to Purchase Green Products. *Merit Research Journal of Business and Management,* 3, 2408-7041.

Toklu, I. S. & Kucuk, H. O. (2016) The Impact of Brand Crisis on Consumers' Green Purchase Intention and Willingness to Pay More. International Business Research, 10(1), 22. DOI: 10.5539/ibr.v10n1p22

Weisha, W., Tingting M. & Yichuan, W. (2022). Better self and better us: Exploring the individual and collective motivations for China's Generation Z consumers to reduce plastic pollution, Resources, Conservation and Recycling, 179, ISSN 0921-3449 DOI: https://doi.org/10.1016/j.resconrec.2021.106111

Wijayaningtyas, M., Dakhilah, F. & Hidayat, S. (2019). The millennials' perceived behavioral control on an eco-friendly house purchase intention. *Journal of Physics: Conference Series*, 1375. 012060. 10.1088/1742-6596/1375/1/012060.

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Financial Literacy among University Students and its Implications towards Financial Scams

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Abstract: The acquisition of financial literacy is crucial in facilitating improved financial decision-making and promoting the long-term financial stability of individuals, families, and the nation as a whole. It is anticipated that increased levels of financial literacy, particularly among younger cohorts, will result in enhanced economic indicators, improved payment records, and more sustainable levels of debt for both people and the nation. The attainment of a high quality of life is of paramount importance for Malaysia's progression towards achieving the status of a developed nation. However, it is worth noting that a significant proportion of Malaysians, specifically one out of every three individuals, perceive their level of financial awareness to be relatively low. Moreover, a significant disparity exists in the level of financial literacy among 15-year-old pupils in OECD and partner countries, such as Malaysia. This study attempts to explore conceptually the relationship between financial literacy and its impacts on financial scams among university students. This study will increase the level of financial literacy among Malaysians before embarking on any financial investments.

Keywords: *Financial literacy, knowledge, financial scam, university students*.

1. Introduction and Background

The issue of financial literacy has emerged as a prominent concern within contemporary culture, particularly among the younger demographic. Financial literacy encompasses a comprehensive understanding of specific knowledge, behavioral patterns, and normative influences pertaining to matters related to financial literacy. Assisting the younger generation in making sound financial decisions will prove beneficial. According to Ibekwe (2020), students may encounter the potential hazard of engaging in illicit investment schemes. For example, in cases where students possess unattainable financial objectives, they may engage in fraudulent investment schemes as a means to rapidly and effortlessly accumulate wealth.

In recent decades, a more financialized world has increased the significance of consumers' financial literacy. Consumers must now make more difficult financial decisions than ever before due to the quick growth of financial products and services (Bannier & Schwarz, 2018). Researchers and policymakers are interested in enhancing people's financial literacy to help them break bad habits and develop good ones.

In recent decades, there has been a global trend among governments to promote a novel and conscientious approach to personal finance, to empower people to assume greater control over their financial well. Households must implement effective savings management strategies to achieve consumption stability throughout their lifetime (Financial Education Network, 2019). Based on the findings of the Financial Capability and Inclusion Demand Side Survey 2018 (FCI Survey 2018) conducted by Bank Negara Malaysia, it is shown that approximately one-third of Malaysians perceive their level of financial understanding to be low.

The lack of financial literacy among individuals is reflected in their inadequate saving habits, as evidenced by the fact that 20% of employed Malaysians did not engage in any savings activities over the course of the previous six months (Financial Education Network, 2019). The lack of savings among Malaysians is evident, as approximately 52 percent of individuals in Malaysia face challenges in accumulating emergency reserves totaling RM1,000 (Financial Education Network, 2019). In contrast, according to the Financial Education Network (2019), a significant proportion of active EPF members, approximately 68 percent, fail to attain a level of savings that may be considered basic. Conversely, it is evident that investors possess a limited understanding of financial matters, as seen by their unreasonable expectations of the potential annual return

on investments (Financial Education Network, 2019). The lack of financial literacy among working individuals is evident, as indicated by the Financial Education Network (2019). In accordance with the findings of the Organization for Economic Co-Operation and Development (2020), there exists a notable disparity in financial literacy achievement among countries that participated in the PISA 2018 financial literacy testing. Specifically, the gap between the highest and lowest-performing nations was seen to be 60% bigger, equating to a difference of 159 points.

2. Literature Review

Financial Scams: Fenge and Lee (2018) argue that financial fraud has been characterized as a prominent criminal activity in the contemporary era. According to Reurink (2018), financial scams, cons, and swindles can be characterized as deceptive and entirely fraudulent schemes. These schemes involve fraudsters who frequently adopt false identities or project an unwarranted sense of reliability. Their objective is to persuade, mislead, or entice individuals into engaging with them and, ultimately, to willingly relinquish their funds or disclose sensitive personal financial information. Additionally, he stated that scammers employ tactics aimed at persuading prospective victims to disclose personal identifying information pertaining to their financial accounts to the orchestrator of the fraudulent operation. After successfully persuading the target to disclose sensitive information such as account numbers, credit card details, passwords and user IDs, the operator proceeds to exploit this information to execute illicit money transfers.

According to Gregory and Nikiforova (2012), it has been observed that individuals engaging in financial scams have increasingly adopted the practice of infiltrating the personal spaces of others, such as their homes or offices, through the utilization of online platforms such as websites or emails. There has been an annual increase in the number of complaints made to agencies, as well as in the cash amount lost by victims. The proliferation of direct emails, phishing techniques, and social networks has significantly expanded the reach of individuals specializing in fraudulent activities.

According to DeLiema et al. (2017), the predominant approach employed in soliciting fraudulent activities was over the Internet, accounting for 30% of reported cases. Additionally, the primary mode of payment utilized by perpetrators was credit card transactions, constituting 32% of the documented instances. In relation to the aforementioned matter, a study conducted by Kadoya et al. (2020) revealed that those experiencing a heightened sense of financial dissatisfaction are more susceptible to falling prey to financial scams. There is no discernible correlation between incidences of financial scams and any other demographic or socio-economic indicator. Additionally, it was discovered that individuals with lower levels of conscientiousness exhibit an elevated likelihood of falling prey to financial scams. In contrast, Ibekwe (2020) discovered that the younger demographic within society, particularly students, may face potential risks associated with engaging in illicit investment schemes. For example, if students establish financial goals that are not grounded in reality, it may prompt them to participate in fraudulent investment schemes, driven by the desire to attain wealth quickly and effortlessly.

Accordingly, the study conducted by Mohd Padil et al. (2022) revealed a substantial correlation between proficient budgeting skills and the level of knowledge among students regarding investment scams. This suggests that prioritizing disciplined budgeting habits in early financial management education might effectively cultivate financial literacy among students, hence mitigating their vulnerability to investment fraud. The researchers also concluded that students must receive appropriate guidance when establishing their financial ambitions, particularly in terms of avoiding false aspirations that may result in the pursuit of a lavish lifestyle through the acquisition of "quick and effortless" funds.

Financial Literacy: Financial literacy encompasses the comprehensive understanding and competencies necessary for individuals to make prudent and well-informed financial choices, thereby fostering a state of financial stability and overall welfare. The fundamental basis of financial literacy is in the understanding and application of key financial concepts such as saving, investing, spending, and borrowing. Furthermore, it is necessary to possess knowledge in credit administration, asset accumulation, debt reduction, and scam prevention to foster a sound and robust financial well-being. According to the United Way NCA (2023), financial literacy encompasses the distinguishing aptitude to comprehend financial concepts and analyze

facts (Organization for Economic Co-Operation and Development, 2020). Wildayati (2018) asserts that there is a considerable correlation between financial literacy and students' behavior. Additionally, Faidah (2019) posits that financial literacy has a noteworthy effect on students' investing decisions. In contrast, Robb and Woodyard (2011) conducted a study wherein they found that possessing adequate financial literacy has the potential to exert a favorable impact on an individual's financial conduct, specifically in terms of effectively managing and allocating financial resources.

Savings Literacy: Cash budgeting is considered one of the crucial components within the realm of financial literacy. Cash budgeting is a strategic process that involves the allocation and utilization of funds to minimize unnecessary expenses. It plays a crucial role in effectively managing household finances. Cash budgeting is a process that emphasizes the significance of risk avoidance by means of meticulous preparation, thoughtful evaluation, and the efficient use of limited resources (Sieve Piper and Butt, 2017). According to Aung and Mon (2020), effective financial budgeting has the potential to foster improved spending behaviors. Individuals must exercise prudence in managing their resources to mitigate the risk of making ill-advised financial decisions. Having a strong foundation in financial education is crucial for individuals to make informed and prudent financial and budgetary choices, especially among students enrolled in institutions of higher education. Aung and Mon (2020) assert that a significant proportion of students enrolled at Yangon University of Economics exhibit deficiencies in financial management skills, mostly due to their failure to adhere to sound money management practices.

Household Debt Literacy: Risk mitigation through strategic financial planning is of utmost significance to circumvent any financial adversity. The experience of financial trouble has the potential to result in an individual's declaration of personal bankruptcy. Significantly, the Annual Report of Malaysia Insolvency Department in 2019 documented those persons between the age range of 25 to 34 accounted for 21.6% of the overall personal bankruptcy cases (Malaysia Department of Insolvency, 2019). The occurrence of personal bankruptcy in Malaysia can be attributed to several underlying factors. According to the 2019 Annual Report published by the Malaysia Department of Insolvency, a total of 12,051 instances of officially declared personal bankruptcy were recorded. According to data provided by the Malaysia Department of Insolvency in 2019, a breakdown of the cases reveals that there were 1,543 instances related to hiring purchase loans, 5,706 instances related to personal loans, 1,138 instances related to housing loans, 1,846 instances related to business loans, 880 instances of credit card defaulters, 15 instances of social guarantors, 221 instances of corporate guarantors, 425 instances of other debts, 261 instances of income tax defaulters, and 16 instances of education loans.

Diana-Rose and Zariyawati (2015) observed that for the younger generation, early exposure to financial management is crucial because they have many responsibilities and it may take years to learn how to save, budget, and invest. People under the age of 34 account for a sizeable fraction of bankruptcy cases in Malaysia (25.75%) according to data from 2015 to 2019 in Table 1 (Malaysian Department of Insolvency).

Investment Literacy: Investment is a contemporary practice characterized by the deliberate allocation of resources to attain future advantages. Based on research conducted by Ibekwe and Oli (2020), it has been observed that the younger demographic in society, namely students, may face potential exposure to fraudulent investment schemes. For example, in cases when students possess impractical financial aspirations, they may engage in fraudulent investment schemes to attain rapid and effortless wealth.

According to Nababan and Sadalia (2015), factors such as finance literacy, income level, and prior investment experience have been found to significantly influence individuals' investment decision-making processes. Individuals with higher income levels are more likely to exhibit superior financial management skills, as they possess the ability to effectively navigate potential hazards and demonstrate a higher tolerance for such risks while planning for their future financial well-being.

In contrast, Takemura and Kozu (2013) found a negative correlation between investors' level of investment literacy and their overconfidence bias. This implies that possessing a strong understanding of investment principles might serve as a safeguard against succumbing to overconfidence bias, hence mitigating the likelihood of making biased investment decisions that may render individuals susceptible to financial scams.

The financial literacy of individual investors in the United Arab Emirates (UAE) who participate in the financial markets of the UAE was evaluated by Al Tamimi and Kalli (2009). The researchers concluded that a notable correlation exists between financial literacy and investment choices.

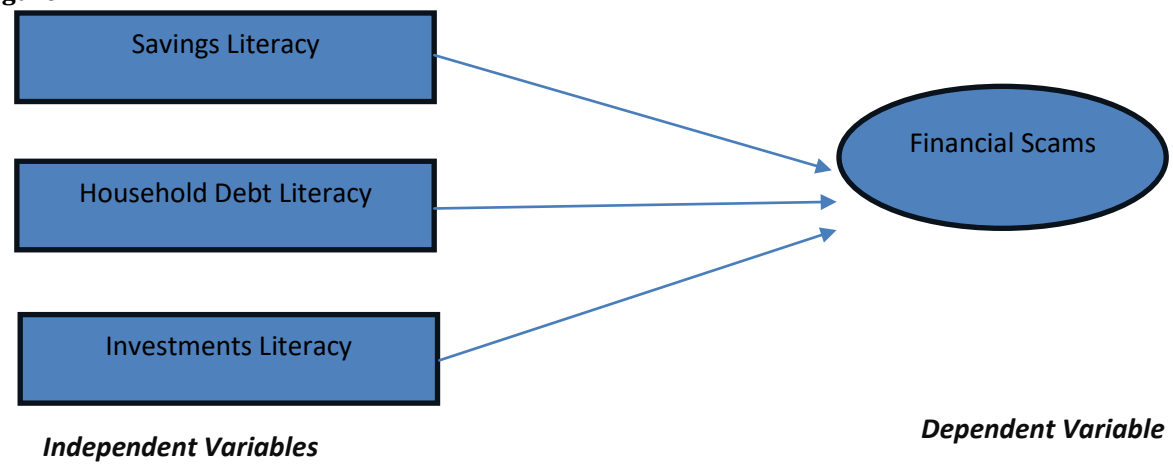
3. Research Methodology

This paper examines relevant literature, including journal articles, on the concepts of financial literacy and financial fraud. This investigation will utilize the quantitative research methodology. A combination of methods, including a questionnaire survey, will be utilized to collect data. This questionnaire was adapted from a previous study that examined the factors and constructs of financial literacy and financial scam. This study adopts the questionnaires from Rahim Khan and Kadoya (2020) that used financial fraud as the dependent variable and financial literacy as the independent variable with various demographics profiles as the independent variables too.

The research will collect information from university students in Malaysia and Indonesia. According to Krejcie and Morgan's (1970) sampling method table, the sample size for a population of 6,000 is 361. Therefore, 361 students will be sampled as the sample size. The selection of these students is based on techniques for random sampling. The questionnaire survey will be distributed to all first-semester through final-semester students in all programs at the selected universities in the two countries. The survey will be distributed over a period of six months to give students sufficient time to respond.

The analysis of survey data utilizes confirmatory factor analysis, which includes a measurement model and structural modelling. This study will employ version 16 of the AMOS software via structural equation modelling (SEM). Examining the relationships between independent and dependent constructs is an advantage of the SEM. According to Zainuddin (2012), SEM is capable of measuring the reliability and validity of constructs and analyzing the complexity of the model. The SEM is believed to be able to analyze complex models due to its ability to test the relationship between its multiple constructs. From the review of the literature, the variables were chosen to form the theoretical framework for the study. This is presented as follows:

Figure 1



4. Conclusion

This study advances our understanding of how financial literacy can be used to teach university students about the effects of financial scams. It is hoped that the three elements of financial literacy being proposed namely, saving literacy, household debt literacy and investment literacy will assist experts in the field in improving the curriculum. It is thought that without a strong financial foundation, our youth are more vulnerable to predatory financing and expensive mistakes in financial decisions that can result in financial imbalance for the rest of their lives. To help university students make sound financial decisions, it is imperative and timely that this study be conducted.

References

Ahmad Razimi, M. S. (2016). Concept of Islamic inheritance law (faraid) in Malaysia: issues and challenges. *Research Journal of Applied Sciences*, 11(12), 1460-1464.

Aung, N. N. & Mon, H. H. (2020). Budgeting habit behavior of undergraduate students in Yangun University of Economics. J. Myanmar Acad. Arts Sci, 18.

Bannier, C. E. & Schwarz, M. (2018). Gender-and Education Related Effects of Financial Literacy and Confidence on Financial Wealth. *Journal of Economic Psychology* .Available at SSRN 2925196

DeLiema, M., Mottola, G. R. & Deevy, M. (2017). Findings from a pilot study to measure financial fraud in the United States. Available at SSRN 2914560.

Diana-Rose, F. & Mohd Ashhari, Zariyawati. (2015). *Factors affecting youth bankruptcy in Malaysia.* In: UPM - SAGE Publications Young Writer's Award 2015 Papers. Perpustakaan Sultan Abdul Samad, Universiti Putra Malaysia, Serdang, Selangor, 18-34. ISBN; EISBN: 9789673446414

Faidah, Faridhatun. (2019). Effects of Financial Literacy and Demographic Factors on Student Investment Interest. *Journal of Applied Business and Economics,* 5(3).

Fenge, L. A. & Lee, S. (2018). Understanding the risks of financial scams as part of elder abuse prevention. British Journal of Social Work, 48(4), 906–923.

Financial Education Network. (2019). Malaysia National Strategy for Financial Literacy 2019-2023," Malaysia.

Gregory, D. & Nikiforova, B. (2012). A sweetheart of a deal: How people get hooked and reeled in by financial scams. *The Journal of Behavioral Finance and Economics*, 2(2), 96-122.

Hassan Al-Tamimi, H. A. & Anood Bin Kalli, A. (2009). Financial literacy and investment decisions of UAE investors, *Journal of Risk Finance*, 10(5), 500-516.

Ibekwe, C. C. & Oli, N. P. (2020). Ponzi schemes and risks of patronage among undergraduates in tertiary institutions in Anambra state, South-East, Nigeria, International Journal of Management Studies and Social Science Research, 96-107.

Investor Protection Trust. (2020). The basics of savings and investing.

Ismail, S., Hashim, N., Kamis, R., Harun, H. & Samad, N. N. A. (2013). Determinants of Attitude towards Estate Planning In Malaysia: An Empirical Investigation. Procedia Economics and Finance, 1-9.

Jusoh, M. S., Sulong, Z., Othman, A. & Ariffin, M. R. (2019). Wasiyyah Wajibah Law in Malaysia—Concept, Application and Practices. In Islamic Development Management (pp. 263-276). Springer, Singapore.

Kadoya, Y., Khan, M. S. R. & Yamane, T. (2020). The rising phenomenon of financial scams: evidence from Japan. *Journal of Financial Crime*, 27(2), 387-396.

Kamarudin, M. K. & Alma'amun, S. (2013). Analyzing the knowledge and practice of hibah (inter vivos gift) within the contextual form of Islamic estate planning in Malaysia: variations across control variables. *Prosiding Persidangan Kebangsaan Ekonomi Malaysia Ke,* 8, 1281.

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

Lee-Ann Fenge, Sally Lee, Understanding the Risks of Financial Scams as Part of Elder Abuse Prevention, *The British Journal of Social Work*, 48(4), 906–923, https://doi.org/10.1093/bjsw/bcy037

Malaysia Department of Insolvency, 2019 Annual Report. (2020).

Mohd Padil, H., Kasim, E. S., Muda, S., Ismail, N. & Md Zin, N. (2022). Financial literacy and awareness of investment scams among university students. *Journal of Financial Crime*, 29(1), 355-367.

Nababan, dan S. (2015). Analysis Personal Financial Literacy dan Financial Behavior Mahasiswa Strata I Fakultas Ekonomi Universitas Sumatera Utara, Jurnal Online, http://jurnal.usu.ac.id/index.php/jmim/article/view/65

Reurink, A. (2018). Financial Fraud: A Literature Review. *Journal of Economic Surveys*, 32(5), 1292-1325.

Robb, C. A. & Woodyard, A. S. (2011). Financial knowledge and best practice behavior. *Journal of Financial Counseling and Planning,* 22(1), 60–70.

Sulong, J. & Ismail, Z. (2020). PENGAJIAN ILMU FARAID DI MALAYSIA: KAJIAN PENAWARAN KURSUS DI INSTITUSI PENGAJIAN TINGGI TERPILIH. *O-JIE: Online Journal of Islamic Education*, 8(1), 40-50.

Takeda, K., Takemura, T. & Kozu, (2013) T. Investment Literacy and Individual Investor Biases: *Survey Evidence in the Japanese Stock Market. Rev Socionetwork Strat,* **7**, 31–42.

Wildayati. (2018). Effect of Financial Behavior and Financial Literation on Saving Behaviour. Electronic Journal RECORD (*Economic Research in Management and Accounting),* 2(1).

Zainuddin Awang (2012), Structural Equation Modeling Using Amos Graphic, (2nd ed.). Malaysia: UiTM Press.

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Unraveling the Internationalization Barriers among Oil and Gas SMEs: A Path to Global Expansion

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Abstract: The remarkable expansion of globalization stands as one of the most significant phenomena in the twenty-first century, shaping both the business landscape and robust strategic approaches that prioritize the internationalization of domestic firms. In addition to large multinational corporations, small and medium-sized enterprises (SMEs) also recognize the vast opportunities international markets offer for business growth and development. Furthermore, SMEs that venture into global markets can strengthen their competitiveness and global presence by integrating valuable global experiences and incorporating their benefits into their domestic operations. Despite the potential, SMEs' involvement in the global market has remained disappointingly low, with little improvement since 2011. In light of this challenge, our study endeavors to unravel the multifaceted factors contributing to SMEs' internationalization dilemmas. Analyzing a total of 409 valid datasets, the findings highlighted the main factor behind SMEs' hesitancy to engage in internationalization: a lack of resources. Consequently, it becomes crucial for SMEs, particularly those in the Oil and Gas Equipment and Service segments, to focus on strengthening their resources to facilitate the internationalization process. Complementing this resource-centric approach, adjustments in managers' attitudes are equally crucial, as they have the potential to ignite SMEs' active engagement in international markets, ultimately contributing to national economic growth.

Keywords: *Internationalization Barriers, SMEs, Company Capability, Attitude, Resources.*

1. Introduction and Background

Internationalization is traditionally viewed as a process through which a firm moves from operating solely in its domestic marketplace to international markets. SMEs were taken as a means for growth in employment, economic development, and innovativeness and also important in competing in the international market (Catanzaro and Teyssier, 2020). According to the research findings conducted by Hasim et al. in 2018, internationalization is also found as an important part of SMEs to expand further in their business which will contribute to their national economic development.

Furthermore, internationalization and presence in the global markets is a strategic action for most companies to aid them in gaining competitive advantage and allow them for continuous growth. Besides large multinational corporations, SMEs also believe that the international markets can provide immense opportunities for business growth and development. According to Ahimbisibwe (2023), SMEs were asked for the most important drivers behind the companies' involvement in international markets, and the highest percentage 45% of SMEs stated that new customers in foreign markets as the main reason why their companies participated in international markets. This is followed by increased profitability with 35% and faster business growth with 33%. Furthermore, SMEs that venture into international markets can strengthen their competitiveness and global presence through the process of capturing valuable global experience and integrating the benefits gained from it into their domestic operations (Nurfarida, 2022). This is also mentioned by Sani (2018) that SMEs can exploit the opportunities in the global market and acquire knowledge from their global ventures.

Therefore, the internationalization of SMEs can be seen as an important growth strategy for companies to increase their competitiveness and strengthen their business position domestically as well as develop their global presence by exploiting the opportunities and gaining experience in the international markets.

Unfortunately, some barriers to internationalization that can be either internal or external are hindering the SMEs from going into the international market. The internal barriers are said to be inseparable from SMEs and entrepreneurial firms, mostly due to their smaller size. On the other hand, the external barriers are related to the environment in which the company operates and can arise either from the host country market or the domestic market (Nurfarida, 2022).

In the context of internal barriers, one of the main theoretical perspectives used is a resource-based view (RBV) (Hutchinson, Fleck, & Lloyd-Reason, 2009). Resource-based view explains the significance of internal drivers which include tangible and intangible resources for SMEs internationalization (Senik, Mat Isa, Md Sham, & Ayob, 2014; Nurfarida, 2022). Barney (1986) in their studies stated that RBV includes physical, human and organizational assets that can be utilized to perform value-creating strategies (Hutchinson et al., 2009).

On the other hand, according to Foghani (2023), there are four main categories for external barriers which are procedural, governmental, task and environmental barriers. Procedural barriers are related to the differences in procedures and documentation, communication and the payment policy such as the practical and operational issues regarding transactions with foreign customers. Governmental barriers involve the rules, regulations, and policies by the host government as well as the assistance and incentives from the home government that are unfavorable for the exporting company. Task barriers refer to the differences in customs, habits, preferences, attitudes and communication methods as well as the intensive domestic competition. Environmental barriers refer to the economic, political, legal, and socio-cultural environment (Yang, 2008).

On top of that, research conducted by Nik Abdullah and Mohd Zain way back in 2011 found that among the 250 Malaysian SMEs in the study, more than half of the respondents were not involved in international markets or participate in any form of international business activities with 141 companies (56.4%), while 109 (43.6%) have been involved in internationalization.

Nevertheless, the trend does not improve and remains in the same pattern. This can be seen from the ACCA report “Growing Global” in 2018. Early in the year 2018, ACCA conducted two global surveys related to the internationalization of SMEs. The report surveyed SMEs around the globe and 510 SME respondents were involved in that particular survey. The objective of the survey was to discover levels of involvement in and interest in international trade among SMEs. According to the report, the involvement of Malaysian SMEs in international markets is still lagging behind the global average (Malaysian Small Business Dithery to Go Global, 2018). The statistics computed by ACCA show that almost a third (29%) of Malaysian SMEs do not participate in any international business activities. Malaysian SMEs' participation in international markets can be considered low compared to other countries that participated in the survey such as Ireland (11%), Nigeria (14%), Singapore, (23%) and the United Kingdom (15%).

This phenomenon was again found in the literature that reveals Malaysian SMEs are not participating in international trade activities as much as expected compared to the campaign done by the government agency (Ismail and Zakaria, 2018; Falahah et al., 2020; Denicolai et al., 2021). Later it was reported by Foghani (2023), that only 13.3% of SMEs engaged in the international market which is considered low compared to developed nations.

Therefore, this study aims to unravel the factors that lead to the internationalization problem. Great attention is crucial and timely needed to overcome the issue of a low number of Malaysian SMEs participating in international trade.

2. Literature Review

SMEs Barriers to Internationalization: SMEs commonly suffer from their limited resources and size which hindered their efforts to gain access to global markets (Fariza, 2015; Falahah et al., 2020). Foghani (2023) stated that the external barriers to SME internationalization include procedural, governmental and task barriers (Hutchinson et al., 2009). Moreover, imperfections in the financial market, unpredictable exchange

rates, as well as differences in cultures, languages and legal systems can also be seen as risks for SMEs in entering foreign markets (Cerrato et al., 2016). Besides, the knowledge needs of the companies and market intelligence are essential to be acquired for SMEs at the initial stage of internationalization before fully engaging in global market expansion (Hutchinson et al., 2009). However, several studies showed an argument on the internal barriers which are said to be more significant for SMEs as the owner-manager is the main determinant for a company's internationalization. Internal barriers to internationalization include informational, functional and marketing barriers (Foghani, 2023). In addition, management disinclination and attitudinal barriers, as well as a lack of human and financial resources, are found to be some of the most prominent internal barriers to the SME's internationalization process (Hutchinson et al., 2009).

Availability of Resources: Senik et al. (2014) gave an overview in their research which involved names and affiliations of the Expert Panel who represented a range of institutions or departments that were directly involved with SME development in Malaysia, showed that resources had positive influences on SMEs internationalization. Monteiro et al. (2017) shared the same overview that resources had a positive influence on SMEs' internationalization. The study was conducted among German MedTech SMEs where resources like physical capital, human capital, organizational capital, and other additional internal factors had a positive influence on the SME's internationalization strategy. A previous study on Italian SMEs by Akbar et al. (2018) also supported the statement that resources had a positive influence on barriers to SME internationalization. This had also been explored in prior studies by Tolstoy et al. (2021) who had shared the same overview in their research on small European retailers by stating that resources had a positive influence on SMEs internationalization. Bembom and Schwens (2018) also mentioned in their study that the researchers reviewed 61 articles that resources had a positive influence on SMEs' internationalization. Therefore, it can be hypothesized as
H1: There is a positive influence between the availability of resources on SMEs internationalization.

Financial: According to Fariza (2015), financial interference had a positive influence on SMEs' internationalization. The researcher mentioned that SMEs are facing limitations in the ability to fund their investment and research and development activities. Buch et al. (2012) in their research on Jordan manufacturing SMEs, also agreed with the statement that financial had a positive influence on SMEs internationalization. Moreover, Paterno (2021) suggested that finances had a positive influence on SMEs' internationalization based on their research on Belgian SMEs that pursued foreign direct investments. This statement was also supported by Buch et al. (2014) who suggested that financial had a positive influence on SMEs internationalization. In their research study, they provided empirical evidence based on a comprehensive dataset containing information on parent-level financial German domestic and multinational companies where they found that finances had the most significant influence on the success of companies that were considering expanding abroad. Monteiro et al. (2019) also mentioned in their study on Portuguese exporting companies in Northern Portugal, that finances had a positive influence on SMEs internationalization. It was found that finances had an indirect influence on export performance through dynamic capabilities.

However, Raza Bilal, Naveed and Anwar (2017) argued that finances did not influence SMEs internationalization. In their study on Italian exporting SMEs, they found that finances may be overcome with the implementation of organizational innovations which increase the likelihood of product innovations and hence, will decrease the export growth. However, Hutchinson et al. (2009) shared the same overview as the earlier that financial have a positive influence on SMEs internationalization based on their research conducted among UK retailers. Therefore, it can be hypothesized as
H2: There is a positive influence between financial on SME internationalization.

Company Capability: Ribeiro, Lahiri and Mendes (2015) suggested that company capability had a positive influence on SMEs internationalization. The research focused on young and small new ventures from intensive technology sectors in Brazil where emerging market firms were found lacking in organizational capabilities thus, resulting in a high barrier to internationalization for those companies. Garcia (2017) emphasized that company capability had a positive influence on SMEs' internationalization. In his research on German MedTech SMEs, the researcher found that company capabilities were necessary to convert knowledge into value creation and networking.

Furthermore, Tolstoy et al. (2021) in their study on small European retailers providing value-added services in the retail sector also strongly indicated that capabilities will influence the degree of a company's internationalization and hence, company capability had a positive influence on SMEs internationalization. Therefore, it can be hypothesized as
H3: There is a positive influence between company capabilities on SME internationalization.

Management Competence: Raza Bilal, Naveed and Anwar (2017) indicated that management competence had a positive influence on SMEs internationalization. In their study in Spain and Pakistan, management competencies can create value for the firms through managing the optimal capital structure and WC to satisfy their business needs. On top of that, Jafari-Sadeghi (2023) reported that management competence had a positive influence on SMEs internationalization. In the research on Malaysian SMEs, it was found that those companies are largely dependent on network relationships in their initial decisions to internationalize and establish an international market.

It is also supported by Sinkovics et al. (2008) who had suggested in their research involving companies in the North-West of England that management competence had a positive influence on SMEs internationalization. The researchers emphasized that management competence had a vital role in assisting SMEs to overcome some barriers to internationalization. Senik et al. (2014) also shared the same overview in their research that management competence had a positive influence on companies' internationalization. Therefore, it can be hypothesized as
H4: There is a positive influence between management competences on SMEs internationalization.

Political Interference: Based on the research on Italian manufacturing SMEs by Akbar et al. (2018), it was found that political interference had a negative influence on SMEs' internationalization. The research showed that institutional voids which include regulatory quality prevent SMEs from increasing market presence and are a more persistent barrier to firms than psychic distance. According to Senik et al. (2014), mentioned in their research that the experts did not deny the presence of political interferences creating negative views towards government practices which subsequently become barriers for them to internationalize. This study found that political interference had a negative influence on SMEs' internationalization.

The statement was supported by Fariza (2015) where secondary data was obtained from reliable and authoritative sources in Malaysia. The researcher stated that political interference has a negative influence on SMEs' internationalization. Furthermore, Lee et al. (2020) also found that government policies were one of the factors regarded to be the main barriers faced by SMEs. Thus, this research indicates that political interference has a negative influence on SMEs' internationalization. Therefore, it can be hypothesized as
H5: There is a negative influence of political interference on SMEs internationalization.

Psychic Distance: Psychic distance, in the context of international business, refers to the perceived differences and dissimilarities between a company's home country and a foreign market in terms of various aspects, such as differences in language, customs, consumer preferences, legal systems, business practices, and economic conditions. Understanding and managing psychic distance is crucial for international businesses because it can impact market entry decisions, market selection, marketing strategies, and the overall success of international operations. Companies need to assess and bridge this psychological gap through market research, cultural adaptation, and tailored strategies to effectively navigate and compete in foreign markets.

Ambos, Leicht-Deobald and Leinemann (2019) reported that the greater the economic, cultural, and institutional differences and geographic distance between the manager's home country and a foreign country, the greater the perceived psychic distance will be. The researchers indicated that psychic distance has a negative influence on SMEs' internationalization. The study involved executive MBA students as well as alumni of those institutions from 25 countries. However, Akbar et al. (2018) argued that psychic distance does not appear to have a significant influence on SMEs' internationalization efforts as SMEs can overcome the barrier over time. Thus, psychic distance did not influence barriers to SME internationalization. Research by Li et al. (2023) also suggested that psychic distance has no influence on SMEs' barriers to internationalization. The research, which involved a Turkish sample, emphasized that SME

internationalization decisions in Turkey vary through companies' international experience and internationalization degrees. Therefore, it can be hypothesized as
H6: There is a negative influence between psychic distances on SMEs internationalization.

Managers Attitudes: Tajeddin et al. (2023) indicated in their research conducted among service firms in the U.S., that managers' attitudes had a positive relationship towards SMEs internationalization. A study by Ciravegna, Kuivalainen, Kundu and Lopez (2018) which was focused on Costa Rican software companies also stated that managers' attitudes had a positive influence on SMEs internationalization. The researchers found that managers' orientation led to a higher degree of internationalization.

Moreover, Ngoma, Ernest, Nangoli and Christopher (2017) in their study among SMEs in Uganda agreed that the manager's attitude had a positive influence on SMEs internationalization where the manager's orientation was an important element in the process of SMEs' internationalization. Antonin et al. also suggested that managers' attitudes had a positive influence on SMEs internationalization in which French and Indian samples were used in their study. Additionally, Senik et al. (2014) supported the statement that managers' attitudes had a positive influence on SMEs internationalization where they found that managers commonly had the positive attitudes needed when it came to internationalizing their business. Therefore, it can be hypothesized as
H7: There is a positive influence between managers' attitudes on SME internationalization.

3. Research Methodology

This research focused on the population of Oil and Gas Equipment and Service (OGSE) SMEs in Malaysia. The population size of the aforementioned SMEs is 2509 companies. Internal and external barriers to internationalization were used to determine the significance of each barrier towards OGSE SME's internationalization which is availability of resources, financial, manager's attitudes, firm capability, political interference, management competency, and psychic distance. This allows researchers to determine the most influential barriers to internationalization among OGSE SMEs in Malaysia that will eventually lead to problems such as a low number of Malaysian SMEs participating in international markets.

The population size was 2509 OGSE SMEs that are still active and providing core oil and gas works. According to Krejcie & Morgan, a sample size of at least 251 SMEs was needed for a population size of 2509. Therefore, a sample comprised of 500 OGSE SMEs was collected. However, after conducting a data cleaning, only 409 SME samples are considered valid and usable.

Considering the ultimate goal of this study is to predict the key target constructs or identify the main driver constructs, therefore, partial least squares structural equation modeling (PLS-SEM) using the PLS software package was utilized in performing the data analysis (Hair et al., 2022). To achieve the aims of this study, data analysis was conducted for the measurement model and structural model.

4. Results and Discussion

Measurement Model Analysis: To conduct the regression analysis, the data need to be valid and reliable. Validity was measured by using two criteria which are convergent validity and discriminant validity. Convergent validity consists of factor loadings, average variance extracted (AVE) and composite reliability (CR) as in Table 1. Within this study, the factor loadings mostly exceeded 0.7 at the acceptance rate of 0.6 (Hair et al., 2022). Three of the items fall below the acceptance rate but the researcher decided to retain these items because it is deemed to be important for the study and after looking at the AVE, the AVE of the result indicates that all the variables have a value greater than 0.5 which means that less error remains (Hair et al., 2022). The highest AVE is Political Interference which is 0.863 followed by SMEs Internationalization 0.808. The lowest AVE is Financial which is 0.504. Based on Table 1, it was indicated that all of the AVE and CR values are above the cut-off value of 0.5.

Table 1: Convergent Validity

Variables	Items	Loadings	CR	AVE
SMEs Internationalization	A1	0.897	0.954	0.808
	A2	0.903		
	A3	0.944		
	A4	0.835		
	A5	0.912		
Resources	B1	0.866	0.924	0.753
	B2	0.905		
	B3	0.876		
	B4	0.823		
Financial	C1	0.566	0.800	0.504
	C2	0.794		
	C3	0.786		
	C4	0.667		
Company Capability	D1	0.837	0.935	0.744
	D2	0.906		
	D3	0.878		
	D4	0.821		
	D5	0.868		
Mgt Competence	E1	0.943	0.881	0.672
	E2	0.914		
	E3	0.921		
	E4	0.338		
Political Interference	F1	0.934	0.962	0.863
	F2	0.942		
	F3	0.926		
	F4	0.915		
Physic Distance	G1	0.859	0.907	0.661
	G2	0.754		
	G3	0.836		
	G4	0.845		
	G5	0.765		
Mngrs Att	H1	0.755	0.908	0.713
	H2	0.913		
	H3	0.881		
	H4	0.820		

Next, Fornell and Larcker (1981) analysis was summarized in Table 2 which also shows that all the diagonal values are above their horizontal and vertical values respectively. Hence, all variables achieved reliable and valid results as they are near 1.0 (Henseler et al., 2015). Therefore, further analysis was deemed good to proceed.

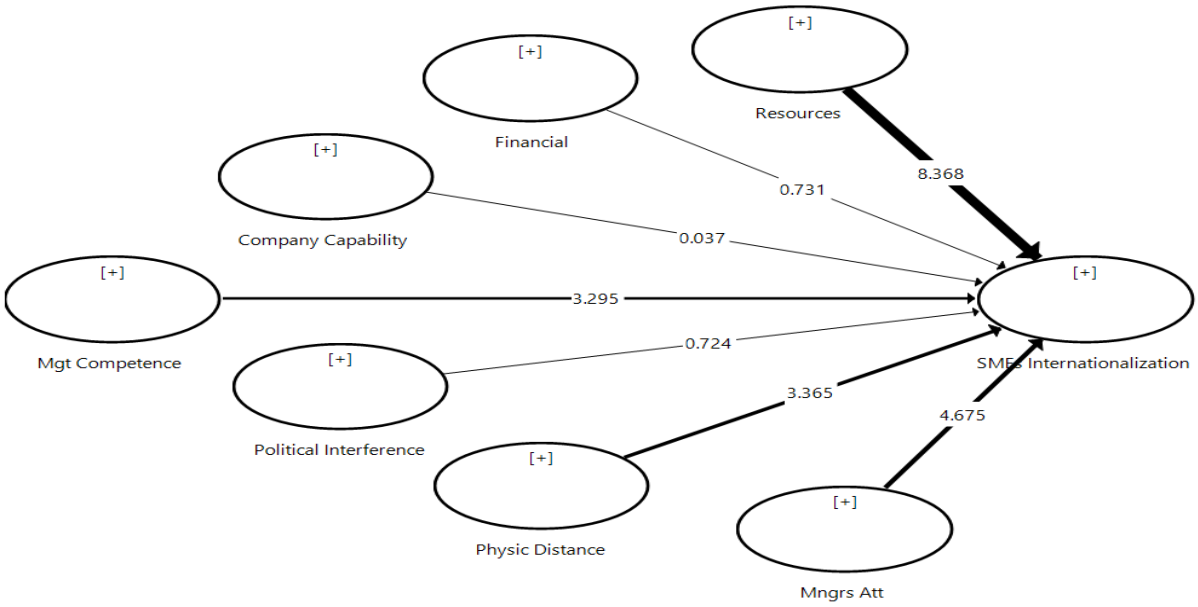
Table 2: Convergent Validity

	1	2	3	4	5	6	7	8
1. Company Capability	0.862							
2. Financial	0.302	0.710						
3. Mgt Competence	0.640	0.301	0.820					
4. Mngrs Att	0.467	0.370	0.477	0.844				
5. Physic Distance	-0.048	0.065	-0.013	-0.186	0.813			
6. Political Interference	0.231	0.302	0.296	0.145	0.265	0.929		

7. Resources	0.406	0.592	0.300	0.477	-0.130	0.108	0.868	
8. SMEs Internationalization	0.418	0.422	0.433	0.575	-0.225	0.087	0.635	0.899

Structural Model Analysis: The evaluation of the inner model path estimates for this study was permitted due to the outer model estimation of this study which is reliable and valid (Henseler et al., 2015). Once the construct measures were confirmed as being reliable and valid in section 4.1 above, the next step is to assess the relationships among constructs incorporated in the hypothesized conceptual model as depicted in Figure 1 below.

Figure 1: Structural Analysis



The structural model analysis was conducted to verify whether the results of the structural model support the conceptual model as hypothesized. Table 3 summarizes the findings of all the direct relationship assessments.

Table 3: Hypothesis Testing

Hypothesis		Std Beta	Std Error	t-Value
H1	Availability of Resources -> SMEs Internationalization	**0.423**	0.051	**8.368**
H2	Financial -> SMEs Internationalization	0.040	0.054	0.731
H3	Company Capability -> SMEs Internationalization	0.002	0.053	0.037
H4	Management Competence -> SMEs Internationalization	**0.179**	0.054	**3.295**
H5	Political Interference -> SMEs Internationalization	-0.031	0.042	0.724
H6	Physic Distance -> SMEs Internationalization	**-0.115**	0.034	**3.365**
H7	Managers Attitude -> SMEs Internationalization	**0.255**	0.055	**4.675**

Discussion: Previous studies have shown each of those factors has a positive influence on barriers to SME internationalization except for psychic distance, where previous studies suggested that the variable does not influence barriers to internationalization. However, in this study; availability of resources, finances, company capability, management competence and manager's attitudes show a positive ß-value which indicates there is a positive relationship between those factors aforementioned towards SMEs internationalization. All of these are hypothesized earlier in the literature review. However, after analyzing each of the independent variables; t-value and beta coefficient value, only hypotheses of availability of resources, management competence, physic distance and manager's attitudes from this research are supported.

5. Managerial Implications and Recommendations

Malaysian OGSE SMEs should focus on their resources in situations where those companies may be lacking in resources to internationalize. By acknowledging this barrier earlier, those companies can establish well-developed strategic planning as well as take preliminary actions and initiatives to overcome the lack of resources faced by those companies that are hindering them from internationalizing.

Aside from that OGSE SMEs should also sit back and review their attitude towards internationalization and perhaps try to look for factors that can help them change their attitude either using internal force or external force that work best for them. This will indirectly improve psychic distance and management competence.

For future research, researchers should attempt to study other barriers as independent variables such as in the areas of technology, innovation, marketing and business competition.

Conclusion: Interestingly, the study found that lack of resources is the most influential factor contributing to SME internationalization with a t-value of 8.368. This is then followed by manager's attitudes with a t-value of 4.675, physic distance with a t-value of 3.365 and management competence with a t-value of 3.295. Therefore, based on this research, it can be concluded that lack of resources is the most influential factor towards SMEs internationalization among the OGSE SMEs in Malaysia and hence, should be given extra attention to overcome the issue of a low number of Malaysian SMEs participating in international trade. Coupled with the changes in managers' attitudes, the psychic distance issue and management competence will then lead to an increase the SMEs' participation internationally.

References

Ahimbisibwe, G., Ngoma, M., Nabatanzi-Muyimba, A. & Kabagambe, L. (2023). Entrepreneurial mindset and SME internationalization in Uganda: The mediating role of international networking. *Review of International Business and Strategy*, 33(4), 669-690. https://doi.org/10.1108/ribs-11-2021-0149

Akbar, Y., Balboni, B., Bortoluzzi, G., Dikova, D. & Tracogna, A. (2018). Disentangling resource and mode escalation in the context of emerging markets. Evidence from a sample of manufacturing SMEs. *Journal of International Management*, 24(3), 257–270. https://doi.org/10.1016/j.intman.2018.01.003

Ambos, B., Leicht-Deobald, U. & Leinemann, A. (2019). Understanding the formation of psychic distance perceptions: Are country-level or individual-level factors more important? International Business Review, (January), 1–12. https://doi.org/10.1016/j.ibusrev.2019.01.003

Bembom, M. & Schwens, C. (2018). The role of networks in early internationalizing firms: A systematic review and future research agenda. *European Management Journal*, 36(6), 679–694. https://doi.org/10.1016/j.emj.2018.03.003

Buch, C. M., Kesternich, I., Lipponer, A. & Schnitzer, M. (2014). Financial constraints and foreign direct investment: firm-level evidence. *Review of World Economics*, 150(2), 393–420. https://doi.org/10.1007/s10290-013-0184-z

Catanzaro, A. & Teyssier, C. (2020). Export promotion programs, export capabilities, and risk management practices of internationalized SMEs. Small Business Economics. https://doi.org/10.1007/s11187-020-00358-4

Cerrato, D., Crosato, L. & Depperu, D. (2016). Archetypes of SME internationalization: A configurational approach. *International Business Review*, 25(1), 286–295. https://doi.org/10.1016/j.ibusrev.2015.05.010

Ciravegna, L., Kuivalainen, O., Kundu, S. K. & Lopez, L. E. (2018). *The antecedents of early internationalization: A configurational perspective*, 27(December 2016), 1200–1212. https://doi.org/10.1016/j.ibusrev.2018.05.002

Denicolai, S., Zucchella, A. & Magnani, G. (2021). Internationalization, digitalization, and sustainability: Are SMEs ready? A survey on synergies and substituting effects among growth paths. Technological Forecasting and Social Change, 166, 120650. https://doi.org/10.1016/j.techfore.2021.120650

Falahah, M., Ramayah, T., Soto-Acosta, P. & Lee, Y. Y. (2020). SMEs internationalization: The role of product innovation, market intelligence, pricing and marketing communication capabilities as drivers of SMEs' international performance. *Technological Forecasting and Social Change*. Elsevier, 152, 119908. https://doi.org/10.1016/j.techfore.2020.119908

Fariza, H. (2015). SMEs' impediments and developments in the internationalization process. *World Journal of Entrepreneurship, Management and Sustainable Development*, 11(2), 100–119. https://doi.org/10.1108/wjemsd-11-2013-0055

Foghani, S., Mahadi, B. & Mohammadi, P. (2023). Determination of SME's internationalization in the Malaysian context. *Business Management and Strategy*, 14(1), 25. https://doi.org/10.5296/bms.v14i1.20783

Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2022). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). 3rd Ed., Sage: Thousand Oaks.

Hasim, M. A., Ishak, M. F. & Shamsudin, M. F. (2018). Exploring the barriers to internationalization for Malaysian SMEs. *International Journal of Engineering & Technology*, 103-105.

Hutchinson, K., Fleck, E. & Lloyd-Reason, L. (2009). An Investigation into the Initial Barriers to Internationalization: Evidence from Small UK Retailers, *Journal of Small Business and Enterprise Development*, 16(4), 544-568.

Ismail, M. R. & Zakaria, Z. (2018). The effects of entrepreneurship orientation, government support and internationalization on Malaysian SMEs performance. *International Journal of Academic Research in Business and Social Sciences*, 8(7), 453–468.

Jafari-Sadeghi, V., Amoozad Mahdiraji, H., Alam, G. M. & Mazzoleni, A. (2023). Entrepreneurs as strategic transformation managers: Exploring micro-foundations of digital transformation in small and medium internationalizes. *Journal of Business Research*, 154, 113287.

Lakshman, D., Kumarasinghe, J. & Weerasinghe, R. (2023). Internationalization of SMEs: Relevance of the theories and antecedents. *Asian Journal of Economics Business and Accounting,* 23(11), 62-85. https://doi.org/10.9734/ajeba/2023/v23i11978

Lee, J. Y., Jimenez, A., Yang, Y. S. & Irisboev, I. (2022) The evolution of emerging market firms and time until subsidiary exit: Competitive dynamics of domestic market followers and contingency factors, *Journal of Business Research*, 145, 694-704, https://doi.org/10.1016/j.jbusres.2022.03.029

Li, F., Chen, Y., Liu, L. & Zhuang, M. (2023). Do cross-national distances still affect the international penetration speed of digital innovation? The role of the global network effect, *Heliyon*, 9(3), e13911, https://doi.org/10.1016/j.heliyon.2023.e13911

Monteiro, A. P., Soares, A. M. & Rua, O. L. (2017). Linking intangible resources and export performance: The role of entrepreneurial orientation and dynamic capabilities. *Baltic Journal of Management*, 12(3), 329–347. https://doi.org/10.1108/BJM-05-2016-0097

Monteiro, A. P., Soares, A. M. & Rua, O. L. (2019). Linking intangible resources and entrepreneurial orientation to export performance: The mediating effect of dynamic capabilities, *Journal of Innovation & Knowledge*, 4(3), 179-187. https://doi.org/10.1016/j.jik.2019.04.001

Ngoma, M., Ernest, A., Nangoli, S., Christopher, K., Ngoma, M., Ernest, A. & Nangoli, S. (2017). Internationalization of SMEs: does entrepreneurial orientation matter? https://doi.org/10.1108/WJEMSD-08-2016-0039

Nik Abdullah, N. A. H. & Mohd Zain, S. N. (2011). The Internationalization Theory and Malaysian Small Medium Enterprises (SMEs). *International Journal of Trade, Economics and Finance*, 2(4), 318–322.

Nurfarida, I. (2022). The internationalization of SMEs: Motives and barriers. *International Journal of Current Science Research and Review*, 05(05). https://doi.org/10.47191/ijcsrr/v5-i5-43

Paterno, A. (2021). Department of Trade and Industry (DTI) IV: A marketing assistance to micro, small, and medium enterprises and its financial impact: Inputs to marketing plan. *International Journal of Research Studies in Management,* 9(2), 29-59. https://doi.org/10.5861/ijrsm.2021.m058

Raza Bilal, A., Naveed, M. & Anwar, F. (2017). Linking distinctive management competencies to SMEs' growth decisions. *Studies in Economics and Finance*, 34(3), 302–330. https://doi.org/10.1108/SEF-10-2015-0236

Ribeiro, F., Lahiri, S. & Mendes, F. (2015). Managerial perceptions of barriers to internationalization: An examination of Brazil's new technology-based firms. *Journal Business Research*, 69(6), 1973–1979.

Sani, A. (2018). Factors Affecting Small Medium Enterprises' (SMEs) Decision to go Factors Affecting Small Medium Enterprise' (SMEs) Decision to go International. (January).

Senik, Z. C., Mat Isa, R., Md Sham, R. & Ayob, A. H. (2014). A model for understanding SMEs internationalization in emerging economies. *Jurnal Pengurusan*, 41, 25–42. https://doi.org/10.17576/pengurusan-2014-41-03

Sinkovics, R., Penz, E. & Ghauri, P. N. (2008). Enhancing the trustworthiness of qualitative research in international business. *Management International Review*, 48(6), 689-714.

Tajeddin, M., Farashahi, M., Moghaddam, K., Simba, A. & Edwards, G. (2023). Internationalization of emerging economy SMEs: A tripod approach, *Journal of International Management*, 29(1), 100991, https://doi.org/10.1016/j.intman.2022.100991

Tolstoy, D., Nordman, E. R., Hanell, S. M. & Ozbek, N. (2021). The development of international e-commerce in retail SMEs: An effectuation perspective. *Journal of World Business*, 56(3), 101165. https://doi.org/10.1016/j.jwb.2020.101165

Yang, S. (2023). Factors influencing SME growth performance in China: A conceptual analysis. *Journal of Digitainability Realism & Mastery*, 2(03), 50-59. https://doi.org/10.56982/dream.v2i03.93

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Mediating Effect of Self-Resilience on the Relationship between Financial Anxiety and Psychological Distress among University Students

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Abstract: The purpose of this study was to investigate the role that self-resilience plays as a mediator in the relationship between financial anxiety and psychological distress experienced by university students. In total, one hundred twenty undergraduate university students were sent an online invitation to take part in the research as survey respondents, and the survey instruments used were pre-tested to ensure their reliability. When the scores for respondents' financial anxiety, self-resilience, and psychological distress were compared with the characteristics of the respondents, the statistics suggest that there was no statistically significant difference. The primary finding reveals that self-resilience statistically and significantly mediated the association between financial anxiety and psychological distress, even though the effect size was relatively small. This is even though all variables were shown to have statistically significant correlations with one another. This study suggests that self-resilience can operate as a buffer against the potentially harmful impact that financial concern can have on psychological well-being. It is recommended that the university, in addition to providing continuous financial-related support to the students, provide a variety of programs on campus and off campus aimed at improving students' self-resilience. This will assist students in better managing their financial-related psychological distress.

Keywords: *Self-resilience, financial anxiety, psychological distress, mediation, university students, well-being.*

1. Introduction and Background

Early adulthood encourages people to move away from their families or homes to develop new careers, learn new skills, or enroll in higher education programs (Lenz, 2001). An increase in financial responsibility is also frequently observed at this time (Archuleta et al., 2013). When they enroll in college or university, many young adults handle their finances for the first time, and they frequently find themselves juggling financial obligations in addition to academic obligations. According to previous research, undergraduate students typically spend money on things like accommodation, food and drink, academic-related costs, personal items, and entertainment. According to Daud et al. (2018), inadequate financing resources, a delay in receiving funding and poor planning that caused an imbalance between income and spending were the root causes of financial anxiety among Malaysian students enrolled in higher education. Thus, financial anxiety among college students might result from unmet needs. This is regarded as one of the major stressors impacting university students and has been linked to students' cognitive function, mental health, and emotional well-being (Cadaret & Bennett, 2019; Jones et al., 2018).

A study by Fawzy and Hamed (2017) highlighted the prevalence of depression, anxiety, and stress among university students. University students have been reported to have poor mental health, including higher rates of anxiety, depression, and other mental health disorders and problems (Wong et al., 2023). Financial anxiety among university students indirectly impacts psychological distress among them. Apart from mental health problems, psychological distress is among the most common causes of academic failure because it can affect academic performance, and psychological well-being, all of which are important for success in higher education. However, university students with high levels of self-resilience can overcome obstacles throughout their studies. As Kaloeti et al. (2019) conceptualized resilience as the ability of individuals to navigate towards maintaining resources they need in the context of adversity, they found psychological distress directly affected resilience and depression. Hence, based on the above discussion, this study aims to investigate the mediation effect of self-resilience on the relationship between financial anxiety and psychological distress among university students.

2. Literature Review

University life is often perceived as a time of growth, exploration, and exciting opportunities. However, for many students, this phase can also be marked by significant psychological distress. Psychological distress refers to a state of emotional suffering, characterized by symptoms such as anxiety, depression, loneliness, and a feeling of being overwhelmed (Ross, 2017; Cuijper et al., 2009). The transition to university, academic pressures, financial challenges, and social expectations can all contribute to the high prevalence of psychological distress among university students (Granieri et al., 2021; Fradelos et al., 2019).

Financial anxiety, a state of worry and unease surrounding one's financial situation, has emerged as a significant concern among university students (McCloud & Bann, 2019). With rising tuition fees, increasing living expenses, and student loans, many students find themselves grappling with financial challenges. The impact of financial anxiety on the mental health of university students is profound, leading to heightened psychological distress (Moore et al., 2021).

Financial anxiety is prevalent among university students, affecting their mental well-being and academic performance. A study found that financial-related stress was a significant source of distress for college students (Lim et al., 2014). The fear of student loan debt, uncertainty about future job prospects, and the pressure to afford necessities contribute to heightened financial anxiety levels among students.

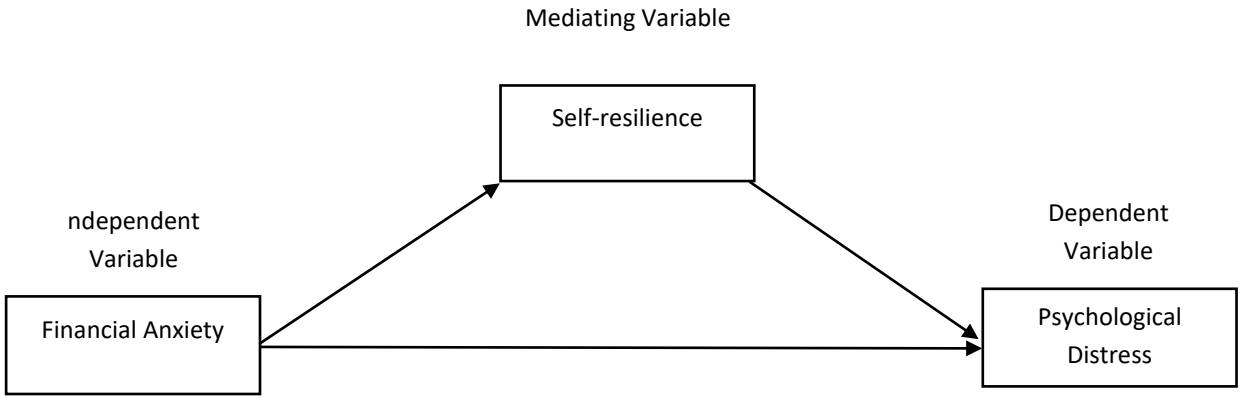
The psychological distress caused by financial anxiety can have adverse effects on academic performance (Bennett et al., 2015). Students may have trouble concentrating, completing assignments, and preparing for exams due to their preoccupation with financial worries. Additionally, the pressure to work part-time jobs or take on excessive hours to cover expenses can lead to fatigue and burnout, further impacting academic achievements.

While the effect of financial anxiety on psychological distress among students is obvious, the magnitude of such an effect might depend on the ability to maintain a positive perspective to addressing financial issues and how well the students equip themselves in managing stress. This concept relates the self-resilience. The impact of self-resilience on financial anxiety among university students is significant and can play a crucial role in how students perceive and cope with financial challenges. Self-resilience refers to an individual's ability to bounce back and adapt in the face of adversity (Alva, 1991; Wang et al., 1994), and it can influence how a student approaches and navigates financial anxieties.

Self-resilient university students are better equipped to manage stress, including stress related to financial challenges (Popa-Velea et al., 2021). They are more likely to view financial difficulties as temporary setbacks that can be overcome, rather than insurmountable obstacles. This perspective acts as a buffer against the negative impact of financial anxiety (Lie et al., 2021). Students with higher levels of self-resilience are more likely to adopt adaptive coping mechanisms when faced with financial anxiety. They may seek social support, proactively seek solutions to financial problems, and engage in problem-solving strategies. These coping mechanisms can alleviate financial anxiety and promote a sense of control over their financial situation.

The relationship between self-resilience and psychological distress is inversely related, meaning that higher levels of self-resilience are associated with lower levels of psychological distress (Jeamjitvibook et al., 2022). While self-resilience refers to an individual's ability to bounce back and adapt in the face of adversity, psychological distress encompasses a range of negative emotional and psychological symptoms, such as anxiety, depression, and feelings of helplessness. A study conducted by Song et al. (2020) showed that self-resilience acts as a protective factor against psychological distress. The finding suggests that resilient individuals possess the skills and resources to cope with stressors and challenges effectively. Having said that, it is sensible to suggest that highly resilient individuals are more likely to view difficult situations as manageable and temporary, which can reduce the likelihood of experiencing overwhelming psychological distress as a result of financial worries.

Figure 1: Conceptual Framework



Although the direct relationship between financial anxiety, self-resilience, and psychological distress has been rigorously examined in the past, it is unknown to what extent self-resilience mediates the negative impact of financial anxiety on psychological distress. Therefore, the current study is embarked on to explore this issue. Figure 1 depicts the conceptual framework of the current study.

HA: Self-resilience mediates the relationship between financial anxiety and psychological distress

3. Research Methodology

Population/ Sample: This study employed a cross-sectional design, with undergraduate students of Universiti Teknologi Mara Puncak Alam Campus, participating in the study as survey respondents. In total, 120 undergraduate students of various academic programs (i.e., Business & Management, Hospitality, Accountancy, Build Environment, and Education) responded to the online survey.

Instrument: The financial anxiety scale (Shapiro & Burchell, 2012), the Brief resilience scale (Smith et al., 2008), and the Kessler Psychological Distress Scale (Kessler et al., 1992) were used to measure respondents' financial anxiety, self-resilience, and psychological distress. Respondents were asked to respond to questionnaire items using a five-point Likert scale (from 1 to indicate very strong disagreement, to 5 to indicate very strong agreement). High scores for financial anxiety, and psychological distress indicate the respondents are suffering from stressful financial situations and non-specific symptoms of stress, anxiety, and depression. On the other hand, a high score for self-resilience indicates the respondents are highly able to withstand adversity and bounce back from difficult life events. Before analyses, the psychometric properties of the scales were examined and the Cronbach's alphas for financial anxiety scale (0.81), brief resilience scale (0.84), and psychological distress scale (0.86) indicated good internal consistency. The confirmatory factor analysis (CFA) results also suggest each measurement has an appropriate fit.

Statistical Analysis: Categorical variables were analyzed using frequency and percentage, and continuous variables using mean and standard deviation. Pearson's Product-Momen Correlation test was performed to examine the association between variables and this was followed by multiple regression analysis to determine the extent to which the dependent variables influence the measured outcome. Mediation analysis was performed based on a counterfactual approach, in which total effect, controlled direct effect, and natural direct effect were computed. The computation of the mediation effect was performed using a Stata user's written module Paramed (Emsley & Liu, 2013). This module performs causal mediation analysis using parametric regression models, and it extends statistical mediation analysis (widely known as the Baron and Kenny procedure) to allow for the presence of exposure-mediator interactions in the outcome regression model using counterfactual definitions of direct and indirect effects. Numerous studies demonstrated the applicability of this method in analyzing mediation effects (VanderWeele & Vansteelandt, 2009; Whittle et al., 2017; Kim & VanderWeele, 2019). All reported P-values were 2-tailed and the significance level was set at $P < .05$. Stata Statistical Software Release 17 (Stata Corp LP, College Station, TX) was used to analyze the data.

4. Results and Discussion

This section presents sets of results relating to the profile of respondents, and the comparison of respondent's financial anxiety, self-resilience and psychological distress scores based on the selected respondent's characteristics.

Profile of Respondents: A total of 120 students participated in the survey. Most respondents were female (*n* = 85, 71.1%), aged between 22 – 24 years (n = 70, 70.3%), and were currently in the final year of undergraduate programs (*n* = 90, 74.4%). A great number of respondents were also living in the university's arranged accommodation (*n* = 80, 66.1%). Mean comparison analyses using the Welch *t*-test identified no significant difference in respondents' financial anxiety, self-resilience, and psychological distress when the scores were statistically compared against gender, year of academic study, and the status of living arrangement.

Table 1: Correlational Analysis (N = 120)

	M	SD	1	2	3
1. Financial Anxiety	2.89	0.65	1.00		
2. Self-resilience	2.92	0.55	0.55***	1.00	
3. Psychological Distress	3.24	0.55	0.53***	-0.51***	1.00

*** p <.001

Correlational Analysis: The result of the analysis suggests both financial anxiety and self-resilience scores significantly correlated with respondents' psychological distress. While financial anxiety showed a positive relationship with psychological distress (r = 0.53, p <.001), an inverse association was observed between self-resilience and psychological distress (r = -0.51, p <.001). The effect size for both correlations is large according to Cohen (1988).

Table 2: Multiple Regression Analysis (N = 120)

						Collinearity Statistics	
	B	S.E	*t*	*p*	95% CI	Tolerance	VIF
Financial Anxiety	0.48	0.10	4.61	<.001	0.27 – 0.68	0.74	1.34
Self-resilience	-0.50	0.12	-4.08	<.001	-0.73 to -0.23	0.74	1.34
R^2	0.39						
$_{adj}R^2$	0.38						
$F_{2, 118}$	38.22						
Sig. *F*	<.001						

Multiple regression analysis was performed to determine the influence of financial anxiety and self-resilience on psychological distress. Overall, the regression model is statistically significant ($F_{2, 118}$ = 38.22, p <.001), and the r-squared value explains 39% of fitted data in the regression model. The analysis revealed that both financial anxiety and self-resilience are significant predictors of psychological distress. Based on the unstandardized beta value, self-resilience has a greater influence on psychological distress (β = -0.50, p <.001), when compared with the influence of financial anxiety (β = 0.48, p <.001). Table 2 summarizes the results of the multiple regression analysis.

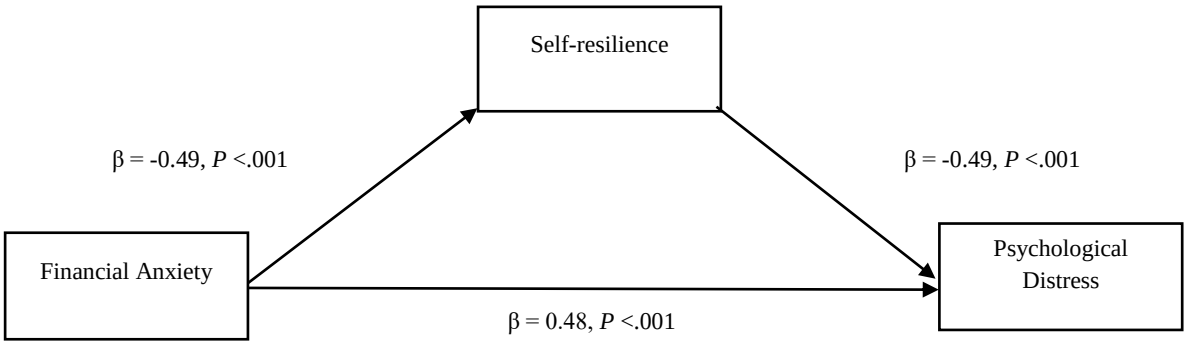
Mediation analysis was performed to determine the influence of self-resilience on the relationship between financial anxiety and psychological distress. Using a counterfactual approach to mediation analysis, controlled direct, natural indirect effect, and total effect values were computed. Controlling the effect of respondent characteristics, the model was found to be statistically significant ($F_{13, 107}$ = 6.73, p <.001).

Table 3: Result of Mediation Analysis

	β	S.E	P	95% CI
Controlled direct effect (CDE)	0.48	0.11	<.001	0.26 – 0.70
Natural indirect effect (NIE)	0.24	0.07	.001	0.10 – 0.38
Total effect (TE)	0.71	0.10	<.001	0.52 – 0.91

Table 3 summarizes the result of the mediation analysis. The total effect suggests that for a unit increase in the score of financial anxiety, the score for psychological distress increases by 0.71 units. While the natural indirect effect captures the effect of financial anxiety and psychological distress through the self-resilience mechanism, the controlled direct effect provides information on the effect of financial anxiety on psychological distress through mechanisms other than self-resilience. The result based on this regression analysis showed the controlled direct effect is significantly larger (β = 0.48, p <.001) than the natural direct effect (β = 0.24, p = 0.001). Nonetheless, self-resilience demonstrates a statistically significant mediating effect on the relationship between financial anxiety and psychological distress. The relationship between the studied variables and the mediating pathway is depicted in Figure 2.

Figure 2: Diagrammatic Presentation of Variables Relationship and Mediating Effect



Discussion: The purpose of this study was to investigate the mediation effect of self-resilience on the relationship between financial anxiety and psychological distress among university students. The evidence from the past literature confirms the relationships between the variables, but the information regarding the extent to which self-resilience mediates the relationship is somehow limited.

Our hypothesis postulated that self-resilience would serve as a mediator between financial anxiety and psychological distress. The results of the analyses supported this hypothesis. Consistently, self-resilience was found to mediate the relationship between the variables, as observed in the findings of two past studies. The initial investigations examined whether or not resilience mediates the relationships between stress, depression, and anxiety among Indonesian nursing students. After controlling for student age, living conditions, and living allowance, the results indicated that resilience partially mediated the relationship between depression and anxiety (Devi, Purborini & Chang, 2021). Another study was conducted to determine whether or not resilience mediates the association between purpose in life and mental health among Pakistani students. According to the study's findings, resilience served as a mediator between the presence of meaning in life and mental health (Rasheed, Fatima & Tariq, 2022). Thus, the current study findings show some consistency that suggests self-resilience mediates the relationship between financial anxiety and psychological distress among university students.

Students' self-concepts appeared to be key determinants of financial anxiety. Students in this study compared their financial position to that of their peers and experienced increased anxiety when they felt worse off than their counterparts. Meeting basic financial needs was also important to students as shown in the results of this study. Students experienced heightened anxiety when they perceived their income as inadequate and reductions in anxiety when income was viewed as sufficient. Also, the ability to afford basics, such as food, housing, medical care, clothing, and transportation, was associated with reduced financial anxiety. It

appeared that students' self-perception of finance was the main reason for having financial distress. They tend to compare their financial situation to their peers and experience anxiety when they feel less financially secure than their peers. Other than that, students showed increased anxiety when they judged their finances to be inadequate and thus limited their ability to buy necessary items such as food, medical care, clothing and pay for transportation (Potter, Jayne & Britt, 2020). Despite that, the severity of this anxiety highly depends on the ability to maintain a positive perspective to addressing financial issues and how well the students equip themselves to manage stress – a concept that relates to self-resilience.

5. Conclusion

This study demonstrates that financial anxiety is a significant cause of psychological distress among university students. Together with parents, lecturers, and university counselors, this issue should be addressed to assist students with financial limitations during their academic years. Psychological distress has a strong correlation with financial anxiety among students, which can harm their academic performance and mental health. While parents and policymakers may provide financial aid or educational scholarships, students with greater self-resilience are better able to manage stress healthily. It has been shown that a student's ability to assimilate and adjust to the university environment, as well as the social support they receive from their peers and lecturers, can increase self-resilience, and assist them in coping with financial issues, alleviating psychological distress. Therefore, it is recommended that the university provide various in-campus and out-campus programs aiming at improving resilience among students such as success story-sharing sessions, problem-solving skills programs, and motivational talks. Additionally, but most importantly, students should be informed of the availability of student counselors if they exhibit symptoms of distress that, if untreated, are likely to impact their future academic performance.

Reference

Alva, S. A. (1991). Academic invulnerability among Mexican American students: the importance of protective resources and appraisals. *Hisp. J. Behav. Sci,* 13, 18–34. doi: 10.1177/07399863910131002

Archuleta, K. L., Dale, A. & Spann, S. M. (2013). College students and financial distress: Exploring Debt, Financial Satisfaction, and Financial Anxiety. *Journal of Financial Counseling and Planning,* 24(2), 50.

Bennett, D., McCarty, C. & Carter, S. (2015). The impact of financial stress on academic performance in college economics courses. *Academy of Educational Leadership Journal,* 19(3), 25.

Cadaret, M. C. & Bennett, S. R. (2019). College students reported financial stress and its relationship to psychological distress. *Journal of College Counseling,* 22, 225-239.

Cohen J. (1988). Statistical Power Analysis for the Behavioral Sciences. New York, NY: Routledge Academic.

Cuijpers, P., Smits, N., Donker, T., ten Have, M. & de Graaf, R. (2009). Screening for mood and anxiety disorders with the five-item, the three-item, and the two-item Mental Health Inventory. *Psychiatry Research,* 168(3), 250–255. https://doi.org/10.1016/j.psychres.2008.05.012

Daud, N., Norwani, N. M. & Yusof, R. (2018). Students Financial Problems in Higher Education Institutions. *International Journal of Academic Research in Business and Social Sciences*, 8(10), 1558–1565.

Devi, H. M., Purborini, N. & Chang, H. (2021). The mediating effect of resilience on the association among stress, depression, and anxiety in Indonesian nursing students. *Journal of Professional Nursing,* 37(2021) 706–713.

Emsley, R. & Liu, H. (2013). PARAMED: Stata module to perform causal mediation analysis using parametric regression models. Statistical Software Components.

Fawzy, M. & Hamed, S. A. (2017). Prevalence of psychological stress, depression and anxiety among medical students in Egypt. *Psychiatry Research,* 255, 186-194.

Fradelos, E. C., Kapsiocha, E., Tzavella, F., Kastanidou, S., Tsaras, K., Papagiannis, D. & Papathanasiou, I. V. (2019). Factors Associated with Psychological Distress in University Students and the Relation to Emotional Intelligence and Spirituality: a Cross-sectional Study. *Materia socio-medica,* 31(4), 262–267.

Granieri, A., Franzoi, I. G. & Chung, M. C. (2021). Editorial: Psychological Distress among University Students. *Frontiers in Psychology*, 12, 647940. https://doi.org/10.3389/fpsyg.2021.647940

Jeamjitvibool, T., Duangchan, C., Mousa, A. & Mahikul, W. (2022). The Association between Resilience and Psychological Distress during the COVID-19 Pandemic: A Systematic Review and Meta-analysis. *International Journal of Environmental Research and Public Health,* 19(22), 14854.

Jones, P. J., Park, S. Y. & Lefevor, G. T. (2018). Contemporary College Student Anxiety: The Role of Academic Distress, Financial Stress, and Support. *Journal of College Counseling,* 21, 252-264.

Kaloeti, d. V. S., Rahmandani, A., Sakti, H., Salma, S., Suparno, S. & Hanafi, S. (2019). Effect of Childhood Adversity Experiences, Psychological Distress, and Resilience on Depressive Symptoms among Indonesian University Students. *International Journal of Adolescence and Youth,* 24(2), 177-184.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L. & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine,* 32(6), 959-976.

Kim, E. S. & VanderWeele, T. J. (2019). Mediators of the Association between Religious Service Attendance and Mortality. *American Journal of Epidemiology,* 188(1), 96–101. https://doi.org/10.1093/aje/kwy211

Lenz, B. (2001). The transition from adolescence to young adulthood: a theoretical perspective. *Journal of School Nursing,* 17(6), 300-6.

Lim, H., Heckman, S. J., Letkiewicz, J. C. & Montalto, C. P. (2014). Financial stress, self-efficacy and financial help-seeking behavior of college students. *Journal of Financial Counseling and Planning*, 25(2), 148–160.

Liu, Q., Jiang, M., Li, S. & Yang, Y. (2021). Social support, resilience, and self-esteem protect against common mental health problems in early adolescence: *A no recursive analysis from a two-year longitudinal study. Medicine*, 100(4), e24334. https://doi.org/10.1097/MD.0000000000024334

McCloud, T. & Bann, D. (2019). Financial stress and mental health among higher education students in the UK up to 2018: a rapid review of evidence. *J Epidemiol Community Health*, 73(10), 977-984.

Moore, A., Nguyen, A., Rivas, S., Bany-Mohammed, A., Majeika, J. & Martinez, L. (2021). A qualitative examination of the impacts of financial stress on college students' well-being: Insights from a large, private institution. *SAGE open medicine,* 9, 20503121211018122.

Popa-Velea, O., Pîrvan, I. & Diaconescu, L. V. (2021). The Impact of Self-Efficacy, Optimism, Resilience and Perceived Stress on Academic Performance and Its Subjective Evaluation: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, 18(17), 8911.

Potter, D., Jayne, D. & Britt, S. (2020). Financial Anxiety among College Students: The Role of Generational Status. *Journal of Financial Counseling and Planning,* 31(2), 284-295.

Rasheed, N., Fatima, I. & Tariq, O. (2022). University students' mental well-being during COVID-19 pandemic: The mediating role of resilience between meaning in life and mental well-being. *Acta Psychologica,* 227, 103618.

Ross, C. E. (2017). Social causes of psychological distress. Routledge.

Shapiro, G. K. & Burchell, B. J. (2012). Measuring Financial Anxiety. *Journal of Neuroscience, Psychology, and Economics*, 5(2), 92.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P. & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, 15(3), 194–200.

Song, S., Yang, X., Yang, H., Zhou, P., Ma, H., Teng, C., Chen, H., Ou, H., Li, J., Mathews, C. A., Nutley, S., Liu, N., Zhang, X. & Zhang, N. (2021). Psychological Resilience as a Protective Factor for Depression and Anxiety among the Public during the Outbreak of COVID-19. *Frontiers in Psychology*, 11, 618509.

Torales, J., O'Higgins, M., Castaldelli-Maia, J. M. & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry,* 66(4), 317–320.

VanderWeele, T. J. & Vansteelandt, S. (2009). Conceptual issues concerning mediation, interventions and composition. *Statistics and Its Interface*, 2, 457-468.

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S. & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public*. Health. https://doi.org/10.3390/ijerph17051729

Wang, M. C., Haertel, G. D. & Walberg, H. J. (1994). Educational resilience in inner cities," in Educational Resilience in Inner-city America: Challenges and Prospects, eds M. C. Wang and E. W. Gordon (Hillsdale, NJ: Erlbaum), 45–72.

Whittle, R., Mansell, G., Jellema, P. & van der Windt, D. (2017). Applying causal mediation methods to clinical trial data: What can we learn about why our interventions (don't) work? *European Journal of Pain (London, England),* 21(4), 614–622. https://doi.org/10.1002/ejp.964

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,* 25, 18(1), e0280680.

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Factorial Structure and Psychometric Validation of Social Media Intelligence Quotient (SMIQ) Scales among Graduates

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Abstract: The Social Media Intelligence Quotient (SMIQ)'s underlying factorial structure will be extracted, and validated, and its psychometric properties will be examined in this study. Self-administered questionnaires from the universities that produce the most employable graduates in Malaysia, such as Universiti Malaya, Universiti Kebangsaan Malaysia, and Universiti Teknologi Mara, were utilized by the researcher to gather the data. It involved 352 final-year students from the Faculty of Business Management. To ascertain the factorial structure of the SMIQ, the researcher used the Exploratory Factor Analysis (EFA). Additionally, the confirmatory factorial analysis (CFA) was used to evaluate the psychometric characteristics of each item to confirm and validate it. A structural model was also developed to measure the nomological validity between social media dependency and SMIQ. It revealed that SMIQ is second order with three factorial structure constructs and met the psychometric criteria. Thus, the findings have essential implications for future research directions and the management of social media skills.

Keywords: *SMIQ, Social Media Literacy, Social Intelligence, Online Business Literacy*.

1. Introduction and Background

Pathological or excessive internet use (PIU) is now a widely recognized issue affecting people of all ages. This claim was supported by Kumar et al. (2019), who described how internet addiction can cause hyperactivity, sadness, social phobia, and aggression. As Luaran et al. (2012) pointed out, this phenomenon affects college students differently than secondary school students. College students can prioritize their attention better than teenagers when using the internet due to their mental maturity and degree of thought. According to Al-Adwan et al. (2020), students also engage in virtual learning. In the contemporary period, a wide range of information sources can be accessed over the internet to download notes, communicate, and do projects. Additionally, Garcia et al. (2020) noted how social media and internet use appear to be highly correlated with smartphone use since people utilize these platforms to conduct information searches and find solutions to their problems. The Malaysian Communication and Multimedia Commission (2020) announced that smartphone saturation in Malaysia reached 98.7% in 2020 during the Movement Control Order (MCO). Every household heavily relies on their smartphone to access their social media accounts and browse the internet. Since the school was closed for MCO, students must attend virtual classes, and all employees must work from home. During this pandemic, most activities, including conferences, seminars, lectures, and the acquisition of products and services, are organized online (Isa and Latif, 2020).

Half of the Gen Zs and Millennials surveyed in Deloitte (2023) Digital Media Trends Report said they saw online interactions as meaningful alternatives to real-world interactions, and nearly half said they spent more time on social media interacting with others than they did offline. Malaysian Communication & Multimedia Commission (2023) asserted the extension and quality improvement of 4G coverage, the launch of 5G Single Wholesale Network Providers, the availability of 5G, and the sunset of 3G are among the accomplishments of Jalinan Digital Negara (JENDELA) in 2021. Therefore, it expedites the number of social media usage in Malaysia. Undoubtedly, social media has also become a vital need for businesses since it provides a new and inexpensive way to boost brand exposure, reach more followers and stakeholders, and retain public interest (Loureiro & Lopes, 2019). A new habit and culture centered on social media must be the millennial generation's most popular buzzword (Bettman et al., 2020; Meade, 2013). Technology has transformed companies to change their business method in all departments including operational, administration, and marketing (Li et al., 2021; Meeker, 2015). Hence, Yost et al. (2021), Guenzi & Nijssen (2021) and Roza (2014) postulated social media can accelerate sales volume, and most of the company are seeking the right talent to enhance their business performance.

Therefore, it is anticipated that the study's results will contribute to changing the unfavorable perception of social media dependency through the Media System Dependency (MSD) theory. Li, O'Brien, Snyder and Howard (2015) suggested future research should determine the specific activities that students rely on social media sites and differentiate the effect of excessive social media use. Nevertheless, there is little empirical evidence in the literature that explicitly examines Social Media Intelligence Quotient (SMIQ). Therefore, there is a gap in empirically investigating the underlying factors that contribute to the formation of SMIQ. The knowledge of the underlying dimensional structure of SMIQ is critical in developing social media literacy, social intelligence and online business literacy.

2. Literature Review

As stated by van Deursen and van Dijk (2023), they discovered that IQ has a direct positive effect on education, economic, social, and cultural resources, as well as Internet attitude and skills. According to Gondal & Husain (2013), intelligent individuals have gained prominence owing to their ability to think critically and competently tackle challenges in their own lives. They had the mental capacity to figure out and comprehend the issues. People with high IQ scores frequently excel in school and have the necessary skills to adapt to social and technological change. This study borrows a well-known media theory, media system dependency (MSD), by Ball - Rokeach & DeFleur (1976). MSD theory is related to the factor of media dependence and its outcomes. Ball - Rokeach & DeFleur (1989) mentioned understanding, orientation and playing for human goals when applying the media. Subsequently, the positive outcomes of social media dependency are beneficial to producing more outstanding human capital in Malaysia. Neging, Musa, and Wahab (2013) expanded on this theory by including the Personality System to consider how different people experience media literacy's impacts in different ways. This theory is relevant for the study because the focus is on social media dependency and the effects and determinants are being investigated.

Apart from that, people who use the internet, mobile devices and social media tend to generate Information and Communication Technology skills among them (Gutiérrez-Martín & Tyner, 2012). According to Ibrahim, Musa & Adam (2016), the findings of the focus group session, persons with online business backgrounds have a lot of exposure to social media because they utilize it aggressively to launch and promote their products. Luqiu & Kang (2020) explained the MSD theory, presenting a useful analytical tool for traditional media use, which can shine a light on the numerous relationships that new media has with its audience. In summary, the SMIQ touch points are social media literacy (SML), online business literacy (OBL) and social intelligence (SI). Thus, in this paper, the researchers illustrate and confirm the factorial structure of SMIQ and validate the psychometric properties of the SMIQ scale. Hence, the researcher provided the measurement scales for SMIQ to strengthen the definition of SMIQ.

Social Media Intelligence Quotient (SMIQ): Jenkins (2008) introduced literacy skills in new media usage, including play, performance, simulation, multitasking, distributed cognition, collective intelligence, judgment, transmedia navigation, networking, negotiation, appropriation, and visualization. According to Jenkins (2008), millennials are engaging in more meaningful connections online, especially those who spend more time playing games. Their behaviors and routines will change, making them more willing to take chances, maintain their competitiveness, and maintain a healthy lifestyle. They dominate the usage of technology in classrooms. The game systems have influenced an increasing number of working-class houses. In our post-digital era, media literacy is essential for conceptualizing, developing, and understanding new kinds of intelligence that humans aspire to live harmoniously in the future (Jandri, 2019). Pangrazio & Cardozo-Gaibisso (2020) remarked in social media literacy, people are able to portray their digital identities on social media, utilize social media information and share it with other users and safeguard privacy in media by knowing what information to share and with whom.

Meijs et al. (2010) pointed out that social intelligence always has a major effect on popularity since a person with high social intelligence can change the group norms, which would impact academic accomplishment in the peer group. The most respected students in their colleges were those who excelled academically and were also sociable. A person with high social intelligence may also adapt themselves to new and diverse cultures (Dong, Koper & Collaço, 2008). In intercultural communications, they are concerned and interested in others, empathy and influence for acceptance and adaptation. As defined by Ebrahimpoor, Zahed and

Elyasi (2013), social intelligence has three main components; social information processing is the capacity for managing emotions. Social awareness includes an understanding of the desires, needs, and feelings of others and the application of that knowledge in decision-making and moral judgment. Social skills relate to an interest in getting performance judgment. Cultural intelligence was added as a subset of social intelligence by Kumar, Rose, and Subramaniam (2008) since it emphasized the cultural aspects that were not included in the social intelligence model.

Furthermore, those involved with online businesses spend more time on social media sites for their business pages to set up and manage their account and connect directly with their customers. Because of the emerging style of marketing through social media, social media is now adequately tied to the business scope. Therefore, a person with business abilities should notify social media platforms in running the marketing section on HTML, analytics, Microsoft Excel, virtual communication, mobile development, and database creation using online apps. Park et al. (2017) provided evidence in favor of the idea that social media users may change the information they gather and spark business opportunities to satisfy consumer demand. They are referred to as social media entrepreneurs since they identify profitable social media and run their businesses within those platforms (Girişimcilii, 2018). Thus, digital literacy has the greatest direct and indirect impact on the performance of Small and medium Enterprise (SME) entrepreneurs, providing guidance on performance development strategies through digital literacy, including digital business relationships, online facilities, and networks, and completing factors shaping SME performance in the digital age (Sariwulan et al., 2020).

Social Media Dependency: Internet Dependency Relations are defined by Patwardhan & Yang (2010) as persons who rely on the Internet to achieve their personal objectives in social life. The majority of prior research has suggested that internet dependence is comparable to internet addiction and pathological internet use. According to Thompson (1996), addiction occurs when individuals do not have their exciting desires when they are online. Meanwhile, dependency is defined as the user having a clear and specific goal on the internet. Dependence has been characterized by Wang, Lee, and Hua (2014) as the psychological impact of addiction. As a result, it suggests that dependence and addiction are not necessarily the same thing because high-dependency internet users may utilize the internet as a part of their profession and responsibilities rather than seizing the chances in life.

3. Research Methodology

The researchers applied the extant literature review and the methodological procedure suggested by Churchill (1979). The researchers designed a research methodology to develop, test and purify a scale to measure the SMIQ assessment of value derived as the effect of social media dependency. The SMIQ measures the graduates' IQ on social media literacy, social intelligence and online business literacy as the outcomes of social media dependency. The scales utilized in this study are the semantic differential scale (7-point scale), and the Likert scale (7-point scale: 1 = very strongly disagree to 7 = very strongly agree). The researchers organized this research at a few universities such as Universiti Kebangsaan Malaysia (UKM), Universiti Malaya (UM) and Universiti Teknologi Mara (UiTM) (Puncak Alam Branch). Apart from that, to help the researchers complete this investigation, a unit of analysis is needed because it becomes the target of the inquiry, such as individuals, groups, organizations, countries, objects and others (Bhattacherjee, 2012). Therefore, the researcher decided on the individual final semester students of UKM, UM and UiTM from the Faculty of Business Management for this study. NKEA highlighted the areas of Islamic Finance and Business and Science and innovation to enhance the number of quality Islamic finance and business specialists to provide the human capital needs of the other NKEAs (ETP, 2011). The researcher chose the graduates as the research's respondents to help our government produce great business analysts from those who possess a business management background. Indeed, this is important for Business Management students to have social media skills to help business practitioners become the leading players in the industries.

4. Results

Demographics Profile of Respondents: Table 1 indicates that females used social media higher than males, of which 59.7% are females, and 40.3% are males. Furthermore, the respondents' highest percentage is at age 23 – 25 years old (52.3%), and the students at age 20 – 22 gained 28.1%. Apart from that, Malay is dominant

in the race category, which involves 281 of the respondents (79.8%), followed by Chinese (9.7%), others (8%) and Indian (2.6%). The researcher also examined the duration of using social media separated into years and hours of using social media per day. 57.7% of respondents used social media for more than five years which indicates they were exposed to social media earlier in their life. The majority of the respondents use social media more than seven hours a day which represents 36.6% of the total population.

Table 1: Demographic Profiles of Respondent

Demographic Variables		Frequency	Percentage
Gender	Male	142	40.3
	Female	210	59.7
Age	20-22	99	28.1
	23-25	184	52.3
	26-28	56	15.9
	Above 29	13	3.7
Race	Malay	281	79.8
	Chinese	34	9.7
	Indian	9	2.6
	Others	28	8
Years using social media	Below 1 year	24	6.8
	1-2 Years	20	5.7
	2-3 Years	21	6
	3-4 Years	54	15.3
	4-5 Years	30	8.5
	More than 5 years	203	57.7
Hours using social media	Below 1 hour	23	6.5
	1-3 Hours	57	16.2
	3-5 Hours	72	20.5
	5-7 Hours	71	20.2
	More than 7 hours	129	36.6

Exploratory Factor Analysis: The objective of exploratory factor analysis is to find a set of underlying latent constructs, which a group of items might represent. The researchers conducted the exploratory factor analysis using maximum likelihood estimation to assess the dimensionality of the scales. The EFA used principal components extraction with varimax rotation. It is the most commonly used analytical technique for reducing a large item pool to a more manageable set. It is a valuable preliminary analysis when no sufficient theory is available to establish the underlying dimensions of a specific construct, as recommended by Gerbing and Anderson (1988). The researchers removed the items with low factor loadings (< 0.5) or high cross-loadings (> 0.3), and EFA was performed again as recommended by Hair et al. (2010). Tables 3, 4 and 5 proved the EFA value for the measurement items.

Table 2: Measurement Items of SMIQ

Items	Items Label	Items Deleted
Create a photo collage and compile it together with video clips on my Instagram account.	SML1	Deleted
Incorporate a playlist on YouTube to enable others to find all relevant videos on the topic of interest.	SML2	Deleted
Record lessons and post them to YouTube.	SML3	Deleted
Create interactive videos by adding quizzes and comments to them.	SML4	Deleted
Do collaboration assignments online.	SML5	Deleted
Enjoy the collaborative activities online (Wikipedia, team games, online fan communities, community message boards)	SML6	Deleted
Connect and collaborate with others to help me in solving my queries	SML7	Deleted
Use community boards on Pinterest for group projects to combine the resources in one place.	SML8	Deleted
Judge online information whether it is correct or not.	SML9	Deleted
Judge and quickly screenshot helpful information.	SML10	Deleted
Gather information from various sources and judge it.	SML11	Deleted
Follow my favorite entertainment across different social media platforms.	SML12	
Visit the websites (official or fan-created) of my favorite TV shows, bands, etc.	SML13	Deleted
Check online if I am curious about something I saw on TV.	SML14	
Learn about my interest in various media (TV, YouTube, Wikipedia, Pinterest, Instagram).	SML15	
Prepare coursework using images, graphs and diagrams. (Slideshare, Google Image).	SML16	
Use information from images, graphs, diagrams and other visual tools.	SML17	Deleted
Visualize and navigate the location by using Google Maps or Waze.	SML18	
Understand things better from videos on YouTube.	SML19	
Able to understand other people better.	SI1	
Able to predict other people's behavior from their social media posts.	SI2	
Able to evaluate my posts on how social media will make others feel.	SI3	
Able to predict how others will react to my posts.	SI4	
Comfortable with new friends on my social networking sites.	SI5	Deleted
Able to stay in touch with my friends on social media besides real life.	SI6	Deleted
Able to fit easily in online community conversations.	SI7	
Creating a social profile and sending a message to my online friends.	SI8	
Creating professional networking all over the world.	SI9	
Interacting virtually with people from all over the world.	SI10	
Exploring many new things of other cultures around the world.	SI11	
More open to other cultures around the world.	SI12	
Facebook Analytics is helpful to promote the products/ services to your target audience (market targeting).	OBL1	
Facebook Analytics allows marketers to monitor the company page and fans.	OBL2	
Google Analytics can track the number of actual visitors visiting your website and blog.	OBL3	
Google Analytics can track where visitors come.	OBL4	
Google Analytics can track how long the visitors stay on the website.	OBL5	
CTR (Clicks/Impressions) is calculated by dividing the number of times the ad is shown.	OBL6	
Google Ads will charge fees only if users watch your videos. (Pay Per Click)	OBL7	
Mentioning the price of product or service in the ad text is recommended by Google.	OBL8	Deleted
In setting the FB Ads budget, one can choose the daily budget.	OBL9	Deleted

Table 3: Exploratory Factor Analysis of Social Media Literacy

Items	Transmedia Visualization
Follow my favorite entertainment across different social media platforms.	.775
Check online if I am curious about something I saw on TV.	.800
Learn about my interest in various media (TV, YouTube, Wikipedia, Pinterest, Instagram)	.828
Prepare coursework using images, graphs and diagrams. (Slideshare, Google Image)	.817
Visualize and navigate the location by using Google Maps or Waze)	.786
Understand things better from videos on YouTube.	.773
Eigenvalues	**3.809**
Total variance explained	**63.677**
Cronbach's Alpha	**0.884**

Table 4: Exploratory Factor Analysis for Social Intelligence

Items	Social Intelligence
Able to understand other people better.	.731
Able to predict other people's behavior from their social media posts.	.695
Able to evaluate my posts on how social media will make others feel.	.768
Able to predict how others will react to my posts.	.678
Able to fit easily in online community conversations.	.754
Creating a social profile and sending a message to my online friends.	.750
Creating professional networking all over the world.	.788
Interacting virtually with people from all over the world.	.653
Exploring many new things of other cultures around the world.	.736
More open to other cultures around the world.	.718
Eigenvalues	**5.301**
Total variance explained	**53.011%**
Cronbach's Alpha	**0.900**

Table 5: Exploratory Factor Analysis for Online Business Literacy

Items	Online Business Literacy
Facebook Analytics is helpful to promote the products/ services to your target audience (market targeting).	.870
Facebook Analytics allows marketers to monitor the company page and fans.	.900
Google Analytics can track the number of actual visitors visiting your website and blog.	.920
Google Analytics can track where the visitors come from.	.920
Google Analytics can trace how long the visitors stay on the website.	.910
CTR (Clicks/Impressions) is calculated by dividing the number of times the ad is shown.	.840
Google Ads will charge fees only if users actually watch your videos. (Pay Per Click)	.820
Eigenvalues	**5.450**
Percentage of variance explained	**77.790**
Cronbach's Alpha	**0.700**

The researchers performed the first EFA to assess the factor structure of the SMIQ measurement scale, which comprises Social Media Literacy: 19 items, Social Intelligence: 12 items and Online Business Literacy: 10 items. However, this initial purification exercise resulted in the deletion items failing to fulfil the criteria mentioned earlier. The loadings also presented a clean and highly interpretable solution, a 'simple structure' according to Bitner & Brown (2000). The results reveal social media literacy: Bartlett test of sphericity (3736.878 at p = 0.001) and the Kaiser-Mayer-Olkin measure of sampling adequacy (KMO = 0.903), social intelligence: Bartlett test of sphericity (1921.231 at p = 0.001) and the Kaiser-Mayer-Olkin measure of sampling adequacy (KMO = 0.883), online business literacy: Bartlett test of sphericity (2535.259 at p = 0.001) and the Kaiser-Mayer-Olkin measure of sampling adequacy (KMO = 0.918). These indicate that there was a sufficient inter-item correlation with the data for performing factor analysis. Sharma (1996) suggests that the cut-off level for the Kaiser-Mayer statistic should be greater than 0.8 but that a value of 0.6 is tolerable.

Confirmatory Factor Analysis: Gerbing and Anderson (1988) argued that item-total correlation, alpha coefficient, and exploratory factor analysis (EFA) procedures could not ensure the unidimensionality of measures, which is an essential requirement of valid measurement. They strongly recommend that a more rigorous statistical method refine and confirm the factor structure generated from the initial EFA. Confirmatory factor analysis (CFA) is an analytical tool to ascertain the unidimensionality of measures. Hence, in line with this suggestion, all the resulting factor structures derived from EFA were tested and validated by confirmatory factor analysis (CFA) analytic procedure, which tests a priori factor structure and goodness of fit of the resulting solution (Kline, 1998). To achieve an acceptable ratio of observations to estimate parameters, it proved necessary to run two separate measurement models: SMIQ and SMD. The first measurement model consists of the SMIQ construct, which comprises of three-factor solution. The appropriateness of the measurement model described by CFA was assessed using the chi-square statistic, a set of relative fit indices. A significant chi-square statistic indicates a lack of fit between the data and the model.

However, a highly restrictive test required by chi-square statistic mostly leads to rejection of the proposed model. Hence, most researchers will resort to other absolute and relative fit indices to infer the validity of the proposed model. The Goodness of Fit Index (GFI) is analogous to squared multiple correlations (R2) in multiple regressions. The comparative fit index (CFI) indicates the model's overall fit relative to a null model, and the Normed Fit Index (NFI) adjusts for the complexity of the model. These fit measures are close to 0.90, the recommended cut-off criterion (Bollen, 1989). Root means square error of approximation (RMSEA) indicates the approximation of the observed model to the actual model, with lower RMSEA suggesting a better model. The model fit results support a 15-item, 3-dimensional scale for SMIQ. Figure 1 visually presents the factorial structure of SMIQ and illustrates each indicator's path coefficient on the corresponding factor. The results of the first measurement model are as follows: the fit statistics were χ 2 = 273.156, df = 86, χ 2 /df = 3.18, p< 0.001; GFI = 0.902; TLI = 0.930; CFI = 0.941; NFI = 0.920 and RMSEA = 0.079. All indicators loaded heavily on the factor/dimension have t-values greater than 7.73 and all standardized coefficients are greater than 0.50. The results are illustrated in Figure 1 below.

Table 6 presents the results of the three dimensions of the SMIQ measurement model, including correlation matrix, Cronbach's alpha, composite reliability, and Average Variance Extracted (AVE). Construct reliability was also assessed by estimating the AVE, reflecting the overall variance captured by the latent construct and Composite Reliability (CR). CR reflects the internal consistency of the construct indicators, while AVE demonstrates the amount of variance charged by the construct indicators (Lemke, Clark & Wilson, 2010). All CR scores ranging from 0.804 – 0.853 were much higher than the recommended cut-off point of 0.7 (Olorunniwo, Hsu & Udo, 2006). Thus, each of the factors reliably measured its respective constructs. The AVE scores ranged from 0.560 to 0.755, exceeding the recommended cut-off point of 0.5 as suggested by Fornell and Larcker (1981). Construct validity was assessed in terms of convergent and discriminant validity. Convergent validity is established through high correlations between the measure of interest and other measures supposedly measuring the same concept (Aaker, Kumar, Day, 2007). The critical ratio (t-value) of the items in the two measurement models exceeds ± 1.96 or ± 2.58 at 0.05 or 0.01 levels, respectively and standardized factor loading of 0.5 and above. In the present study, discriminant validity is achieved as the correlation coefficients range from 0.048 to 0.869. In addition, for a rigorous test of discriminant validity, the

AVE of each construct was computed and found to be greater than the squared correlation between the construct and any other constructs in the model (Table 6) as recommended by Fornell and Larcker, (1981). A complimentary assessment of discriminant validity determines whether a confidence interval of (± two standard errors) around the correlation estimated for each pair of constructs includes one suggested by Anderson and Gerbing (1988). The result illustrates that this criterion has been achieved satisfactorily. In conclusion, it is reasonable to claim that all the measures used in the study possess good psychometric properties.

Figure 1: The Output Path Diagram for SMIQ Measurement Model

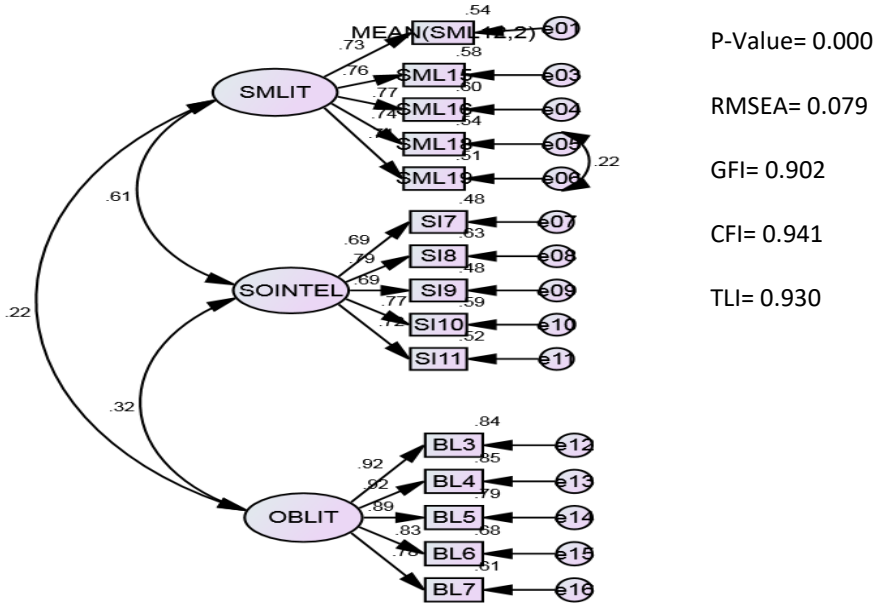


Table 6: Correlation and AVE Extracted Estimates of Latent Constructs

	SMD	SMLIT	SOINTEL	OBLIT
SMD	**0.812**			
SMLIT	0.458	**0.748**		
SOINTEL	0.455	0.572	**0.76**	
OBLIT	0.048	0.209	0.25	**0.869**
CR	0.853	0.864	0.804	0.939
AVE	0.660	0.560	0.579	0.755
Cronbach's Alpha	0.885	0.863	0.798	0.938

Table 5 illustrates the results of the three dimensions of the SMIQ measurement model, including correlation matrix, Cronbach's alpha, composite reliability, and Average Variance Extracted (AVE). Construct reliability was also assessed by estimating the AVE, reflecting the overall variance captured by the latent construct and Composite Reliability (CR). CR reflects the internal consistency of the construct indicators, while AVE demonstrates the amount of variance charged by the construct indicators (Lemke, Clark & Wilson, 2010). All CR scores ranging from 0.804 – 0.853 were much higher than the recommended cut-off point of 0.7 (Olorunniwo, Hsu & Udo, 2006). Thus, each of the factors reliably measured its respective constructs. The AVE scores ranged from 0.560 to 0.755, exceeding the recommended cut-off point of 0.5 as suggested by Fornell and Larcker (1981). Construct validity was assessed in terms of convergent and discriminant validity. Convergent validity is established through high correlations between the measure of interest and other measures supposedly measuring the same concept (Aaker, Kumar, Day, 2007). The critical ratio (t-value) of

the items in the two measurement models exceeds ± 1.96 or ± 2.58 at 0.05 or 0.01 levels, respectively and standardized factor loading of 0.5 and above. In the present study, discriminant validity is achieved as the correlation coefficients range from 0.048 to 0.869. In addition, for a rigorous test of discriminant validity, the AVE of each construct was computed and found to be greater than the squared correlation between the construct and any other constructs in the model (Table 6) as recommended by Fornell and Larcker, (1981). A complimentary assessment of discriminant validity determines whether a confidence interval of (± two standard errors) around the correlation estimated for each pair of constructs includes one suggested by Anderson and Gerbing (1988). The result illustrates that this criterion has been achieved satisfactorily. In conclusion, it is reasonable to claim that all the measures used in the study possess good psychometric properties.

Testing an Alternative Model: second-order three-factor model of SMIQ: The first-order model of SMIQ implies that the three main factors, social media literacy, social intelligence, and online business literacy, are correlated but governed by a common latent factor. Alternatively, the SMIQ model may be operationalized as a second-order model, of which a higher-order factor governs the three factors, i.e. Social Media Intelligence Quotient. The researcher applied Confirmatory factor analysis to assess if the SMIQ model has a higher-order construct explained by several related dimensions. This procedure was an effort to achieve strong validity and reliability (Browne & Cudek, 1993) (Omar & Musa, 2011). As shown in Figure 2, the second-order standardized factor loadings of the SMIQ Model are 0.70 for social media literacy, 0.91 for social intelligence and 0.31 for online business literacy. The overall model statistics for the SMIQ second-order model fit well with the data. The fit statistics were χ 2 (101) = 294.363, p< 0.001, χ 2 /df = 2.914, GFI = 0.903; TLI = 0.934; CFI = 0.945; NFI = 0.919 and RMSEA = 0.074. All indicators loaded heavily on the factor/dimension have t-values greater than 7.73, and all standardized coefficients are greater than 0.50. The results support a 16-item, 3- dimensional scale for SMIQ.

Figure 2: Results of Confirmatory Factor Analysis for the Second-Order Three-Factor Model of SMIQ

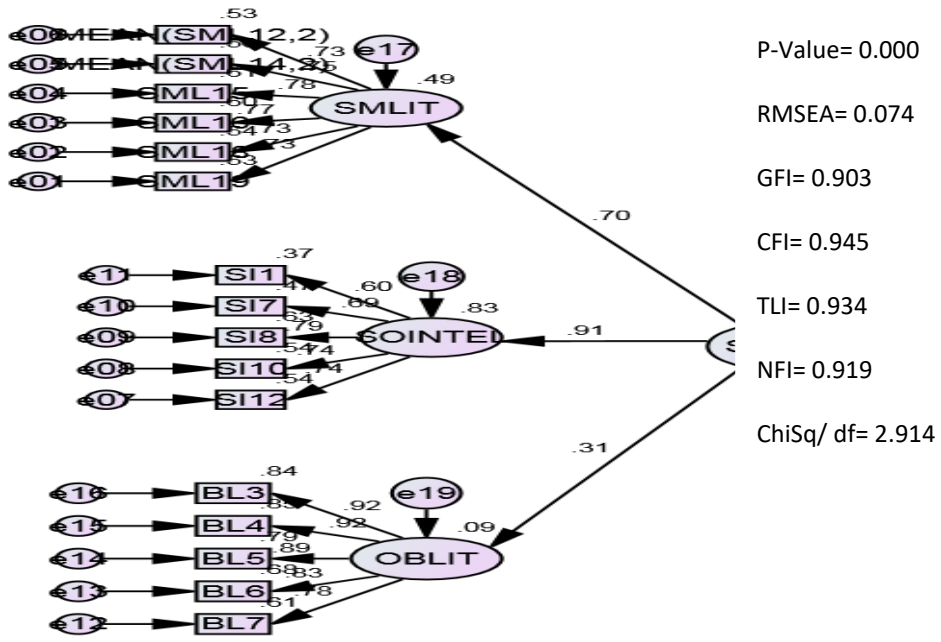


Table 7: Comparison of Overall Fit Indices of Two Models of SMI

Model	χ 2	df	χ 2 / df	GFI	CFI	NFI	TLI	RMSEA	$\Delta\chi$ 2
First Order- 3-factor model	273.156	86	3.18	0.902	0.941`	0.920	0.930	0.079	
Second Order-3-factor model	294.363	101	2.914	0.903	0.945	0.919	0.934	0.074	16.266

Table 7 demonstrates the overall fit indices for the first-order and second-order SMIQ models. The results imply that both models fit the data satisfactorily. However, the second-order three-factor model outperformed the first-order three-factor model. The χ 2 difference test indicates that the improvement in fit between the first-order and second-order three-factor model of SMIQ was statistically significant, Δ χ 2 (3)16.266, p<0.001. This result indicates that the second-order model outperformed the first-order model, and provides the best representation of data in this study.

Figure 3: Measurement Model for SMD

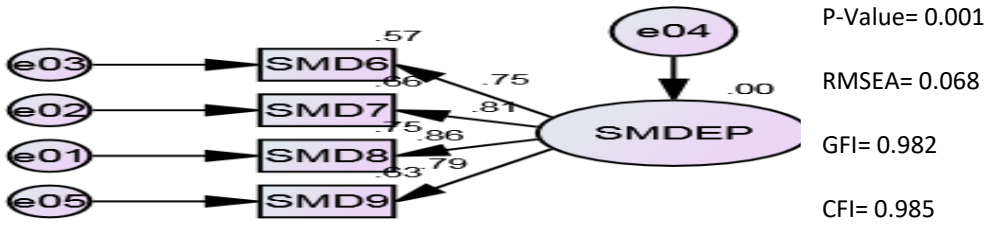
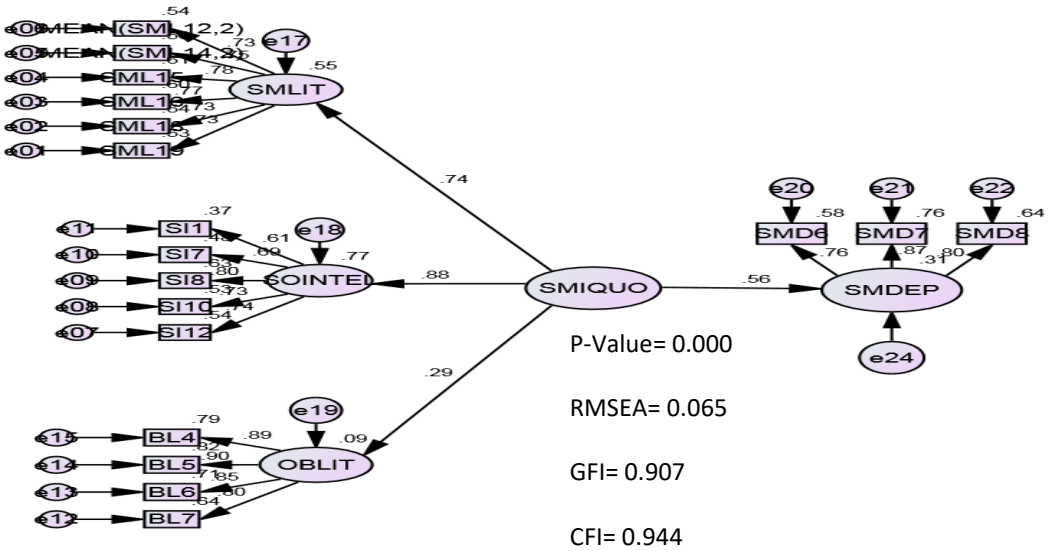


Figure 3 illustrates the factorial structure of the second measurement model visually. To achieve an acceptable ratio of observations to estimate parameters, running a second measurement model for SMD proved necessary. The fit indices suggest that the model fits the data well. The SMD measurement model is of a two-factor structure consisting of single indicators for social media dependency. All four items loaded heavily on their respective factors and the standardized coefficients are more significant than 0.50, above the recommended level of 0.5 by Bagozzi and Yi (1988). Therefore, the researchers retained all four items for nomological validity assessment using structural equation modelling subsequently. AVE: 0.66, CR: 0.853 and Cronbach's alpha: 0.812.

Figure 4: Nomological Validity Assessment using Structural Equation Modelling



The present study relies on its capability to explain the relationship of SMIQ with another construct to establish the nomological validity of the SMIQ scale. The researchers provided evidence of the nomological validity of the SMIQ scale by testing the structural relationships between SMIQ and the consequence construct, SMD. The results of the analysis are presented diagrammatically in Figure 4. The researchers test the structural model by transferring the second-order model of SMIQ (Figure 2) to the first-order model via the model of "parcelling" (Figure 4). The result was achieved by using composite scores for each dimension, calculated by averaging the items measuring each dimension of SMIQ. The results of the overall fit of the structural model were good (χ 2 = 327.494, df = 131, χ 2 /df = 2.500, GFI = 0.907; TLI = 0.935; CFI = 0.944;

NFI = 0.911 and RMSEA = 0.065. More importantly, the path coefficient for the effect of SMIQ on SMD was significant (β = 0.637; t =8.246; p<0.01). The estimates substantiate the nomological validity of SMIQ.

5. Conclusion

In the first step, EFA was used to confirm the latent and composite constructs' unidimensionality, and CFA was used to aggregate the items and give evidence of construct dimensionality. According to Anderson & Gerbin (1988), CFA was employed to enhance and validate the factorial structure produced by EFA. To determine whether the constructs in this study are consistent with the researcher's knowledge of the underlying latent construct established during the EFA level, CFA was conducted. The results of this research afford three significant contributions. First, EFA illustrates the factor structure or dimensionality of the SMIQ construct. Three factors comprised: social media literacy, social intelligence and online business literacy. By performing EFA, the researcher refined 23 items of the SMIQ scale from 41 items. CFA provides a more rigorous estimation than EFA, suggesting that 8 items have been dropped to improve the model fit. The final SMIQ construct comprises 15 items. The 15-item construct is a reliable and valid measure to determine the underlying factorial structure of SMIQ. Second, convergent validity and discriminant validity were upheld by factor loadings and correlations between CFA model factors. Subsequently, CFA establishes that the second-order three-factor model of SMIQ provides the best representation of the data in this research inquiry. This study provides evidence that the SMIQ construct is multidimensional and of hierarchical structure.

In essence, there is proof that the SMIQ has acceptable psychometric properties and is a multidimensional construct that is consistent with the other research. Additionally, SMIQ might be a useful tool for graduates to hone their social media skills. Future researchers need to confirm the findings using respondents with varied backgrounds and from different geographical locations. In evaluating the experience side of consumption, the research design that relies on questionnaires and statistical methods of analysis is frequently criticized. Through a qualitative research approach, such as in-depth interviews and focus group discussions in future studies, the preliminary investigation may reveal significant insights. Investigating the impact of SMIQ on social media influencers through a longitudinal research design is an attractive direction for future study. Perhaps, this potential research endeavor could afford more insightful findings.

References

Al-Adwan, A., Albelbisi, N., Aladwan, S., Horani, O., Al-Madadha, A. & Khasawneh, M. (2020). Investigating the Impact of Social Media Use on Student's Perception of Academic Performance in Higher Education: Evidence from Jordan. *J. Inf. Technol. Educ. Res,* 19, 953-975. https://doi.org/10.28945/4661.

Anderson, J. C. & Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin,* 103(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Aaker, D. A., Kumar, V. & Day, G. S. (2007). Marketing Research (Ninth Edition), John Wiley & Sons.

Bagozzi, R. P. & Yi, Y. (1988). On The Evaluation of Structure Equations Models, *Academic of Marketing Science,* 16(1), 76–94.

Ball-Rokeach, S. J. & De Fleur, Melvin, L. (1989). Theories of mass communication. 5th Ed. New York: Longman.

Ball-Rokeach, S. J. (1998). A theory of media power and a theory of media use: Different stories, questions, and ways of thinking. *Mass Communication and Society*, 1(1), 5–40.

Bettmann, J., Anstadt, G., Casselman, B. & Ganesh, K. (2020). Young Adult Depression and Anxiety Linked to Social Media Use: Assessment and Treatment. Clinical Social Work Journal, 1-12. https://doi.org/10.1007/s10615-020-00752-1.

Bitner, M. J. & Brown, S. W. (2000). Technology Infusion in Service Encounters, *Journal of Academy of Marketing Science*, 28(1), 138-149.

Bollen, K. A. (1989). Structural Equations with Latent Variables, Wiley, New York, NY.

Browne, M. & Cudek, R. (1993). Alternative Ways of Assessing Model Fit.

Bollen, K. & Long, J. (1993). Testing Structural Equation Models, Sage, Newbury Park, CA, pp. 136-162.

Churchill, G. A. (1979). Paradigm For Developing Better Measures of Marketing Constructs, *Journal of Marketing Research*, XV1, 64-73.

Deloitte Insight (2023). 2023 Digital media trends: Immersed and connected. Accessed on 25th August 2023 from https://www2.deloitte.com/us/en/insights/industry/technology/media-industry-trends-2023.htm

Dong, Q., Koper, R., J., Collaco, C., M., (2008). Connections using social networks and social intelligence of students. *Intercultural Communication Studies XVII, 17*(2), 162-172.

Ebrahimpoor, H., Zahed A. & Elyasi, A. (2013). The Study of Relationship Between Social Intelligence and Organizational Performance, Case Study: Ardabil Regional Water Company's Managers.

Fornell, C. & Larcker, D. F. (1981). Evaluating Structural Equation Models With Unobservable Variables And Measurement Error, *Journal of Marketing Research*, 18, 39-50.

Girişimciliği, S. M. (2018). Social Media Entrepreneurship, Journal of Social Science.

Guenzi, P. & Nijssen, E. (2020). Studying the antecedents and outcome of social media use by salespeople using a MOA framework. *Industrial Marketing Management*, 90, 346 - 359. https://doi.org/10.1016/j.indmarman.2020.08.005.

Hair, J., Babin W, B. & Anderson, R. (2010). Multivariate Data Analysis Prentice-Hall Upper Saddle River, NJ.

Ibrahim, N. A., Musa, R. & Adam, A. A. (2016). Social Media Intelligence Quotient (SMIQ) Among Graduates: Knowledge Gathering from Focus Group with Graduates. *Procedia Economics and Finance,* 37, 304-308.

Isa, K. & Latiff, A. A. (2020). Internet Browsing Trends among Malaysians during Movement Control Order (MCO) Period, *International Journal of Emerging Technologies in Engineering Research (IJETER)*, 8(4), 1 – 9.

Garcia, M. G., Varela, R. S., Marchena, J. A. M. & Espejo, M. J. P. (2020). Using Mobile Devices for Educational Purposes in Compulsory Secondary Education to Improve Student's Learning Achievements.

Gondal, U. H. & Husain, T. (2013). A Comparative Study of Intelligence Quotient and Emotional Intelligence: *Effect on Employees' Performance*, 5(1), 153–162.

Gerbing, D. W. & Hamilton, J. G. (1996). Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modelling*, 3(1), 62-72.

Jaffar, B. A., Riaz, S. & Mushtaq, A. (2019). Living in a Moment: Impact of TikTok on Influencing Younger Generation into Micro-Fame, *Journal of Content, Community & Communication,* 10, 187-194.

Jandrić, P. (2019). The Post Digital Challenge of Critical Media Literacy. The International Journal of Critical Media Literacy. https://doi.org/10.1163/25900110-00101002.

Jenkins, H., Clinton, K., Purushatma, R., Robison, A. & Weigel, M. (2006). Confronting the challenges of a participatory culture: Media education for the 21st century. Chicago, IL: MacArthur Foundation

Kumar, N., Kumar, A., Mahto, S., Kandpal, M., Deshpande, S. & Tanwar, P. (2019). Prevalence of excessive internet use and its correlation with associated psychopathology in 11th and 12th grade students. General Psychiatry, 32. https://doi.org/10.1136/gpsych-2018-100001.

Kumar, N., Rose, R., C., Subramaniam (2008). The bond between intelligence: Cultural, emotional, and social, performance improvement, *47*(10), 42-48.

Li, H., Wu, Y., Cao, D. & Wang, Y. (2021). Organizational mindfulness towards digital transformation as a prerequisite of information processing capability to achieve market agility. Journal of Business Research, 122, 700-712. https://doi.org/10.1016/j.jbusres.2019.10.036.

Li, W., O'Brien, J. E., Snyder, S. M. & Howard, M. O. (2015). Characteristics of Internet Addiction/Pathological Internet Use in U.S. University Students: A Qualitative-Method Investigation. *PLoS ONE,* 10(2), e0117372.

Loureiro, S. & Lopes, J. (2019). How corporate social responsibility initiatives in social media affect awareness and customer engagement. *Journal of Promotion Management,* 25, 419 - 438. https://doi.org/10.1080/10496491.2019.1557819.

Luaran, J. E., Abdul, F. S., Rom, K. B. M. & Nadzr, F. A. (2012). Hooked on the Internet: how does it influence the quality of undergraduate student's academic performance.

Luqiu, L. & Kang, Y. (2021). Loyalty to WeChat beyond national borders: a perspective of media system dependency theory on techno-nationalism. *Chinese Journal of Communication,* 14, 451 - 468. https://doi.org/10.1080/17544750.2021.1921820.

Malaysian Communication & Multimedia Commission. (2023). Digital Connectivity: Ensuring Everyone Gets Connected: A Glance at Malaysia's Digital Connectivity Journey. Accessed on 25th August 2023 from https://www.mcmc.gov.my/skmmgovmy/media/General/pdf2/Insight-Digital-Connectivity.pdf

Malaysian Communication and Multimedia Commission. (2020). Internet Users Survey 2020.

Meeker, M. (2015). Internet Trends 2015 – *Code Conference*.

Meijs, N., Cillesen, A., H., N., Scholte, R., H., J., Segers, E., Spijkerman, R., (2010). Social intelligence and academic achievement as predictors of adolescent popularity. *Journal Of Youth And Adolescence*, *39*(1), 62-72.

Neging, P., Musa, R. & Wahab, R. A. (2013). The Determinants and Outcomes of Pathological Internet Use (PIU) among Urban Millennial Teens : A Theoretical Framework, 211–217.

Olorunniwo, F., Hsu, M. K. & Udo, G. J. (2006). Service quality, customer satisfaction, and behavioral intentions in the service factory, *Journal of Services Marketing*, 20(1), 59-72.

Omar, N. A. & Musa, R. (2011). Measuring service quality in retail loyalty programs (LPSQual): Implications for retailers' retention strategies, *International Journal of Retail & Distribution Management,* 39(10), 759-783.

Pangrazio, L. & Cardozo-Gaibisso, L. (2020). Beyond cyber safety: The need to develop social media literacies in pre-teens. *Digit. Educ. Rev,* 37, 49–63.

Park, Y. J., Sung, C. S. & Im, I. (2017). Does Social Media Use Influence Entrepreneurial Opportunity? A Review of its Moderating Role.

Patwardhan, P. & Yang, J. (2010). Internet Dependency Relations and Online Consumer Behaviour: *A Media System Dependency Theory Perspective on Why People Shop, Chat, And Read News Online*, 3(2), 57–69.

Roza, A. (2014). Maximizing social media to engage your current and future workforce.

Sariwulan, T., Suparno, S., Disman, D., Ahman, E. & Suwatno, S. (2020). Entrepreneurial Performance: The Role of Literacy and Skills. *Journal of Asian Finance, Economics and Business,* 7, 269-280. https://doi.org/10.13106/jafeb.2020.vol7.no11.269.

Sharma, S. (1996). Applied Multivariate Techniques. John Wiley and Sons Inc., New York.

Thompson, S. J. (1996), Internet Connectivity: Addiction and Dependency Study.

van Deursen, A. J., van Dijk, J. A. (2023). IQ and digital inequality: An empirical investigation. *New Media & Society*, *25*(6), 1248–1270. https://doi.org/10.1177/14614448211024012

Wang, C., Lee, M. K. O. & Hua, Z. (2015). A Theory of Social Media Dependence: Evidence from Microblog Users. *Decision Support Systems*, 69, 40–49.

Yost, E., Zhang, T. & Qi, R. (2021). The power of engagement: Understanding active social media engagement and the impact on sales in the hospitality industry. *Journal of Hospitality and Tourism Management,* 46, 83-95. https://doi.org/10.1016/j.jhtm.2020.10.008.

Zhou, L. & Wang, T. (2014). Social Media: A New Vehicle for City Marketing In China. *Cities*, 37, 27–32.

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Exploring the Role of Student Exchange Programs in Fostering Halal Understanding among South Korean Non-Muslims

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Abstract: One of the challenges in halal is the acceptance among non-Muslims of the values, due to their lack of appreciation in understanding its concept. Media bias, culture, personal beliefs, racism and Islamophobia are some of the common causes. Past studies concluded that the concept of misjudgment could be realigned to a positive attitude by providing the appropriate information and education. Therefore, the study was conducted with the aim, of assessing how the provision of halal knowledge through the concept of a student exchange program could change a group of non-Muslims' attitude, acceptance and behavior towards halal. A research experiment was administered that involved a group of university students from a private university in South Korea, who voluntarily took part in a 7-day halal program in Malaysia. The study involved 1) a pre-test assessment, 2) participation in the student exchange heutagogy program and 3) a post-test assessment. Based on the paired sample test results, overall, there was a significant increase in the halal understanding among non-Muslims of South Koreans. The novelty of the study stems from the need to understand non-Muslims' perception of halal, specifically from the learning and cultural perspectives.

Keywords: *Halal acceptance; halal behavioral change; non-Muslims; effectiveness; halal program.*

1. Introduction and Background

The word "halal" from the religious context, refers to products and services permissible to be used and consumed by Muslims. In a broader definition, halal indicates compliance with the standards related to health, hygiene and quality. Even though halal is a concept in Islam, yet, its application can also be embraced among non-Muslims. Its wholesomeness and emphasis on quality is appropriate to all, regardless of spiritual beliefs, cultural practices, social norms and national identity. Nonetheless, since halal is always introduced and regarded as a Muslim-exclusive identity, its understanding among non-Muslims has received mixed reactions. The primary challenge of halal acceptance among non-Muslims is consumer racism and Islamophobia (Wilkins, Butt, Shams & Pérez, 2019). Likewise, Wahab (2019) added, that the misconception about Islam is a reason for halal product boycott. Furthermore, there are, non-Muslims who stand by the principle of animal rights and welfare, and ban animal consumption, despite much scientific evidence that approve better quality of meat and hygiene standard, through halal slaughtering (Hosseini, Rahban & Moosavi-Movahedi, 2021).

However, attitude, behavior and acceptance are dynamic and could be changed. People's attitudes and behavior are driven by motives (Westaby, 2005), knowledge and perception. Belief is a trait that psychologically links to behavior, and this is what Azjen's Theory of Planned Behavior posits. Therefore, relating to the discussion on halal acceptance among non-Muslims, the concept of misjudgment could be realigned to a positive attitude by offering an opportunity for them to learn and understand halal. Past research has suggested knowledge and attitude about halal play an important role in consumer decisions, as purchasing halal is an uneasy task for non-Muslims (Wibowo, Permana, Hanafiah, Ahmad & Ting, 2020). As consumers become knowledgeable about halal, their awareness, understanding and attitude will improve (Nurhayati & Hendar, 2020; Kurniawati & Savitri, 2020, Derasit et al., 2020). Halal attitude is the interest, experience or consciousness of having to consume halal products and services (Kurniawati & Savitri, 2020).

From the lens of the theory of planned behavior and behavioral reasoning theory, attitude and intention form an acceptance, towards certain behavior (Ajzen, 1991; Westaby, 2005). Past studies suggest knowledge influences intention (Pradeep, Amshala & Kadal, 2021; Shah, Zhongjun, Sattar & Xin Hao, 2021), even within the halal setting (Marzuki & Nurdin, 2020). Eventually, past studies have been conducted to assess the relationship between halal knowledge, attitude, and intention, and they were designed as correlational

studies, in a single setting and focused on Muslims. Nevertheless, this study was conducted to assess how the provision of halal knowledge could change non-Muslims attitudes, acceptance and behavior towards halal. The study was conducted as a two-stage process. First, an exploratory assessment was performed on a group of non-Muslim South Koreans' profiles and perceptions of halal. Then, a halal program was designed to suit the needs and expectations, and the changes in the behavior towards halal were analyzed.

The paper is arranged as follows. The next section reviews halal acceptance and discusses the social and psychological factors of behavioral change. Then the research methodology sections explain the research procedure and method of data collection. Next, a discussion of the findings is offered and finally, the implications and future research agenda are discussed.

2. Literature Review

Halal Products and Services: "Halal" is an Arabic term from the Qur'an, and according to Islamic doctrines, the word implies "permissible" (Wilson, 2014). The understanding and acknowledgment of halal are fundamental to every Muslim's belief system (Wilson & Liu, 2010). Halal is a term used to refer to the Islamic laws that regulate the slaughter of animals, as well as the use of products and services governing Muslims' daily life. These include food and beverages, fashion, media and communication, tourism, pharmaceutical, cosmetics, banking and finance, sports, recreation and other lifestyles. On the other hand, "haram" refers to food that is forbidden or illegal, such as pork and alcohol. Undeniably, other components of haram may relate to financial products and services including those that have the elements of interest, uncertainty and gambling. More importantly, halal food is explicitly labeled or certified by recognized certifying authorities (Jamal & Sharifuddin, 2015). To obtain halal certification, strict regulations must be followed throughout the food manufacturing process, including slaughtering, storage, preparation, presentation, and general hygiene (Haque et al., 2015).

Another component, *Tayyib*, denotes purity and cleanliness (Omar et al., 2013). As a result, the concept of *Halalan Tayyiban* emphasizes that every product consumed or used must be deemed permissible, as well as conforming to Islamic law's standards of quality, safety, and cleanliness (Omar et al., 2013). In terms of food, halal means that the food ingested must be permissible under Islamic law (Bujang et al., 2018), nonetheless, tayyib means that all food must be clean, nutritious, and safe to consume (Bujang et al., 2018; Department of Standards Malaysia, 2010). Therefore, *halalan-toyyiban* can be denoted as the assurance and guarantee that both elements are integrated into holistic and balanced criteria that satisfy the condition, situation, and application requirements of the halal industry. Indeed, the halalan-toyyiban concept is viewed as a more thorough approach that aims to attain compliance through international standards, making it widely accepted universally (Abdullah, 2007).

Numerous reasons have contributed to the explosive development in demand for halal products and services in non-Muslim countries. To begin, the Muslim population has increased at a rate twice that of non-Muslims, owing to higher birth rates in those non-Muslim countries (Pew Research Centre, 2016). Secondly, the Pew Research Centre also stated that in the last five years, over half of the growth in Muslim populations is in the United States, as well as European countries, which has been attributed to emigration and migration. Thirdly, younger Muslims are more prosperous and educated than previous generations, nonetheless, they seem to be embracing the Islamic principles, even if they are living in areas of cosmopolitan and zealously engaging in consumerism (Izberk-Belgin & Nakata, 2016). Fourth, while halal food products have always been sold by individual stores and restaurants, Muslims are increasingly interested in mainstream brands. As a result of Muslims' desire to consume mainstream brands, prominent Muslim figures and organizations have urged corporations operating in non-Muslim nations to produce halal products (Carney, 2013). However, while major food producers such as Nestlé and Unilever have been offering halal products for several years, it has slowed the entrance of restaurant and fast-food chains into the halal market (Wilkins et al., 2019).

On that note, *halalan tayyiban* is not only meant for Muslims, as there is an increased awareness of non-Muslims on halal food consumption since it is considered a platform of quality and wholesomeness (Golnaz Renai et al., 2012). Furthermore, Bergeaud-Blackler (2006) stated that the intention of non-Muslims to purchase halal products is contingent on a variety of important elements including religious beliefs, and animal welfare.

Similarly, Abdullah (2007) revealed that non-Muslims in France strongly believe that halal goods are not only more delicious and hygienic but also provide the best treatment for animals, as the Islamic slaughtering procedure is significantly less painful for animals. Moreover, Golnaz et al. (2010) discovered that non-Muslims in Russia are adamant that Muslim food producers always adhere to their religious beliefs when producing food. Additionally, non-Muslims may consume halal items, currently, as it is easily available and convenient in themarket (Ismail et al., 2017).

Indeed, there are many studies discussing the issues of halal among non-Muslims. Consumers in Taiwan place a higher premium on the environment of butchers' stalls, the freshness of meat (slaughter date), and the packaging of halal meat products (Nugraha et al., 2022). Besides, the halal certification logo does not influence the willingness to purchase Malaysian mineral water in the eyes of Japanese consumers, which appears to be acceptable, given the Japanese lack of concern about certification and religion (Kawata et al., 2018). On the other hand, Ayyub (2015) investigated non-Muslims' views on halal food in the UK and discovered that non-Muslims generally favor halal products and services. It was revealed that attitude, subjective norms, and perceived behavioral control are the major determinants for Malaysian non-Muslims in buying halal food goods (Haque et al., 2015). Conversely, Wilkins et al. (2019a) reported that the non-Muslims may respond undesirably, if they accidentally consume halal products, as they feel betrayed for not being informed about the products. Eventually, consumer cosmopolitanism and non-Muslim religious individuals were shown to be positively associated with halal product judgment, whereas consumer ethnocentrism and national identity were found to be negatively associated with the decision-making of halal products (Wilkins et al., 2019b).

Characteristics Affecting Halal Consumption Behavior

Cultural Perspectives

Acculturation Orientation: Globalization has aided in the acculturation of halal goods and services worldwide (Halawa, 2018). According to Jamal (1996), acculturation is the process through which a minority group, whether racial or ethnic, adopts the host culture's cultural patterns, such as language, beliefs, and religion. Food is regarded as a critical factor in the acculturation process (Hartwell et al., 2011; Choudhary et al., 2019). Previously, studies on acculturation concentrated on the process of acculturation in minority ethnic groups; nevertheless, emphasis has recently evolved to include characteristics of acculturation in majority groups within populations (Ayyub, 2015b). Indeed, current studies have provided some frameworks in this regard. According to Berry (1997), the changes may occur in the dominant culture, the subculture or both groups, but more practically, acculturation tends to produce more substantial changes in one of the groups involved. According to some academics, such as Kim (1985) and Keefe (1980), changes in the host culture are generally minimal in comparison to changes in the minority culture, because it is natural for immigrants to integrate into the host community. These findings, however, are contradictory to those of several recent researchers (e.g. Luedicke, 2011; Kipnis et al., 2013), who assert that mainstream consumers are exposed to a varied spectrum of local, global, and foreign cultural experiences in multicultural marketplaces. Undoubtedly, Cleveland and Xu (2019) state that acculturation requires modification of attitudes, values, behaviors, and identity between two cultures. Simultaneously, food acculturation and adaptation are developed through knowledge interchange, based on formal and informal education, media exposure, and interpersonal interactions across various ethnic groups (Mahdzar et al., 2021).

Self-Identity: One of Islam's primary precepts is to eat only food and consume other products and services based on procedures embedded within Islamic principles, thus, halal can be considered a symbol of identity and culture, especially food as an integral part of any cultural identification (Fischler, 1988). Koctürk-Runefors (1990) referred to the tenacious bond between food and cultural identity as a "value" bond. Consequently, Halal products and services are one of these "values" embraced by Muslims worldwide, bearing a major symbol for both their Islamic faith and identity. Nevertheless, individuals have multiple identities, including family, religious, regional, and national (Béji-Bécheur et al., 2012). Religious institutions provide social, economic, and psychological benefits, in addition to spiritual requirements (Peek, 2005). To cope with existential discomfort and make sense of life, religion is vital (Greenberg et al., 1997). Accordingly, religious consumers will behave in ways that sustain and strengthen their religious self-concept (Hollenbeck and

Kaikati, 2012). People with high faith are more prone to adopt religious views, ideals, and practices (Delener, 1994; Minton etal., 2015), thus, religious identity and religiosity influence choices of consumer products and services (Rahmanet al., 2015).

Subjective Norms: Subjective norms are defined as perceived social pressure exerted on normative ideas about a certain type of behavior as exhibited by a specific referent, such as family members, spouses, close friends, close workplace associates, or other significant groups (Ajzen, 1991, 2015). The attitudes of reference groups regarding a certain behavior are portrayed by an individual, which will result in social pressure, driving the individual tocontinue presenting the behavior, whenever it is practiced by the reference group as a norm, or vice versa.

Rezai et al. (2010) demonstrated a significant positive relationship between subjective norms and non-Muslim consumers' intention to purchase Halal food products in Malaysia. As non-Muslims are concerned about their health, the reference group (important persons in a connection such as family members and close friends) plays a large and favorable effect on the behavior to consume healthy food. Apart from the factors related to attitude, this awareness significantly influenced non-Muslims' intention to purchase Halal food products (Aziz & Chok, 2013; Haque et al., 2015; Elseidi, 2018; Jamal & Sharifuddin, 2015; Akhtar et al., 2019).

Nonetheless, a study indicated that subjective norms are irrelevant and have no moderating effect on non-Muslim Thailand consumers (Sukhabot & Jumani, 2021). This demonstrates that subjective norms (family members and Muslim friends) do not influence their choice of Islamic brands. According to Bai and Bai (2020), a person's behavior might change in response to the reactions of individuals around them. Similarly, Muslim friends do not persuade non-Muslims to consume Islamic brands due to their religious and cultural differences (Johan et al., 2020).

Personal Factors

Personality: Human personality has been studied for decades in psychology and other fields of study. The term "personality" refers to the "proclivity to exhibit cohesive forms of cognition, affect, and conduct" (Costa and Mccrae, 1998b, pp. 103-121). Additionally, it has been defined as "the totality of an individual's reactions and interactions with others" (Stephen & Robbins, 2007, p. 106). A similar, but more detailed, definition of personality has been given as "the unique blend of emotional thought and behavioral patterns that influence how an individual reacts to situations and interacts with others" (Stephen & Robbins, 2008, p. 307). Additionally, personality is "the systematic description of qualities" regarding human characteristics (McCrae & Costa, 1987, p. 81).

Human psychology and theories of consumer behavior play a critical part in the formation of a brand's personality (Heding et al., 2009; Pradhan et al., 2020). Attributing human characteristics to a brand is called brand personality. Through anthropomorphism, brands are endowed with a personality to increase their appeal, personalization, and attractiveness, leading to their value. Buyers' choices are influenced by their close fit with the brand personality, and consequently, they express themselves by purchasing things that are a match for their personality (Foscht et al., 2008; Zogaj et al., 2021).

Table 1: Dimensions of Brand Personality

Author(s)	Dimensions of Islamic Brand Personality
Zaki et al. (2021)	Simplicity, famine, modesty, Islamic-righteousness
Ahmed & Ali (2020)	Competence, trustworthiness, cooperation, excitement, humbleness, sincerity
Hendratmi & Laksana (2019)	Siddiq (honest), Amanah (trustworthy), Fatanah (professional), Tabligh (communicative)
Ahmed et al. (2019)	Sincerity, excitement, competence, sophistication, trustworthiness, shari'ah compliance, Justice
Ahmed et al. (2018)	Sincerity, competence, moderation, trustworthiness, justice
Ahmed & Jan (2015b)	Sincerity, excitement, competence, trustworthiness, justice, cooperation, humbleness
Ahmad (2015)	Purity, excitement, safety, sophistication, righteousness

Ahmed & Jan (2015b)	Sincerity, competence, moderation, simplicity, trustworthiness

Adopted: Zaki et al. (2021).

Self-Concept: By purchasing and utilizing halal-certified products, people can define, maintain, and strengthen their Islamic identities. Congruence between one's Islamic self or identity and a brand's halal characteristics is a prerequisite of being a Muslim. The significance of Islamic values to a brand can be determined by the convergence between the consumers' Islamic identities and the brand's halal attributes. Muslim customers can express their Islamicidentity through halal products and services, and they can choose products and brands that are believed to be compatible with their Islamic self-concept (Choi & Rahman, 2018).

Religion shapes how people view the purpose of life and their obligation to themselves, others, and God. Thus, the religious motivations of an individual include both internal and external elements (Allport & Ross, 1967; Mokhlis, 2008). Individuals have an internal religious identity, religious growth goals, and religious attitudes, values, and beliefs. Externally, religion can be exhibited through religious affiliation, worship services, community membership, and attendance at religious gatherings (Allport & Ross, 1967). Muslims are required by this command, and one of them is to consume halal food and abstain from haram food. When someone profoundly internalizes religious teachings, the morals and values within the individual self, ultimately, become a dominant factor in shaping the individual's identity and self-concept (Nurhayati & Hendar, 2020).

Psychological Factors

Motivation towards Halal Consumption: Physical, and psychological demands and wants are categorized as motivations (Sthapit et al., 2021). They encompass the capacity to motivate, direct, and integrate a person's behaviors and actions (Pearce, 2013). Consumption of halal is gaining popularity among non-Muslim customers as a result of worries about animal welfare and the notion that halal food is healthier and safer (Rezai et al., 2012). Additionally, research indicates that the primary reasons for non-Muslims to consume halal cuisine are safety, hygiene, food quality, and health-related concerns (Abd-Latif et al., 2014; Haque et al., 2015). According to studies, non-Muslim consumers place a premium on food quality due to worries about health, food preparation ethics, and being green and environmentally friendly (Damit et al., 2018). Mathew et al. (2014) discovered that non-Muslims are drawn to features of the halal food idea, particularly hygiene and cleanliness, which are mirrored in the quality of halal food. Consumption experiences with halal food can also influence a positive perception of halal eating (Damit et al., 2018). Understanding consumers' fundamental purchasing motives, values, and aspirations through psychographic segmentation adds useful insights for product creation, marketing, and behavioral change interventions (Gunter & Furnham, 1992).

Belief and Attitude towards Halal Consumption: The theory of planned behavior by Ajzen (1985) is one of the most prominent social psychology theories that help understand and predict human behavior. The consumer's intent to acquire a product is determined by three variables: attitude, subjective norms and perceived behavioral control. TPB defines intention as the immediate predicate of a given action. The purpose is also determined by three types of beliefs. First, a person's behavioral beliefs relate to the predicted repercussions of their actions, both positive and bad, as well as their subjective values. Thus, easily accessible behavioral beliefs in memory produce the attitude towards a behavior. The second factor is the referent's motivation to conform to the perceived expectations and behaviors of significant persons. Normative ideas are stored in memory and provide an apparent social norm to perform specific behaviors. However, control beliefs are the third aspect, which is the perceived presence of circumstances that influence a person's ability to behave. The perceived control of the attitude and subjective norms affects the intention to perform certain behaviors. Finally, intentions lead to actions when people are capable of achieving them. Table 2 illustrates some studies related to the adoption of halal consumption.

Table 2: The Adoption of Halal Consumption

Authors	Findings
Rezai et al., (2012)	Non-Muslim consumers are aware of Halal food in Malaysia. In general, non-Muslims' comprehension of Halal principles is influenced by social variables including interacting with Muslims and the existence of its marketing promotion. The studies also show that non-Muslims understand Halal principles' concerning Food safety and environmental concerns.
Ayyub (2015)	In terms of quality, non-Muslims generally approve of Halal products and services. These interviews revealed topics of quality, Halal knowledge, acculturation, and animal welfare.
Sherwani, et al., (2018)	Positive personal attitudes regarding halal meat consumption, influential people and institutions' opinions, as well as perceived behavioral control, were indicators of non-Muslim intention to eat halal meat.
Kawata, et al., (2018)	The halal logo has little effect on non-Muslim consumers. However, since the Japanese accept halal products with certification logos, this would encourage more foreign Muslim visitors to their country.
Bashir (2019)	The study found that all elements influence international consumers' inclination to buy halal food and thus, their shopping behavior. The survey indicated that non-Muslim customers have more positive sentiments and halal awareness than Muslim consumers. Although the survey focused on halal food customers, most of the respondents were Christians.
Wilkins, et al., (2019)	Many non-Muslims do not mind eating halal food, but they may react strongly if they mistakenly consume it
Wahab (2019)	Four constructs were found to significantly predict non-Muslims' intentions to boycott halal purchases.
Bashir (2020)	The survey concluded that non-Muslims in Cape Town are favorable to halal cuisine, its benefits, and the production techniques. The analysis showed that Halal is not just a global brand. However, halal is a symbol of health and hygiene for non-Muslims. In terms of its psychological values, halal is associated with trust, security, and comfort. It gives consumers peace of mind when they consume halal food products.
Ramli et al. (2023)	Two themes emerged as potential impediments to non-Muslim customers accepting halal food. A lack of food safety awareness and weak intention were the major factors, whereas perceived low food quality, halal logo/brand, lack of halal awareness, religious belief, animal welfare and consumer motive were minor factors.
Rahman et al., (2021)	Trip quality has a greater impact on satisfaction and trip value. The perception of a halal tourism site affects satisfaction and trip value. Trip value is correlated with satisfaction but not with Word-of-mouth (WOM). Tourist satisfaction affects WOM towards a specific destination

3. Research Methodology

Quasi-Experimental Research: The study was conducted as quasi-experimental research to study the effect of the halal intervention program on Korean students. Some of the characteristics of the method are non-random assignment, pre-existing groups, treatment or intervention and observation and measurement (Privitera & Ahlgrim-Delzell, 2019). The number of participants in the study was 20 and according to Cohen, Manion and Morrison (2007), it meets the minimum requirement of 15 samples in an experiment or single case design.

The study involved a group of university students from a private university in South Korea who voluntarily took part in a 7-day halal program organized in Malaysia. First, they were asked to take part in a short survey that contained 10 items, using the 5-point Likert scale. The survey was intended to assess their halal acceptance, measured as attitude, knowledge and intention to share halal experience. Assessing the acceptance will become the basis of the priory model. The approach is common in education studies as depicted in research conducted by Ali, Kassim, Shahrom, Humaidi and Zamzuri (2020). It will further be used for the identification of the best approach to educating halal for the students. The results of the survey are depicted in Figure 1.

This study adopts items that gauge knowledge, attitude and behavior on halal, easy, good, part of life, trust, knowledge, sharing of halal information, pride, as well as encouraging friends, which have been certified for evaluation purposes. They were taken from Aziz and Chok (2013), Haque et al. (2015) and Matthew (2014).

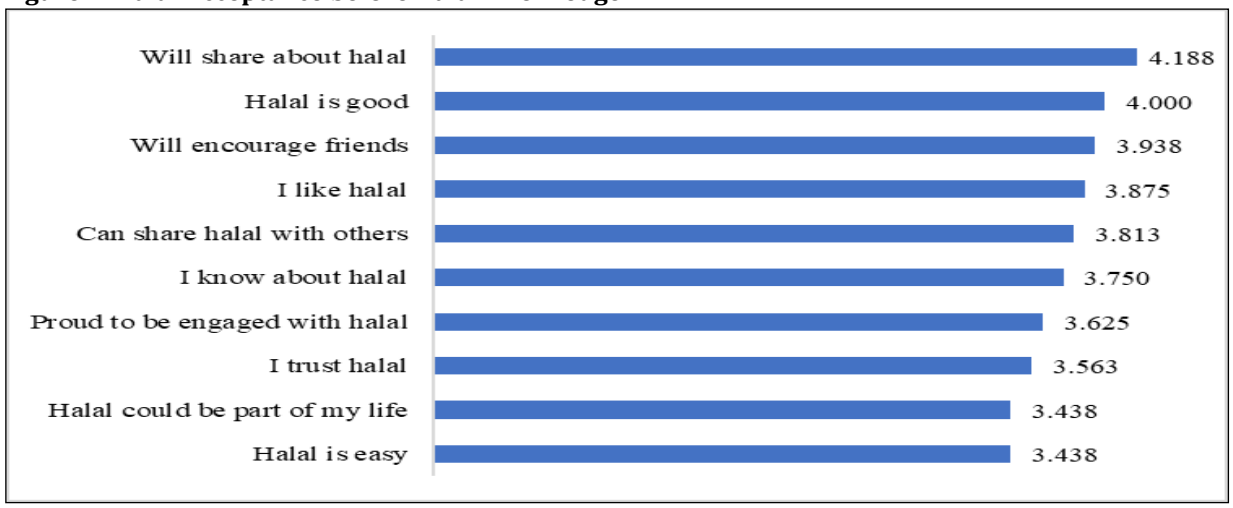
This program and its effectiveness in promoting halal acceptance became the second part of the study, which is the intervention program. Four main activities were formulated; 1) halal excursion, 2) homestay experience, 3) interactive halal classes and 4) halal buddy. In the halal excursion, the students were taken on a guided 2D1N trip to Penang. Penang which is located in the northern region of Peninsular Malaysia is a favorite tourist location that offers many charms; from food to sandy beaches, historical buildings, and arts and culture.

During the tour, students were taken to only halal eateries, in compliance with the program objectives. The homestay experience allowed the students to witness how Muslims live their lives. The program also offered the opportunity to cook halal meals and to observe halal food preparation. Both the excursion and the homestay focused on two main areas of halal which were food and tourism. Meanwhile, in the interactive halal classes, the students were taught about halal business processes, procedures, standards and halal international product outreach. In this module, students were allowed to visit a company that specializes in in-flight catering services, a visit to Jabatan Kemajuan Islam Malaysia (JAKIM), which is a government institution that governs halal in Malaysia, and Malaysia External Trade Development Corporation (MATRADE), which is a national trade promotion agency under the Ministry of International Trade and Industry (MITI). In addition, the students were also taught on halal essentials of cosmetics and pharmaceuticals, tourism, modest fashion, media and recreation, Islamic finance and, food and beverages. In the modest fashion class, the students were also taken to boutiques that sell Muslim clothes and the female students were free to try the headscarf as they wished. Finally, to promote halal trust, a program named halal-buddy was organized where the students were paired with Muslim students.

4. Results and Discussion

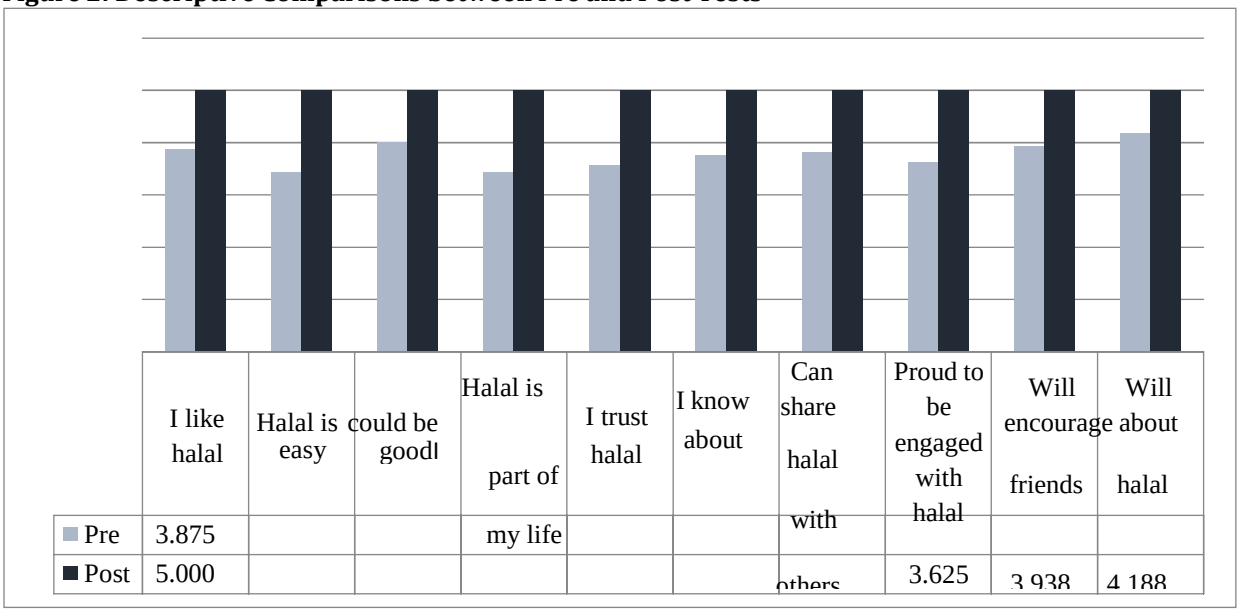
There were 20 of them; 5 male and 15 female students. Their educational background varied, which included tourism study, language, business management, and pharmaceutical and cosmetic study. The first part of the study involved understanding their background and exploring their perception of halal. Based on a casual conversation with the students, it could be concluded they have had a misconception about halal. When asked about what they could relate halal to aspects of human life, their responses were 'covering heads for women', 'al-Qaeda', 'terrorism' and 'men marrying more than one wife'. In addition, when asked if they had any experience or opportunity in immersing halal as a lifestyle, all of them had had no prior involvement then, a paired-sample t-test was performed to analyze for the mean differences. The descriptive differences between the pre & post-tests are illustrated in Figure 2, while the results of the statistical differences are shown in Table 1.

Figure 1: Halal Acceptance before Halal Knowledge



The survey results suggest the student had a perception that halal was not an easy part of life, and they had some doubts about taking halal as part of their life. In addition, how they trust halal was not weighted highly. Therefore, in designing the halal program as a strategy to improve the student's understanding, knowledge and attitude, it was important to address the issues. Based on the initial discovery of the acceptance, the program was then designed as an experiential learning by focusing on actual immersion of field experience and interactive simulations.

Figure 2: Descriptive Comparisons between Pre and Post Tests



The paired-sample t-test was used to compare the mean score of the pre and post-tests. For this test, several assumptions are required which are the data must be both an interval or ratio scale, the data is normally distributed and the mean difference is also normally distributed (De Winter, 2013). De Winter further added a sample size of 20 or less is appropriate for the test of mean differences.

The results suggest overall, there was a significant increase in halal acceptance among non-Muslim South Korean students. Referring to the measure, there was a significant difference in how the subjects liked halal as the results from the pre-test (M = 3.875, SD = .806) and post-test (M = 5.000, SD = 0.000) indicate the program on halal knowledge provision through the experiential learning resulted in an improvement in halal

acceptance, t(15) = -5.582, p < .001. Likewise, after taking part in the program, the subjects perceived that halal was easy, as the results from the pre-test (M = 3.438, SD = .963) and post-test (M = 5.000, SD = 0.000) show a significant difference in t(15) = -6.484, p < 0.001. There was also a significant increase in trusting halal after immersing themselves in the experiential program (M = 5.000, SD = 0.000) compared to before the program (M= 3.563, SD = .727), t(15) = -7.904, p < .001. Furthermore, there is a positive sign on the tendency to share halal with others as the results suggest there was a significant increase in the item 'will encourage friends to know halal', t(15) = -5.506, p < .001, and will share halal information, t(15) = -5.975, p < .001.

Table 3: Paired Sample Test

	Paired Differences					t	df	Significance	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
Like halal	-1.12500	.80623	.20156	-1.55461	-.69539	-5.582	15	<.001	<.001
Easy	-1.56250	.96393	.24098	-2.07614	-1.04886	-6.484	15	<.001	<.001
Good	-1.00000	.81650	.20412	-1.43508	-.56492	-4.899	15	<.001	<.001
Halal part of life	-1.56250	.81394	.20349	-1.99622	-1.12878	-7.679	15	<.001	<.001
Trust	-1.43750	.72744	.18186	-1.82512	-1.04988	-7.904	15	<.001	<.001
Knowledge	-1.25000	1.12546	.28137	-1.84972	-.65028	-4.443	15	<.001	<.001
Can share halal info	-1.18750	.98107	.24527	-1.71028	-.66472	-4.842	15	<.001	<.001
Proud	-1.37500	.80623	.20156	-1.80461	-.94539	-6.822	15	<.001	<.001
Encourage friends	-1.06250	.77190	.19298	-1.47382	-.65118	-5.506	15	<.001	<.001
Will share halal info	-.81250	.54391	.13598	-1.10233	-.52267	-5.975	15	<.001	<.001

In this paper, the pre-and post-survey evaluation has been performed. Results were demonstrated to compare the pre and post-test behavioral change. Based on the results, the program that was designed based on the background and understanding of the needs has resulted in better halal acceptance. The items that measure the knowledge, attitude and behavior on halal, easy, good, part of life, trust, knowledge, can share halal info, pride, encourage friends, and share halal information have been qualified for evaluation purposes. Moreover, the other elements of respondents have been evaluated to demonstrate better results in using the same questions for post-survey.

The findings suggest there is a positive impact on halal acceptance, specifically on improving the perception of halal, increasing the trust in halal and willingness to share information. Similar findings were discovered by Farhan and Sutikno (2022) that knowledge of halal is significant in influencing halal acceptance. Ramli, Abd Razak and Jaafar (2023) concluded lack of halal awareness was one of the barriers to halal acceptance, which shows shaping the attitude and behavior towards halal is crucial. Education and information campaigns have been effective in improving knowledge. A study by Abdul Rahim et al. (2016) in Malaysia demonstrated that non-Muslims who received educational interventions had significantly improved knowledge about halal products. The research also shows that participants became more inclined to share halal-related information and encourage others to learn about halal. This suggests a positive social impact of the program.

In conclusion, the research findings suggest that the experiential learning program had a significant and positive impact on halal acceptance among non-Muslim South Korean students. These findings have implications not only for the commercial aspect of halal industries but also for fostering cross-cultural understanding and trust-building, which are essential in promoting halal products and principles among diverse populations, including non-Muslims. These results will be beneficial from the commercial point of view and the customer's point of view. Indeed, producers can gain consumers' trust by initiating effective

internal procedures, as well as promoting their image and reputation, generally. Entrepreneurs and consumers must be taught the Halal principle and get a deeper grasp of Halal production, from the selection of raw materials through the consumption of the final product. Various avenues can be utilized to increase their expertise; advertising can reach the general public, and courses and training in product pricing and marketing assist businesses in concentrating on the most alluring aspects of their product. Consumer education should be a top priority when promoting Halal-certified products. Educating non-Muslims about Halal can be difficult, but altering the thinking of Muslims towards Halal items is a whole different story. It may provide better insight regarding halal products, halal lifestyle, and consumption of halal products. Thus, this study is deemed important because it may secure and gain more customer trust and beliefs towards halal product consumption, specifically for non-Muslims.

5. Managerial Implications and Recommendations

The findings of this study provide several valuable insights that can help halal sector providers, halal food and clothes manufacturers and Islamic tourism to better manage their relationship with the customers, especially prior, to as well as after a service has occurred. Halal has become the lifestyle of today's global customers (Hassan, 2000), therefore it is not just for Muslim consumers, but it is also prevalent for non-Muslims. Non-Muslim consumers desire halal products and services for reasons of health and convenience. Based on the outcome of the study, a considerable amount of attention to halal is required to educate non-Muslims on how halal could be part of their life. More importantly, the understanding of halal among the non-Muslims and the knowledge they grasp after the program should not be neglected. In general, people's beliefs and behavior could be changed based on how they feel, including the feeling of safety, security and trust.

Likewise, from the practical point of view, programs that act as interventions to change beliefs, attitudes and behavior should be carefully designed based on the recipient's or the end user's culture, norms and values. Similar viewpoints are also expressed by Mahdzar et al. (2021) who concluded adaptations are developed through formal or informal knowledge interchange, exposure and interpersonal interactions. Furthermore, the programs should also encompass human connectivity including self-personality, the surroundings and the industry players.

Conclusion: Firstly, the present study has shed light on various aspects of halal acceptance experienced by non-Muslim South Koreans in behavioral change. Furthermore, the current study only focused on the level of understanding of the students specifically in a Muslim-majority country. Thus, future researchers may consider covering a larger group of students to obtain more generalizable results. The future researcher is also suggested to conduct the study in other geographical location settings such as conducting the programs in other non-Muslim countries. Secondly, another limitation of this study is perhaps the sample size. In addition, we suggest adding more measures on acceptance, testing the program on a larger sample size and running the program in non-Muslim cultural settings. It is suggested possible moderating variables could be further explored to enhance the study. Thirdly, the scale used to measure behavioral change needs to be further examined. This needs to be carried out through the understanding of halal towards increasing awareness and promoting acceptance, as well as providing comfort and assurance. Significantly, halal education needs to have the element of reinforcing and reminding, or "refreezing" individuals in their new habits so that they become responsive to the new behavior, and foster positive behavioral change. Hence, future research could use other behavioral change measures such as culture and belief.

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References

Abdullah, A. (2007). Perception and awareness among food manufacturers. Universiti Putra Malaysia Press Ahmad, M. F. (2015), Antecedents of halal brand personality. *Journal of Islamic Marketing*, 6(2), 209-223.

Ahmed, M. & Jan, M. T. (2015b). Applying the factor analytical approach towards Aaker's brand personality model from an Islamic perspective. *Malaysian Management Review*, 50(1), 49-63.

Ahmed, M. & Ali, S. A. (2020). Establishing brand personality of an Islamic institution: an empirical study on International Islamic University Malaysia. *Jihat ul Islam*, 13(2), 15-30.

Ahmed, M., Ali, S. A., Jan, M. T. & Hassan, A. (2019), Development of Islamic banks' brand personality (IBBP) model: a conceptual study in Malaysia. *Journal of Islamic Marketing*, 11(3), 621-642

Ahmed, M., Jan, M. T. & Hassan, A. (2018), Brand personality from an Islamic perspective: a conceptual analysis of Aaker's model. *Al-Shajarah: Journal of the International Institute of Islamic Thought and Civilization (ISTAC)*, 23(2), 363-394.

Ahmed, M. & Jan, M. T. (2015a). An extension of Aaker's brand personality model from Islamic perspective: a conceptual study. *Journal of Islamic Marketing*, 6(3), 388-405.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In Action control (pp. 11-39). Springer, Berlin, Heidelberg.

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

Ajzen, I. (2015). The theory of planned behavior is alive and well, and not ready to retire: a commentary on Sniehotta, Presseau, and Araújo-Soares. *Health Psychology Review*, 9(2), 131-137.

Akhtar, N., Sun, J., Ahmad, W. & Akhtar, M. N. (2019). The effect of non-verbal messages on Muslim tourists' interaction adaptation: A case study of Halal restaurants in China. *Journal of destination marketing & management*, 11, 10-22.

Allport, G. W. & Ross, J. M. (1967). Personal religious orientation and prejudice. *Journal of personality and social psychology*, 5(4), 432.

Ali, S. A. M., Kassim, E. S., Shahrom, M., Humaidi, N. & Zamzuri, N. H. (2020). Fostering digital entrepreneurship capabilities at rural schools: A Malaysian case study. *Malaysian Journal of Consumer and Family Economics*, 24, 2020, 243-260.

Ayyub, R. M. (2015a), Exploring perceptions of non-Muslims towards Halal foods in the UK. *British Food Journal*, 117(9), 2328-2343.

Ayyub, R. M. (2015b). An empirical investigation of ethnic food consumption: a perspective of majority ethnic group. *British Food Journal,* 117(4), 1239-1255.

Aziz, Y. A. Chok, N. V. (2013). The role of halal awareness, halal certification, and marketing components in determining halal purchase intention among non-Muslims in Malaysia: a structural equation modeling approach. *Journal of International Food and Agribusiness Marketing*, 25(1), 1-23.

Bai, G. & Bai, Y. (2020). Voluntary or forced: different effects of personal and social norms on urban residents' environmental protection behavior. *International Journal of Environmental Research and Public Health*, 17(10), 3525.

Bashir, A. M. (2020). Awareness of purchasing halal food among non-Muslim consumers: An explorative study concerning Cape Town of South Africa. *Journal of Islamic Marketing*, 11(6), 1295-1311.

Bashir, A. M., Bayat, A., Olutuase, S. O. & Abdul Latiff, Z. A. (2019). Factors affecting consumers' intention towards purchasing halal food in South Africa: a structural equation modeling. *Journal of Food Products Marketing*, 25(1), 26-48.

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology*, 46(1), 5-34.

Béji-Bécheur, A., Özçağlar-Toulouse, N. & Zouaghi, S. (2012). Ethnicity introspected: Researchers in search of their identity. *Journal of Business Research*, 65(4), 504-510.

Bujang, A., Noor, Z. M. & Abdullah, N. (2018). An overview of Toyyib's aspect of halal food production in meat andmeat products. Proceedings of the 3rd International Halal Conference (INHAC 2016), Springer, pp. 467-478.

Bonne, K., Vermeir, I., Bergeaud-Blackler, F. & Verbeke, W. (2007). Determinants of halal meat consumption in France. *British Food Journal. British Food Journal*, 109(5), 367-386.

Carney, J. (2013). McDonald's, KFC and Pizza Hut say no to requests to offer halal meat. South China Morning Post, 22.

Choudhary, S., Nayak, R., Kumari, S. & Choudhury, H. (2019). Analyzing acculturation to sustainable food consumption behavior in the social media through the lens of information diffusion. *Technological Forecasting and Social Change*, 145, 481-492.

Choi, N. H. & Rahman, M. M. (2018). Muslim Consumer's Identification with and Loyalty to Halal Brand. *Journal of Distribution Science*, 16(8), 29-37.

Cleveland, M. & Xu, C. (2019). Multifaceted acculturation in multiethnic settings. *Journal of Business Research*, 103, 250-260.

Cohen, L., Manion, L. & Morrison, K. (2007). Research methods in education. Routledge.

Costa Jr, P. T. & McCrae, R. R. (1998). Six approaches to the explication of facet-level traits: examples from conscientiousness. *European Journal of Personality*, 12(2), 117-134.

Damit, D. H. D. A., Harun, A., Martin, D., Shamsudin, A. S. B. & Kassim, A. W. M. (2018). Non-Muslim consumers' attitude and repurchase behavior towards halal food: an application of buyer behavior model. *WSEAS Transactions on Business and Economics*, 15, 413-422.

De Winter, J. C. (2013). Using the Student's t-test with extremely small sample sizes. *Practical Assessment, Research, and Evaluation*, 18(1), 10.

Delener, N. (1994). Religious contrasts in consumer decision behavior patterns: their dimensions and marketing implications. *European Journal of Marketing*, 28(5), 36-53.

Department of Standards Malaysia. (2010). MS 2400-2: 2010 (P): Halalan-Toyyiban Assurance Pipeline – Part 2: Management System Requirements Warehouse and Related Activities. Department of Standards Malaysia Cyberjaya

Derasit, Z., Shariff, S. S. R., Hamid, N. A. A., Sarwani, N. & Shaharuddin, W. N. S. (2020). Exploratory Factor Analysis in Determining Consumer Awareness Toward Halal Cosmetics. *Malaysian Journal of Consumer and Family Economics*, 24(S2), 46-59.

Farhan, F. & Sutikno, B. (2022). The acceptance of halal food products among non-Muslim consumers in Indonesia. Journal of International Food & Agribusiness Marketing, 1-22.

Fischler, C. (1988). Food, self and identity. *Social science information*, 27(2), 275-292.

Foscht, T., Maloles, C., Swoboda, B., Morschett, D. & Sinha, I. (2008). The impact of culture on brand perceptions:a six-nation study. *Journal of Product & Brand Management*, 17(3), 131-142.

Golnaz, R., Zainalabidin, M., Mad Nasir, S. & Eddie Chiew, F. (2010). Non-Muslims' awareness of Halal principles and related food products in Malaysia. *International Food Research Journal*, 17(3), 667–674.

Gunter, B. & Furnham, A. (1992). Consumer Profiles: An Introduction to Psychographics. London: Routledge.

Greenberg, J., Solomon, S. & Pyszczynski, T. (1997). Terror management theory of self-esteem and cultural worldviews: Empirical assessments and conceptual refinements. *In Advances in experimental social psychology,* 29, 61-139. Academic Press.

Halawa, A. (2018). Acculturation of halal food to the American food culture through immigration and globalization: A literature review. *Journal of Ethnic and Cultural Studies*, 5(2), 53-64.

Hassan, S. S. (2000). Determinants of market competitiveness in an environmentally sustainable tourism industry. *Journal of Travel Research*, 38(3), 239-245.

Haque, A., Sarwar, A., Yasmin, F., Tarofder, A. K. & Hossain, M. A. (2015). Non-Muslim consumers' perception toward purchasing halal food products in Malaysia. *Journal of Islamic Marketing*, 6(1), 133-147.

Hartwell, H. J., Edwards, J. S. & Brown, L. (2011). Acculturation and food habits: lessons to be learned. *British Food Journal*, 113(11), 1393-1405.

Heding, T., Knudtzen, C. F. & Bjerre, M. (2009), Brand Management: Research, Theory and Practice, Routledge, Abingdon.

Hendratmi, A. & Laksana, B. (2019). The influence of Islamic brand personality towards bank Muamalat Surabaya brand loyalty. *KnE Social Sciences*, 3(13), 678-692.

Hollenbeck, C. R. & Kaikati, A. M. (2012). Consumers' use of brands to reflect their actual and ideal selves on Facebook. *International Journal of Research in Marketing*, 29(4), 395-405.

Hosseini, E., Rahban, M. & Moosavi-Movahedi, A. A. (2021). Halal products and healthy lifestyle. In Rationalityand Scientific Lifestyle for Health (pp. 115-127). Springer, Cham.

Izberk-Belgin, E. & Nakata, C.C. (2016). A new look at faith-based marketing: the global halal market. *Business Horizons*, 59(3), 285-29.

Jamal, A. (1996). Acculturation: the symbolism of ethnic eating among contemporary British consumers. *British Food Journal*, 98(10), 12-26.

Jamal, A. & Sharifuddin, J. (2015). Perceived value and perceived usefulness of halal labeling: The role of religion and culture. *Journal of Business Research*, 68(5), 933-941.

Johan, Z. J., Hussain, M. Z., Mohd, R. & Kamaruddin, B. H. (2020). Muslims and non-Muslims intention to hold Shariah-compliant credit cards: a SmartPLS approach. Journal of Islamic Marketing, doi:10.1108/JIMA-12- 2019-0270.

Jusmaliani, J. & Nasution, H. (2013). Religiosity aspect in consumer behavior: Determinants of halal meat consumption. *ASEAN Marketing Journal*, 1(2), 1-12.

Kawata, Y., Htay, S. N. N. & Salman, A. S. (2018). Non-Muslims' acceptance of imported products with halal logo: a case study of Malaysia and Japan. *Journal of Islamic Marketing*, 9(1), 191-203.

Keefe, S. E. (1980). Acculturation and the extended family among urban Mexican Americans. In Padilla, A. M. (Ed.), Acculturation: Theory, models, and some new findings (pp. 85–110). AAAS Selected Symposium 39. Boulder, CO: Westview Press

Kipnis, E., Broderick, A. J., Demangeot, C., Adkins, N. R., Ferguson, N. S., Henderson, G. R. & Zúñiga, M. A. (2013). Branding beyond prejudice: Navigating multicultural marketplaces for consumer well-being. *Journal of Business Research*, 66(8), 1186-1194.

Koctürk-Runefors, T. (1990). The diet of immigrants: a simple method of analyzing eating habits. *Vår Föda*, 42(6), 312-318.

Kurniawati, D. A. & Savitri, H. (2020). Awareness level analysis of Indonesian consumers toward halal products. *Journal of Islamic Marketing*, 11(2), 522-546.

Latif, I. A., Mohamed, Z., Sharifuddin, J., Abdullah, A. M. & Ismail, M. M. (2014). A comparative analysis of global halal certification requirements. *Journal of Food Products Marketing*, 20(sup1), 85-101.

Lipka, M. (2017). Muslims and Islam: Key findings in the U.S. and around the world. August 9, 2017. Pew ResearchCentre (accessed on 9 February 2022)

https://www.pewresearch.org/fact-tank/2017/08/09/muslims-and-islam-key-findings-in-the-u-s-and- around-the-world/

Luedicke, M. K. (2011). Consumer acculturation theory:(crossing) conceptual boundaries. *Consumption Markets & Culture*, 14(3), 223-244.

Mahdzar, M., Zainudin, N. A. I., Abd Halim, U. F. & Afazal, A. F. (2021). Non-Muslim travelers are influenced to choosehalal food. *Journal of Emerging Economies and Islamic Research*, 9(3), 40-49.

Marzuki, M. & Nurdin, N. (2020). The influence of halal product expectation, social environment, and fiqh knowledge on intention to use shariah financial technology products. *International Journal of Innovation, Creativity and Change*, 13(1), 171-193.

Mathew, V. N. (2014). Acceptance of halal food among non-Muslim consumers. *Procedia-Social and Behavioral Sciences*, 121, 262-271.

McCrae, R. R. & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of personality and social psychology*, 52(1), 81.

Mokhlis, S. (2008). Consumer religiosity and the importance of store attributes. *The Journal of Human Resource and Adult Learning*, 4(2), 122-133.

Minton, E. A., Kahle, L. R. & Kim, C. H. (2015). Religion and motives for sustainable behaviors: A cross-cultural comparison and contrast. *Journal of Business Research*, 68(9), 1937-1944.

Nugraha, W. S., Chen, D. & Yang, S. H. (2022). The effect of a Halal label and label size on purchasing intent for non-Muslim consumers. Journal of Retailing and Consumer Services, 65, 102873.

Nurhayati, T. & Hendar, H. (2020). Personal intrinsic religiosity and product knowledge on halal product purchase intention: Role of halal product awareness. *Journal of Islamic Marketing*, 11(3), 603-620.

Omar, E. N., Jaafar, H. S. & Osman, M. R. (2013). Halalan Tayyib supply chain of the food industry. *Journal of Emerging Economies and Islamic Research*, 1(3), 23-33.

Peek, L. (2005). Becoming Muslim: The development of a religious identity. *Sociology of religion,* 66(3), 215-242.

Pradeep, V. H., Amshala, V. T. & Kadali, B. R. (2021). Does perceived technology and knowledge of maintenance influence the purchase intention of BEVs? *Transportation Research Part D: Transport and Environment*, *93*, 102759.

Pradhan, D., Malhotra, R. & Moharana, T.R. (2020). When fan engagement with sports club brands matters in sponsorship: influence of fan–brand personality congruence. *Journal of Brand Management*, 27(1), 77-92.

Privitera, G. J. & Ahlgrim-Delzell, L. (2019). Quasi-experimental and single-case experimental designs. Research Methods for Education, 333–370.

Rahman, A. A., Asrarhaghighi, E. & Rahman, S. A. (2015). Consumers and halal cosmetic products: knowledge, religiosity, attitude and intention. *Journal of Islamic Marketing*, 6(1), 148-163.

Rahman, M. K., Rana, M. S., Ismail, M. N., Muhammad, M. Z., Hoque, M. N. & Jalil, M. A. (2021). Does the perception of halal tourism destination matter for non-Muslim tourists' WOM? The moderating role of religious faith. International Journal of Tourism Cities. ahead-of-print No. ahead-of-printhttps://doi.org/10.1108/IJTC-12- 2019-0207

Ramli, M. A., Abd Razak, M. A. & Jaafar, M. H. (2023). Understanding non-Muslims' reluctance to halal food: a systematic review. *Journal of Islamic Marketing*, 14(2), 544-561.

Rezai, G., Mohamed, Z. & Shamsudin, M. N. (2012). Non-Muslim consumers' understanding of halal principles in Malaysia. *Journal of Islamic Marketing*, 3(1), 35-46.

Robbins, S. P. (2007). Organizational Behavior. Pearson/Prentice Hall Robbins, S.P, and Judge, T. A, (2008), Organizational Behavior, Prentice Hall,

Shah, S. K., Zhongjun, T., Sattar, A. & Xin Hao, Z. (2021). Consumer's intention to purchase 5G: Do environmental awareness, environmental knowledge and health consciousness attitude matter? *Technology in Society*, 65, 101563.

Sherwani, M., Ali, A., Ali, A., Hussain, S. & Zadran, H. G. (2018). Determinants of Muslim consumers' Halal meat consumption: applying and extending the theory of planned behavior. *Journal of Food Products Marketing*, 24(8), 960-981.

Sukhabot, S. & Jumani, Z. A. (2021), Islamic brands attitudes and consumption behavior among non-Muslim residents of Thailand. Journal of Islamic Marketing, Vol. ahead-of-print No. ahead-of-print.

Sthapit, E., Björk, P. & Piramanayagam, S. (2021). Motivational, emotional and memorable dimensions of non-Muslim tourists' halal food experience. *Journal of Islamic Marketing*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JIMA-02-2021-0047

Wahab, M. A. (2019). Analyzing the relationship between misconceptions about halal among non-Muslims andtheir intention to boycott halal products. *International Journal of Islamic Marketing and Branding*, 4(1), 1-26.

Westaby, J. D. (2005). Behavioral reasoning theory: Identifying new linkages underlying intentions and behavior. *Organizational behavior and human decision processes*, 98(2), 97-120.

Wibowo, M. W., Permana, D., Hanafiah, A., Ahmad, F. S. & Ting, H. (2020). Halal food credence: do Malaysian non-Muslim consumers hesitate? *Journal of Islamic Marketing*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JIMA-01-2020-0013

Wilkins, S., Butt, M. M., Shams, F. & Pérez, A. (2019a). The acceptance of halal food in non-Muslim countries: Effects of religious identity, national identification, consumer ethnocentrism and consumer cosmopolitanism, *Journal of Islamic Marketing*, 10(4), 1308-1331.

Wilkins, S., Butt, M. M., Shams, F. & Pérez, A. (2019b). Product standardization in the food service industry: post-purchase attitudes and repurchase intentions of non-Muslims after consuming halal food. *Journal of Strategic Marketing*, 27(3), 210-226.

Wilson, J. A. J. & Liu, J. (2010). Shaping the halal into a brand? *Journal of Islamic Marketing*, 1(2), 107- 23

Wilson, J. A. (2014). The halal phenomenon: an extension or a new paradigm? *Social Business*, 4(3), 255-271.

Zaki, R. M., Kheir El Din, A. & Elseidi, R. I. (2021). Islamic apparel brand personality model, *Journal of Islamic Marketing*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JIMA-07-2020-0203

Zogaj, A., Tscheulin, D. K. & Olk, S. (2021), Benefits of matching consumers' personality: creating perceived trustworthiness via actual self-congruence and perceived competence via ideal self-congruence, *Psychology & Marketing*, 38(3), 416-430.

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Development in Electric Vehicle Intention and Adoption: Integrating the Extended Unified Theory of Acceptance and Use of Technology (UTAUT) and Religiosity

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Abstract: Environmental sustainability has become an urgent problem that cannot be avoided and ignored. To mitigate the greenhouse effect in the road transportation sector, Malaysia is articulating a blueprint to reduce emissions through significant national contribution. As such, Malaysia is committed to further promote and adopt energy-efficient vehicles to reduce its carbon footprint under the United Nations Sustainable Development Goal (SDG) 2030 on climate change. The transportation sector is the main cause of greenhouse gas emissions. Many suggest electric vehicles (EVs) as a mechanism for reducing environmental degradation since EVs release less greenhouse gas as compared to combustion cars. However, the sales of EVs in Malaysia are still low compared to the achievements recorded by the neighboring countries. Despite being the earliest to promote electric vehicles, in the first quarter of 2023, Malaysia has only represented 2.4% of the EV market in Southeast Asia. It seems that the success rate in promoting environmental conservation through the adoption of EVs is still minimal. For this reason, the existing study seeks to explore factors related to EV behavioral intention and adoption by using the extended UTAUT (performance expectancy, effort expectancy, social influence, facilitating condition, perceived value/cost, hedonic motive, and habit). The proposed study believes that environmental protection and sustainability must be related to individuals' values and principles which could have been shaped based on religiosity. Therefore, in addition to the extended UTAUT that views EV intention and adoption from the technical and personal perspective, this study proposes religiosity as a predecessor in determining EV intention and adoption. The use of extended UTAUT and religiosity in the model will clarify the extent to which the influence of technical factors, personal factors and religiosity is determining the intention and adoption of EVs.

Keywords: *Intention, Adoption, Religiosity, Electric Vehicle, Unified Theory of Acceptance and Use of Technology (UTAUT).*

1. Introduction and Background

The Sustainable Development Goals (SDG) is an action plan to create a better and sustainable future for all. The goals are designed to address the global issues we are facing including pollution, climate change, global warming, the greenhouse effect, and environmental degradation. Necessity action to combat this challenge is imperative to save lives and livelihoods. In 2021, the global greenhouse effect has reached a new record that has resulted in the warmest temperature so far. To limit the warming effect globally, greenhouse emissions must decline to net zero by 2050 (UN SDG Summit, 2023). The transportation sector is the main source of greenhouse gas emissions which account for 28 percent of the total emissions in 2021 (United State Environmental Protection Agency, 2023). Carbon dioxide (CO_2) from the sector is 28.8 percent and well higher than the global average of 24.5 percent (International Energy Agency -IEA 2019).

In Malaysia, the sector drives for 96 percent of total greenhouse gas emissions and road transport is responsible as the largest emitter of CO_2. The emission mainly comes from burning fossil fuels since over 94 percent of the fuel is petroleum-based (petrol and diesel). Moreover, rapid development and growing population have caused a significant increase in the demand for transportation in this country. This has also resulted in the continuing growth of greenhouse gas emissions. This sector is undeniably devastating the environment and causes various forms of pollution, diseases, and damage to the environment.

Environmental sustainability has become an urgent problem that cannot be avoided and ignored. To mitigate the greenhouse effect in the road transportation sector, Malaysia is articulating a blueprint to reduce emissions through significant national contribution. As such, Malaysia is committed to further promote and adopt energy-efficient vehicles to reduce its carbon footprint under the United Nations Sustainable Development Goal (SDG) 2030 on climate change. The adoption of EVs is targeted to achieve the SDG in improving energy efficiency (Goal 7), to create inclusive, safe, resilient, and sustainable cities (Goal 11), and

climate action (Goal 13). The initiative is translated in The National Automotive Policy (NAP) 2014 with the target to transform Malaysia into a regional hub for energy-efficient Vehicles by 2020. Not only has the above policy but The Ministry of Environment and Water recently introduced The Low Carbon Mobility Blueprint (LCMB) 2021-2030. This blueprint aspires to achieve at least 15% of EV of total industry volume (TIV) by 2030, with 10,000 units of charging facilities built by 2025. Additionally, in supporting the realization of SDG 2023, the New Energy Policy (2022-2040) has set a new target of 38 percent of EVs from the total industry volume (TIV) by 2040. To further encourage the adoption of EVs, for locally assembled EVs, the government offers exemptions for whole import and excise duty as well as sales tax, while for imported EVs exemptions for whole import and excise duty is offered. Other than the above-mentioned measures, a road tax exemption and income tax relief up to RM2500 for the purchase, installation, rent, hire purchase, and subscription fees for EV charging facilities are being extended.

Many studies suggest the use of electric vehicles (EV) to reduce the amount of carbon dioxide emissions in the transport sector (Nie et al., 2018; Hoang et al., 2022; Manutworakit & Choocharukul, 2022; Irfanto & Aprilianty, 2022). EV plays a prominent role in reducing some of the negative impacts of road transportation on the environment and climate since it is proven to produce less greenhouse gases compared with fossil fuels. EVs do not release greenhouse gases when they run. However, greenhouse emission is represented during the generation of electricity that the vehicles draw from the electrical grid and store in their batteries (Canada Energy Regulator, 2018). The amount of greenhouse gas emission is also subject to the generation mix of local power generation. Countries that generate electricity power from hydro and nuclear have lower greenhouse emissions compared to countries that generate a large share of energy from coal and diesel. A study shows that greenhouse gas emissions from EVs are 17-30 percent lower than those from fossil fuels (European Environment Agency, 2023). Henceforth, the promotion and application of electric vehicles play a major role in reducing the environmental crisis.

EV is a mechanism that is expected to reduce greenhouse effects, pollution, and ecological degradation. The low energy consumption has elevated the role of EVs as a practical solution in setting the future development of the transportation industry. Many countries have been promoting the development of new energy vehicles. China for example, actively promotes the application of new energy by offering multiple subsidies (Nie et al., 2018). In the Southeast Asia market, the sale of electric vehicles is growing rapidly where Thailand recorded the highest sales volume in Q1 2023 that is accounting for almost 78.7 percent of the market share, followed by Indonesia (8 percent share), Vietnam (6.8 percent), and Singapore (4.1 percent). However, the sales of passenger EVs are not experiencing the same rate of popularity in Malaysia. Despite being the earliest to promote electric vehicles, Malaysia had only represented 2.4% of the share (The Malay Mail, 2023).

The adoption of electric vehicles is the principal solution to cut greenhouse emissions. Therefore, various studies have been conducted to identify additional determinants beyond the TPB constructs. The TPB focuses on self-interest factors such as perceived behavioral control, attitude, and subjective norms on general behavioral intention and adoption. Hence, explaining the intention and adoption of innovation adoption behavior requires a specifically designed model to explain intention and adoption of EV. The Unified Theory of Acceptance and Use of Technology (UTAUT) provides a better prediction towards innovation adoption (Venkatesh et al., 2003; Hoang et al., 2022). The UTAUT provides a holistic understanding of technology acceptance that focuses on the key determinants in predicting intention and behavioral action (Venkatesh et al., 2003; 2012. Based on UTAUT, behavioral factor that affects intention to buy EV is postulated by (i) performance expectancy, (ii) effort expectancy, (iii) social influence and (iv) facilitating conditions, (v) hedonic motivation, (vi) perceived value/price value, and (vii) habit.

Most environmental issues and their negative effects on the world are mainly the results of human activities and actions. The implementation of EV adoption also calls for human participation in changes in behaviors. Hence, an analysis related to the antecedent of EV adoption is considerably critical. While the Unified Theory of Acceptance and Use of Technology (UTAUT) provides valuable insights into the factors influencing individuals' intentions and behaviors toward electric vehicle adoption, it fails to consider certain important aspects. This study is aware that some voluminous initiatives and measures have been conducted to promote environmental conservation. Unfortunately, the success rate is still minimal. Hence, the proposed study believes that environmental protection and sustainability must be related to individuals' values and

principles. This study will look at the EV intention and adoption from the technical perspective governed by the extended UTAUT and integrates it with religious values. To date, there is a quite limited attention has been given to address the extent to which religious factors contribute to sustainability (Allen, 2018, Koehrsen & Huber, 2021).

Religiosity holds significant value in shaping human behavior and influencing various aspects of individuals' lives (Ived & Kidwell, 2019). It encompasses a wide range of practices and rituals, including attending religious services, praying, fasting, and adhering to religious laws and customs. In fact, religiosity does not only serve as an act of worship but also contributes to the moral and ethical development of individuals. Religiosity is a fertile motivator for environmental sustainability intentions (Ives & Kidwell, 2019; Ives et al., 2023). Religious practices in a society is a strategic asset for engagement in sustainability activities including activities in (i) public campaign, (ii) materialization of sustainability practices, and (iii) dissemination of sustainability practices (Koehrsen & Huber, 2021). Although studies have been done in estimating personal, psychological, and external forces on EV intention and adoption, an important factor related to religiosity has been barely analyzed.

Malaysia's EV market is currently still in an early stage, henceforth examining predicting constructs affecting the individual's purchase decision is an important undertaking. To date, most studies focus on purchase intention instead of actual behavior (Hoang et al., 2022). In addition, the existing studies somehow provide a wide application of the model in the organizational setting, i.e., employees yet still limited discussion about the utilization of technology by individual consumers (Marikyan & Papagiannidis, 2023). Moreover, although there is a significant increase in sustainability activities of religious organizations, research related to religiosity toward environmental sustainability is still dismal. This study aims to contribute two significant points to the existing literature. First, it is among the very few studies that explore UTAUT to explain EV intention and adoption among consumers in developing countries. Secondly, this study takes into consideration the role of religiosity in explaining EV adoption intention and behavior. It seeks to explore factors related to purchase intention and adoption by using the extended UTAUT with the inclusion of the religiosity element. This study is worthwhile to conduct since Malaysia is determined to promote the adoption of EVs in minimizing the greenhouse effect from the transportation sector. Therefore, understanding the intention and adoption of EVs from the viewpoint of customers will offer some ideas to the government and industry players' ways and means to shift people's preferences from combustion cars to EVs.

2. Literature Review

Intention and Behavior: Intention indicates how much effort an individual is willing to make in conducting actual behavior (Ajzen, 1991). Intention revolves around ideas that capture an individual's propensity to act. The stronger the intention, the higher the commitment to certain behavior as well as the tendency to conduct real action (Conner & Norma., 2022). A major difference exists between intention (goal) and behavioral intention (action). While the former emphasizes achieving the target goal, the latter focuses on engagement in a behavior or action. It is common to identify the difference between intention or goal and behavioral intention or action by giving one simple question for each. For instance, in "I plan to purchase EV", the word plan in the statement indicates a willingness to act instead of initiating certain behaviors or actions. For a statement indicating behavioral intention, it must clearly mention engagement or adoption towards the real action. For example, "I intend to adopt EV for city driving at least three days a week".

Hoang et al. (2022) provide the fact that intention to buy is a very significant determinant of behavior in purchasing EVs. The intention is discovered sufficient to promote the adoption of EVs in Indonesia. The finding clearly states that the stronger the intention to buy EVs, the higher the number of people who start to buy and use EVs (Irfanto and Aprilianty, 2022). The strong influence of intention on the adoption of EVs is confirmed when a positive association between purchase intention and adoption behavior in relation to EVs is supported in Thailand (Manutworakit & Choocharukul, 2022). The relationship between intention and behavior is also revealed in a study conducted in Iran where pro-environmental intention is directly related to pro-environmental behavior (Karimi et al., 2022).

Unified Theory of Acceptance and Use of Technology (UTAUT): The theory was established by Ventakesh et al. (2003) to provide a holistic understanding of technology acceptance by integrating key determinants predicting behavioral intention and adoption. The formation of this theory is integrated from eight technological acceptance models including the Theory of Reasoned Action, TRA (Fishbein & Ajzen, 1975), the Theory of Planned Behavior, TPB (Ajzen, 1991), the Technology Acceptance Model, TAM (Davis, 1989), the Combined-TAM-TPB, C-TAM, (Taylor & Todd, 1995), Model of PC Utilization, MPCU (Thompson et al., 1991), Motivational Model, MM (Davis et al., 1992), Social Cognitive Theory, SCT (Bandura, 1986), and Diffusion of Innovation Theory, DOI (Rogers, 1995). The role of UTAUT in understanding technology adoption in different countries is significant and allows for the generalization of the findings irrespective of different cultural settings (Marikyan & Papagiannidis, 2023). In the first phase of UTAUT, Venkatesh et al. (2003) establish the theory based on four fundamental constructs including (i) performance expectancy, (ii) effort expectancy, (iii) social influence, and (iv) facilitating conditions. The UTAUT is then moderated by age, gender, experience, and voluntariness of use.

Originally, the first version of UTAUT was developed to explain and predict the technology adoption in an organizational context. Over the years, the application of the UTAUT has been widely found in non-organizational contexts. Given the restriction, Ventakesh et al. (2012) then revisited the UTAUT and offered an extension of UTAUT and named as UTAUT2. The revised UTAUT is not designed for a specific organizational target but to represent a framework for examining technological acceptance among individual consumers. In the revised UTAUT, the use of technology by individuals is estimated by the effect of three additional constructs, namely, (i) hedonic motive, (ii) perceived value/cost, and (iii) habit.

The use of extended UTAUT to understand EV intention and adoption will provide a clear understanding related to the technical factors, personal factors and supportive elements that will influence intention and decision to purchase EV. To date, there are still a limited number of studies that quantitatively and qualitatively explore purchasing behavior from the UTAUT perspective. Since the extended UTAUT is developed to understand the acceptance and use of technology, this study will view the EV intention and adoption by following the UTAUT as proposed by Venkatesh et al. (2003; 2012). Henceforth, this study proposes performance expectancy, effort expectancy, social influence, facilitating condition, perceived value/cost, hedonic motive, and habit as antecedents for EV intention and adoption.

Performance Expectancy (PE): Performance Expectancy is defined as the degree to which an individual believes that using the system will help the person to attain gains in job performance (Venkatesh et al., 2003). EV is viewed as a mechanism people expect to increase their productivity. The construct is perceived to draw considerable influence on the intention to purchase EVs. It is related to perceived usefulness/perceived benefits in TAM & C-TAM, extrinsic motivation in MM, relative advantage in DOI, job fit in MPCU and outcome expectations in SCT. Hoang et al. (2022) reported that PE positively affects intention for Battery Electric Vehicle (BEV) as BEV offers emission reduction, energy efficiency, low noise, and faster acceleration. In fact, performance expectancy is reported to create the largest significant impact on behavioral intention towards EV in a study conducted by Irfanto and Aprilianty (2022). The significant role of performance expectancy on new technology is also supported and fortified positively affects EV purchase intention (Manutworakit & Choocharukul, 2022). Consistently, a direct and positive relationship between performance expectancy and EV behavioral intention in Pakistan is also reported by Lee et al. (2021). However, in a study conducted by Abasi et al. (2021), performance expectancy is contrary to previous studies and reported to insignificantly affect consumer intention for EV adoption.

Effort Expectancy (EE): Effort Expectancy refers to the degree of ease associated with the use of the system (Venkatesh et al., 2003). The models related to this construct are perceived ease of use in TAM, complexity in MPCU, and ease of use in DOI. The innovation adoption intention depends on the benefits of the new technology as well as on the degree of easiness to use the new technology (Hoang et al., 2022). This construct indicates a positive effect on the intention of using battery electric vehicle since EVs is demonstrated as user-friendly vehicles (Hoang et al., 2022). Effort expectancy has a positive association with EV purchase intention if the EV is easy to operate (Manutworakit & Choocharukul, 2022). Based on the finding by Lee et al. (2021) it is confirmed that individual with perceived effort expectancy is said to have higher intention to purchase EVs. Since consumers expect EVs to be more convenient, save time, economical, and friendlier to the environment,

effort expectancy is positively related to EV adoption intention (Abasi et al., 2021). A contradicting finding is learned where effort expectancy is not significant on EV behavioral intention since Indonesian customers perceive that utilizing electric vehicles is not as convenient as gasoline vehicles (Irfanto & Aprilianty (2022).

Social Influence (SI): Social Influence is the degree to which an individual perceives that important others believe he or she should use the new system. People are affected by companions, family, friends, acquaintances, and social patterns around them in making buying decisions. This is particularly applicable to collectivist countries. It is similar to subjective norms in TRA, TAM, TPB and C-TAM-TPB, social factors (MPCU) and image (DOI). It is about the influence of important people's opinions, such as families and friends on the decision-making process (Hoang et al., 2022). This variable does not create any relationship with the intention for EV when Hoang et al. (2022) test the variable in Vietnam. A consistent finding in Irfanto and Aprilianty (2022) about the unsupported claim of social influence over EV behavioral intention is reported in Indonesia. It shows that buying a newly innovative product is a personal decision due to the relatively small market that resulted in low power of influence to each other. The earlier study in Pakistan shares the same outcome where social influence shows an insignificant relationship with intention to adopt EV (Lee et al. 2021). On the other hand, a study by Manutworakit & Choocharukul (2022) reported a contradicting finding when social influence is found to positively influence intention for EVs in Thailand. As a collectivist country that cares for each other, Abbasi et al. (2021) confirm social influence has a positive influence on the intention to adopt EVs in Malaysia.

Facilitating Conditions (FC): Facilitating Conditions explain consumers' perceptions of the infrastructures, resources, and supports available to support the technology adoption (Venkatesh et al., 2003). The reliability of the supporting infrastructure such as charging stations and maintenance facilities serves as input to form EV intention and adoption. This construct is found in perceived behavioral control of TPB, C-TAM-TPB, facilitating conditions (MPCU), and compatibility (DOI). Facilitating condition is displayed as an insignificant variable in determining behavioral adoption of EVs but significantly explains the intention to buy EVs (Hoang et al., 2022). A country with a lack of infrastructure to support the adoption of EVs and a lack of possession of technological knowledge, for example, Indonesia demonstrated with insignificant influence on behavioral intention and adoption of EVs as mentioned by Irfanto and Aprilianty (2022). EV is still in the introductory stage in Thailand so the facility condition making this variable has no significant effect on the intention and adoption of BEV (Manutworakit & Choocharukul, 2022). A study in Pakistan shows a consistent finding in reporting the insignificant effect of facilitating conditions on intention for EV adoption (Lee et al., 2021).

Perceived Value/Cost (PV/PC): Perceived Value/Cost is defined as consumers' trade-off between the perceived benefits/projected advantages of the applications and the monetary cost of using the technology (Venkatesh et al., 2012). It is related to the evaluation of the benefits and costs of a particular product. The overall assessment of the consumption of a particular product is dome based on a comparison between what is received and what is given (Zeithmal, 1988). When consumer perceives the benefit of technology as higher and more important than the monetary cost, it positively affects perceived value and positively affects behavioral intention (Marikyan & Papagiannidis, 2023). Perceived value conveys customer acceptance that a product can meet his or her expected benefits. If the expected benefit outweighs the expected cost, it certainly shows that the perceived value of the product is to be high. In a setting where the customer believes a product is valuable and beneficial, customers may be highly inclined to pay a premium price, and vice versa. In addition, understanding perceived value typically increases purchases, cross-buying, word-of-mouth referrals, less returns and serves as a vital component in the decision-making process (Sivananthan & Shivany, 2013). Perceived value is a factor that explains consumer buying decisions. However, in a developing country such as Indonesia, customers placed more attention on the high price of EVs instead of the trade-off between EV benefits and the cost. As a result, perceived value is showcased to create an insignificant influence on EV behavioral intention and adoption (Irfanto & Aprilianty, 2022). A similar finding is reported in Thailand in which the higher price of EVs than that of combustion cars has resulted in the perceived value and intention for EVs not being significant (Manutworakit & Choocharukul, 2022).

Hedonic Motive (HM): Hedonic Motive refers to the enjoyment or pleasure of customers derived from using technology (Venkatesh et al., 2012). The hedonic motive is meant to seek pleasure and comfort (Chen & Zeng, 2022). It shows a willingness to initiate behaviors that result in improved positive experiences or decreased

negative experiences (Kaczmarek, 2017). For instance, the enjoyment of driving an EV happens only when the driver picks up new abilities to drive the EV. The hedonic motive shows emotional factors that influence EV intention and adoption. This motive is shaped by psychological drives including emotion, satisfaction, pride and other subjective (Gunawan et al., 2022). Yidirir and Kaplan (2018) say consumers are evaluating their future feelings during and after buying transactions, in which customers must enjoy the purchase. EV performance, economical features and ability to drive will induce customers to spend more time to explore about EV and may drive them to buy EVs that maybe initially they have not planned for. Without the confidence to drive EV, a hedonic motive does not draw any significant effect on the intention to embrace EV as reported by Irfanto and Aprilianty (2022). Yidirir and Kaplan (2018) report similar findings where the hedonic motive is not significant in explaining the intention for mobile application marketing. Driving EV indeed rushes the hedonic experience among the individual users of EV which has resulted in a positive association between hedonic motives and EV behavioral intention (Manutworakit & Choocharukul, 2022). In fact, hedonic motivation is the strongest determinant that affects EV adoption (Rezvani et al., 2018). Hedonic motivation is the willingness to initiate behaviors that enhance positive experiences (pleasant or good) and behaviors that decrease negative experiences.

Habit (H): Habit refers to the extent to which people tend to perform behavior automatically because of learning activity (Venkatesh et al., 2012). Habit is perceived enjoyment, and studies show the significant impact of habit on mobile technology acceptance (Kleopatra et al., 2021). Habit is found to play a considerable role in determining EV intention and adoption only when there is a growing number of EV users and more people become familiar with the system (Irfanto & Aprilianty, 2022). This model highlights the important relationship between habit, behavioral intention, and adoption of embracing EVs. However, from the majority of UTAUT empirical studies (66 articles), 43 articles did not operationalize habit in their studies (Tamilmani et al., 2021). Some of the respondents mentioned they purposely left out habits from UTAUT. As a result, empirical studies related to habit and UTAUT can hardly be found. Studies must include habit in the framework especially when UTAUT is employed to govern the research framework. The existing study is conducted to fill in the gap so that habit is taken as part of the research design. The increased number of EVs on the road allows people to learn about EVs and may lead to a higher level of EV intention and adoption. Pahnila et al. (2011) studied the relationship between habit and intention to adopt technological products and concluded habit is significant in determining intention and adoption of technological products. Indeed, habit is a very strong predictor and valid construct for studying consumer intention (Tamilmani et al., 2014).

Religiosity: Religiosity is defined as the submission of oneself to the commands of his/her religion (Begum et al., 2021). The role of religiosity is increasingly important in social and behavioral science (Koenig et al., 2015). It has been found to create positive effects in numerous situations in lots of activities including in preserving the ecology. Religiosity is a value that is related to moral norms that encourage people to respond accordingly in sustaining the environment (Karimi et al., 2022). Religiosity is related to an individual's action toward the protection, maintenance and enhancement of the well-being of an external social object (Holdcroft, 2006). One aspect of sociomoral development is the role of religiosity in actively contributing to societal transitions towards sustainability. Religiosity has been debated to affect individuals' lifestyles, decision-making, behavior, thought and habits.

The problem in the modern economy is related to human actions that are full of greed and heedless motives that have negatively affected the environment. Creating excessive wealth has been the motive for geared-greed individuals or organizations and resulted in human actions to recklessly exploit natural resources. The advanced products in science and technology such as artificial intelligence can hardly address the endless human greed with heedless desire. Hence, the potential role of religiosity in encouraging pro-environmental behavior and societal transitions toward sustainability is increasingly important (Koehsen & Huber, 2021). Eco-theologies as highlighted in many religious traditions such as Islam, Buddhism, and Christianity. It must be further nurtured to contribute significantly to sustaining the environment.

From the viewpoint of Islam, it is stated in the Holy Quran that Allah has created a balanced ecosystem where if the resource is used excessively, it will cause environmental issues. Apparently, environmental sustainability is a fundamental instruction in Islamic teaching that has to some extent been neglected by humankind (Karimi et al., 2022). Islam taught its believers the importance of sustainability, fairness, balance,

and judicial actions for the protection of the environment. In Islam, humans are the manager of the natural resources and not the owner of the resources. The real owner of the environment is Allah, the creator of the universe. He appoints human beings as managers (Khalifah) to manage the given resources for their livelihood and must avoid causing problems and wasting natural resources. *"And do no mischief on the earth after it has been set in order: that will be best for you if ye have Faith" (Surat Al A'raf, 'the Heights', verse 85).* As Khalifah, human beings must take all necessary actions to make sure the natural resources are inherited by the next generation in a pure form as possible. The managers (Khalifah) are responsible and accountable for environmental protection and conservation because the natural resources are not only created for humankind but also for other living things. *"Children of Adam, dress well whenever you are at worship, and eat and drink (as we have permitted) but do not be extravagant: God does not like extravagant people." (Surat Al-A'raf 7:31).* From the Islamic perspective, environment protection and conservation are a religious duty henceforth responsibility to utilize and protect the environment lies in every Muslims.

Christianity in its tradition outlines the importance of environmental-friendly ethics and requesting human stewardship for the environment. The biblical passage clearly points to criticism over environmental degradation and always promotes environmental concern (Blanc, 2022). Genesis 2:15 says "The Lord God took the man and put him in the Garden of Eden to work it and take care of it." Christianity documented that all natural resources belong to the Lord God and people are accountable to God as stewards of the creation. Psalm 24:1-2 "The earth is the Lord's and everything in it, the world, and all who live in it; for he founded it upon the seas and established it upon the waters." Church leaders are highly involved in promoting ecological sustainability by developing self-initiative programs against pollution and deforestation (Stork & Du Toit, 2022). Religiosity has created a success record in Lebanon when the church community responsibly succeeded in protecting the surrounding forest and moreover, they successfully promoted the program in the nearby community (Allen, 2018).

Buddhism taught its adherents to conduct their lives by consuming what is necessary for living, living in harmony with nature, as well as to use carefully and learn from nature wisely (Thathong, 2012). Any actions in breaking the norms that are associated with gods and spirits will result in bad luck and most commonly sickness (Woodhouse et al., 2015). In the Buddha's teaching, people in a society must be mutually supported and promote harmonious co-existing with nature, respect for all living creatures, create fairness in the ecosystem and uphold environmental sustainability. Engaged Buddhists are working together to combat extremely serious environmental problems by looking for new and innovative ways (Javanaud, 2020). Contemporary Buddhism and environmentalism have been in urgency to pursue sustainability initiatives to reduce environmental problems. This can be seen in the development of a website called EcoBuddhism, the Buddhist Declaration on Climate Change, and the International Campaign on Sustainability (Sponsel, 2016).

Apparently, religiosity plays a significant role in forming the behaviors of societies (Begum et al., 2021). The higher the religiosity, the higher is pro-environmental adoption. However, religiosity is explained as a non-significant predictor for pro-environmental intention (Karimi et al., 2022). Consistent with this finding, in predominantly Buddhist countries, one can find natural resource depletion, pollution, and environmental problems (Sponsel, 2016). The finding completely contradicted the Buddhist teaching that leans towards preserving Mother Nature. Indeed, the actual behavior of Buddhists in protecting the environment is far too good to be true. Interestingly, religiosity has created a success record in Lebanon when the church community succeeded in protecting the surrounding forest and simultaneously promoted the program in the nearby community effectively (Allen, 2018). Despite these contradictory findings, all religions highlight the importance of protecting the natural environment in their teachings. Since little has been done to study the impact of religiosity on the intention and adoption of EVs, for this reason, considering religiosity in determining the EV intention and adoption is worth analyzing.

Proposed Research Model: To further expand the knowledge of intention and behavior, this study is interested in examining the antecedents that could affect the intention and adoption to embrace EVs. Following Venkatesh et al. (2003; 2012), the proposed model consists of integration between UTAUT1, UTAUT2 and religiosity. In short, the extended UTAUT is composed of (i) performance expectancy, (ii) effort expectancy, (iii) social influence, (iv) facilitating conditions, (v) hedonic motive, (vi) perceived value/cost, and

(vii) habit. All these factors are proposed to play a critical role in determining EV behavioral intention and intention to buy EVs will serve as antecedents to purchase EVs.

3. Research Methodology

The study proposes to explore the relationship between UTAUT and religiosity on intention to buy and adoption to embrace EVs. The unit of analysis of this study is at the individual level. They consist of EV potential buyers and actual EV buyers. Data will be gathered via questionnaires. Other than demographic data, the potential buyers and actual customers will be asked about the expected attributes of EV car, intention, and adoption. Information related to factors that will hinder potential buyers from purchasing EV cars will also be examined.

The measurement items for the constructs in UTAUT, religiosity, EV intention and adoption will be obtained from reliable sources. The proposed study will engage in a structured questionnaire and will employ online distribution techniques. Purposive sampling will be used to get responses from the existing EV buyers, while convenience sampling will be employed to understand the intention and future buying patterns toward EVs among potential buyers. The proposed study will engage in the Partial Least Squared Method in testing the hypotheses.

4. Managerial Implications and Recommendations

The United Theory of Acceptance and Use of Technology will be used to govern the proposed study. The objective is to develop an alternative model by integrating UTAUT1, UTAUT2 and religiosity from the context of EV intention and adoption. To the knowledge of the proposed study, very few studies have considered integrating UTAUT1 and UTAUT2 in EV intention and adoption. So far, the existing studies only considered these models in isolation. As a result, the results are often inconsistent and offer inconclusive corroboration.

Few studies have been found examining the relationship between religiosity and pro-environmental behavior. Although religiosity is explained as important for environmental protection in all religions but the findings from the empirical studies are conflicting. Karimi et al. (2022) concluded religiosity is a non-significant factor in determining pro-environmental intention but Allen (2018) claimed religiosity has successfully protected the ecology in Labenon. Hence, studying the impact of religiosity on EV intention and adoption is a critical gap that will be filled by this study since there has been limited agreement on how religiosity affects EV intention and adoption.

The proposed study will provide relevant guidance for policymakers and EV manufacturers in terms of the expectations of potential buyers. The information gathered from the actual buyers would be beneficial for both parties in designing the future policy, incentives, future attributes, and EV innovation. This study is also expected to contribute to the existing body of knowledge by integrating religiosity and employing the combined UTAUT1 and UTAUT2 in the analysis.

5. Conclusion

This study aims to create a framework for empirical research on EV intention and adoption among potential and actual EV buyers. Policymakers and manufacturers must understand the expectations of the potential and actual buyers to improve the adoption of EVs. From the policymakers' perspective, the findings gathered from the proposed research will facilitate the country in achieving its sustainability developmental goal which is to reduce the greenhouse emission effect from the transportation industry. On the other hand, the EV manufacturers will reduce the market gap in relation to what is being offered and what is expected to be offered. Understanding the EV market is becoming an important component to realize the achievement of sustainability goals. The objective of this paper was to establish a profile of EV potential and existing buyers, compare and explore the characteristics of EV customers, comprehend factors that will influence potential buyers' intention and decision in adopting EVs and to understand precursors that influence the real buyers in adopting EVs.

References

Abbasi, H. A., Johl, S. K., Shaari, Z. B. H., Moughal, W., Mazhar, M., Musarat, M. A. & Borovkov, A. (2021). Consumer motivation by using a unified theory of acceptance and use of technology towards electric vehicles. *Sustainability*, 13(21), 12177.

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

Allen, T. (2018). Restoring Eden: The Role of Christianity on Environmental Conservation: A Case of Karatu District, Arusha, Tanzania.

Begum, A., Jingwei, L., Haider, M., Ajmal, M. M., Khan, S. & Han, H. (2021). Impact of environmental moral education on Pro-environmental behavior: do psychological empowerment and Islamic religiosity matter? *International Journal of Environmental Research and Public Health*, 18(4), 1604.

Blanc, J. (2022). From "Why Should?" to "Why Do?" Tensions in the Christian Context While Acting for the Environment 1. In Religious Environmental Activism (pp. 112-131). Routledge.

Chen, H. & Zeng Z. (2021). When Do Hedonic and Eudemonic Orientations Lead to Happiness? Moderating Effects of Orientation Priority. *Int J Environ Res Public Health,* 18(18), 9798.

CO2 Emissions. (2022). International Energy Agency. https://www.iea.org/reports/co2-emissions-in-2022

Conner, M. & Norman, P. (2022). Understanding the intention-behavior gap: The role of intention strength. *Front Psychol,* 4(13), 923464. doi: 10.3389/fpsyg.2022.923464. PMID: 35992469; PMCID: PMC9386038.

EEA Signals. (2023). Health and environment in Europe. European Environment Agency. https://www.eea.europa.eu/publications/eea-signals-2023

Energy Information. Canada Energy Report. https://www.cer-rec.gc.ca/en/about/publications-reports/annual-report/2018/energy-information.html

EPA Announces Another $20 Billion in Funding Under the Greenhouse Gas Reduction Fund. United States Environmental Protection Agency 2023. https://www.undp.org/

Gunawan, I., Redi, A. A. N. P., Santosa, A. A., Maghfiroh, M. F. N., Pandyaswargo, A. H. & Kurniawan, A. C. (2022). Determinants of Customer Intentions to Use Electric Vehicle in Indonesia: An Integrated Model Analysis. Sustainability**,** ***14,*** 1972. https://doi.org/10.3390/su14041972

Hoang, T. T., Pham, T. H. & Vu, T. M. H. (2022). Examining customer purchase decision towards battery electric vehicles in Vietnam market: A combination of self-interested and pro-environmental approach. *Cogent Business & Management*, 9(1), 2141671.

Holdcroft, B. B. (2006). What is religiosity? Catholic Education: *A Journal of inquiry and practice*, 10(1).

Irfanto, N. & Aprilianty, F. (2022). Assessing Indonesian consumer adoption of electric vehicles using the extended utaut2 model. *International Journal of Business and Economy*, 4(3), 74-87.

Ives, C. D. & Kidwell, J. (2019). Religion and social values for sustainability. *Sustainability Science*, 14, 1355-1362.

Ives, C. D., Buys, C., Ogunbode, C., Palmer, M., Rose, A. & Valerio, R. (2023). Activating faith: pro-environmental responses to a Christian text on sustainability. *Sustainability Science,* 18(2), 877-890.

Javanaud, K. (2020). The world on fire: *A Buddhist response to the environmental crisis. Religions,* 11(8), 381.

Kaczmarek, L. (2017). Hedonic Motivation. Encyclopedia of Personality and Individual Difference. 10.1007/978-3-319-28099-8_524-1.

Karimi, S., Liobikienė, G. & Alitavakoli, F. (2022). The effect of religiosity on pro-environmental behavior based on the theory of planned behavior: A cross-sectional study among Iranian rural female facilitators. *Frontiers in Psychology*, 13, 745019.

Kleopatra N., Vasilis, G. & Konstantinos L. (2021). Habit, hedonic motivation, performance expectancy and technological pedagogical knowledge affect teachers' intention to use mobile internet, *Computers and Education Open,* 2, 100041, ISSN 2666-5573,

Koehrsen, J. & Huber, F. (2021). A field perspective on sustainability transitions: The case of religious organizations. *Environmental Innovation and Societal Transitions,* 40, 408-420.

Koenig, H. G., Al Zaben, F., Khalifa, D. A. & Al Shohaib, S. (2015). Measures of religiosity. In G. J. Boyle, D. H. Saklofske, & G. Matthews (Eds.), Measures of personality and social psychological constructs (pp. 530–561). Academic Press.

Manutworakit, P. & Choocharukul, K. (2022, July 11). Factors Influencing Battery Electric Vehicle Adoption in Thailand—Expanding the Unified Theory of Acceptance and Use of Technology's Variables. https://scite.ai/reports/10.3390/su14148482

Marikyan, D., Papagiannidis, S., F. Rana, O. & Ranjan, R. (2023). Working in a smart home environment: examining the impact on productivity, well-being and future use intention. Internet Research.

Marikyan, M. & Papagiannidis, P. (2021). Unified theory of acceptance and use of technology. TheoryHub book.

Nie, Y., Wang, E., Guo, Q. & Shen, J. (2018). Examining Shanghai consumer preferences for electric vehicles and their attributes. *Sustainability*, 10(6), 2036.

Pahnila, S., Siponen, M. & Zheng, X. (2011). Integrating Habit into UTAUT: The Chinese eBay Case, *Pacific Asia Journal of the Association for Information Systems:* 3(2), 2. DOI: 10.17705/1pais.03201 Available at: https://aisel.aisnet.org/pajais/vol3/iss2/2

Research firm: Malaysia accounts for 2.4pc of electric cars sold in Southeast Asia in Q1, behind Thailand's 78.7pc. Malay Mail. https://www.malaymail.com/news/malaysia/2023

Rezvani, Z., Jansson, J. & Bengtsson, M. (2018). Consumer motivations for sustainable consumption: The interaction of gain, normative and hedonic motivations on electric vehicle adoption. *Business Strategy and the Environment*, 27(8), 1272-1283.

Rodrigo, R. C., Carlos, M. B. & Danilo, O. S. (2023). Hedonic and utilitarian motivations and their relationship with cultural dimensions, life satisfaction and the attributes of supermarkets: *An international study on consumer behavior, Cogent Business & Management*, 10(2), 2202024, DOI: 10.1080/23311975.2023.2202024.

SDG Summit. (2023). - Sustainable Development Goals. United Nation. https://www.undp.org/

Sivanenthira, S. & Shivany, S. (2013). Factors Influencing Customer Perceived Value of Services of Medical Clinics. EXCEL International Journal of Multidisciplinary Management Studies.

Sponsel, L. E. & Poranee, N. (2016). Environment and Nature: Buddhism" in Encyclopedia of the History of Science, Technology, and Medicine in Non-Western Cultures, Helaine Selin, ed*., The Netherlands: Springer, Second Edition,* 1, 768-776.

Stork, J. & Du Toit, C. (2022). Finding Ubuntu in the Bible: How the Zion Christian Church in South Africa Relates to Concepts of Ecology in African Traditional Religions. In Religious Environmental Activism (pp. 198-220). Routledge.

Tamilmani, K., Rana, N. P. & Dwivedi, Y. K. (2019). Use of 'Habit' Is not a Habit in Understanding Individual Technology Adoption: A Review of UTAUT2 Based Empirical Studies. In: Elbanna A, Dwivedi Y, Bunker D and Wastell D. (eds) Smart Working, Living and Organizing. TDIT 2018. IFIP Advances in *Information and Communication Technology*, 533, 277-294. Springer.

Thathong, K. (2012). A spiritual dimension and environmental education: Buddhism and environmental crisis. *Procedia-Social and Behavioral Sciences*, 46, 5063-5068.

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.

Venkatesh, V., Thong, J. Y. & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. MIS Quarterly, 157-178.

Woodhouse, E., Mills, M. A., McGowan, P. J. & Milner-Gulland, E. J. (2015). Religious relationships with the environment in a Tibetan rural community: Interactions and contrasts with popular notions of indigenous environmentalism. *Human Ecology*, 43, 295-307

Yildirir, S. C. & Kaplan, B. (2018). The effects of utilitarian and hedonic motives on mobile application marketing: comparison of students and graduates. *International Journal of Engineering, Science and Mathematics*, 7(9), 62-85.

Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing,* 52, 2-22. doi:10.2307/1251446

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The Determinants of Household Debt in Malaysia

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Abstract: This study aims to observe the determinants of the factors affecting household debt in Malaysia. This study has listed six independent variables that would affect Malaysia's household debt: real interest rate, inflation rate, unemployment rate, household consumption expenditure, gross domestic product (GDP), and housing price index (HPI). This research was conducted by using annual data for 30 years (1991-2021); this study also used a quantitative approach to the collection of data using secondary data such as the website of the World Bank, Department of Statistics Malaysia, Eikon Thomson Reuters, and Bank Negara Malaysia. A theoretical model with the hypothesized relationships was tested with the help of the structural equation modelling procedures. Findings showed that the unemployment rate and gross domestic product have a positive and significant relationship with household debt. These determinants are directly affecting household debt in Malaysia, especially in microeconomic factors. This study will contribute to a better understanding that household debt can be influenced by other factors. Further study on the other determinants of household debt may result in varying results.

Keywords: *Household Debt, Real Interest Rate, Inflation Rate, Unemployment Rate, Household Consumption Expenditure, Gross Domestic Product (GDP), Housing Price Index (HPI), Malaysia.*

1. Introduction and Background

Household debt has been historically high in many countries. Household debt can be described as "household liabilities that require payments of interest to the creditors at a set date," as stated by the Organization for Economic Co-operation and Development (OECD, 2022). Over the past two decades, household debt in Malaysia has increased at a rapid pace, and the country's ratio of household debt to GDP has reached an all-time high in recent years. Malaysia is a country that has had a high rate of overall debt growth (Cai Yunchao, 2020). The level of household debt in Malaysia has become a problem for the nation's economy because of the social and economic impact it has on the nation (Zain, et al, 2019). Concerns have been voiced over Malaysian households' ability to maintain their financial stability considering the rapid increase in household debt. The fact that households have borrowed substantial amounts of credit and that consumer credit is available to a bigger number of people suggests that the households are in greater financial trouble. Although it is undeniable that household debt is essential to the upkeep of one's financial health, the quick development in household debt poses a threat to the expansion of a nation's economy.

As mentioned by Birruntha (2022), Malaysia has one of South-East Asia's highest household debt-to-GDP ratios. The household debt to gross domestic product (GDP) has increased from 67.2% in 2002 to 89% in 2021 (Data, 2022). The debts owed by households in Malaysia amount to about RM1.38 trillion, which is more than the debts owed by the federal government to its creditors. Housing loans accounted for 58 percent of the total RM1.38 trillion, while other debts accounted for 14 percent, 13 percent for personal loans, 12 percent for car loans, and the remaining 3 percent for credit card debts (Malay Mail, 2022). Between the years 2018 and 2021, it is anticipated that the level of debt that Malaysian households will carry will rise by around 17%. Because of this, questions have been expressed about the nation's ability to continue to make its debt payments, particularly during times of crisis. The fact that most households in Malaysia do not have adequate savings reserves makes this problem considerably more difficult to solve.

The impact of household debt on economic growth has attracted considerable interest among researchers in the past few years. Theoretically, households borrow to fund their consumption. Besides that, borrowing activity is also for investment in non-financial assets (Khan et al., 2021). However, high levels of household debt can be detrimental to borrowers where aggregate consumption and output shrink due to high interest (Khan et al., 2021). At the end of 2021, Malaysian household debt to GDP recorded an increase of 89 percent

compared to 96 percent a year ago (2020). However, it shows relatively higher than developed economies such as the US (80% of Q4 2021) and the UK (86.4% of Q4 2021) (Amanda, 2022). This shows that Malaysia has recorded almost RM1.4 trillion in debt value in 2021 (Bank Negara Malaysia, 2022). In addition, as of June 2021, there are approximately 44% of newly approved loans and 35% of outstanding household loans (Bank Negara Malaysia, 2022).

Moreover, high household debt will decrease purchasing power and lead to slow economic growth. It also will increase the poverty rate and bankruptcy rate in Malaysia. This study is in line with (Bogdan et al, 2022), who claims that rising household debt could cause solvency issues, especially during economic downturns. As we are aware that the country has been hit by the COVID-19 pandemic since 2020, here we can see a realistic example of the negative impact of household debt on the economy as well as people (Amanda, 2022). This was proven by a study conducted between May 27 and June 10, 23 percent of Malaysian respondents said they were struggling financially with 45 percent feeling they had just succeeded (Amanda, 2022). Thus, to support the household economy, the government has given incentives to Malaysians, namely on June 30, the special withdrawal facility of the Employees' Provident Fund (EPF) consists of *i*-Lestari, *i*-Sinar, *i*-Citra and a one-time special withdrawal of RM10,000 (Amanda, 2022).

Objectively, the government's goal to help the people who struggle with financial issues is achieved; however, it also gives a side effect to the people. When the contributors have exhausted their savings in the EPF, they will start making loans to financial institutions to pay their loan expenses. If they cannot access loans from banks, they will start borrowing from moneylenders with high interest rates (Amanda, 2022).

The rapid increase in household debt is undeniably a major concern among policymakers (Abd Samad et al., 2020). Future welfare may also be in danger from rising household debt. A sharp rise in household debt can cause solvency issues, and this weakness can develop into significant challenges, particularly during times of crisis. Given this context, economic authorities should keep an eye on family debt and support measures that encourage a healthy balance between its advantages and disadvantages.

The identification of factors that influence household debt is crucial for this goal to develop an effective policy (Dumitrescu et al., 2022). This study focuses on the determinants that influence household debt cases in Malaysia. The next level of household debt in Malaysia could lead to another financial crisis as it is at an alarming level. Determining the relationship between household debt and its determinant as well as the key variables impacting household debt are the goals of this study. The empirical way of investigation uses annual time series data spanning duration of 30 years of observation from 1991 to 2021 for six variables such as interest rate, inflation rate, household consumption expenditure, unemployment rate, gross domestic product (GDP) and housing price index. The reason for selecting the year 1991 as the initial year is the study found that there is the existence of a long-run equilibrium relationship between the household debts with the variables selected. The ending year of 2021 was opted in this study because despite major economic obstacles in 2021 including inflation, supply shortages, and restrictions on specific industries because of the epidemic. As a result, creditors seemed eager to offer credit to anyone who may benefit from it. Consumers looked to be handling their bills well more than a year after the epidemic began since the default rates on debt payments were unchanged.

In this study, descriptive statistics analysis, correlation coefficient analysis and regression analysis are used for the estimation of the impact of six variables, namely, interest rate, inflation, unemployment rate, consumption, and gross domestic product (GDP). Data was collected from The Department of Statistics, Malaysia (DOSM), Eikon Thomson Reuters, and the World Bank's website. This study can show whether the real interest rate, inflation rate, unemployment rate, household consumption expenditure, gross domestic product (GDP) and housing price index are positive and significant in relation to household debt. In conclusion, these findings have important implications for Malaysian policymakers.

2. Literature Review

Household Debt: Household debt can be defined as all household liabilities including non-profit households (CANAKCI, 2021). Economists are becoming increasingly concerned about the possibility of financial

instability because of the unsustainable growth of household debt in both developed and emerging countries. The rising amount of debt carried by households is a source of concern for both the government and the household sectors. Economists focusing on macroeconomics have been interested in this topic to examine and investigate the elements that contribute to household debt in Malaysia as well as the influence that it has.

Several studies have attempted to understand the factors affecting household debt growth covering different countries. Research conducted by (Bogdan et al, 2022), explored the influence of several macroeconomic determinants on household debt in OECD countries. It was discovered by looking at a sample of 26 OECD countries for the period of 2002q1 to 2020q4 that shocks in house prices, investment, and mortgage credit interest all influence household debt. An unexpected rise in house prices increases household debt. An increase in investment leads to higher levels of borrowing, which in turn increases household debt. Higher levels of debt are positively linked with household debt.

Other findings were presented by (Roseline & Ronney, 2021), who conducted research into the factors that lead to excessive household debt in South Africa. They concluded that increased household debt is caused by variables such as the rising cost of living, high-interest rates, disasters and other unpleasant trigger events, as well as income disparity. The author notes mortgages are the single most major contributor to household debt in South Africa.

Identified by another researcher, using the macro panel data from Asia Pacific countries from 1994 to 2016, found a positive link in the long run between household debt and household consumption, housing price index, and labor force participation (Kusairi, et al, 2019). Moreover, the authors find that there is a negative link in the long-run changes in household debt with the unemployment rates and the dependency ratio. The authors also place a great emphasis on the fact that the labor market has a significant influence on the level of household debt over the long run.

Meanwhile, a study carried out by Zain et al (2019) investigated the factors that determine household debt and discovered that GDP, base lending rate, and housing price all had a favorable association with household debt. On the other hand, there is a correlation between household debt and the unemployment rate that is negative. According to the authors, the writers remark that the housing price is the most significant factor associated with household debt.

Real Interest Rate: The interest rate was fixed in a market where the demand for savings from other households and businesses seeking to borrow money for consumption and investment exceeded the supply of savings offered by certain households and businesses. In this situation, the interest rate could never be zero, much less negative. Although a negative interest rate would indicate that the political, economic, and social conditions were so perverse that the virtue of saving and lending as a personal activity promoting the best interests of society had become a vice to be avoided, a zero-interest rate would imply that savings had transformed into a free good (Bitros & Viladi, 2022).

A real interest rate has been modified to take inflation into account. After adjustment, it indicates the actual interest rate that a borrower must pay and the actual return that a lender or investor will receive. Real interest rates indicate the rate at which current items are gradually preferred over future ones. Real interest rates are determined by reducing nominal rates by an estimation of the economy's inflation rate. A real interest rate that is negative means that the principal's buying power has decreased (Group, 2022).

Interest rates can have a positive or negative impact on household debt based on different research approaches. Interest rates can have a positive relationship with household debt as higher interest rates will affect more home debt (Catherine et al., 2016). There is also a view that the application of the survey model and the correction of the relevant vector errors are greatly impacted by the interest rate, which has a favorable impact on household debt. In this 2016 study, Hafizah looked at the factors influencing Malaysian household debt and discovered a substantial positive relationship between interest rates and changes in household debt (Khan et al., 2016). According to Catherine's research, interest rates are highly correlated with household debt since rising rates and increasing consumer spending happen when the economy is doing well (Catherine et al., 2016).

Previous research has shown that low-interest rates cause household debt to increase. The rise in household property and mortgage debt was also influenced by low-interest rates. Financial pressure on people with significant debt is growing because of rising interest rates. According to (Yahaya & Sarwe, 2019), both savers and borrowers will suffer as a result.

According to a past study by (Lugo, 2008), in the 1970s, McKinnon and Shaw and other economists started to make the case for financial liberalization to encourage austerity, investment, and growth. This is based on the claim *that* administrative control over nominal interest rates and extensive financial market regulation are the main reasons why real interest rates are frequently negative in developing nations. Contrary to the conventional belief that real interest rates and private investment have a negative relationship, this argument claims that real interest rates have a net positive impact on private investment.
H1: There is a relationship between real interest rates and household debt.

Inflation Rate: A rise in the cost of household purchases of goods and services is referred to as inflation, and the rate at which those prices change is how inflation is determined. The rate of inflation is another factor that affects household debt. A study conducted by Catherine et al (2016) in determining the influence of macroeconomic determinants on household debt in developed Asian countries discovered that inflation rate and household debt have a significant negative correlation, with higher inflation lowering a household's potential to borrow. In terms of borrowing, inflation will reduce the value of the debt, providing greater incentives for households to borrow. Additionally, this finding is supported by Kusairi et al (2019) indicates that the inflation rate and other macroeconomic variables such as interest rate and unemployment rate decrease household debt.

Moreover, research by Nomatye and Phiri (2018) that studied the macroeconomic factors influencing household debt in South Africa discovered a slight but positive correlation between the inflation rate and household debt. When the inflation premium is multiplied by real interest rates, the power of inflation to enhance credit demand is neutralized by the increase in nominal interest rates, making inflation's overall impact insignificant.
H2: There is a relationship between the inflation rate and household debt.

Household Consumption Expenditure: Since 2000, the ratio of debt to income among Malaysian households has been showing an upward trend (Lean-Ee Lee et al., 2021). Hence, one of the factors affecting household debt in Malaysia is consumption expenditure. Many studies are showing the relationship between household debt and consumption expenditure such as (Azwani Mohamad et al., 2019; Hammad et al., 2016; Lean-Ee Lee et al., 2021). The research also had done in China and the United States (U.S.) (Barrot et al., 2022; Canakci, 2021). Bank Negara Malaysia defines consumption expenditure as the total money spent on final goods and services by individuals and households for personal use and enjoyment in an economy.

Consumption expenditure can be assumed to have a positive relationship with household debt which has a similar result as the past study done by Hammad et al. (2016). The beginning of the study is an investigation into the relationship between household consumption and the composition of household debt in Malaysia where the researcher uses the Toda-Yamamoto non-causal test. This finding has shown the relationship between the two variables exists in the case of consumer debt. This means that consumer debt or consumption expenditure has had an impact on the level of household debt. Therefore, to control the high level of household debt is to focus on moderating the level of consumer debt because it is riskier for the economy (Hammad et al., 2016).

Other than that, a study by Azwani Mohamad et al (2019) has been made to analyze the determinants of household debt in Malaysia. Inflation rate, consumption expenditure, interest rate and unemployment rate have been used as independent variables. The results show a positive relationship between consumption expenditure and household debt. The results obtained show that consumption expenditure has a positive and significant relationship with household debt at the 1% significance level. In addition, it also proves that consumption is the most significant variable in influencing household debt compared to other variables such as the unemployment rate, interest rate and inflation rate (Azwani Mohamad et al., 2019).
H3: There is a relationship between household consumption expenditure and household debt.

Unemployment Rate: The unemployment rate is the percentage of persons who are out of work (occupied labor force + unemployed). An unemployment rate per age group may be calculated by dividing the number of unemployed persons in each age group by the labor force participation rate for that age group. Similarly, unemployment rates may be determined by gender, semiprofessional category, area, country, qualification level, and so on. The unemployment rate is not the same as the share of unemployment, which represents the proportion of unemployed people in the overall population.

The unemployment rate in each country is another important determinant of household debt. A previous study by Turinetti and Zhuang (2014) discovered that the unemployment rate had a negative impact on household debt. They also stated that as the unemployment rate rises, household debt decreases. This assertion is backed by Schooley and Worden (2010), who performed a study on the financial behavior of a cross-section of US households using the public database of the 2007 Federal Reserve Board Survey of Consumer Finances (SCF). They argue that the possibility of unemployment raises household income uncertainty, which impacts consumption and savings. With job and income uncertainty increasing during the crisis, households save more to build a buffer and hence borrow less.

Okuns' Law, as a basic rule of thumb, says that unemployment is negatively correlated with economic growth. This study proved that the economic cycle has a major impact on a household's ability to pay off debt. Due to the slowdown in economic activity, the household sector faced higher financial sustainability to sustain mortgage payments, resulting in more impaired loans. The business cycle indicator, the unemployment rate, proxies the decline of this macroeconomic factor. According to previous research, an increase in the unemployment rate increases the probability of default (Agarwal & Liu, 2003; Beck et al., 2015; Bellotti & Crook, 2009; Castro, 2013; Messai & Jouni, 2013).
H4: There is a relationship between the unemployment rate and household debt.

Gross Domestic Product (GDP): The GDP measures the total market value of a country's final goods and services generated each year. Household debt has a significant impact on GDP both immediately and over the long run (Yahaya, 2019). A study conducted by Nomatye (2017) found positive and significant influences of GDP on household debt at moderate to high levels of GDP. Therefore, implying that households tend to acquire larger levels of debt whenever there is an improvement in the outlook for the economy. The GDP is linked to a rise in mortgage debt as well as an increase in consumer debt, and the higher the GDP, the more this link exists (Zain, et al, 2019). A rise in GDP will encourage households to take out additional loans, which will result in a rise in the total amount of debt held by households. However, the result gained by (Abd Rahman & Masih 2015) is vice versa. Since household debt is exogenous, changes in other variables, such as lending rate and GDP, may not impact it.
H5: There is a relationship between gross domestic product (GDP) and household debt.

Housing Price Index: The cost of residential properties is an essential factor to consider when analyzing the factors that determine household debt in Malaysia given that a sizable amount of household debt is comprised of mortgage obligations. In fact, Nomatye (2017) who examined South African household debt macroeconomics using quarterly data between 2002q1 and 2016q4 found that house prices are related to household debt. This is further corroborated by the findings of a study by Zain et al (2019), which found a favorable correlation between the amount of household debt and housing prices. This is because the researcher emphasized that the increase in house prices will burden the new buyers since the average household income is not keeping pace with the rise in the cost of housing. Similarly, Bogdan et al (2022) investigated the causes of household debt in OECD countries on a macroeconomic level. They conclude that household debt contributes to higher home prices. When housing prices are greater, household debt is also higher, and the impact of this relationship becomes more significant as the degree of debt rises.
H6: There is a relationship between the housing price index (HPI) and household debt.

3. Research Methodology

The goal of this study is to create a regression model and predict the variables based on the regression coefficient. According to Sekaran and Bougie (2009), this approach gives a method for objectively measuring the degree and character of the connection.

The sample applied in this study comprised household debt data between the years 1991 to 2021. The sample of this study will be using time series yearly data. This study embedded secondary data that consisted of our independent variables which are real interest rate, inflation rate, household consumption expenditure, unemployment rate, gross domestic product, and housing price index. Many studies are showing the relationship between household debt and these six independent variables. Among them are the study by Zahariah Mohd Zain (2019), which found a favorable correlation between the amount of household debt and housing prices as well as a study done by Azwani Mohamad et al (2019) that shows a positive relationship between consumption expenditure and household debt. Apart from these Kusairi et al. (2019) indicate that the inflation rate and other macroeconomic variables such as interest rate and unemployment rate decrease household debt. Meanwhile, according to (Yahaya, 2019), household debt has a significant impact on GDP both immediately and over the long run. The data on real interest rate, inflation rate, household consumption expenditure, unemployment rate, gross domestic product, and housing price index, were retrieved from the website of the World Bank, Bank Negara Malaysia (BNM) and Eikon Thomson Reuters. First, a correlation analysis will be run to identify the correlation between the dependent and independent variables, as well as to discover the multicollinearity problem in the regression. The Durbin-Watson test is used to detect autocorrelation problems. The regression equation is as below:

$$HD = -\alpha + \beta 1\ IR + \beta 2\ INF + \beta 3\ CONS + \beta 4\ UR + \beta 5\ GDP + \beta 6\ HPI + \mu$$

Where,
HD = Household Debt
IR = Real Interest Rate
INF = Inflation Rate
CONS = Household Consumption Expenditure
UR = Unemployment Rate
GDP = Gross Domestic Product
HPI = Housing Price Index
B1,2,3... = coefficient value
μ = error term

A total of 51 years for our data of independent variables were issued throughout the study period. However, not all years were included in the final sample after several filtering and selection processes. The sample selection criteria are listed in the following:
1. Inclusion of real interest rate data from 1990 to 2021 and exclude the data before it.
2. Inclusion of inflation rate data from 1990 to 2021 and exclude the data before it.
3. Inclusion of household consumption expenditure data from 1990 to 2021 and exclude the data before it.
4. Inclusion of unemployment rate data from 1990 to 2021 and exclude the data before it.
5. Inclusion of gross domestic product (GDP) data from 1990 to 2021 and exclude the data before it.
6. Inclusion of housing price index data from 1990 to 2021 and exclude the data before it.

After the filtering and selection processes, 20 years for our data of independent variables were excluded, leaving only 31 years for our data of independent variables in the final sample of this study for estimation via regression model.

4. Results

This section presents descriptive statistics of the variables in household debt of 31 observations from 1991 to 2021. The descriptive analysis includes household debt, real interest rate (IR), inflation rate (INF), household consumption expenditure (CONS), unemployment rate (UR), gross domestic product (GDP), and housing price index (HPI). In addition to the descriptive analysis, Correlation Coefficient Analysis and Multiple Regression Analysis are also included for describing the relationship between household debt and the independent variables.

Table 1: Descriptive Statistics Analysis

Variables	Mean	Median	Min	Max	Std. Dev
Household debt (%)	62.005	68.800	21.000	93.220	22.784
Real interest rate (%)	3.314	3.351	-3.903	11.782	3.625
Inflation rate (%)	2.535	2.477	-1.139	5.441	1.466
Household Consumption Expenditure (RM-Billion)	99.830	72.129	25.640	218.264	66.852
Unemployment Rate (%)	3.396	3.390	2.450	4.609	0.456
GDP (RM-Billions)	194.517	162.691	49.143	372.701	113.435
Housing Price Index (%)	109.965	95.446	74.083	165.216	29.197

As demonstrated in Table 1, the mean household debt is 62.005 percent ranging from a minimum of 21.000 percent to a maximum of 93.220 percent. Household debt has a standard deviation of 22.784 percent, indicating that the amount of household debt does not diverge too far from the mean of 62 percent.

As for the independent variables, the real interest rate had a maximum of 11.782 percent in 2009 and a minimum of -3.903 percent in 2008. While it has an average score of 3.314 percent. The maximum score of the inflation rate is 5.441 percent which is in 2008 and a minimum of -1.139 percent in 2020. While it has a mean of 2.535 percent. The inflation rate recorded the lowest amount due to the COVID-19 pandemic that occurred in 2020. The pandemic has caused Malaysia to fall into deflation as it suppressed demand for goods and services. Next, the score for household consumption expenditure is within the range of RM 25.640 billion (1991) to RM 218.264 billion (2019) and the mean is RM 99.830 billion. Private consumption grew faster than the long-term average (2011–2018) of 7% in 2019. According to BNM, this growth was fueled by favorable labor market conditions and chosen government interventions notwithstanding mild inflation (Lim, 2020).

The unemployment rate has a maximum of 4.609 percent (2021) and a minimum of 2.450 percent (1997) with a mean of 3.396 percent. In 2021, it recorded the highest rate due to more businesses still not being allowed to resume their business and needing to follow the standard operating procedures (SOPs). The gross domestic product has a minimum score of RM 49.143 billion (1991) and a maximum of RM 372.701 billion (2021). While the mean is RM 194.517 billion. The recovery from the pandemic resulted in an uptick in economic activity, which led to the highest level of GDP ever recorded in 2021. The continuous growth in the manufacturing sector, the rebound in the services sector, the expansion in household consumption, and the favorable growth in net exports all contributed to improved economic performance (Department of Statistics Malaysia, 2022).

Lastly, the housing price index variable has a minimum score of 74.083 percent (1991) and a maximum of 165.216 percent (2020). While the mean is 109.965 percent. In 2020, the housing price index was the highest it had ever been. This is because Malaysia had its first deflation since 1969, with an inflation rate of -1.139 percent, which was the lowest it had ever been. Thus, it tends to push up house prices. The standard deviation for the variables of real interest rate, inflation rate, household consumption expenditure, unemployment rate, GDP, and housing price index is 3.625 percent, 1.466 percent, RM 66.852 billion, 0.456 percent, RM 113.435 billion, and 29.197 percent respectively.

Table 2: Correlation Coefficient Analysis Results

VARIABLES	1	2	3	4	5	6	7
Household debt	1	-0.3752	-0.5116	0.9003	0.2511	0.9081	0.7364
Real interest rate		1	-0.1626	-0.3227	-0.0294	-0.3652	-0.1587
Inflation rate			1	-0.4443	-0.2129	-0.4343	-0.4334
Household Consumption expenditure				1	0.0721	**0.9935**	0.8785
Unemployment rate					1	0.0229	0.1355
GDP						1	0.8383
Housing price index							1

Correlations are used to measure the strength of a relationship between two variables. Based on Table 2, household consumption expenditure (CONS), unemployment rate (UR), gross domestic product (GDP), and housing price index (HPI) show positive correlation with household debt, with values of 0.9003, 0.2511, 0.9081, and 0.7364 respectively, whereas real interest rate (IR) and inflation rate (CPI) shows negative relationship with household debt, with a value of -0.3752 and -0.5116 respectively. Furthermore, real interest rate (IR) and inflation rate (CPI) show a negative correlation with all the independent variables, while household consumption expenditure (CONS), unemployment rate (UR), gross domestic product (GDP), and housing price index (HPI) shows a positive correlation with all the independent variables in the correlation results. Moreover, all values of the independent variables illustrate a low correlation with each other, except household consumption expenditure (CONS) with gross domestic product (GDP), whose value is more than 0.9. This shows that there is a multicollinearity issue between independent variables.

Based on the results, we have found that the log GDP and log household consumption expenditure have a multicollinearity issue as it has a value of more than the threshold of 0.90. Therefore, we have run the VIF to prove the results. As a result, we have dropped log household consumption expenditure as it has the highest centered value, which is higher than threshold 5, which means it has a multicollinearity issue. In line with that we keep other independent variables namely, real interest rate, inflation rate, unemployment rate, GDP and housing price index.

Table 3: Multiple Regression Analysis

Dependent Variable	**Household Debt**		
Independent Variables	Coefficient	t-Statistic	Probability
Real Interest Rate (%)	-0.4	-0.879	0.388
Inflation Rate (%)	-1.996	-1.564	0.13
Unemployment Rate (%)	11.143	2.209	0.034
Log GDP (RM-Billions)	77.372	5.932	0.000
Housing Price Index (%)	-0.132	-1.062	0.298
R-squared	0.8980	F-statistic	44.03954
Adjusted R-squared	0.8777	Prob(F-statistic)	0.00000
Durbin Watson Stat	0.7967		
Number of observations	31		

Based on the result above, the F-statistic of 44.04 indicates that the models are fit as the F-statistic is significant at a 1 percent level and proved with a probability lower than 0.05 (0.000). This model is good for interpretation and free from multicollinearity issues after being fixed by the Newey-West test. The model is mainly to analyze whether the independent variables are significant or insignificant to the dependent variable. Therefore, if the value of probability (p-value) is lower than 0.05, it means that the model is

significant. In addition, Durbin Watson Stat stated above 0.7967 which means it has a positive serial correlation. This is because the value is between 0 and 2.

Based on the regression results in the table above, R-squared shows 89.80% of the multiple cases of household debt in Malaysia that could be explained by the variation of independent variables which are, interest rate, inflation rate, unemployment rate, log GDP, and housing price index. Meanwhile, the adjusted R-squared indicates that only 87.77% of the household debt in Malaysia can be explained by the variation in all independent variables. The remaining 12.23% shows that there are independent variables that are not included in the above model also explaining the dependent variables (household debt). Therefore, the researcher may suggest future research to further explore the reasons for the increase in household debt in Malaysia. This is because there are still factors that have not been studied by the researchers. Hence, we can see there are only two independent variables found to be significant to the dependent variables. The variables are namely Log Gross Domestic Product (GDP) and Unemployment Rate.

Discussion: Based on this study, household debt is significantly and positively related to the unemployment rate and GDP. We also discovered a negative relationship between household debt and the interest rate, inflation rate, and housing price index. Finally, the results are consistent with other international research on the topic. The study conducted by CANAKCI (2021) examined China's household debt and found that GDP has a positive impact on household debt whereas the result gained in (Roseline & Ronney, 2021; Bogdan et al, 2022), found a negative link between household debt and inflation rate. Meanwhile, based on the study by Dumitrescu et al., (2022) show that the housing price index relation with household debt is a positive relationship, however, the unemployment rate has a negative relationship with household debt. The positive relationship between household debt and the unemployment rate suggests that more debt relates to higher unemployment during the next four years. A one percentage point rise in debt typically increases the chance of a future financial crisis by one percentage point.

Besides that, with a 95% confidence level and the value of probability lower than the threshold of 0.05, the study found that there is a positive significance between the unemployment rate and household debt which means we have enough evidence to reject the null hypothesis (H0) and accept the alternate hypothesis (H1). It shows the highest unemployment rate is the highest household debt. This is because unemployment will drive them to lose their income; hence, people will tend to borrow more as they need to finance their needs and consumption.

The result of the relationship between household debt and the unemployment rate however in contrast to the study conducted by Turinetti and Zhuang (2014), which discovered that the unemployment rate had a negative impact on household debt. They also stated that as the unemployment rate rises, household debt decreases. This assertion is backed by Schooley and Worden (2010), who performed a study on the financial behavior of a cross-section of US households using the public database of the 2007 Federal Reserve Board Survey of Consumer Finances (SCF). They argue that the possibility of unemployment raises household income uncertainty, which impacts consumption and savings. With job and income uncertainty increasing during the crisis, households save more to build a buffer and hence borrow less.

On the other hand, a study conducted by Nomatye (2017) found positive and significant influences of GDP on household debt at moderate to high levels of GDP. Therefore, implying that households tend to acquire larger levels of debt whenever there is an improvement in the outlook for the economy. In addition, according to Zain et al (2019), the GDP is linked to a rise in mortgage debt as well as an increase in consumer debt, and the higher the GDP, the more this link exists.

5. Managerial Implications and Recommendations

In general, household debt is one of the ways that make it easier for people to spend beyond their means. For example, buying a house, buying a car, and using a credit card because some people cannot afford to buy it in cash. Therefore, this study is important in enabling people to spread out their consumption of goods and services for their lives. "Fixed income" or "life cycle" in economic theory, according to the model, consumption is influenced by predicted lifetime income for one particular (Francis-Devine, 2022). Apart from

that, this study found that the unemployment rate has a positive significance on household debt. Therefore, those who have been unemployed will tend to borrow more to keep their financial stability. Furthermore, a high GDP also will increase household debt because financial institutions or banks are willing to lend money in line with the increase in GDP.

Future researchers are advised to broaden the research, despite the empirical data presented in this study on the significant determinants that affect household debt in Malaysia. Therefore, future researchers may observe other countries also to get a more holistic picture of results, or perhaps future researchers may conduct a comparison study between Malaysia and other countries. It is recommended to compare the determinants of household debt in Malaysia with other determinants of household debt. Future research should investigate the variables that might react differently to household debt in Malaysia. In addition, there are still a variety of other variables besides those used in this study that can affect household debt in Malaysia, such as real household income, household savings, and lending rates according to the most recent research on the topic.

Future research should be able to gain more clarity on the determinants driving household debt in Malaysia by looking at more variables. Therefore, more research on this subject is anticipated to conclude the factors influencing household debt in Malaysia. Therefore, everyone involved including individuals, society, the government, and financial and private institutions must play their respective roles in addressing the burgeoning phenomenon that is currently sweeping through society. This is especially true when it comes to introducing some guidelines to curb the trend of rising household debt, which is only getting worse. Furthermore, future researchers may add more data and observations. As this study only conducted 31 observations and used annual data, this study has been facing difficulty in doing the research. Thus, it is very convenient to conduct more data perhaps more than 30 years and use other time frames such as daily, monthly, and quarterly data to see realistic results.

Conclusion: Using time series data from 1991 to 2021, the objective of this study was to investigate the determinants that affect household debt in Malaysia (i.e., real interest rate, inflation rate, household consumption expenditure, unemployment rate, gross domestic product, and housing price index). Our technique of empirical investigation is the quintile regression method, which allows us to analyze the effects of household debt on several variables across several distribution points. Besides that, the thing that makes the study of this article different compared to other articles is the period taken, which is between 1997 and 2021. This is because the period from 2019 to 2021 is the period where the covid 19 pandemic occurred which has had a significant impact compared to the previous year which also gives great different implications to the determinants of household debt. In addition, our study is more extensive compared to previous studies where it is not only focused on certain factors. For example, previous studies from (Ma'in et al., 2016; Mohamed et al., 2020; Nizar, 2016) only focused on the relationship between household debt and macroeconomics. Indirectly it has limited future researchers to study the factors affecting household debt. Hence, future researchers will not get enough materials. However, there are also previous studies that did research broadly which do not focus on any aspect such as the study by (Zain et al., 2019). The study by (Zain et al., 2019) only consists of four independent variables such as inflation rate, consumption expenditure, inflation, and unemployment rate which contrast with our study which consists of six independent variables in addiction of GDP and housing price index. Here, it clearly shows that our study has its unique characteristics that are distinctive compared to past studies.

This study also recommends a significant positive relationship between household debt and GDP. Therefore, we have enough evidence to reject the null hypothesis (H0) and accept the alternate hypothesis (H1) as it shows there is a relationship between GDP and household debt. It demonstrates that household debt can boost economic growth in the short run, as households who borrow can spend more. However, in the long term, high debt in the economy can make a recession deeper and longer. The coefficient of determination (R-squared) of 0.878 indicates weak power of the correlational degree among the dependent variable and independent variables.

References

Abd Samad, K., Mohd Daud, S. N. & Mohd Dali, N. R. S. (2020). Determinants of household debt in emerging economies: A macro panel analysis. *Cogent Business and Management*, 7(1). https://doi.org/10.1080/23311975.2020.1831765

Abd Rahman, S. & Masih, M. (2015). Increasing household debts and its relation to GDP, interest rate and house price: Malaysia's Perspective. MPRA Paper No. 62365

Agarwal, S., & Liu, C. (2003). Determinants of credit card delinquency and bankruptcy: Macroeconomic factors. *Journal of Economics and Finance*, *27*(1), 75–84. https://doi.org/10.1007/BF02751591

Amanda, Y. (2022, August 18). Will more Malaysians fall into the household debt trap? *Malaymail*.

Azwani Mohamad A. N., Nabihah Wan Zaidi, W., & Mohamad, Z. (2019). The Determinants that Influence Household Debt Case in Malaysia. *KnE Social Sciences*, *3*(13), 1215. https://doi.org/10.18502/kss.v3i13.4278

Barrot, J., Loualiche, E., Plosser, M., & Sauvagnat, J. (2022). Import Competition and Household Debt. *The Journal of Finance*, *77*(6), 3037–3091. https://doi.org/10.1111/jofi.13185

Beck, R., Jakubik, P., & Piloiu, A. (2015). Key determinants of non-performing loans: new evidence from a global sample. *Open Economies Review*, *26*, 525-550.

Bellotti, T., & Crook, J. (2009). Credit scoring with macroeconomic variables using survival analysis. Journal of the Operational Research Society, 60(12), 1699–1707. https://doi.org/10.1057/jors.2008.130

Birruntha, S. (2022). Malaysia's household debt-to-GDP ratio remains high. Retrieved from https://themalaysianreserve.com/2022/07/21/malaysias-household-debt-to-gdp-ratio-remains-high/

Bitros, G. C. & Viladi, M. (2022). *Monetary policy and the real interest rate*. 1–48. https://www2.aueb.gr/conferences/Crete2022/Papers/Vidali.pdf

Bogdan, A. D., Adrian, E., Cătălina, A. H., Carmen, O. & Florin, B. (2022). Macroeconomic Determinants of Household Debt in OECD Countries. *Sustainability*, MDPI, 14(7), 1-14

Cai Yunchao, S. A. (2020). Household Debt and Household Spending Behavior: Evidence from Malaysia. *Jurnal Ekonomi Malaysia*, 111-120.

Canakci, M. (2021). The Impact of Monetary Policy on Household Debt in China. Journal of Asian Finance, Economics and Business.

Catherine, S. F. H., Yusof, J. M. & Mainal, S. A. (2016). Household debt, macroeconomic fundamentals and household characteristics in Asian developed and developing countries. In *Social Sciences (Pakistan),* 11(18), 4358–4362.

Daniel Leigh, D. I. (2012). Dealing With Household Debt. International Monetary Fund. Data, C. (2022). Malaysia Household Debt: % of GDP. Retrieved from https://www.ceicdata.com/en/indicator/malaysia/household-debt--of-nominal-gdp

Schooley, K. D. & Worden, D. D. (2010). Fueling the Credit Crisis: Who Uses Consumer Credit and What Drives Debt Burden? *Business Economic*, *45*, 266–276.

Group, T. W. (2022). Real interest rate (%). Retrieved November 2022, from https://databank.worldbank.org/metadataglossary/world-development-indicators/series/FR.INR.RINR

Khan, H. H. A., Abdullah, H. & Samsudin, S. (2016). Modelling the determinants of Malaysian household debt. *International Journal of Economics and Financial Issues*, 6(4), 1468–1473.

Kusairi, S., Suriyani, M.,Musdholifah, M. & Chang, S. (2019). Labor Market and Household Debt in Asia Pacific Countries: Dynamic Heterogeneous Panel Data Analysis. *Journal of International Commerce, Economics and Policy*, 10(2), 1-15.

Lee, Y. L. E., Charun, V. S., & Zaki, H. H. M. (2021). Factors affecting accumulation of household debts in Malaysia. *International Journal of Management, Finance and Accounting*, https://doi.org/10.33093/ijomfa.2021.2.1.2

Lim, C. K. N., Yow, C. L., & Chow, W. O. (2020). Coping with Teaching and Learning Creative Arts in Malaysian Public Universities in The Time of Covid-19 Pandemic. International Journal of Academic Research in Business & Social Sciences, 11(14). https://doi.org/10.6007/ijarbss/v11-i14/8942

Lugo, O. A. M. (2008). The differential impact of real interest rates and credit availability on private investment: evidence from Venezuela. *Transmission Mechanisms for Monetary Policy in Emerging Market Economies Author & Abstract*, 35(35), 501–537.

Mainal, A. S., Catherine S. F. & Jamaliah Mohd Yusof. (2016). Preliminary Investigation on the Determinants of Household Debt Burden. SpringerScience+BusinessMedia Singapore, 479-488. https://doi.org/10.1007/978-981-287-426-9_42

Ma'in, M., Tajuddin, N. A., & Nathan, S. B. S. (2016). *Household Debt and Macroeconomic Variables in Malaysia*. 121–130. https://doi.org/10.15405/epsbs.2016.11.02.12

Malay Mail. (2022, August 18). Will more Malaysians fall into the household debt trap? Retrieved fromhttps://www.malaymail.com/news/what-you-think/2022/08/18/will-more-malaysians-fall-into-the-household-debt-trap

Malaysia, D. O. (2022, November). Household Consumption Expenditure. Retrieved November 2022, from https://www.dosm.gov.my/v1/index.php?r=column/cglossary2&menu_id=eWd2VFdIZ2xpdzBmT2Y0a0pweDcwQT09&alpha=VEJ3a0ZaUlFIR040Tnhndz hQWnlBZz09

Malaysia, D. O. (2022, November). National Accounts. *What is the Gross Domestic Product (GDP)?* Retrieved November 2022, from https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=dUtRR1JYWjk2TEJha1BrZml0REY4UT09#:~:text=What%20is%20Gross%20Domestic%20Product,for%20consumption%20of%20fixed%20capital

Markets, T. E. (2022, March 30). Malaysia's household debt-to-GDP ratio falls to 89% as at end-2021 from a record 93.2% a year ago. Retrieved from https://www.theedgemarkets.com/article/malaysias-household-debttogdp-ratio- falls-89-end2021-record-932-year-ago

Messai, A.S. and Jouini, F. (2013) *Micro and Macro Determinants of Non-Performing Loans.* International Journal of Economics and Financial Issues, 3, 852-860.

Mohamed, S., Mohamadon, S. S., Ibrahim, W. M. F. W., Nasrul, F., Hassan, S. S., Isa, M. A. M., & Noh, M. K. A. (2020). The Macroeconomic Determinants of Household Debt in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *10*(5). https://doi.org/10.6007/ijarbss/v10-i5/7425

Nomatye, A. A. (2017). Investigating the Macroeconomic Determinants of Household Debt in South Africa. *MPRA*

Organization for Economic. (2020). Household accounts - Household debt - OECD Data. The OECD. https://data.oecd.org/hha/household-ebt.htm#:~:text=Houshold%20debt%20is%20defined%20as

Reserve Bank of Australia. (2019). Unemployment: Its Measurement and Types. Reserve Bank of Australia, 1–5. https://www.rba.gov.au/education/resources/explainers/unemployment-its-measurement-and-types.html

Roseline, T. K. & Ronney, N. (2021). Determinants of household over-indebtedness in South Africa. *International Journal of Business and Economic Development*, 9(2), 11-24.

Sekaran, U. and Bougie, R. (2009) *Research Methods for Business: A Skill-Building Approach*. 5th Edition, John Wiley and Sons Inc., Hoboken.

Turinetti, E., & Zhuang, H. (2011). Exploring Determinants Of U.S. Household Debt. Journal of Applied Business Research, 27(6), 85. https://doi.org/10.19030/jabr.v27i6.6468

Vitor, C. (2013), *Macroeconomic determinants of the credit risk in the banking system:* The case of the GIPSI, Economic Modelling, 31, (C), 672-683

Yahaya, S. N. & Sarwe, N. A. (2019). The Impact of Macroeconomic Factor on Household Debt in Malaysia: A Theoretical Framework. *International Journal of Human and Technology Interaction (IJHaTI)*, 3(1), 87–94.

Zain, M. Z, Ahmad Atory, A. N, & Hanafi, A. S. (2019). Determinants of Household Debt in Malaysia from the year 2010 to 2017. *Advances in Business Research International Journal*, 91-101.

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Factors Influencing the Price of Gold in Malaysia

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Abstract: Despite price increases, gold, a valuable and precious metal, has been used as real estate and financial assets. The price of gold keeps rising over the long term, but it is quite fluctuating and volatile over the short term. Investors will turn to gold as a backup investment during a financial crisis because gold may be used as a hedge against inflation. In addition, investors will swarm to the gold market as a hedge against uncertainty during an uncertain economic climate. Before, during, and after the financial crisis, it is unknown what variables in particular affected the price of gold. The main objective of this research is to assess the determinants that are influencing the price of gold in Malaysia. The secondary data is collected to measure the relationship and fluctuation of gold prices, the data collected is quarterly from 2005–2021. This paper uses descriptive statistical analysis for the description of data, coefficient matrix analysis and regression analysis for determining the impact of dependent and independent variables. In this research paper, gross domestic product (GDP), inflation rate (IR), interest rate (IR), unemployment rate (UR), and exchange rate (ER) are included in macroeconomic indicators and considered as independent variables. The gold price is considered a dependent variable.

Keywords: *Gold Price, Gross Domestic Product, Inflation Rate, Interest Rate, Unemployment Rate, Malaysia.*

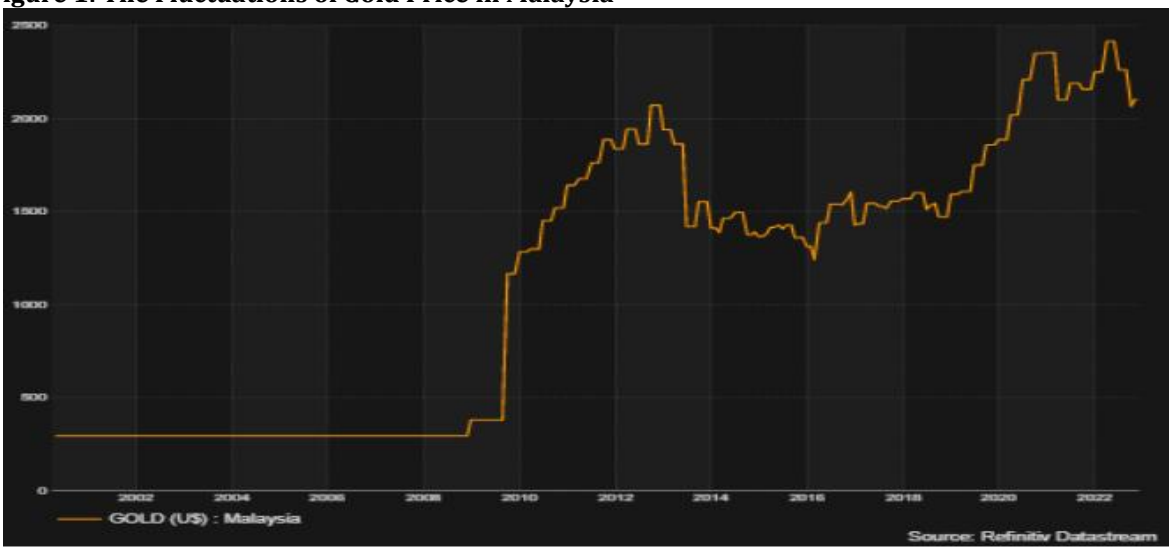
1. Introduction and Background

The definition of gold stated by Thaver and Lopez (2016) indicates that gold works as a security asset in a short period of market disturbance. Gold is needed by everyone due to its function in value reserve. Therefore, everyone can also use gold as their investment instrument to expand their profit in the future (Dalam et al., 2019). Gold can also be explained as a precious item that becomes our asset and possessions (Md Hashim, 2022). The gold is in yellow, its structure is fine, secured from any erosion and easily pliable and it is reported in the past study by Md Hashim (2022).

There are various importance of gold and one of them is that it helps in preventing any loss in the stock market. Thaver and Lopez (2016) said if someone gets a lower return from the investment, it will help in raising the return on gold investment. Gold is really important as it can retain purchasing power in society (Dalam et al., 2019). This will make it easy to buy any goods as they also have other savings which is gold. People use gold in their trading activity to increase their financial gain. Md Isa et al. (2020) have said people will buy gold at a small price and sell it at a bigger price and gold also has high liquidity.

Another reason Malaysian people use gold is that it can be worn as accessories due to its beauty, sparkle and also it is long-lasting. Md Hashim (2022) has conveyed that gold is liked by everyone as it can be turned into jewelry. Other than that, the strategies made by the United States to utilize gold are by letting the investors buy gold when the currency of the USD is falling. It will make people want to purchase more gold which gives rise to the price of gold (Liya et al., 2021). Furthermore, United States Crises that have increased the price of gold will make other countries demand gold such as China, India and more (Dalam et al., 2019). Despite all of the importance and advantages of using gold, some issues or problems can be highlighted in terms of its price. According to the figure below, we can see the fluctuations of gold prices in Malaysia that show increments and prices falling from 2009 until 2022. Therefore, there is instability in terms of gold prices.

Figure 1: The Fluctuations of Gold Price in Malaysia



Thus, a need to investigate the causes of this fluctuation and the relationship between the factors and the price of gold. According to Liya et al. (2021), the unsteadiness of gold prices is the consequence of macroeconomic measures.

The concern regarding the instability of gold price is the price of gold that uses the currency of USD will have implications for other countries' gold prices. The high amount of interest rate will make the USD currency lower and this will increase the price of gold (Dalam et al., 2019). Other researchers also said the seriousness of this problem is when the gold price keeps on rising in the long term but still fluctuates in the short term (Md Hashim, 2022). Then, this fluctuation will result in bad implications for investors as the price of gold keeps on changing by day or hours (Md Isa et al., 2020).

The unfavorable implications on the issue if left unattended will cause the upcoming gold price can be reduced under the amount of RM6,576 for 12 ounces (Md Hashim, 2022). He also indicates that the price of gold may fall suddenly but still fluctuate until the present. Based on the issue of the gold price that keeps on fluctuating, Liya et al. (2021) have researched that gold reserve and energy outputs' prices are the factors affecting the price of gold. They have noticed that the gold reserves and energy products have a positive relationship with the gold price. Md Hashim (2022)said that there is a positive effect on the prices of oil and the price of gold.

There is a research gap where the information regarding certain factors influencing the prices of gold is not investigated thoroughly. For instance, the high price of gold can be the reason for high inflation (Apergis et al., 2019). However, it is not explained clearly whether the inflation rate can affect the fluctuation of the price of gold. Next, the result of the exchange rate towards the price of gold is also one of the heated issues and needs the help of economists and authorities to solve it (Long et al., 2022). However, there are unclear actions taken by them to solve the problem of fluctuations in gold price.

Zakaria et al. (2015) also conveyed that few macroeconomic indicators influenced the rising and falling of gold prices. Hence, the unemployment rate and gross domestic product can also be the factors that may influence gold price fluctuations. There is also a limited amount of good policy by authorities related to the right interest rate level that can make the gold price fluctuate even more (Md Hashim, 2022). Thus, we decided to search for the effect of interest rates on the fluctuations in the price of gold.

The controversies in the literature that this study intends to address are the amount of uncertainty and instability in the factors influencing the fluctuations of the gold price (Apergis et al., 2019). The limitations of past studies are there is a small amount of data (Liya et al., 2021). Other than that, there is a study that said that quarterly data is not good enough to forecast the price of gold (Sun, 2018). Therefore, in this study,

quarterly data is used for this research and decided to use lots of data to reduce the amount of error which subsequently will show the result on how the factors influence gold price.

New academic knowledge that this research work can offer is to show the relationship of the inflation rate, interest rate, unemployment rate, gross domestic product and exchange rate with the fluctuation of gold price. This study will assist the investors out there to know the right time to invest in gold by using guidelines in this research. This is because investors always conduct their trading during financial problems and unpredictability times (Beckmann et al., 2017). Henceforth, the results will show the most significant factor that causes fluctuations in gold price.

The decline in the price of gold has begun to instill apprehension in numerous individuals, including investors. Due to its demand, gold has become popular among people around the world. It is undeniable that gold gained more popularity and surging prices during the financial crisis as gold itself is an inflation hedge and reacts positively to adverse market shocks (Zizun, 2017). Therefore, gold can remain a popular commodity and investment from developed countries. According to the World Gold Council, the one who has been leading in the production of gold is China which has mine production of up to 370 metric tons (MT) in 2021. Then, followed by countries such as Australia, Russia, the United States, Canada, Ghana, Mexico, and Indonesia. However, the gold price started to get unstable. As investors are looking for safe haven investments to make sure that they will not be involved in economic uncertainty, they tend to choose something more valid and strong. Most investors started to use gold as their investment due to the demand and it tends to go up in value when other assets go down such as stocks and bonds. Due to the uncertain ups and downs of the gold price, some investors no longer think that gold can be kept as their safe haven investment to protect them from risk (Zizun, 2017). Hence, as gold prices change in Malaysia can be due to a few factors, therefore, this paper will discuss the factors that affect gold prices in Malaysia and find the most related factors to changes in gold prices.

This study will also see the uncertainty in all the factors that may result in showing why there are various implications for the price of gold (Beckmann et al., 2017). Thereby, this study will answer the research objective which is to investigate the relationship between gross domestic product, inflation rate, unemployment rate, exchange rate and interest rate towards the price of gold.

2. Literature Review

The applicability of the pricing models in the context of international finance, particularly at the aggregate country level, where risk is defined relative to a world or global market factor and/or to other international or global factors, is a key theme of the contemporary asset pricing literature. Refining the model in a way that includes more "risk" factors is one potential solution to this issue. Investors are presumed to be able to create portfolios that guard against uncertainties in state variables in (Merton, 1973) intertemporal CAPM (ICAPM). In the past, investors have turned to gold as a form of financial insurance against inflation and unstable political conditions. In light of this, a gold price factor is a good contender to serve as a hedging component in the ICAPM. As a result, the main goal of the current work was to evaluate whether global industry equity returns were exposed to a gold price element in addition to their exposure to global market returns. The analysis was also expanded to include the international two-factor ICAPM that resulted from multivariate asset pricing experiments. This study investigated the gross domestic product, inflation rate, interest rate, unemployment rate and exchange rate as determinants of the price of gold.

Gross Domestic Product (GDP): Gross domestic product or GDP is the sum of the cost of finished goods and services. A high gross domestic product indicates a good economy, whereas a low gross domestic product indicates a weak economy (Jason Fernando, 2023). Gross domestic product plays an important role in determining the price of gold in Malaysia. Based on the previous study that was carried out by Dalam et al. (2019), it was found that there is a direct relationship between gross domestic product (GDP) and the gold price in Malaysia. Md Hashim (2022) mentioned in her study that macroeconomic variables such as GDP should be included in future research. Dalam et al. (2019) conclude the price of gold increases as GDP increases. Based on the quarterly data from 2005 to 2021 that were obtained from the software of Eikon Thomson Reuters, it shows an increase from year to year but it is still unsure whether GDP can create a

positive relationship between the price of gold or not. Drawing from the propositions and results revealed in past studies, this study hypotheses the relationship between gross domestic product and gold price, as follows:

Null Hypothesis (HO_1): There is no relationship between the gross domestic product and the gold price.
Alternate Hypothesis ($H1_1$): There is a relationship between the gross domestic product and the gold price.

Inflation Rate: Inflation is the rate at which prices grow over a specified time period. Inflation is generally defined in broad terms, such as the total increase in prices or the growth in a country's cost of living. While excessive inflation is detrimental to an economy, deflation, or declining prices, is also undesirable. When prices decline, customers postpone purchases if possible, anticipating further price reductions (Ceyda Oner, 2012). Gold prices have attracted considerable attention for their potential effect on inflation. Like other assets that are found to predict inflation behavior because their returns embed inflation expectations, gold prices can also serve as a leading indicator of inflation. This argument has been put forward by many researchers based on the failure of some financial assets to predict the behavior of inflation over a longer period of time (see, for instance, (Stock & Watson, 1999; Cecchetti et al., 2000; Banerjee & Marcellino, 2006; Boivin & Ng, 2006).

Null Hypothesis (HO_2): There is no relationship between the inflation rate (INFR) and the price of gold.
Alternate Hypothesis ($H1_2$): There is a relationship between the inflation rate (INFR) and the price of gold.

Interest Rate: Interest rates refer to the amount being charged by the borrower to the lender in addition to the principal amount. Interest rates are one of the factors influencing the price of gold. Generally, if interest rates are higher, the price of goods will fall. Apergis et al. (2019) examined the relationship between interest rates and gold prices. It indicated from this examination the results from this study were found to have a negative and significant relationship between the real interest rates and gold price. Another research was conducted by Md Isa et al. (2020) on the relationship between interest rates and gold prices. The study was carried out using monthly data from 2014 to 2018 to focus on macroeconomic variables that affect the gold price in Malaysia. The result of the study was found that interest rates have a significant negative effect on gold prices but other variables such as the inflation rate, crude oil price, and the exchange rate have a significant positive relationship toward the gold price in Malaysia. It was measured by Pearson Correlation and Multiple Linear Regression tests to establish whether there were any significant correlations or any impacts between the independent variable and dependent variable. This could be supported by other research in past studies by Bülent et al. (2011), Zakaria et al. (2015), and Laily et al. (2017).

Null Hypothesis (HO_3): There is no relationship between interest rate and price of gold.
Alternative Hypothesis ($H1_3$): There is a relationship between interest rate and price of gold.

Unemployment Rate: The definition of unemployment is when someone is looking for a job but is incapable of discovering the work (Adam Hayes, 2023). Unemployment can be an indicator of the well-being of the economy. According to Liya et al. (2021), the unemployment rate can be one of the factors influencing the price of gold. Therefore, the unemployment rate is the independent variable that affects the price of gold as the dependent variable. Past study has shown that there will be a relationship between macroeconomic measurements on the gold price (Liya et al., 2021). According to the historical perspective in terms of unemployment development studied by Pachiyappan (2022), changes of 1% in the unemployment rate in the United States of America will increase the gold price by 4.7%. In Malaysia, the unemployment rate will keep on increasing from 2019 until 2021 which is 3.26%, 4.50% and 4.61% respectively (WORLD BANK GROUP, 2023).

Null Hypothesis (HO_4): There is no relationship between the unemployment rate and the gold price.
Alternate Hypothesis ($H1_4$): There is a relationship between the unemployment rate and the gold price.

Exchange Rate: The exchange rate simply brings the meaning of the price of one currency in terms of another currency. By using an exchange rate, each currency is worth a specific measure of metal or other standard items. The exchange rate is fixed and can't be changed easily as it involves other countries. The use

of the exchange rate is mainly to measure the buying power of a currency toward another currency. The past study (Bülent et al., 2011) mentioned that oil prices and the exchange rate is the most significant that affect gold price positively and negatively correspondingly. Therefore, the US dollar and gold prices correlate with each other. As gold prices are denominated in the US dollar, it can be indicated that the US dollar influences the gold prices (Sujit & Rajesh Kumar, 2011). Thus, the exchange rate can be considered as one of the measurements that can be used to see changes in gold prices.

Null Hypothesis (HO_5): There is no relationship between the exchange rate and the gold price.
Alternate Hypothesis ($H1_5$): There is a relationship between the exchange rate and the gold price.

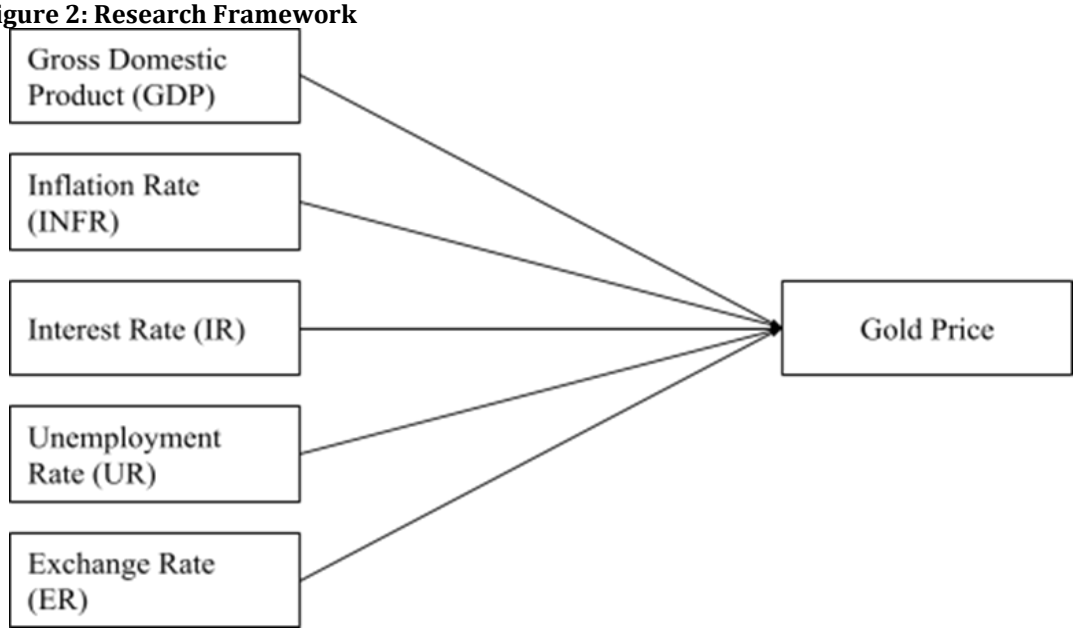
3. Research Methodology

In this study, secondary data is used to collect all macroeconomic indicators data. In this study, the research will examine the relationship between gold prices (GP) and inflation in Malaysia. The sources of data used throughout this research include Bank Negara Malaysia (BNM), The World Bank and the Department of Statistics Malaysia (DOSM). Precisely, all of the data ranged from 1991 to 2021, which are 30 samples of year in total.

A total of 124 quarterly gold prices in USD were issued throughout the study period. However, not all gold prices (GP) were included in the final sample after several selection processes. The nature of the data is quantitative and is based on secondary form. For this purpose, different independent variables of gold price management macroeconomic factors are used, including GDP, INFR, IR, UR, and ER, and measured their impact on gold prices. The gold price is considered reliant on variables, and all the macroeconomic factors are independent variables. This study is based on a quantitative method. After the filtering and selection processes, 56 quarterly gold prices (GP) were excluded, leaving only 68 quarterly gold prices (GP) in the final sample of this study for estimation via regression model. This research is made by using time-series data starting from the initial year of 2005 to 2021. The reason for choosing data from the year 2005 is because the full data for all independent variables are only available from that current year. Then, the regression analysis was conducted using the EViews platform.

Figure 2 below shows the relationship between independent variables and dependent variables. There are five independent variables in this study which are gross domestic product (GDP), inflation rate (INFR), interest rate (IR), unemployment rate (UR) and exchange rate (ER). The dependent variable in this study is gold price.

Figure 2: Research Framework



Before the analysis of the multiple regression model, two preliminary tests were performed which were descriptive statistics analysis and correlation coefficient analysis. This was followed by statistical tests in the regression analysis such as the T-test and F-test were conducted and the R-squared and Adjusted R-squared were then determined.

4. Results

This section discusses descriptive statistics analysis, correlations, variance inflation factor, and multiple regression results.

Table 1: Descriptive Statistics

	Price of Gold	Gross Domestic Product (GDP)	Inflation Rate	Interest Rate	Unemployment Rate	Exchange Rate
Mean	1.28B	75.53B	2.200	2.897	3.433	3.681
Median	1.47B	74.14B	2.178	3.000	3.333	3.677
Maximum	235.17M	102.38B	8.434	3.500	4.967	4.485
Minimum	293.23M	50.49B	-2.563	1.750	2.700	3.018
Std Dev	659.90M	16.20B	1.766	0.522	0.502	0.447
Skewness	-0.479	0.094	0.032	-1.035	1.611	0.088
Kurtosis	1.915	1.624	5.125	3.052	5.143	1.580
Jarque-Bera	5.937	5.462	12.811	12.158	42.418	5.802
Probability	0.051	0.065	0.002	0.002	6.153	0.055
Sum	87.66B	513.65B	149.594	197.003	233.433	250.301
Sum of Sq. Dev	2.918	1.758	208.896	18.260	16.874	13.381
Observations	68	68	68	68	68	68

Descriptive Statistics: Table 1 shows the result of descriptive analysis for each variable which consists of Gold Price as the dependent variable against the independent variables that consist of gross domestic product (GDP), inflation rate (INFR), interest rate (IR), unemployment rate (UR), and exchange rate (ER).

The mean value of GDP can be seen as close as $75.53 billion to its median value of 25 $74.14 billion. Therefore, GDP is normal data based on the rule of thumb. The skewness of GDP is positively skewed since the value from the table above is more than 0 which is 0.09. While kurtosis is negative kurtosis since the values are below 3 which is 1.62. Hence, GDP is at leptokurtic distribution. The mean value of the inflation rate can be seen as close to 2.20 to its median value of 2.17. Therefore, the inflation rate is normal data based on the rule of thumb. The mean value of interest rate can be seen as close as 2.89 to its median value of 3. The mean value of the unemployment rate can be seen as close to 3.43 to its median value of 3.33. The mean value of the exchange rate can be seen as close as 3.68 to its median value of 3.67. Therefore, the exchange rate is normal data based on the rule of thumb. The exchange rate skewness is 0.088. It shows it has positively skewed distributions.

Table 2: Correlation

Variables	Price of Gold	GDP	Inflation Rate	Interest Rate	Unemployment Rate	Exchange Rate
Price of Gold	1					
GDP	**0.766**	1				
Inflation Rate	-0.413	-0.328	1			
Interest Rate	-0.419	-0.216	0.411	1		

Unemployment Rate	0.245	0.300	-0.345	**-0.740**	1	
Exchange Rate	0.243	0.693	-0.159	-0.131	0.445	1

Correlation: Based on the results of the correlation using data from 2005 until 2021, there is no severe multicollinearity issue since all the values between the two variables do not exceed 0.9. Based on the table above, the result is close to 0.9 showing the relationship between the price of gold and gross domestic product (GDP) with a correlation value of 0.765543. Another result that is close to -0.9 based on the results is the relationship between interest rate and unemployment rate with a correlation value of -0.740258. Therefore, to confirm whether there is a severe multicollinearity issue between two variables in this model, this study conducts a variance inflation factor (VIF).

Table 3: Variance Inflation Factor

Variables	Coefficient Variance	Uncentred VIF	Centered VIF
Gross Domestic Product (GDP)	0.000	52.236	**2.265**
Inflation Rate	3845262.400	3.389	**1.316**
Interest Rate	1.361	90.565	**2.808**
Unemployment Rate	1.698	156.940	**3.237**
Exchange Rate	1.794	189.440	**2.712**
C	4.055	311.466	NA

Variance Inflation Factor: Based on the variance inflation factors (VIF) result in this study, we have found out that all the independent variables scored less than five where the result for the gross domestic product (GDP) is 2.2648, the inflation rate is 1.3158, the interest rate is 2.8077, the unemployment rate is 3.2366 and lastly, the exchange rate is 2.7120. Since the results of variance inflation factors 29 (VIF) for all five independent variables is less than five, it is now confirmed that there is no severe multicollinearity issue and they are valid to remain in this model. Therefore, all independent variables can be included in the regression model.

Table 4: Multiple Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP_LOG	3.572858	0.33149	10.77819	0.0000
Inflation Rate	-0.03193	0.029079	-1.098059	0.2764
Interest Rate	-0.547422	0.213045	-2.569511	0.0126
Unemployment Rate	-0.419532	0.201272	-2.084408	0.0412
Exchange Rate	-0.638744	0.206093	-3.0993	0.0029
Constant	-63.2052	8.271443	-7.641375	0.0000
R-squared	**0.860598**			
Adjusted R-squared	**0.849356**			
Prob (F-statistic)	**0.000000**			

Multiple Regression: Based on Table 4, F-Statistics is to determine whether the regression model gives a better fit to the data or not. The F-Statistics is related to the p-value to investigate whether the data is significant or not. In this case, the significance level or p-value is 0.05. According to the table above, the F-Statistic is 0 which is below 0.05. Therefore, it indicates that the model is significant and fit to the data. Thus, the null hypothesis, which is that there is no relationship between the independent variables and dependent variables has to be rejected. After checking on the F-statistic value, the next is to check on the adjusted R-squared value. Adjusted R-squared basically is a modified version of R-squared where it can determine the proportion of variance in the target field explained by the input or inputs.

In every regression model, the adjusted R-squared value is always less than the R-squared value (Ryan Eichler, 2023). If the value of the adjusted R-squared is 1, it indicates that the model perfectly predicts the target field. But if the value is less than or equal to 0, it indicates that the model is not significant at all and has no predictive value coming out from the model. Therefore, based on this case, the adjusted R-squared value is at 0.8493. It indicates that five of the independent variables in this model, which are GDP, inflation rate, interest rate, unemployment rate, and exchange rate can explain 84.93% of the variation in the dependent variable. The remaining 15.07% should be explained by other independent variables that are not included in this study.

Next, the probability of each variable depends on the p-value where it is an option to reject points that give the lowest significance level so the null hypothesis can be rejected (Brian Beers, 2023). In this section, the focus will be on confidence interval and significance level. The confidence interval shows the precision of measurement. There are many confidence intervals such as 90%, 95% and 99%. However, significance level is a term on how willing to be wrong. For example, if there is a 95% confidence level, you are likely to have another 5% or 0.05 possibility to be false. If there is a 90% confidence level, it means there will be another 10% or 0.10 possibility to be false. A 99% confidence level indicates that there is a 1% or 0.01 chance of being wrong.

Therefore, based on this regression, it was found that the probability for Gross Domestic Product is 0. In this case, the p-value is less than 0.01 so the result is statistically significant as it only has a 1% possibility of error. It is also equal to a 99% confidence level. Next, the probability for inflation rate is 0.2764 which is more than 0.05. It means the data is insignificant as it has a high chances of error. Furthermore, the p-value for interest rate is 0.0126 which is lower than 0.05 but higher than 0.01. It shows that the confidence level is at 95%. Then, the probability for the unemployment rate is 0.0412. The acceptance significance level is 0.05 with a 95% confidence level. Lastly, the p-value for the exchange rate is 0.0029 which is less than 0.01. The result is significant at a 99% confidence level.

Lastly, is to check on the coefficient, which explains the measure of the relative dispersion of data in a data series around the mean. It can be used to compare the degree of variation from one data series to another. To analyze coefficients, there is a need to look at the positive and negative of the value. Based on this case, only the GDP value is positive, while the other independent variables, which are the inflation rate, interest rate, unemployment rate, and exchange rate, are negative. It indicates that GDP value is the only independent variable that is significant and that it is positively related to the gold price at a 99% confidence level. Thus, if there is a 1-unit change in GDP, it will increase the gold price by 3.57%. However, for other independent variables that are negatively related, which is the inflation rate, if there is a 1 unit change in the inflation rate, it will decrease the gold price by 0.03%. Meanwhile, if there is a 1 unit change in interest rate, it will decrease gold price by 0.55%. If there is a 1 unit change in the unemployment rate, it will decrease the gold price by 0.42%. Lastly, if there is a 1 unit change in the exchange rate, it will decrease gold price by 0.64%.

Table 5: Regression Results Summary

Independent Variable	Hypotheses (+/-)	Result (Significant/ Insignificant)	Confidence Level (%)	Support to Hypotheses (Null/ Alternate)
GDP	Positive	Significant	99	Alternate
Inflation Rate	Negative	Insignificant	-	Null
Interest Rate	Negative	Significant	95	Alternate
Unemployment Rate	Negative	Significant	95	Alternate
Exchange Rate	Negative	Significant	99	Alternate

Discussion: Based on Table 4 and Table 5 on Multiple Regression and Regression Results Summary, the p-value of Gross Domestic Product is 0, so it shows that the GDP has a highly significant influence on the price of gold in Malaysia due to the threshold value at 0.01. Thus, the GDP has a confidence level of 99%. Next, based on the coefficient shown in the regression model, only GDP is proven to be positively related to gold price. It indicates that a 1 unit change in GDP will increase by 3.57% of the gold price. Hence, the hypothesis statement can be supported. This can relate to the past study made by Dalam et al. (2019) where the gold prices will increase if the gross domestic product rises too. They have confirmed that there is a direct proportional connection between GDP and the gold price in Malaysia. This result is consistent with their study and has answered the research question which is "How does a GDP affect gold price in Malaysia?". It means to reject the null hypothesis that says there is no relationship between the gross domestic product and the gold price. Therefore, the study accepts the alternate hypothesis where there is a relationship between gross domestic product and gold price.

According to the probability at 0.2764, it indicates that the inflation rate is insignificant towards the price of gold because the value is more than 0.05. Thus, it does not have a high confidence level due to many possibilities of errors. While the coefficient of the inflation rate is negatively related to the gold price. This means that a one-unit change in the inflation rate reduces the gold price by 0.03%. This is a sign of insignificant value. Thus, the hypothesis statement cannot be supported. This is inconsistent with the past study made by Dalam et al. (2019), it is because they said that the inflation rate has a positive relationship with the price of gold. It means inflation will always increase the price of gold. Dalam et al. (2019) also confirmed that even though inflation has a positive relationship with gold, it is still insignificant. Thus, this study accepts the null hypothesis where there is no relationship between the inflation rate and the gold price. Therefore, this study rejects the alternate hypothesis of a relationship between the inflation rate and the gold price.

Next, the probability of interest rate is less than 0.05 with an amount of 0.0126. It specifies that the independent variable is significant in giving impact towards the gold price. Then, it has a confidence level of 95% which is a bit lower than GDP. Besides that, the coefficient of interest rate is also negatively related to the gold price, hence it is significant. This indicates that a 1 unit change in interest rate will decrease by 0.55% of gold price. As in the alternate hypothesis mentioned whether there is a relationship between interest rate and gold price, it can be said that there is a relationship between both of them. Thus, this study accepts the alternate hypothesis. Referring to the past study by Md Isa et al. (2020), it can support the analysis in this case as it also has a negative relationship between interest rate and gold price. This can be seen from the coefficient result on the regression model used.

With regards to the unemployment rate, the p-value of the unemployment rate is 0.0412 which is lower than the threshold of 0.05. It shows that the unemployment rate has a significant influence on the price of gold. It has a 95% confidence level too. Not only is that, but the coefficient of the unemployment rate also negatively related. It means that a 1-unit change in the unemployment rate reduces the gold price by 0.42%. Compared to the past study by Liya et al. (2021), it stated that the unemployment rate is positively related to the gold price. However, this study shows that the unemployment rate is negatively related to the gold price. As it is significant and negatively related, this study accepts the alternate hypothesis that states there is a relationship between the unemployment rate and the gold price.

Next, the exchange rate indicates 0.0029 probability which is less than 0.05 and 0.01. It only has a 1% error that makes it have a 99% confidence level like GDP. It means it is significant in influencing the gold price. Lastly, the exchange rate value is also shown as negatively related. It indicates that a 1 unit change in the exchange rate will decrease 0.64% of gold price. If the exchange rate decreases, there will be a rise in the currency of the Malaysia Ringgit which will lead to a rise in gold price. When the Malaysian currency increases, it will attract the investor and result in higher returns in the gold market. The analysis above can be supported by the research done by Md Hashim (2022) which says that there is a negative relationship between exchange rate and gold price. According to the coefficient result, it proves that exchange rates are negatively related to the gold price. Thus, this study accepts the alternate hypothesis where there is a relationship between the exchange rate and gold price.

5. Implications and Recommendations

This study will help the investor to know the factors that affect the price of gold in Malaysia. It is because whenever the investor wants to invest in gold, they will seek the factors that would affect the gold. Based on the findings, this study enables us to show the significant factors that have an impact on gold prices. Interest rates, GDP, exchange rate, and unemployment rates were found to be factors that affected the gold price in Malaysia. It will become the guideline, especially for the investor to monitor all of the factors before making the investment decision. This is to ensure the investor is more alert to the changes in the gold price. It also could help the investors avoid any chances of suffering losses and make the right time to invest in gold. Therefore, the investor must consider all of these factors and be cautious with the changes of it.

This study will also give an advantage to the government because they are the ones who hold a large amount of gold reserves to ensure the country's stable currency. The local currency will be affected by lowering the interest rates to ensure there are a lot of investors who will become attracted to make investments in gold in Malaysia. The financial system and economy in Malaysia will be guaranteed to stabilize when the central banks play their roles. A high gold reserve will also save the currency of the country since it is related to each other. Further, government budgets and fiscal policies can be impacted by gold prices. If gold prices are high, countries with significant gold reserves may see an increase in their overall wealth. This can influence government spending decisions and the management of their reserves.

The findings in this study will help consumers gain better insight into the factors that make the price of gold change from year to year such as gross domestic product (GDP), inflation rate, interest rate, unemployment rate and exchange rate. Based on the findings, the rising of interest rates will make the cost of borrowing increase. Due to that, the demand for gold will decrease causing the price of gold to fall. When the price of gold falls, it is an opportunity for the consumers to decide to buy gold as adornment or investment so that they can use gold as financial protection if there is a sudden economic and financial crisis in the future. This study will help consumers make better decisions to buy gold at the right time.

Last but not least, this study is very useful for future researchers because it explains information in detail about the factors that influence the price of gold in Malaysia. The findings in this research will help future researchers gain more knowledge and a better understanding of the factors that are used in this research. Future researchers can take advantage by using the information in this research to include in their study. In addition, it gives some ideas for future researchers to expand the scope of their research. It is highly recommended for future researchers to add more new independent variables as there are remaining 15.07% of other independent variables that have not been explained in this study.

Conclusion: The objective of this paper was to explore the relationship between gold prices and GDP, inflation rate, interest rate, unemployment rate and exchange rate using data in Malaysia over the period from 1991 to 2021. To proceed with this study, time series data have been used. Based on the study, suitable independent variables were discovered that have the most impact on gold price through the Newey-West test. GDP value has been proven as the most significant independent variable with a positive relationship with the gold price compared to the other independent variables. Therefore, this study will help future researchers to study the factors that influence gold prices by using all the variables used in this study. In addition, by doing this research it can be concluded that the inflation rate is insignificant with the gold price due to the p-value that is more than 0.05. The other independent variables used such as interest rate, unemployment rate, and exchange rate were found to have a relationship with the gold price too. Henceforth, this study will help the investor to make a better decision in investing in gold.

References

Adam Hayes. (2023, August 9). *What is Unemployment? Understanding Causes, Types, Measurement*. Investopedia. https://www.investopedia.com

Apergis, N., Cooray, A., Khraief, N., & Apergis, I. (2019). Do gold prices respond to real interest rates? Evidence from the Bayesian Markov Switching VECM model. *Journal of International Financial Markets, Institutions and Money*, *60*, 134–148. https://doi.org/10.1016/j.intfin.2018.12.014

Banerjee, A., & Marcellino, M. (2006). Are there any reliable leading indicators for US inflation and GDP growth? *International Journal of Forecasting*, *22*(1), 137–151. https://doi.org/10.1016/J.IJFORECAST.2005.03.005

Beckmann, J., Berger, T., & Czudaj, R. (2017). Gold Price Dynamics and the Role of Uncertainty. *Chemnitz Economic Papers*, *No. 006*. https://www.tu-chemnitz.de/wirtschaft/index.php.en

Boivin, J., & Ng, S. (2006). Are more data always better for factor analysis? *Journal of Econometrics*, *132*(1), 169–194. https://doi.org/10.1016/J.JECONOM.2005.01.027

Brian Beers. (2023, March 28). *P-Value: What It Is, How to Calculate It, and Why It Matters*. Investopedia. https://www.investopedia.com

Bülent, F. B., Üniversitesi, E., Toraman, C., Başarır, Ç., & Fatih Bayramoğlu, M. (2011). Determination of Factors Affecting the Price of Gold: A Study of MGARCH Model. *Business and Economics Research Journal*, *2*(4), 37–50. www.berjournal.com

Cecchetti, S. G., Chu, R. S., & Steindel, C. (2000). The Unreliability of Inflation Indicators. *Current Issues in Economics and Finance, Federal Reserve Bank of New York*, *6*(4), 1–6. https://ssrn.com/abstract=716681

Ceyda Oner. (2012). Inflation: Prices on the Rise. *International Monetary Fund*.

Dalam, A. M., Kulub, N., Rashid, A., & Padli, J. (2019). Factors Determining Gold Prices in Malaysia. *Universiti Malaysia Terengganu Journal of Undergraduate Research*, *1*(2), 75–82.

Jason Fernando. (2023, September 26). *Gross Domestic Product (GDP): Formula and How to Use It*. Investopedia. http://www.investpedia.com

Laily, S., Hashim, M., Ramlan, H., Huda, N., Razali, A., Zaidah, N., & Nordin, M. (2017). Macroeconomic Variables Affecting the Volatility Of Gold Price. *Journal of Global Business and Social Entrepreneurship (GBSE)* 3(5).

Liya, A., Qin, Q., Kamran, H. W., Sawangchai, A., Wisetsri, W., & Raza, M. (2021). How macroeconomic indicators influence gold price management. *Business Process Management Journal*. https://doi.org/10.1108/BPMJ-12-2020-0579

Long, P. D., Hien, B. Q., & Ngoc, P. T. B. (2022). Impacts of inflation on the gold price and exchange rate in Vietnam: time-varying vs fixed coefficient cointegrations. *Asian Journal of Economics and Banking*, *6*(1), 88–96. https://doi.org/10.1108/ajeb-07-2021-0083

Md Hashim, S. L. (2022). Analyses of Factors Influence the Price of Gold in Malaysia. *Advanced International Journal of Business, Entrepreneurship and SMEs*, *4*(11), 16–22. https://doi.org/10.35631/aijbes.411002

Md Isa, M. A., A Latif, R., Nasrul, F., Zaharum, Z., & Noh, M. K. A. (2020). Relational Study between Macroeconomic Variables and Gold Price: Latest Malaysian Evidence. *Advanced International Journal of Business, Entrepreneurship and SMEs*, *2*(6), 01–09. https://doi.org/10.35631/aijbes.26001

Merton, R. C. (1973). An Intertemporal Capital Asset Pricing Model. In *Econometrica* (Vol. 41, Issue 5).

Pachiyappan, S. (2022). Do the macroeconomic factors influence the volatility of gold price?: An empirical study. *Journal of Commerce & Accounting Research*, *11*(2), 37–44. http://publishingindia.com/jcar/

Ryan Eichler. (2023, June 6). *R-Squared vs Adjusted R-Squared: What's the Difference*. Investopedia. https://www.investopedia.com

Stock, J. H., & Watson, M. W. (1999). Forecasting Inflation. *Journal of Monetary Economics*, *44*, 293–335.

Sujit, K. S., & Rajesh Kumar, B. (2011). Study on Dynamic Relationship among Gold Price, Oil Price, Exchange Rate and Stock Market Returns. *International Journal of Applied Business and Economic Research* 9(2).

Sun, Y. (2018). The Impact of Macroeconomic Factors on the Price of Gold. *Applied Economics Theses*. http://digitalcommons.buffalostate.edu/economics_theseshttp://digitalcommons.buffalostate.edu/economics_theses/34

Thaver, R. L., & Lopez, J. (2016). Unemployment as A Determinant of Gold Prices: Empirical Evidence. *The International Journal of Business and Finance Research*, *10*(4), 43–52. www.theIBFR.com

WORLD BANK GROUP. (2023, September 5). *Unemployment, total (%of total labor force)(modelled ILO estimate)*. THE WORLD BANK. https://data.worldbank.org/indicator

Zakaria, H., Abdul Shukur, N., Affandi, S., & Wan Mahmood, W. (2015). Factors Affecting the Price of Gold in Malaysia. *Journal of Basic and Applied Scientific Research*, *5*(7), 41–46.

Zizun, L. (2017). Determinants of Gold Price in Malaysia. *Master Dissertation UTAR*. http://eprints.utar.edu.my/id/eprint/2711

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Navigating the COVID-19 Storm: Assessing Well-being in University Students from Lower-Income Backgrounds

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Abstract: The COVID-19 pandemic has had severe repercussions on individuals' lives, with particularly detrimental effects on those from economically disadvantaged backgrounds. The quality of life and overall well-being of this vulnerable demographic have been profoundly shaken. In the context of increasing research segmentation based on specific population profiles, this study is designed to investigate the well-being of university students hailing from lower-income groups during the pandemic, particularly when stringent movement control orders were in effect. Furthermore, this research scrutinizes variations in well-being with respect to gender and locality. A quantitative comparative approach was employed, and data were collected through a convenient online survey sampling method. The assessment of the subjects' quality of life was carried out using a standardized WHO-QOL BREF questionnaire, consisting of 26 items that measure various domains encompassing environment, physical health, psychological well-being, and social relationships. Furthermore, the WHO well-being measure was also used to assess the respondents' general well-being. Multigroup analysis (MGA) and partial least squares structural equation modeling (PLS-SEM) were used to analyze the data. 305 students made up the study cohort, of whom 112 lived in urban regions and 193 in rural ones. The results show significant differences between male and female students in the areas of physical and psychological health. The study also found that among rural students, environmental characteristics and well-being were significantly correlated, although this was not the case for their urban counterparts.

Keywords: *Well-being; Quality of Life; Higher Education; Psychological Health; Lower-income group, Sustainable Development Goal, COVID-19 Pandemic.*

1. Introduction and Background

The pandemic was first detected in November 2019 in Wuhan, China and the World Health Organization (WHO) declared the disease as an outbreak in just two months as it spread rapidly worldwide. This pandemic attacks the respiratory system, and the infected patients may exhibit symptoms such as mild fever, dry cough, and runny nose (Gralinski, & Menachery, 2020). Some patients may suffer from severe pneumonia, kidney failure, septic shock and acute respiratory tract infection which are fatal (Huang, Wang, Li, Ren, Zhao, Hu, & Cheng, 2020). In contrast, some patients do not develop any symptoms and feel healthy. Currently, in December 2020, the statistics showed that there are 68,845,368 confirmed cases all over the world and the number of deaths keeps increasing up to 1,570,304 cases (WHO, 2020). Most countries take precautionary measures by implementing social distancing, self-isolation, closure of schools, and travel restrictions. Due to that reason, a reduction of the workforce across all economic sectors occurs. In Malaysia, the first case was detected in January 2020. The local outbreaks started in March 2020 due to the massive gathering connected to Tabligh Jumaat (Spiritual gathering). With no alternative solution to escape from the COVID pandemic, the government took prompt action to implement the Movement Control Order (MCO) to curb the outbreak from 18 March to 12 May 2020 (MDBC, 2020). All social, religious, sporting, and cultural gatherings were banned except for essential services (Abdullah, Murad, Teoh, & Mohamad, 2020). During the MCO, people were confined for a certain period of social isolation (Sundarasen, Chinna, Kamaludin, Nurunnabi, Baloch, Khoshaim& Sukayt, 2020).

The pandemic has impacted people's lives in many ways and the lower-income group is one of the worst affected groups due to the disruption of economic activities, leading to the reduction of labor forces and productivity (Fan, Jamison, & Summers, 2018; Gassman-Pines, Ananat, & Fitz-Henley, 2020). The pandemic affects the economy of the countries and causes psychological and social impacts, especially among the

students. Few countries have reported an alarming number of mental health problems such as depression, anxiety, and sleep disorders (Gritsenko, Skugarevsky, Konstantinov, Khamenka, Marinova, Reznik, & Isralowitz, 2020). In response to this, this study is conducted to disclose the psychological well-being issues among undergraduate students in Malaysia. For the students, their learning activities are also disrupted due to the temporary closure of universities. Students were exposed to the new teaching and learning norms whereby they were responsible for their learning process guided by the lecturers using online platforms (Gonzalez, Rubia, Hincz, Comas-Lopez, Subirats, Fort, & Sacha, 2020). This transition can be both exciting and stressful because the students need to perform well (Burns, Dagnall and Holt, 2020) despite the shortage of equipment, non-conducive learning environment and unfamiliarity with digital technologies (Lim, 2020).

A previous study conducted in the United States among lower-income undergraduate students revealed negative online learning experiences due to a sudden transition (Aucejo, French, Araya, & Zafar, 2020). While another study conducted by Abdullah et al. (2020) disclosed that even when the MCO ended in May 2020, university students in Malaysia tended to exhibit lower psychological and social relationships. Another study conducted in India and Spain also revealed the negative impact of COVID-19 on individual emotions as the respondents develop feelings of loneliness, sadness, anxiety, and frustration (Grover, Sahoo, Mehra, Avasthi, Tripathi, Subrahmanyan, & Chakraborty, 2020: Odriozola-González, Planchuelo-Gómez, Irurtia & de Luis-García, (2020).

In recent years, the student well-being sphere has started to embrace core tenets of the positive psychology approach. Therefore, the importance of promoting health within the university environment is high, owing to the subsequent gains achieved resulting from improved well-being. This study addresses SDG Goal 3 in ensuring healthy lives and promoting well-being for university students during pandemic outbreaks, specifically the socio-psychological well-being among the rural and urban, and low-income undergraduate students in Malaysia. To date, data on well-being and QoL in university students in response to the COVID-19 pandemic are limited. Hence this study was conducted to [1] to determine a significant difference of gender in the well-being of the lower-income group university students [2] to determine a significant difference in the well-being of the lower-income group university students between urban and rural origin. It is hoped that the result will provide insight into coping strategies among undergraduate students and the development of policy among the universities to support the students in this pandemic. The impact of COVID-19 will be considered in alignment with well-being and how student well-being may be affected by the global pandemic.

2. Literature Review

Quality of life (QoL) is a multidimensional concept that measures a person's well-being (Grabowska, Antczak, Zwierzchowski, & Panek, 2022). The concept of QoL has evolved over time and its range has widened to encompass life satisfaction, self-actualization, and adopting and coping with the environment. QoL is a complex concept that is interpreted in several ways in various disciplines. Despite 40 years of research in QoL, there is a continuing debate about the definition of QoL and what should be measured. Until now, there is no uniform definition of the concept. The most cited definition of QoL is the one provided by the World Health Organization QoL working groups which is "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" (WHO QoL Working Groups, 1998). The concept of QoL encompasses the dimensions of an individual's physical and psychological health, social relationships, and environmental conditions. The World Health Organization (WHO) declared a Public Health Emergency of International Concern in January 2020 due to COVID-19 (WHO, 2020). Universities across the world have closed their campuses to protect their students and staff from contracting the virus. The consequences of these decisions have an impact on the delivery of teaching and learning. As a result, university students have to adapt to a new learning environment. The global pandemic poses both direct and indirect threats to student well-being, specifically to poor psychological outcomes, as there is a reduction in the social context that students now cope with (Burns, Dagnall, & Holt, 2020).

The WHO defined well-being as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1948). Well-being has a complex role to play as a predictor of outcomes for students, such as their academic performance (El Ansari & Stock, 2010). Student well-being can be defined

as a population-level term encompassing positive emotion and the inner capacity for an individual to cope with the challenges of day-to-day life and their academic journey (Barkham et al., 2019). Well-being stresses the importance of the individuals' living environment and how this impacts individual well-being, such as the places where we work and live (Beaumont, 2011). The drastic shift in the environment that students experienced before COVID-19 is one of the most significant potential contributors to poor student well-being. Students from lower economic status are likely to spend their quarantine time in a more stressful environment than those from higher economic backgrounds (Di Pietro, Biagi, Costa, Karpinski, & Mazza, 2020). Apart from the environment, gender shapes health and well-being (Kennedy et al., 2020). The average life expectancy at birth was 70 years for males and 72 for females. Females tend to live longer than males. This suggests that there are gender differences with regard to well-being. A previous study reported that females had experienced greater frequency and intensity of positive and negative emotions than males (Matud, López-Curbelo, & Fortes, 2019).

3. Research Methodology

Research Design, Procedure, and Sample: The study was conducted as a self-administered survey. Since the design requires the respondents to complete the questionnaire without the researchers' intervention, special care must be taken (Lavrakas, 2008). The item measurements were adopted from the translated version of the World Health Organization (WHO) quality of life assessment (Hasanah, Naing & Rahman, 2003) and it was formatted to avoid measurement error. A pilot test was conducted as suggested by Salkind (2010) with the main objective to discover problems that may arise before the main study so that corrective actions to improve the research process could be taken. Data for the pilot study were analyzed to assess the measurement reliability and the results suggested the item's internal consistency for each construct was assumed. Actual data collection spanned from December 2021 to December 2022, encompassing a year-long Period. An online survey form was created for the actual data collection, and invitations to university students to participate in the study were made based on a convenience sampling procedure. In total, 305 data were obtained. Initial approval of the research ethics was obtained from the researchers' institution, Universiti Teknologi MARA Shah Alam (REC/09/2021 (MR/805).

Instrument Design: The study was conducted using a questionnaire which was based on the WHOQOL BRIEF to assess the four domains of quality of life, which are social relationship, physical health, psychological health, and environment. These items were measured on a five-point Likert scale, ranging from 1 (not at all) to 5 (very true). Items to measure social relationships include personal relations and practical social support. The scale to evaluate physical health consisted of seven items (e.g. pain and discomfort, energy and fatigue, sleep and rest, dependent on medication and mobility). The scale to measure psychological health consisted of six items (e.g. positive feelings, negative feelings, self-esteem, body image, and concentration). The scale to measure the environment consisted of eight items (e.g. financial resources, information and skills, recreation and leisure, home environment, access to health and social care, physical safety and security, the physical environment, and transport). For practicality and easy understanding, the translated version of WHO-BRIEF by Hasanah et al. (2003) was used. In addition, the well-being measure was adopted from the World Health Organization (WHO) well-being index (World Health Organization, 1998) that consisted of five items (e.g. felt cheerful and good spirit, calm and relaxed, active and vigorous, woke up feeling fresh and daily life filled with things that interest me).

Respondents Profile: The participants of the study comprised university students from the lowest income category. In Malaysia, this income group is known as B40, indicating the bottom of the household economic hierarchy. The score of the household economic hierarchy is 20:40:40 which is 20% for the top or highest income, 40% for the middle-income group, and 40% for the lowest income group. The sample of the study consisted of 34.10% male (n = 104) and 65.9% female (n = 201) university students. Their distribution of origins is 36.7% from the urban (n = 112) and 63.3% from the rural area (n = 193). There seems to be a consistent distribution for the number of siblings, for 4, 5, and more than five siblings. Only 3.6% of the respondents were the only child in the family (n = 11), and 5.9% of the respondents had two siblings (n = 18). In assessing the distribution of the father's employment status, 28.2%, the highest percentage (n = 86), was self-employed, followed by 26.2% full-time employment (n = 80) and 20.7% others (n = 63). Others include not working at all or not being related because the parents were separated. Likewise, the distribution of

mothers' employment status shows the highest percentage of 68.5% (n = 209) for others that include the mother being a housewife or not related. Only 14.5% of the respondent's mothers work full-time (n = 44). The social demographic profiles of the respondents are shown in Table 1.

Table 1: Descriptive Analysis

Variable	N	(%)	Variable	N	(%)
Gender			Father's employment status		
Male	104	34.1	*Full time*	80	26.2
Female	201	65.9	*Part-time*	4	1.3
Origin			*Self-employed*	86	28.2
Urban	112	36.7	*Retired*	62	20.3
Rural	193	63.3	*Not working (health factor)*	10	3.3
			Others	63	20.7
Number of Siblings					
1	11	3.6	Mother's employment status		
2	18	5.9	*Full time*	44	14.4
3	57	18.7	*Part-time*	8	2.6
4	73	23.9	*Self-employed*	25	8.2
5	66	21.6	*Retired*	17	5.6
> 5	80	26.2	*Not working (health factor)*	2	0.7
			Others	209	68.5

Measurement Model: Loadings, Composite Reliability, and AVE of Specific Results.

The data was run for both the measurement and structural model by using SmartPLS ver 3.3 and the analysis follows the suggestions from Benitez, Henseler, Castillo and Schuberth (2020). The data group was generated based on gender (male and female) and place of origin (urban and rural). As the measurement was built based on the reflective model, the constructs were evaluated for composite reliability, convergent validity, indicator reliability and discriminant validity. The results of the measurement model for the four groups are shown in Table 2. The composite reliability of greater than 0.707 can be regarded as reasonable, as more than 50% of the variance in the construct scores can be explained by the latent variable (Nunally, 1994). The results of the composite reliability range from 0.849 to 0.955 for the male group, from 0.820 to 0.945 for the female group, from 0.840 to 0.946 for the urban group and from 0.818 to 0.948, indicating reliable construct scores.

The convergent validity using the value of the average variance extracted (AVE) was evaluated to assess that indicators to one latent variable measure the same construct (Benitez et al., 2020). The AVE should be larger than 0.5 to provide evidence for convergent validity. The results from the analysis suggest the lowest score is 0.501 for the female group, indicating the convergent validity requirement is met. The indicator reliability can be assessed through the factor loading estimates with values greater than 0.707, which indicates more than 50% of the variance in the single indicator can be explained by the corresponding latent variable (Benitex et al., 2020). However, lower values will not be problematic when the construct validity and reliability are met. In this study, three items to measure physical health and one item to measure psychological health were deleted to improve the validity and reliability scores. These items are PH1 (pain and discomfort), PH2 (dependence on medication), PH4 (mobility), and PS6 (negative feelings).

Table 2: Loadings, Composite Reliability, and AVE of Gender and Origin-Specific Results

	Loading			
	Male	**Female**	**Urban**	**Rural**
Environment				
EV1	0.755	0.720	0.705	0.738
EV2	0.831	0.836	0.836	0.838
EV3	0.663	0.690	0.654	0.697

EV4	0.650	0.625	0.731	0.594
EV5	0.693	0.584	0.590	0.638
EV6	0.804	0.752	0.717	0.803
EV7	0.696	0.736	0.815	0.680
EV8	0.723	0.689	0.676	0.716
Cronbach's Alpha	*0.873*	*0.857*	*0.865*	*0.864*
Composite Reliability	*0.900*	*0.888*	*0.895*	*0.893*
Average Variance Extracted (AVE)	*0.532*	*0.501*	*0.518*	*0.514*
Physical Health				
PH3	0.805	0.772	0.762	0.807
PH5	0.749	0.723	0.681	0.773
PH6	0.789	0.702	0.799	0.672
PH7	0.712	0.755	0.824	0.652
Cronbach's Alpha	*0.765*	*0.733*	*0.772*	*0.720*
Composite Reliability	*0.849*	*0.827*	*0.852*	*0.818*
Average Variance Extracted (AVE)	*0.584*	*0.545*	*0.590*	*0.531*
Psychological Health				
PS1	0.859	0.796	0.817	0.819
PS2	0.819	0.764	0.815	0.766
PS3	0.826	0.835	0.817	0.838
PS4	0.845	0.783	0.857	0.772
PS5	0.825	0.869	0.834	0.861
Cronbach's Alpha	*0.892*	*0.870*	*0.886*	*0.871*
Composite Reliability	*0.920*	*0.905*	*0.916*	*0.906*
Average Variance Extracted (AVE)	*0.697*	*0.657*	*0.686*	*0.660*
Social Relationship				
SR1	0.853	0.862	0.849	0.860
SR2	0.905	0.805	0.852	0.848
Cronbach's Alpha	*0.710*	*0.564*	*0.619*	*0.629*
Composite Reliability	*0.872*	*0.820*	*0.840*	*0.843*
Average Variance Extracted (AVE)	*0.773*	*0.696*	*0.724*	*0.729*
Well-being				
WB1	0.901	0.891	0.919	0.876
WB2	0.936	0.912	0.935	0.909
WB3	0.939	0.924	0.920	0.930
WB4	0.818	0.845	0.830	0.841
WB5	0.895	0.821	0.795	0.875
Cronbach's Alpha	*0.940*	*0.926*	*0.928*	*0.932*
Composite Reliability	*0.955*	*0.945*	*0.946*	*0.948*
Average Variance Extracted (AVE)	*0.808*	*0.773*	*0.777*	*0.786*

The discriminant validity procedure follows Sarstedt, Henseler and Ringle (2011) using the Fornell-Lacker criterion and the indicator's cross-loading. The results are in Appendix A and Appendix B. Both analyses indicate the constructs exhibit discriminant validity. In addition, the HTMT procedure was also assessed. The HTMT of the strict threshold requires the value to be less than 0.85. A more lenient threshold of 0.90 or significantly smaller than 1.0 is acceptable (Franke & Sarstedt, 2019). In our study, the one-sided 95% percentile confidence of HTMT does not cover 1, which is significantly different from 1 (Franke & Sarstedt, 2019). Thus, the overall results provide support for the discriminant validity.

4. Results and Discussion

Analysis of Path Coefficient: The results of the structural model evaluation for all groups are presented in Table 3 and Table 4. The bootstrap analyses using 1,000 samples show mixed results of significant relationships. The well-being of the male students is predicted by only one factor, which is psychological well-being (β = 0.723, t = 7.369). On the other hand, the well-being of the female students is explained by psychological health (β = 0.441, t = 5.843), physical health (β = 0.270, t = 4.176) and environment (β = 0.135, t = 2.131). Nevertheless, the well-being variance of the male students of 0.633 is slightly higher than the female students of 0.618.

Table 3: Path Analysis of Male and Female Subsamples

	Male				Female			
Path relationship	**Coefficient**	**STDEV**	**t-value**	**p-value**	**Coefficient**	**STDEV**	**t-value**	**p-value**
Environment -> Well-being	-0.005	0.105	0.044	0.482	0.135	0.063	2.131	0.017
Physical Health -> Well-being	0.053	0.088	0.597	0.275	0.270	0.065	4.176	0.000
Psychological Health -> Well-being	0.723	0.098	7.369	0.000	0.441	0.075	5.843	0.000
Social Relationship -> Well-being	0.058	0.085	0.679	0.249	0.079	0.073	1.082	0.140

R^2 male: 0.633, R^2 female: 0.618

The results of the path analysis for urban students suggest their well-being is predicted by psychological well-being (β = =0.526, t = 8.042) and physical health (β = 0.288, t = 4.021) whereas the well-being of students who come from the rural area is explained by psychological health (β = 0.494, t = 5.270), environment (β = 0.164, t = 2.257) and physical health (β = 0.166, t = 2.136). The well-being variance for students who come from the urban area is higher than the students with a rural background, with 0.694 and 0.570, respectively. In general, the social relationship does not indicate any significant relationship to the well-being of all groups.

Table 4: Path Analysis of Urban and Rural Subsamples

	Urban				Rural			
Path relationship	**Coefficient**	**STDEV**	**t-value**	**p-value**	**Coefficient**	**STDEV**	**t-value**	**p-value**
Environment -> Well-being	0.070	0.078	0.893	0.186	0.164	0.073	2.257	0.012
Physical Health -> Well-being	0.288	0.071	4.021	0.000	0.166	0.078	2.136	0.016
Psychological Health -> Well-being	0.526	0.065	8.042	0.000	0.494	0.094	5.270	0.000
Social Relationship -> Well-being	0.077	0.074	1.039	0.150	0.033	0.081	0.407	0.342

R^2 urban: 0.694, R^2 rural: 0.570

Multigroup Comparison Test Result: A comparison of the gender and place of origin suggests several differences in the effects as presented above. However, whether the numeric differences for the groups are statistically different requires further examination. Thus, the multigroup comparison procedure as suggested by Sarstedt, Henseler and Ringle (2011) was followed. The results are presented in Table 5 and Table 6.

Table 5: Multigroup Comparison Test Results Between Male and Female

Relationship	**[diff]**	**$t_{Parametric}$**	**$p_{Permutation}$**
Environment -> Well-being	-0.14	1.208	0.073
Physical Health -> Well-being	-0.218	1.986**	0.020**
Psychological Health -> Well-being	0.282	2.237***	0.006***

Social Relationship -> Well-being	-0.021	0.178	0.439

Notes: *Significant at 0.10, **significant at 0.05, ***significant at 0.01

Table 5 shows the differences between male and female students, whereas Table 6 shows the results of the differences for urban and rural students based on the parametric approach. The results generally show there exists a significant difference ($p \leq 0.05$) between male and female subsamples in terms of physical health and well-being relationships and between psychological factors and well-being relationships. The comparison between the urban and rural subsamples suggests no significant difference in any of the relationships

Table 6: Multigroup Comparison Test Results Between Urban and Rural

Relationship	[diff]	$t_{Parametric}$	$p_{Permutation}$
Environment -> Well-being	-0.094	0.840	0.176
Physical Health -> Well-being	0.122	1.057	0.156
Psychological Health -> Well-being	0.032	0.239	0.398
Social Relationship -> Well-being	0.044	0.366	0.381

Notes: *Significant at 0.10, **significant at 0.05, ***significant at 0.01

Bias-corrected 95% Confidence Intervals and Multigroup Comparison Results: Table 7 shows the bias-corrected 95% confidence intervals approach, as well as the multigroup analysis results, which are based on Sarstedt, Henseler and Ringle (2011). Overall, in terms of significant differences, only the relationship between physical health and well-being and psychological health and well-being in comparing the male and female students are supported.

Table 7: Bias-corrected 95% Confidence Intervals and Multigroup Comparison Results

Relationship	Confidence Interval				Comparison	Sig
	Male	Female	Urban	Rural		
Environment -> Well-being	[-0.184, 0.149]	[0.015, 0.230]	[-0.076, 0.190]	[0.037, 0.278]	Male vs Female	Nsig.
					Urban vs Rural	Nsig.
Physical Health -> Well-being	[-0.097, 0.192]	[0.165, 0.375]	[0.156, 0.393]	[0.030, 0.287]	Male vs Female	Sig.
					Urban vs Rural	Nsig.
Psychological Health -> Well-being	[0.585, 0.899]	[0.301, 0.545]	[0.405, 0.620]	[0.333, 0.634]	Male vs Female	Sig.
					Urban vs Rural	Nsig.
Social Relationship -> Well-being	[-0.084, 0.187]	[-0.035, 0.202]	[-0.05, 0.196]	[-0.080, 0.195]	Male vs Female	Nsig.
					Urban vs Rural	Nsig.

As positive aspects, we would highlight the representativeness of the student sample in every state in Malaysia and the use of a cross-cultural instrument, which had been validated in the local environment, to measure QOL in its subjective and cross-cultural aspects. There are, however, acknowledged limitations of this study. First, this is a cross-sectional study that limits the interpretation of the causal direction of the study variables. Second, the use of self-report measures may also pose common method variance in the gathered data. Third, the measures used were made by Asian authors which may cast uncertainty on the relevance of the measures to the local setting. The findings, therefore, may have to be viewed with care. It is then recommended that future researchers attempt to conduct research that will help define and investigate well-being and quality of life that are culturally specific to the local experience. Further research is needed to explore the relationship between the QoL of students and the other variables not investigated here, as already mentioned above, as well as the use of the triangulation of quantitative and qualitative methods to understand better some of the results obtained in the light of the objectives, expectations, standards, and concerns of university students.

Discussion: This study's findings provide important insights into the relationship between many characteristics and the quality of life (QoL) of university students, particularly those from lower-income families, during the COVID-19 epidemic. This section will go into the relevance and significance of these findings, as well as acknowledge the study's shortcomings and offer future research directions. The study found significant gender disparities in well-being predictors among university students. Female students'

well-being was determined by a combination of psychological health, physical health, and the environment, but male students' well-being was predominantly driven by psychological health. This distinction is critical because it implies that specific therapies may be required to meet the individual well-being difficulties that males and females encounter (Gestsdottir et al., 2021).

Understanding gender differences is critical for educators and policymakers to provide adequate support to students. Counseling services and mental health programs for male students may benefit from treatments aimed at improving psychological well-being. Female students, on the other hand, may require a more comprehensive approach that tackles both physical health and environmental concerns, which may include initiatives linked to healthcare access and campus resources. Chao (2023) Chao's (2023) study in Taiwan supports these considerations, revealing that a higher proportion of female students have health-related majors, while more non-health-related students live in on-campus dormitories, reinforcing the need for tailored support strategies

The study also analyzed well-being predictors between urban and rural students. The well-being of urban students was highly influenced by psychological well-being and physical health, whereas the well-being of rural students was also influenced by the environment. Interestingly, despite these variations, urban students had higher overall well-being than rural students. These findings are consistent with a study published in Nature by Ochnik, Rogowska, and Kuśnierz, et al. (2021), which examined mental health prevalence and predictors among university students in nine countries during the COVID-19 pandemic. The study found that the place of residence was a significant predictor of high perceived stress, anxiety, and depression among students. Specifically, students from rural areas exhibited lower levels of depression compared to students from urban areas. The findings imply that the urban environment may inherently bring certain benefits to student's well-being. Urban regions often provide better access to healthcare, educational resources, and job possibilities. Policymakers should investigate methods to bridge urban-rural divides, such as increasing rural infrastructure and access to key services.

Multigroup analyses of male and female students, as well as urban and rural students, revealed significant disparities in the influence of physical and psychological health on well-being. These findings underscore the importance of establishing interventions and support systems that consider the diverse needs of student populations. Additionally, these results emphasize the significance of tailoring treatments based on gender and place of origin. Therefore, universities and educational institutions should adopt a more nuanced approach to support, addressing the various challenges faced by different student groups. This could involve the development of gender-specific mental health services and well-being initiatives aimed at mitigating urban-rural disparities. These findings are consistent with Graves et al.'s (2021) study, which found that females reported higher levels of perceived stress and used more emotion-focused coping strategies than males. The study highlights the necessity for gender-specific interventions targeting coping strategies to enhance the overall well-being of both male and female students.

5. Managerial Implications and Recommendations

While this study provides useful information, numerous limitations should be noted. For starters, the study's cross-sectional design limits our ability to demonstrate causal correlations between factors. Longitudinal research could help us understand how these characteristics change over time. Second, the use of self-report measures involves the risk of common method bias, which may influence the data collected. Third, while the study's measurements were validated in the local context, they were developed by Asian writers, raising concerns about their relevance to the specific local situation.

Future studies should investigate the cultural distinctiveness of well-being and QOL measures within the local environment to solve these constraints. Investigating the links between student QOL and hitherto unknown characteristics such as family support, financial stability, and access to technology for remote learning could provide useful insights. Furthermore, combining quantitative and qualitative data in a mixed-methods approach can provide a more comprehensive picture of the complex interaction of factors influencing students' well-being.

Conclusion: Finally, this study sheds light on the influence of the COVID-19 pandemic on the health and well-being of university students, with emphasis on gender and region of origin. Notably, significant inequalities in physical and psychological health were found between male and female pupils. However, there were no differences in the four dimensions of quality of life between students from urban and rural backgrounds. These findings have a number of significant consequences. For starters, they emphasize the varied character of student well-being during a global crisis, emphasizing the necessity for personalized support systems that consider the unique issues experienced by various student groups. Male and female students, for example, may benefit from different ways to address their individual well-being needs. Furthermore, the findings are consistent with SDG Three, underlining the need to promote sustainable health for all. Monitoring students' health and well-being is critical during the epidemic, not just for immediate reaction but also for determining long-term policies and plans. These insights can be used by higher education institutions and policymakers to improve student support mechanisms, both during the present pandemic and in preparation for any future crises. In essence, this study sheds light on the complexities of the university student well-being landscape in the face of a global epidemic. As educators and policymakers work to improve student well-being, it is critical to implement solutions that address disparities and promote long-term health for all, thereby contributing to the larger societal aim of nurturing well-being.

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References

Abdullah, M. F. I. L. B., Murad, N. S., Teoh, S. H. & Mohamad, M. A. (2020). Quality of Life of University Students During The COVID-19 Pandemic: Age, History of Medical Illness, Religious Coping, COVID-19 Related Stressors, Psychological Factors, and Social Support Were Predictive of Quality of Life.

Aucejo, E. M., French, J., Araya, M. P. U. & Zafar, B. (2020). The impact of COVID-19 on student experiences and expectations: Evidence from a survey. *Journal of Public Economics*, 191, 104271.

Benitez, J., Henseler, J., Castillo, A. & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & Management*, 57(2), 103168.

Burns, D., Dagnall, N. & Holt, M. (2020, October). Assessing the impact of the Covid-19 pandemic on student well-being at universities in the UK: a conceptual analysis. In Frontiers in Education (Vol. 5). Frontiers Media.

Chao, D. P. (2023). Health-promoting lifestyle and its predictors among health-related and non-health-related university students in Taiwan: A cross-sectional quantitative study. *BMC Public Health,* 23(1), 827.

Chraif, M. & Dumitru, D. (2015). Gender differences on well-being and quality of life at young students in psychology. *Procedia-Social and Behavioral Sciences*, 180, 1579-1583.

Di Pietro, G., Biagi, F., Costa, P., Karpinski, Z. & Mazza, J. (2020). The likely impact of COVID-19 on education: Reflections based on the existing literature and recent international datasets. Luxembourg: Publications Office of the European Union.

El Ansari, W. & Stock, C. (2010). Is the Health and Well-being of University Students Associated with their Academic Performance? Cross-Sectional Findings from the United Kingdom. *Int. J. Environ. Res. Public Health,* 7, 509–527. DOI: 10.3390/ijerph7020509

Franke, G. & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: a comparison of four procedures. Internet Research.

Gassman-Pines, A., Ananat, E. O. & Fitz-Henley, J. (2020). COVID-19 and parent-child psychological well-being. *Pediatrics,* 146(4).

Gestsdottir, S., Gisladottir, T., Stefansdottir, R., Johannsson, E., Jakobsdottir, G. & Rognvaldsdottir, V. (2021). Health and well-being of university students before and during COVID-19 pandemic: A gender comparison. *PLoS ONE,* 16(12), e0261346. https://doi.org/10.1371/journal.pone.0261346

Gonzalez, T., De la Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S. & Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *PloS one*, 15(10), e0239490.

Grabowska, I., Antczak, R., Zwierzchowski, J. & Panek, T. (2022). How to measure the multidimensional quality of life of persons with disabilities in public policies-a case of Poland. *Archives of Public Health*, 80(1), 230.

Gralinski, L. E. & Menachery, V. D. (2020). Return of the Coronavirus: 2019-nCoV. *Viruses,* 12(2), 135.

Graves, B. S., Hall, M. E., Dias-Karch, C., Haischer, M. H. & Apter, C. (2021). Gender differences in perceived stress and coping among college students. *PloS one,* 16(8), e0255634.

Gritsenko, V., Skugarevsky, O., Konstantinov, V., Khamenka, N., Marinova, T., Reznik, A. & Isralowitz, R. (2020). COVID-19 Fears, Stress, Anxiety, and Substance Use among Russian and Belarusian University Students. International Journal of Mental Health and Addiction

Grover, S., Sahoo, S., Mehra, A., Avasthi, A., Tripathi, A., Subramanian, A. & Chakraborty, K. (2020). Psychological impact of COVID-19 lockdown: An online survey from India. *Indian Journal of Psychiatry,* 62(4), 354.

Hasanah, C. I., Naing, L. & Rahman, A. R. A. (2003). World Health Organization quality of life assessment: brief version in Bahasa Malaysia. *Medical Journal of Malaysia,* 58(1), 79-88.

Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y. & Cheng, Z. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, 395(10223), 497-506.

Kennedy, E., Binder, G., Humphries-Waa, K., Tidhar, T., Cini, K., Comrie-Thomson, L. & Patton, G. (2020). Gender inequalities in health and well-being across the first two decades of life: an analysis of 40 low-income and middle-income countries in the Asia-Pacific region. *The Lancet Global Health*, 8(12), e1473-e1488.

Lavrakas, P. J. (2008). Encyclopaedia of survey research methods. Sage Publications.

Lim, L. L. (2020). The socioeconomic impacts of COVID-19 in Malaysia: Policy review and guidance for protecting the most vulnerable and supporting enterprises. "International Labor Organization Report". Retrieved from http://ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_751600.pdf

Matud, M. P., López-Curbelo, M. & Fortes, D. (2019). Gender and psychological well-being. *International journal of environmental research and public health*, 16(19), 3531.

MDBC (2020). MCO Update. Retrieved from https://www.mdbc.com.my/mco-updates/

Nunnally, J. C. (1994). Psychometric theory 3E. Tata McGraw-Hill education.

Ochnik, D., Rogowska, A. M., Kuśnierz, C. et al. (2021). Mental health prevalence and predictors among university students in nine countries during the COVID-19 pandemic: *A cross-national study. Scientific Reports*, 11(1), 18644. https://doi.org/10.1038/s41598-021-97697-3

Odriozola-González, P., Planchuelo-Gómez, Á., Irurtia, M. J. & de Luis-García, R. (2020). Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish University Psychiatry Research, 290:113108

Salkind, N. J. (Ed.). (2010). Encyclopaedia of research design (Vol. 1). Sage.

Sarstedt, M., Henseler, J. & Ringle, C. M. (2011). Multigroup analysis in partial least squares (PLS) path modelling: Alternative methods and empirical results. In measurement and research methods in international marketing. Emerald Group Publishing Limited.

Sundarasen, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G. M., Khoshaim, H. B. & 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.

WHO. (2020). Coronavirus Disease (Covid-19) Dashboard. Retrieved from https://covid19.who.int/

World Health Organisation [WHO]. (2020). Coronavirus (COVID-19) Events as They Happen. Geneva: WHO.

World Health Organization [WHO]. (1948). World Health Organization Constitution. Geneva: WHO.

World Health Organization Quality of Life Group. (1998). The World Health Organization Quality of Life Assessment (WHOQOL): Development and General Psychometric Properties: Position Paper. *Soc Sci Med,* 46, 1569–1585.

World Health Organization (1998). Well-being measures in primary health care/the DEPCARE project: report on a WHO meeting, Stockholm, Sweden 12-13 February 1998. In Well-being measures in primary health care/the DEPCARE project: report on a WHO meeting, Stockholm, Sweden 12-13 February 1998.

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Foreign Bias in the Global Portfolio Investment of Selected OIC Countries

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Abstract: Home bias reflects the propensity of investors to invest substantially in the domestic market. When investing abroad investors' exhibit foreign bias, a tendency to overweight certain foreign markets based on their preferences. The existence of foreign bias offers a discovery of a new dimension that enables a thorough investigation of such phenomena. A thorough review of the literature reveals that foreign bias has not been thoroughly investigated in emerging countries, especially in the context of OIC countries. In addition, there is yet to see any attempt to explore the potential explanation of the home bias and foreign bias based on relative factors. In other words, the effect of relative factors between home and host countries' factors remains unexplored. Therefore, the current study undertakes a novelty approach to fill this gap by engaging on relative factors between home and host countries. Therefore, the purpose of this research is to examine the determinants of foreign bias in the global portfolio investment of selected OIC countries. An unbalanced bilateral panel data of 12 OIC countries' outward equity investment in 74 host countries from the year 2001 to 2016 is analyzed. The samples observed are based on the composition of host countries that comprise global, intra-OIC, and non-OIC. Cross-sectional analysis shows that OIC countries exhibit higher foreign bias towards their OIC counterparts especially in the MENA region. The results suggest, OIC countries not only exhibit foreign bias but also demonstrate regional bias. System Generalized Method of Moments (GMM) empirically shows that foreign bias is possibly explained by factors related to financial market openness, familiarity, information asymmetry, and global financial crisis. This study has a significant implication for the investors, fund managers and the regulators of the OIC countries. Investors and fund managers in OIC countries should be aware of the existence of foreign bias in their global portfolio investment that may potentially reduce the benefits of optimal diversification. It is a call for policy makers in the OIC countries to convince their local investors that international portfolio diversification offers risk sharing and eventually increases the investment return. In addition, policy makers in OIC countries need to design a comprehensive investment agreement to attract active participation and inter-regional investments among OIC countries.

Keywords: *Foreign bias, global portfolio investment, relative factors, gravity model, home bias.*

1. Introduction and Background

In the international market, the Capital Asset Pricing Model (CAPM) proposes that the world market portfolio is an efficient portfolio. The model suggests that the proportion of the wealth invested in a domestic equity market should be equal to its weight in the world market portfolio (Levy & Sarnat, 1970). Similarly, investors should hold securities from countries around the world in proportion to their weight in the world market capitalization. The underlying assumptions include that all investors have identical information and that markets function perfectly. However, a seminar paper by French and Poterba (1991) reported that domestic equity holding by investors in the United States, Japanese, and Britain were 98%, 94%, and 82% respectively. Their findings reveal that there is overinvestment in the domestic market beyond the optimal benchmark as suggested by CAPM, this situation is termed home bias.

Home bias reflects the propensity of investors to hold domestic securities rather than foreign assets in their portfolios. However, when investing abroad, investors tend to overweight or underweight certain foreign countries based on their preferences. This phenomenon is known as foreign bias, which was first explored by Chan, Covrig and Ng (2005). The authors claim that in comparison with home bias, foreign bias receives less attention. In a similar vein, Beugelsdijk and Frijns (2010) and Imazeki and Gallimore (2009) claim that efforts are needed to find conclusive explanations for the existence of foreign bias, which is still lacking in finance literature.

Some researchers opined that foreign bias is another manifestation of home bias. For instance, Dodd and Frijns (2015) claim that foreign bias is related to familiarity bias where investors perceive assets from certain

countries as riskier than others because they are less familiar with them. Furthermore, Bergin and Pyun (2012) claimed that investors are trapped in two anomalies in international investment; namely home bias and foreign bias. They prefer to hold substantial domestic assets, at the expense of international diversification benefits. When investing abroad, investors prefer countries with a high correlation with their home country. This will result in reduced benefits of global portfolio diversification. The researcher termed this as a correlation puzzle also known as a preference for familiarity. Niszczota (2014) posits that home bias is attributed to divergence of rational behavior, overweight in domestic assets means that investors sub-optimally invest in foreign markets, thus foreign bias exists. While the world is becoming more globalized and capital markets are becoming more liberalized, an in-depth investigation of the barriers to international portfolio investment is significantly important. Most of the previous studies have concentrated on home bias research, but less attention was given to research on foreign bias (Beugelsdijk and Frijns, 2010).

A thorough review of the literature reveals that foreign bias has not been thoroughly investigated in emerging countries. Nevertheless, no attempt has been made to investigate these phenomena in the context of OIC countries. Consequently, this offers a new opportunity for research agenda in global portfolio investment. Therefore, the current study attempts to fill this gap by providing a systematic investigation of these phenomena in the context of OIC countries.

This study has a significant implication for the investors, fund managers and the regulators of the OIC countries. Investors and fund managers in OIC countries should be aware of the existence of foreign bias in their global portfolio investment that may potentially reduce the benefits of optimal diversification. It is a call for policy makers in the OIC countries to convince their local investors that international portfolio diversification offers risk sharing and eventually increases investment returns.

2. Literature Review

The gravity model originated from Newton's proposition of the Law of Universal Gravitation in 1687. It was discovered by a physicist, Sir Isaac Newton in the world's most well-known innovation in 1687; Philosophiae Naturalis Principia Mathematica. The law states that the attractive force between two objects is closely related to their size and inversely related to the distance between them. The application of the gravity model in financial assets started back in 1999 when Portes and Rey employed the model to examine the determinants of international portfolio investment in equity. Concentrating on 14 OECD countries, their results reveal that market size, technology efficiency, and distance are the most important determinants of investment flows.

Based on stock market data, Faruqee, Li, and Yan (2004) show that the gravity model provides the best explanation for international portfolio holdings. The findings show that market size, transaction cost, and information asymmetry are major determinants of cross-border portfolio choice. These findings shed light on alternative theories of international portfolio holdings, especially on the transaction and information cost-based explanations of home bias. Karolyi (2016) extends the gravity model to analyze the role of cultural distance in explaining foreign bias in international portfolio holdings. The result supports the previous empirical findings that cultural distance is negatively correlated with excess investment ratio (foreign bias).

Beugelsdijk and Frijns (2010) examine the existence of foreign bias in international asset allocation based on behavioral perspectives. They argue that culture and cultural distance are important in explaining foreign bias. Their findings show that societies that are more uncertainty-avoidant invest less in foreign equity and societies that are more individualistic invest more in foreign equity. Cultural distance between countries pairs shows that culturally distant country pairs invest less in each other than countries that are culturally closer together, a phenomenon that is especially held for developed countries. Focusing on the international bond portfolio of investment, Ferreira and Miguel (2011) find that although home bias is decreasing, the phenomenon is prevalent in all countries in the sample. Their results show that domestic bond bias is lower in countries with higher economic development, higher restrictions on foreign capital transactions, more developed bond markets, higher familiarity, and higher efficiency of the judicial system. In addition, familiarity variables, like geographic proximity, common language, and bilateral trade, are the major determinants for decreasing the foreign bias.

Aggarwal, Kearney and Lucey (2012) shed light on the role of culture and extend the set of cultural variables that have been investigated in gravity models of foreign portfolio investment. The researchers integrate Hofstede's cultural dimensions of originating and destination countries, cultural distances, geographic distance, and other gravity variables to determine the role of culture and extend the set of cultural variables. The results show that gravity always deters foreign portfolio investment, but aspects of culture and cultural distance can offset this by supporting foreign portfolio investment. Baltzer, Stolper and Walter (2015) argue that individual investors' local bias is not limited to the domestic sphere, but instead also determines their international investment decisions, indicating the presence of a cross-border local bias. Empirical findings show that the stockholdings of individual investors living within regional proximity to a foreign country display a significantly lower foreign investment bias towards investment opportunities in that country. Foreign investment bias level is disproportionately driven by investments in regionally close neighbor-country companies.

Pradkhan (2014) provides convincing evidence that patriotism is an important explanatory variable that deters foreign investment and increases overinvestment in domestic bonds. Investors from countries with higher levels of uncertainty avoidance will invest less in foreign debt markets. In addition, the researcher also finds that cultural distance is unlikely the factor affecting underinvestment in the foreign debt markets. Bose, MacDonald and Tsoukas, (2015) conclude that equity home bias is a complex phenomenon and is probably caused by a combination of behavioral and institutional biases. Kumar and Goyal (2015) claim that since there are no conclusive explanations for home bias, it remains a puzzle among market participants. Mishra's (2015) study on foreign equity bias measures for Australian-domiciled mutual funds suggests various sources of foreign equity bias; they are GDP per capita, exchange rate volatility, foreign listing, tax credit, global financial crisis and stock market development, familiarity, institution, and stock characteristic variables.

As factors explaining home bias may serve as a deterrent to global portfolio investment. Naturally, foreign bias is determined by the factors that can be used to promote global portfolio investment. Therefore, in the current study, the determinants of foreign bias are similar to home bias. However, the interpretation of the findings is reversed to those in the home bias.

Financial Market Openness: Concentrating on the restriction of capital flow data from the Economic Freedom Network, Chan et al. (2005) show that a destination country with more restrictions will increase home bias. Focusing on the intensity of capital control data from the International Finance Corporation, Ahearne et al. (2004) find a contradicted result where capital control no longer explains home bias. Earlier, a study by Lane (2008) shows that the influence of capital control on international investment position is negative and statistically significant. It indicates that high capital control will discourage international portfolio investment. Mishra (2007) provides evidence of the negative and significant impact of capital control on countries' aggregate foreign portfolio equity position. Ferreira and Miguel (2011) examine the determinants of domestic and foreign bond bias and find a contradicted result. The empirical result shows that capital control has a significant, but negative effect on domestic bias. This indicates that domestic investment is unattractive compared to foreign markets. Mhadhbi (2013) employs both home and host factors of capital control in his study to show that both variables used as a proxy to capital control are positively and significantly related to both home and host countries.
H1: There is a significant positive relationship between capital control and foreign bias across the samples.

Institutional Quality: Abdioglu et al. (2013) examine the influence of foreigners' country-level governance quality on their investment preferences when they invest in the United States. The result reveals that the institutional investors from countries with governance quality similar to that of the U.S. invest more in the U.S. firms, but investors from countries with governance quality just below (just above) that of the U.S. invest more (less) in comparison.

Poshakwale and Thapa (2011) examine the influence of investor protection on international equity portfolio investments using bilateral portfolio holdings data for 36 countries from 2001 to 2006. The study demonstrates that investor protection measures are important determinants of foreign equity portfolio investments. The authors suggest that any efforts to attract greater international equity portfolio investments from foreign investors are by improving the quality and enforcement efficiency of legal protections.

Dahlquist, Pinkowitz, Stulz, Williamson and Stulz (2003) opined that home bias is linked to corporate governance. When companies are controlled by large investors, portfolio investors are limited in the portion of a firm they can hold. This results in floating portfolio holdings for the investors. These controlling shareholders prohibit investors from holding the world market portfolio which results in the occurrence of home bias. An improvement in investors' protection in a country or a firm does not improve the foreign portfolio in the host country or firm in the U.S. investors' portfolio. However, an improvement in investor protection increases the share of a country or a firm in the float portfolio, thereby increasing the share of the country or firm in the portfolio of U.S. investors.

Giofré (2014) investigates the impact of domestic investor protection on equity cross-border investment based on the sensitivity of foreign investment to destination countries' corporate governance for those investors enjoying a higher degree of investor protection at home. The study provides evidence that investors benefiting from high levels of rights protection at home recognize that a large fraction of their portfolio, the domestic one, significantly contributes to the optimal level of corporate governance in portfolios. Consequently, these investors are less demanding about this dimension when constructing their foreign portfolios. As an unintended consequence, all other things being equal, assets issued by foreign countries with good investor protection are severely penalized in portfolios held by investing countries featuring higher standards of corporate governance. Based on flight to quality and familiarity arguments, Abdioglu et al. (2013) examine the role the distance of governance quality between home and target countries plays in investors' decision to invest in foreign markets. A priori is low governance quality at home, which will increase the cost of investing at home, compared to investing abroad; thus, investors will invest in foreign markets and reduce home bias.

Arouri, Nguyen and Pukthuanthong (2012) claim that direct barriers are institutional barriers that differentiate between domestic and foreign investors. They include legal restrictions on cross-border securities trade, foreign exchange regulation, repatriation limits, taxes, and transaction costs. Financial liberalization generally refers to the removal of such direct barriers to capital investment. In recent decades, the institutional barriers have been lowered significantly and, in some cases, they have been completely eliminated, especially in major developed countries. In theory, market liberalisation should allow global investors to enter the market and bid up domestic stock prices and reduce the cost of capital, which in turn leads to an increase in investment and ultimately higher economic welfare.
H2: There is a significant positive relationship between institutional quality and foreign bias.

Familiarity: Amiram (2012) defined familiarity as an increase in investor understanding of the business environment, but by leaving the quality of information constant. He notes that when people feel skillful or knowledgeable in an area, they would rather bet on their judgment or invest. But when people do not feel competent, they prefer not to bet. Investors may invest less in foreign markets because they know less about these markets, and their institutions and firms. The behavioral explanation for the familiarity effect suggests that people invest in familiar stocks but ignore the principles of portfolio theory. Investors who feel more competent will have more internationally diversified portfolios. Taken together, these findings suggest that the difference in information between local and foreign investors and lack of familiarity obstruct foreign investment.

In addition, Elona (2014) finds that familiarity affects foreign investment decisions. Empirical results on emerging markets show that familiarity factors and foreign investment environments (legal and political) have large impacts on investment allocation. Ke, Ng and Wang (2010) find that various facets of investors' familiarity explain the existence of foreign bias in foreign portfolio investment. Such factors assist in explaining home bias in foreign and domestic investment decisions. Using geographic proximity as a proxy for familiarity, Baltzer, Stolper and Walter (2015) reject the presence of information advantage (information asymmetry) of domestic investors over foreign investors. They argue that German households' preference for local equity is related to the familiarity factor due to strong and consistent overinvestment in geographically close companies.

Diyarbakirlioglu (2011) studied the preference for geographical proximity based on two components; the domestic country bias assesses investors' holdings within the domestic market and the foreign country bias

assesses investors' bilateral holdings within a particular host. The findings show that the equity portfolio held in only a small number of destination markets generates much of the countries' existing foreign assets. This situation is termed geographical shrinkage. The author concludes that the domestic bias coexists with an equally imperfect diversification of investors' foreign asset holdings.
H3: There is a significant positive relationship between familiarity and foreign bias.

Economic Development: Potential benefits from the growth differential of various financial markets appear to be one attraction of international portfolio diversification. The growth rates of mature and developed economies are generally slower than those of emerging ones. Investment portfolios can take advantage of this differential. Noman, Rahman, and Naka (2015) explain that successful diversification requires financial markets across borders that are not highly correlated. If returns across borders are highly correlated, international diversification might not offer any benefits. Economies rise and fall following different cycles, a carefully chosen set of national financial markets should offer prospects for lower risks to investors.

Kim et al. (2014) employed economic development and market development in studying the home bias phenomenon in emerging markets. Their findings show that market performance factors generally affect home bias more strongly than economic development factors. This indicates that an emerging market that is experiencing high economic growth and development may not require such benefits from international foreign investment. Rather, stock market performance is more detrimental to their international asset diversifications. This is justified by the fact that their stock market is relatively small compared to stock markets in developed countries.
H4: There is a significant positive relationship between economic development and foreign bias.

Market Development: Thapa and Poshakwale (2012) claim that foreign investors prefer to invest in larger and well-known markets which are having high liquidity, low trading costs, and possess a high degree of market efficiency. Similarly, Chan et al. (2005) find that stock market development has a significant influence on home bias. Their finding suggests that when a country is more developed, the costs for foreign investors investing in local equities are dropped, resulting in smaller domestic and foreign biases.

Mhadhbi (2013) shows a positive effect of financial market development on global portfolio investment. Higher financial market development in the destination countries indicates that foreign countries are more developed. This condition offers greater investment opportunities, making investors more inclined to hold portfolios in this economy.
H5: There is a significant positive relationship between market development and foreign bias.

Information Asymmetry: Information asymmetry is considered as implicit in nature, which is not directly observable. It arises from the asymmetry between home and foreign investors, where domestic investors may have an informational advantage on domestic information as compared to foreign investors. As information asymmetry arises, it will upsurge the information cost which will increase transaction cost.

Asymmetric information accounts for the strong negative relationship between international asset transactions and distance. The Internet plays an important role in mitigating information asymmetry between countries and it increases the volume of cross-border portfolio flows (Choi, Rhee, and Oh, 2014). Bae, Stulz and Tan (2008) compare the precisions of earnings forecast skill between resident and non-resident analysts in a sample of 32 countries. They find the local analyst advantage even after controlling for firm and analyst characteristics. The local advantage is high in countries where earnings are smoothed more, less information is disclosed by firms, and firm idiosyncratic information explains a smaller fraction of stock returns. It is negatively related to whether a firm has foreign assets and to market participation by foreign investors and by institutions, and positively related to holdings by insiders.

Based on an endogenous asymmetric information model, Ni (2009) provides empirical evidence that portfolio managers with larger assets tend to acquire more information regarding foreign equity and hence, hold more foreign equity holdings. Mishra (2008) shows that informational variables, like the share of the number of firms listed on the domestic market and the share of internet users in the total population of the host country, have a significant impact on equity home bias. The result suggests that the efficiency of information exchange

between home and host countries removes information barriers; hence, increases the international portfolio holdings and reduces home bias.

Similarly, Foad (2011) studied the subset of investors' information and the relationship between immigration and equity home bias. He finds that inward migration is positively correlated with increased foreign equity positions and reduced home bias. The results suggest that immigration generates a positive externality of increased information flows for the developed countries, but not for the developing nations. The effects of immigration on investment are stronger within the Euro-Zone, suggesting that this positive externality of immigration is larger when barriers to portfolio diversification (such as currency risk) are lowest. Leblang (2010) emphasizes the role of diaspora networks; the connections between migrants residing in investing countries and their home country. They demonstrate that migrant networks play an important role in decreasing information asymmetries and consequently promote both portfolio and FDI.

Choi, Rhee and Oh (2014) use the Internet as a proxy for information asymmetry between home and foreign countries. The authors found that asymmetric information explains the strong negative relationship between international asset transactions and distance. They suggest that the Internet plays an important role in mitigating information asymmetry between countries and increasing the volume of cross-border portfolio flows. Similarly, Mondria, Wu, and Zhang (2010) explore the joint determination of home bias and attention allocation theory. The authors use a new internet search query dataset; AOL to measure how much information investors decide to process. The authors found empirical evidence of a two-way causality between home bias and attention. The findings suggest that if all countries were to receive the same level of attention as the U.S., then the average home bias by U.S. investors would fall from 85.2 % to 57.3 %.

Although there is minimal foreign investor involvement in global portfolio investment, language appears to be an important factor to determine investment decisions. Mishra (2007) discovers that a common language between home and host countries increases bilateral equity investment between them by 35%. In similar shows, investors prefer to invest in shares of the companies that publish their annual reports using the investors' native language. Recently, Konara(2020) provides evidence that language barriers are the main contributor to home bias, suggesting a tendency of investors to invest frequently within-border than cross-border. Kalev, Nguyen, and Oh (2008) research on the nature of information asymmetry between local and non-local investors. All listed stocks are divided into single-listed, cross-listed and internationally well-known stock categories. Comparison is made to compare local and non-local investors' performance and trading advantages. Trading advantages are based on the notion that local investors have more information than non-local investors. The findings show that local investors have short-term trading advantages in all stock categories. These local advantages weaken only internationally well-known stocks.
H6: There is a significant positive relationship between information asymmetry and foreign bias.

Global Financial Crisis: The global financial crisis (GFC) is said to begin in July 2007. The credit crunch occurs when US investors lose their confidence in the value of sub-prime mortgages. The situation worsens when the US Federal Bank pumps large amounts of funds into the financial markets. By September 2008, the negative sentiment spread resulting in a domino effect to the stock markets around the world. Empirical findings show mixed results on the impact of the global financial crisis on home bias.

Elona (2014) confirms that home bias rises during a global financial crisis, investors are more inclined towards diversification benefits by allocating their assets to foreign markets that are more correlated with their home markets. Investors are more likely to hold their positions in less risky investments and prefer to invest in host countries that they are familiar with, especially their trading counterparts. Conversely, Wynter (2019) proves that home bias is reduced during the global financial crisis due to active portfolio rebalancing activities among investors.

Vermeulen (2013) demonstrates during the global financial crisis, investors are actively rebalancing their global portfolio investment towards low-correlated countries. This implies that investors tend to maximize diversification benefits through active portfolio rebalancing. Furthermore, investors are willing to tolerate up to 3% of additional costs by switching from passive to active portfolio management.
H7: There is a significant negative relationship between the global financial crisis and foreign bias.

3. Research Methodology

The population of this study is based on the OIC countries comprising 57 states that are located in a few different regions. The majority of the OIC countries are also classified as emerging countries. OIC is the second largest governmental organization after the United Nations, comprising 57 countries around the world and across different regions. These countries represent four regions of the world namely, Middle East and North Africa, East Asia and Pacific, Europe and Central Asia, as well as South Asia. OIC represents the collective voice of the Muslim world with the main agenda to safeguard their interest in economic, social, and political areas. This study focuses on the sample of 12 selected OIC countries' global portfolio investment (GPI). The data represents bilateral GPI between OIC (home countries) across various host countries across the world. The data span over a period from 2001 until 2016. Home countries' region comprises the Middle East and North Africa (MENA), East Asia and Pacific (EAP), Europe and Central Asia (ECA), and South Asia (SA). The data represents a mixture of high-income, upper-middle-income, and lower-middle-income status countries. The majority of OIC countries in the sample of study are from the MENA region (6 reporting countries) and lower-middle-income status (5 reporting countries). The sample provides an interesting research exploration given its unique nature of diverse regional bases and income groups of countries in the sample. In this study, the GPI is analyzed based on three samples namely global sample, intra OIC and non-OIC samples. A global sample is the main sample that represents OIC's outward investment across the globe. On the other hand, intra and non-OIC samples are the sub-samples that represent OIC's GPI into their OIC counterparts and non-OIC members respectively.

Current research is engaged with the data from the International Monetary Fund's (IMF) Coordinated Investment Portfolio Survey (CPIS). It is a worldwide voluntary data collection exercise, conducted under the sponsorship of the IMF. CPIS records an economy's bilateral (from home country to host country) holdings of portfolio investment securities (quoted in USD at market prices). In particular, it records the amount of equity portfolio investment (in USD at market prices) that the country *i*'s residents own in country *j* at the end of December in year *t*. Specific to this study, country *i* represents the home (source) country while country *j* denotes the host (destination) country. In this research, the period of study is covering from year 2001 until 2016. The period is chosen because of the important time frame within the scope of OIC countries.

The dependent variable; foreign bias (FB) is derived based on the model-based approach that represents variations between the actual foreign portfolio holdings and the optimal benchmark (Mishra, 2011; Mishra and Ratti, 2013; Mishra and Conteh, 2014; Mishra, 2015; and Mishra, 2016). In this model, the optimal benchmark is based on the ICAPM benchmark. It suggests that the investors are expected to hold international assets of each country based on its share in the world market.

Based on this approach, the dependent variables were derived based on three main steps. The first step requires a computation of the share of home country equity in the host country. In the second step, the optimal benchmark was calculated based on the referred formula. Finally, proxies for home bias and foreign bias were derived accordingly.

Share of *i*'s equity in country *j* ($\boldsymbol{I_j^i}$) is the ratio of *i*'s holdings of the country *j*'s equities to the country *i*'s total equity portfolio. The home country (OIC countries) is denoted as *i*, and the host countries are denoted as *j.*

$$(\boldsymbol{I_j^i}) = \frac{Country\ i's\ holdings\ of\ country\ j's equities}{Country\ i's\ total\ equity\ portfolio} \quad (1)$$

Country *i*'s total equity portfolio = investment by country *i*'s residents in home equities + investment by country *i*'s resident in foreign equities. (2)

Investment by country *i*'s residents in home equities = Country *i*'s market capitalization – country *i*'s equities held by foreign investors. (3)

The traditional ICAPM framework proposes that to maximize risk-adjusted return, investors should hold equities from around the world in proportion to their market capitalization. Thus, the share of the country *i*'s equities invested in country *j* ($\boldsymbol{I_j^*}$) is the ratio of the market capitalization of country *j* in the world market capitalization.

$$\boldsymbol{I_j^*} = \frac{MC_j}{MC_{world}} \quad (4)$$

While MC_j is the market capitalization of country *j,* MC_{world} is the world market capitalization. This ($\boldsymbol{I_j^*}$) ratio represents optimal portfolio holdings (ICAPM benchmark) in which the actual portfolio is compared. The equity home bias is the deviation from the ICAPM benchmark, derived as one minus the ratio of foreign equities in country *i* and the world portfolio (Mishra, 2014). On the other hand, foreign bias is derived as one minus home bias ratio.

$$HB_{ij} = 1 - \frac{I_j^i}{I_j^*}, \quad (5)$$

Where, HB_{ij} is the home bias ratio and $\frac{I_j^i}{I_j^*}$ is foreign bias ratio.

Overall, the data on the country *i*'s cross-border equity investment, the country *i*'s equity held by foreign investors, investment by the country *i*'s residents in the home country and the host country were sourced from IMF, CPIS. The data were retrieved from three sources comprising Table 1 (representing a geographical breakdown of total portfolio investment), Table 2 (representing portfolio investment assets), and Table 3 (representing portfolio investment liabilities). While data for market capitalization were sourced from the World Development Indicators of the World Bank as well as the World Federation of Stock Exchanges. In addition, data for the world market capitalization were derived through the calculation of the total market capitalization of the related host countries in each sample of the years.

In detail, the country *i*'s total equity portfolio in equation (1) above was derived from equations (2) and (3). While the country *i*'s holdings of country *j* equities were sourced from Table 1. In Equation (2), investment by the country *i*'s residents in foreign equities was sourced from Table 2. While in equation (3), the country *i*'s equity held by foreign investors was sourced from Table 3.

In the current study, there are a few sets of explanatory variables that are categorized as relative factors and single factors. Relative factors represent a ratio between home countries' and host countries' factors. This measure allows for relative interpretation between home and host countries' factors. In addition, it is in line with the global perspectives of investment as discussed in Section 1.3.1 above. Generally, the explanatory variables were derived from the following formula of relative measures:

$$X_{ijt} = \frac{X_i}{X_j}$$

Where x_{ijt} represents the relative factors (ratio between home countries' proxy scaled by the host countries' proxy) of the explanatory variables between home and host countries in year *t*.

The home country's proxy is presented by X_i, while X_j represents the host country's proxy. This approach allows home bias and foreign bias to be examined within the same framework. It provides a new insight into this research area as it provides a thorough discussion on the relative influence of home and host factors towards the home bias and foreign bias. This approach of relative measure is considered a novelty contribution in the research on global portfolio investment.

Capital control represents direct barriers to international portfolio diversification. Although the majority of the countries in the world have lifted the restrictions on foreign portfolio investment and international capital flow, some countries still impose some restrictions. Thus, capital control influences cross-border investment. This study uses the Chinn-Ito index of financial openness sourced from Chinn and Ito (2006). The index is a measure of a country's degree of capital account openness. It focuses on the regulatory restriction on capital account transactions reported by the IMF. A high index score means less restriction on capital flow. In this study, the proxy for capital control (KAO_{ij}) was derived from the relative score ratio between the home and the host countries' index.

In addition, the Globalization index was used as a measure of financial market openness. It was sourced from the KOF Globalization Index which measures the economic, social, and political dimensions of globalization. Globalization in the economic, social, and political fields has been on the rise since the 1970s, receiving a particular boost after the end of the Cold War. The index also represents openness with international

linkages. This proxy denotes a relative factor between the home and the host countries that may indicate the state of liberalization between the two countries.

Institutional quality is represented by a proxy of the World Governance Index (WGI). The index was derived from a survey of various respondents that are comprised of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms. A high score (scale of 2.5) shows high governance performance. A low score (scale of -2.5) shows low governance performance. It has been used widely in the previous literature (Barbopoulos, Marshall, MacInnes, and McColgan, 2014; Giofré, 2014b; Frank Obenpong Kwabi, 2015; Abdioglu et al., 2013; Mishra, 2014). In this study, the proxy used is the average score of components of the WGI that consists of six components: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. The proxy which represents institutional quality ($AWGI_{ij}$) was derived from the ratio between the home country and the host country.

Economic development was represented by Gross Domestic per Capita ($GDPC_{ij}$) which was sourced from the World Bank. It measures the degree of economic well-being of a country. A high level of economic development offers greater potential for investment opportunities. Following Mishra and Conteh (2014), GDP per capita may influence a country's propensity to engage in international asset trade. Higher income per capita is associated with lower risk aversion which may promote international portfolio investment. The proxy for $GDPC_{ij}$ was derived from the ratio between the home and the host country.

Following Mhadhbi (2013), market development was represented by two categories of proxy, namely market-based and bank-based, that were sourced through the World Development Index (WDI). Market-based was proxied by the number of listed domestic companies in the home market relative to the host market (LDC_{ij}) and stock traded, turnover ratio of domestic shares (in percentage) relative to the host market ($STOT_{ij}$). On the other hand, the bank-based variable is proxied by both domestic credits provided by financial institutions (percentage of GDP), ($DCR1_{ij}$); and domestic credit to the private sector provided by banks (percentage of GDP), ($DCR3_{ij}$).

Variables that represent information asymmetry consist of standard proxies that represent information gaps between the home and host countries, such as fixed telephone subscription (per 100 people), (FTS_{ij}); and individuals using the internet (percentage of population), (INT_{ij}). Both proxies were derived from relative factors between the home and host countries. Another set of proxies that represents information asymmetry variables was sourced from the Centre of D'Etudre Prospectives Ent D'informations Internationales (CEPII). It is a well-known set of gravity variables developed by Mayer and Zignago (2005) to analyze market access difficulties in global and regional trade flows. The proxies used, among others, include contiguity (contig), common language (comlang), common colony (comcol), and capital city distance between the home and host countries (lnDistance). Contiguity represents a dummy variable that indicates if two countries share a common border. Common language represents a dummy variable that indicates if a common language is spoken by at least 9% of the population of the two countries. A common colony represents a dummy variable that indicates if two countries have a colonial link in their past histories. The distance variable represents a logarithm of the distance between the two countries' largest cities, as weighted by the share of each city on the total population of the country.

The familiarity variable (MiXiGDPij) is based on the import and export (trade) between OIC countries with the rest of the world. The proxy is calculated by dividing the amount of import and export of home countries by the sum of the Gross Domestic Product (GDP) of both home and host countries. The data used in this regard were sourced from WDI.

In addition, another variable is the real exchange rate (REXi) of the home country relative to the US Dollar. It represents an additional proxy for economic development. Local investors in the global market face the exchange risk when their home countries' currency appreciates. This situation increases their cost of investment abroad. When profits from investment are repatriated, this appreciation decreases their total returns on investment.

Lastly, the year effect variable of the global financial crisis (GFC) is also included as an explanatory variable. It is a dummy variable that represents the global financial crisis that occurred in 2007-2008. During the analysis period, 1 was assigned to denote a crisis that happened between the years 2007 and 2008, while the other years were assigned as 0.

Overall, it was learned that the literature search to find the appropriate proxies as presented in the previous empirical studies is quite complicated, particularly in dealing with the emerging country sample (Ian Cooper, Sercu, and Vanpee, 2013). The main issue is due to missing and un-reporting data of those countries. The following Table 1 tabulates the variables used to examine the determinants of home bias and foreign bias in the global portfolio of selected OIC countries.

Table 1: Variables Measurements

	Proxy	Measurement	Sources
Dependent Variables Foreign Bias (FB)	Outward equity portfolio investment (USD) that country *i*'s residents own in country *j* at the end of December in year *t.*	HB*ij* = 1- FB*ij*	CPIS, IMF
Explanatory variables	**(i) Relative factors**	$X_{ijt} = \frac{X_i}{X_j}$	
Financial market openness	Capital control Globalization index	KAOij GLOij	Chinn Ito Index KOF Globalization Index
Institutional quality	Governance index	AWGIij	World Governance Index
Economic development	Gross domestic per capita	GDPCij	World Bank
Market development	Market-based Bank-based	LDCij, STOTij DCR1ij, DCR3ij	World Development Index
Information asymmetry	Information and telecommunication	FTij, INTij	World Development Index
Information asymmetry	**(ii) Single factors**		
	Gravity variables	Contig, comlang, comcol, lnDistance	Centre of D'Etudre Prospectives Ent D'informations Internationales (CEPII)
Familiarity	Import-export (global trade)	MiXiGDPij REXi	World Development Index
Economic development	Real exchange rate	GFC (dummy variable)	World Development Index
Year effect	Global financial crisis	1= 2007 and 2008 crisis years 0= other years	n/a

4. Results and Discussion

Descriptive Analysis: Table 2 exhibits foreign bias phenomena in three different samples, namely global, intra-OIC, and non-OIC samples. The mean scores indicate that the foreign bias phenomenon among OIC countries is substantial; with more than the 100% threshold. Overall, OIC countries exhibit 186.34% overinvestment in certain foreign countries. When the sample observation is split into intra-OIC and non-OIC samples, OIC countries display a higher foreign bias towards their own OIC counterparts (196.92%) as compared to their non-OIC counterparts (154.85%). These findings specify that OIC countries display higher investment preferences towards their OIC counterparts as compared to non-OIC countries.

Table 2: Foreign Bias across the Samples

	Samples		
Mean score	**Global**	**Intra-OIC**	**Non-OIC**
Foreign Bias	1.8634	1.9692	1.5485

Table 3 reports the descriptive statistics for foreign bias. Generally, the mean score of foreign bias in global, intra-OIC, and non-OIC samples are 9.89, 11.39, and 5.42, respectively. The mean score is higher in the intra-OIC sample, as compared to the non-OIC sample. The minimum score is around 0.50 across the samples. This represents Saudi Arabia's investment in the United Arab Emirates in 2014 and its investment in Lebanon to Greece in 2013. The maximum score is between 107.7341 (investment of Malaysia to Namibia in 2011) and 284.4926 (investment of Kuwait to Bahrain in year 2009). In summary, it is observed that OIC countries showed a preference for global portfolio investment towards their OIC counterparts, as compared to non-OIC countries.

Table 3: Descriptive Statistics of the Dependent Variable across the Samples

		Samples		
Variables	**Summary Statistics**	**Global**	**Intra-OIC**	**Non-OIC**
Foreign Bias	Obs.	477	357	120
	Mean	9.8897	11.3912	5.4227
	Std. Dev.	30.0847	33.7537	13.6053
	Min	0.5026	0.5026	0.5068
	Max	284.4926	284.4926	107.7341

Regression Analysis: Table 4 presents details of empirical findings on the determinants of foreign bias across the samples. The empirical model of foreign bias employed a two-step system GMM for both global and intra-OIC samples. A constant and lag-dependent variable has a positive significant relationship with foreign bias in both global and intra-OIC samples. With the non-existence of all explanatory variables, foreign bias in global and intra-OIC samples is 1.172 and 1.374, respectively. The foreign bias score is higher in intra-OIC samples compared to the global sample. The lagged dependent variable in global and intra-OIC samples are 0.537 and 0.921, respectively. This indicates that the previous year's foreign bias has a higher influence on intra-OIC samples compared to global samples. Two two-stage least Square method was used for the non-OIC sample due to the small sample size of data in this sample.

Table 4: Determinants of Foreign Bias across the Samples

Dependant Variable (Foreign Bias)	**(1) Global**	**(2) Intra-OIC**	**(3) Non-OIC**
Constant	1.172**	1.374	-3.163
	(0.535)	(0.869)	(2.274)
FB_{t-1}	0.537***	0.921***	-
	(0.0298)	(0.0495)	
KAOij	0.0740**	0.0541	-0.0455
	(0.0312)	(0.0805)	(0.115)
GLO_ij	0.746*	0.908	-2.104**
	(0.417)	(0.627)	(1.040)

Dependant Variable (Foreign Bias)	(1) Global	(2) Intra-OIC	(3) Non-OIC
AWGI_ij	0.0364**	0.0132	-0.577
	(0.0178)	(0.0173)	(0.383)
MiXiGDPij	0.314***	-0.207*	0.391*
	(0.0655)	(0.116)	(0.232)
GDPC_ij	0.368	-0.204	4.911**
	(0.424)	(0.459)	(2.069)
ReXi	-0.0360*	-0.0600*	0.0279
	(0.0212)	(0.0353)	(0.0557)
DCR1ij	-0.102	0.0974	1.329***
	(0.0974)	(0.124)	(0.497)
DCR3ij	0.0702	-0.614***	-0.680
	(0.157)	(0.181)	(0.570)
STOTij	0.0229	0.138***	0.0132
	(0.0352)	(0.0476)	(0.0927)
LDCij	-0.0663	-0.110**	0.0970
	(0.0516)	(0.0523)	(0.125)
FTSij	0.175***	0.113	0.205
	(0.0629)	(0.130)	(0.204)
INTij	-0.437***	-0.0352	-0.797**
	(0.112)	(0.105)	(0.318)
Contig	-0.395***	-1.013*	-0.854
	(0.135)	(0.558)	(0.967)
Comlang	0.125	0.184	0.365
	(0.0998)	(0.190)	(1.049)
Comcol	0.0508	-0.303*	0.194
	(0.102)	(0.158)	(0.423)
Distcap	-0.170***	-0.241***	0.171
	(0.0393)	(0.0696)	(0.125)
GFC	0.327***	0.301***	0.587**
	(0.0547)	(0.106)	(0.277)
AR (1)	0.001	0.002	
AR (2)	0.070	0.161	
Observations	324	268	108
Number of CODE	60	36	
R-squared			0.285

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

Capital account openness (KAO_ij) and globalization index (GLO_ij) are the proxies used for financial market openness. Consistent with the hypothesis, capital control has a significant positive influence on foreign bias in the global sample. The positive relationship between capital account openness and foreign bias exists at the p<0.05 level of significance. The result specifies that for any 1% increase in the relative score of capital control between home and host countries, foreign bias also increases by 7.40%. This indicates that a higher relative score of the capital account openness between home and host countries increases foreign bias. However, the influence of capital control on foreign bias in the sub-samples is insignificant.

Globalization has a positive significant influence on foreign bias in global samples. The relationship is significant at p<0.01 level of significance. The globalization coefficient of 0.327 suggests that as the relative

score of the globalization index between home and host countries increases by 1%, foreign bias will also increase by 74.6%. However, globalization has a significant negative influence in explaining variation in foreign bias in non-OIC samples. The beta coefficient indicates that for every 1% change in the relative score of the globalization index between home and host countries, foreign bias will decrease by 210%. However, the influence of globalization on foreign bias is not significant in the intra-OIC sample.

Institutional quality has a significant positive influence on foreign bias in the global sample. The relationship is consistent with the hypothesis and significant at $p<0.05$ of significance level. The beta coefficient indicates that for any increase in the relative score of institutional quality between home and host countries, foreign bias will also increase by 3.64%. The results indicate that OIC countries prefer to invest in the host countries with higher institutional quality compared to home countries. However, institutional quality is not a significant factor in explaining foreign bias in both intra-OIC and non-OIC samples.

The familiarity variable has a positive significant influence on foreign bias in global samples. The result is consistent with the prior expectation at $p<0.05$ significance level. The coefficient indicates that for any increase in the import-export activities of home countries around the world, foreign bias will also increase by 31.4%. However, familiarity has a significant negative influence on foreign bias in intra-OIC samples. The result is inconsistent with the prior expectation, but it is significant at $p<0.10$ level of significance. The coefficient indicates that for any increment in import-export activities of home countries around the world, foreign bias will also decrease by 20.7%. Familiarity has a significant positive influence on foreign bias in non-OIC samples. At $p<0.05$ level of significance, any increase in the import-export activities of home countries around the world, foreign bias will also increase by 39.1%.

Economic development is represented by both GDP per capita between home countries and host countries and the real exchange rate between home countries and USD. GDP per capita is not a significant factor in explaining foreign bias in both global and intra-OIC samples. However, it has a positive significant relationship with foreign bias in the non-OIC sample. At a 5% significance level, any 1% increase in the relative score of GDP per capita between home and host countries, foreign bias will increase by 491.1%. The real exchange rate has a significant negative influence on foreign bias in both global and intra-OIC samples. The relationship is significant at $p<0.1$ level of significance. The result shows that for every 1% increase in the relative score of GDP per capita between home and host countries, foreign bias in global and intra-OIC samples will decrease by 3.60% and 6%, respectively. However, the real exchange rate is not significant in explaining variation in foreign bias in non-OIC samples.

Market development consists of bank-based (DCR1ij and DCR3ij) and market-based variables (LDCij and STOTij). Bank-based variables are insignificant factors in explaining foreign bias in the global sample. In the intra-OIC sample, only DCR3ij has a significant negative influence on foreign bias. The relationship is significant at $p<0.01$, suggesting that for any increase in the relative score of domestic credit to the private sector provided by banks between home and host countries, foreign bias will decrease by 61.4%. However, DCR1ij has a significant positive influence on foreign bias. At significance, $p<0.05$ level, any 1% increase in the relative score of domestic credits provided by financial institutions (% of GDP) between home and host countries, foreign bias will increase by 132.9%.

Results in global and non-OIC samples show that LDCij and STOTij are not significant variables in explaining foreign bias. In contrast, results in intra-OIC samples show that both proxies have a significant influence on foreign bias. LDCij has a significant negative influence on foreign bias, which is contrary to the hypothesis. The relationship is significant at $p<0.05$ level of significance, suggesting that for any increase in the relative score of listed domestic companies in home and host countries, foreign bias will decrease by 11%. In the intra-OIC sample, STOTij has a significant positive influence on foreign bias. The relationship is significant at $p<0.05$ level of significance. The result suggests that for any increase in stock turnover between home and host countries, foreign bias will increase by 13.8%.

Information asymmetry variables are represented by several proxies, including communication channel variables (FTSij and INTij) and gravity variables (contiguity, common language, common colony, and capital city distance). FTSij has a significant positive influence on foreign bias in the global sample. Consistent with

the prior expectation, the relationship is significant at p<0.01 level significant. The coefficient indicates that for every 1% increase in the relative score of fixed telephone subscription between home and host countries, foreign bias will increase by 17.5%. However, FTSij is not an important variable in both intra-OIC and non-OIC samples. INTij has a significant negative influence on foreign bias in global and non-OIC samples. The result is not consistent with the hypothesis, although the relationship is significant at p<0.01 level of significance. The result suggests that for any increase in the relative score of internet subscription between home and host countries, foreign bias in global and non-OIC samples will decrease by 43.7% and 79.7%. Internet subscription appears to have a negative relationship with foreign bias. This indicates that global portfolio investment decreases when there is an information gap between home and host countries. The negative impact of the gap is higher in the non-OIC sample as compared to the global sample.

However, it is not a significant variable in explaining foreign bias in intra-OIC and non-OIC samples. The findings on contiguity are contradicted to the prior expectation. Contiguity has a significant negative influence on foreign bias in both global and intra-OIC samples. The result is significant at p<0.01 and 0.10, respectively. Statistically, when home and host countries are contiguous, foreign bias in global and intra-OIC samples will decrease by 39.5% and 101.3%, respectively. However, contiguity is not a significant variable in non-OIC samples. Common language is not a significant factor in explaining variation in foreign bias across all samples. This may be because English is a globally accepted means of communication; therefore, the common language is an insignificant factor in explaining any variation in foreign bias. The common colony is not a significant variable in explaining foreign bias in global and non-OIC samples. However, the common colony has a significant negative influence on foreign bias in intra-OIC samples. The relationship is significant at p<0.10, suggesting that when home and host countries have the same colonial history, foreign bias will decrease by 30.3%. Capital city distance has a significant negative influence on foreign bias in both global and intra-OIC samples. The relationship is significant at p<0.01, suggesting that if the home and the host countries are at a distance, foreign bias in global and non-OIC will reduce by 17% and 24.1%, respectively. However, the result is insignificant in the non-OIC sample.

Year effect represents a control variable of the 2007-2008 global financial crisis (GFC). GFC has a significant positive influence on foreign bias across all the samples. The relationship is significant at p<0.01, suggesting that during GFC, foreign bias in global, intra-OIC and non-OIC countries increased by 32.7%, 30.1%, and 58.7% respectively.

Discussion: Based on the empirical evidence in the global sample, foreign bias can be explained by factors related to financial market openness, institutional quality, economic development (real exchange rate of home countries against USD), familiarity, information asymmetry (information and communication variables, contiguity, and capital city distance), as well as the global financial crisis. However, market development variables are not significant in explaining any variations in foreign bias in both global and non-OIC samples. In addition, there exist three explanatory variables that contradict the stated hypotheses, namely internet subscription, contiguity, and global financial crisis.

In the intra-OIC sample, the explanatory variables that are statistically significant in explaining variation in foreign bias include economic development (real exchange rate of home countries against USD), market development, familiarity, information asymmetry (contiguity, common colony, and capital city distance), as well as the global financial crisis. However, there are a few variables that diverted from the prior expectation. Among others include familiarity, contiguity, and global financial crisis.

In the non-OIC sample, financial market openness (globalization), familiarity, economic development, market development (bank-based), information asymmetries and global financial are significant in explaining variation in foreign bias. Despite the mixed results across the samples, the main findings on the determinants of foreign bias are summarised as follows:

Financial Market Openness: Generally, empirical results suggest OIC countries prefer to invest in the host countries with higher financial market openness than their home countries. These findings also provide support to the information asymmetry hypothesis. In addition, these results are consistent with Chan et al.

(2005) and Vermeulen (2013) where the positive significant influence of capital control on foreign bias is documented.

However, OIC countries refuse to invest in non-OIC countries that are more globalized than their home countries. From an investment point of view, globalization (that induces integration of financial markets around the world) may possibly reduce the diversification benefits due to the high correlation between market returns. This will result in high investment concentration in the domestic market rather than abroad and thus, foreign bias decreases.

Familiarity: Foreign bias increases when OIC countries have frequent import and export activities around the globe. In particular, OIC countries are inclined to invest in non-OIC countries when they are familiar with the host countries. This finding provides support to the information asymmetry hypothesis. These results are also consistent with the finding of Ferreira and Miguel (2011) that transactions in goods and services induce global portfolio investments around the world, thus foreign bias increases.

However, frequent import and export activities around the world have neglected the potential of global portfolio investment between OIC countries. This implies that import and export transaction does not have any continuation to encourage global portfolio investment between OIC countries. It may possibly indicate that over-concentration on import and export activities in goods and services around the world has neglected the potential of global portfolio investment within the OIC countries.

Information Asymmetry: OIC countries prefer to invest in the host countries with greater access to communication channels (telephone line subscription) compared to their home countries. Conversely, OIC countries refuse to invest in host countries that have higher internet subscriptions as compared to their home countries. These findings signal that OIC countries prefer to invest in host countries that are easily accessed by telephone calls. In contrast, internet subscriptions create an information gap between OIC and host countries, discouraging global portfolio investment, thus foreign bias decreases.

Foreign bias decreases when the OIC and host countries share the same borders (contiguity). This indicates that OIC countries prefer to invest in their region but have less preference to invest in their neighboring countries within their region. Furthermore, foreign bias decreases when both home and host countries are at a distance. OIC displays lower foreign bias when host countries are at a distance from their home countries. The result also stands in the intra-OIC countries suggesting foreign bias decreases when OIC countries are far from each other. This finding is well supported by the result of the cross-sectional analysis (see Section 5.1.2) that shows OIC countries display higher foreign bias within their own MENA region.

Year Effects: The global financial crisis has a significant negative relationship with foreign bias across all samples in the study. This indicates that OIC countries continuously invest in the global market even though there is a global financial crisis. Although these findings contradict the priori expectation, they suggest that OIC countries continuously diversify their global portfolio investment even though there is a global financial crisis.

Economic Development: Regression analysis shows a significant negative relationship between, the real exchange rate of home countries against USD, suggesting higher cost investment abroad discourages global portfolio investment, thus foreign bias decreases.

Market Development: Empirical findings show OIC indicates that OIC countries refuse to invest in their OIC counterparts that are debt-oriented (bank-based), resulting in a reduction in foreign bias. In addition, OIC countries are inclined to invest in their OIC counterparts that have higher stock market turnover than their own home countries. This indicates that OICs prefer to invest in their OIC counterparts with higher liquidity stock markets. In contrast, a significant negative relationship between a number of listed domestic companies and foreign bias indicates OIC countries refuse to invest in local companies of their OIC counterparts. OIC countries may have a preference to invest in multinational companies that are listed in the host (OIC) countries. These findings contradicted the previous study that claimed investors may enjoy the benefits of international diversification through investment in the Multinational Companies (MNCs) of the domestic

market (Hagan-luff and Berrill, 2015; Cai and Warnock, 2012; Salehizadeh, 2003). These contentions indicate that OIC is inclined to invest in the MNC that resides in the host countries.

5. Managerial Implications and Recommendations

The results of this study have called for the attention of the regulators of OIC countries. The findings of this study complement the existing empirical evidence of the need for greater economic cooperation, integration and investment opportunities among the OIC countries (Hassan, 2003; Kabir Hassan, Sanchez, and Ershad Hussain, 2010; Jafari, Ismail, and Kouhestani, 2011 and Raimi and Mobolaji, 2008). Foreign bias tends to discourage global portfolio investment among the OIC countries. This is evidenced by the OIC countries that have a preference to invest within their own MENA region. This outcome may hamper the initiative to enhance cooperation among the OIC countries, defeating the agenda of the OIC to promote Islamic solidarity by coordinating social, economic, scientific, and cultural activities.

As suggested by Hassan (2003), intra-trade among OIC countries can be improved when richer countries invest their surplus fund through either direct investment (foreign direct investment) or indirect investment (stock market participation). This enables to promote of portfolio investment and helps to develop the capital market of OIC member countries. He added the low correlation among the OIC stock market is the best option for optimal portfolio diversification. In addition, Driessen and Laeven (2007) suggest that most of the benefits are obtained from investing outside the region of the home country.

Thus, any concerted effort to reduce foreign bias should be centered to encourage inter-regional portfolio investment among the OIC countries. OIC countries should capitalize on the inter-government linkages to promote intra-OIC global portfolio investment. Capital market regulators in the OIC countries may encourage market participants to introduce inter-OIC investment funds (regional oriented) as potential investments, especially in the mutual fund industry. Special incentives, such as tax exemption on investment, may help to encourage market participation.

Previous studies show wide potential benefits of global portfolio investment in emerging countries. Europe appears to be a successful story for economic integration. Ferreira and Miguel (2011) show that investors from EMU countries invest more in their market compared to non-EMU countries. Leveraging from EMU experience, the researchers conclude that global portfolio investment in OIC countries is imperative as the economies are emerging. Li, Sarkar and Wang (2003) investigate the relative magnitude of the international diversification benefits for local investors in various foreign markets. They conclude local investors particularly from East Asia (Malaysia and Indonesia) and Latin America (Turkey) benefit more from both regional and global portfolio diversification. In a similar study Vein, Bahlous and Mohd. Yusof (2014) evaluate the benefits and potential of global diversification among Islamic funds. Empirical findings show investors that invest geographically in Asia Pacific, MENA or Europe fund enjoy the diversification benefits in both the short and long run.

In addition, Bouslama and Ouda (2014) found there are substantial economic gains from global portfolio diversification in emerging markets, despite the issue of growing market correlations. Asset allocations in emerging markets and frontier markets enhance portfolio returns. Recently, Liu, Park, and Sohn (2018) diversification benefits in emerging markets still exist, especially during financial crises. Furthermore, OIC countries have a wide presence around the world and are represented by various regional bases. This diversity may encourage greater risk sharing across the regions as well as increase diversification benefits among the OIC countries.

Based on the above justification, the regulators in OIC countries need to encourage global portfolio investment among OIC countries. This initiative may assist and promote a strategic plan for greater economic integration among the OIC countries. The concerted effort may focus on the major player in the market by encouraging intra-OIC portfolio investment among institutional investors. The regulators may provide incentives to encourage the establishment of regional funds among the OIC countries. These funds are attractive enough as OIC countries are experiencing high economic growth. This may offer attractive returns and promote greater risk-sharing among the OIC countries.

Suggestions for Future Research: Future researchers may extend the current research by considering different asset classes (bonds) as well as different groups of investors (institutional and non-institutional). CPIS data segregates various asset classes and types of investors. Segregation of samples may provide robust findings that will enable proper justification of the research results. As evidenced in the current research, sub-samplings into different host countries sample enable for thorough comparison of research results. Recently, Park, Taniguchi, and Tian (2019) researched the determinants of domestic bias and foreign bias in the global bond market. The findings show that, foreign investors overweight the market with higher risk-return profiles, lower volatility, and greater openness. In contrast to domestic investors, foreign investors prefer to invest in markets with higher returns and lower volatility.

As evidenced in various empirical findings from sub-sampling, it is worth extending the future research into the period of before and after GFC. Empirical findings in this study have shown that GFC produces consistent results across the sample that facilitates a thorough analysis. Detailed analysis of GFC may contribute to new findings that may offer new knowledge. With the existence of the recent global pandemic of COVID-19, there are new opportunities for additional research agendas. The effect of this time effect variable may provide new insight into the existing study on home bias and foreign bias phenomenon.

Conclusion: Foreign bias may be explained by factors relating to financial market openness, familiarity, information asymmetry, and global financial crisis. OIC countries prefer to be in host countries with higher financial market openness. However, OIC countries refuse to invest in non-OIC countries that are more globalized. Frequent import and export transaction between OIC countries and the world encourages global portfolio investment with non-OIC countries. However, global import and export trade has hampered global portfolio investment between OIC countries. The information gap has deterred global portfolio investment between OIC countries and the host countries. OIC countries continuously diversify their portfolio even though there is a global financial crisis. However, the concentration of investment is focused on the MENA region. This signals OIC countries not only exhibit foreign bias but also have a tendency to regional bias.

Specific to the scope of intra-OIC, foreign bias can be explained by factors related to economic development and market development. OIC refuses to invest in their OIC counterparts when the cost of investment in host countries is expensive. In addition, OIC countries prefer to invest in the domestically established public listed companies of the host countries.

References

Abdioglu, N., Khurshed, A. & Stathopoulos, K. (2013). Foreign institutional investment: Is governance quality at home important? *Journal of International Money and Finance*, 32, 916–940. https://doi.org/10.1016/j.jimonfin.2012.08.001

Ahearne, A. G., Griever, W. L. & Warnock, F. E. (2004). Information costs and home bias : an analysis of US holdings of foreign equities. *Journal of International Economics*, 62, 313–336. https://doi.org/10.1016/S0022-1996(03)00015-1

Aggarwal, R., Kearney C. & Lucey B. (2012). Gravity and Culture in Foreign Portfolio Investment. *Journal of Banking and Finance,* 36(2), 525-538. https://doi.org/ 10.1016/j.jbankfin.2011.08.007

Amiram, D. (2012). Financial Information Globalization and Foreign Investment Decisions. *Journal of International Accounting Research*, 11(2), 57–81. https://doi.org/10.2308/jiar-50282

Andrew Karolyi, G. (2016). The Gravity of Culture for Finance. *Journal of Corporate Finance*, 41, 610–625. Retrieved from http://ssrn.com/abstract=2600702

Ardalan, K. (2018). Equity Home Bias: a Review Essay. *Journal of Economic Surveys*, 33(3), 949–967. https://doi.org/10.1111/joes.12302

Aziz, O. G. & Mishra, A. V. (2016). Determinants of FDI inflows to Arab economies. *Journal of International Trade and Economic Development*, 25(3), 325–356. https://doi.org/10.1080/09638199.2015.1057610

Bae, K. H., Stulz, R. M. & Tan, H. (2008). Do local analysts know more? A cross-country study of the performance of local analysts and foreign analysts. *Journal of Financial Economics*, 88, 581–606. https://doi.org/10.1016/j.jfineco.2007.02.004

Bahlous, M. & Mohd Yusof, R. (2014). International diversification among Islamic investments: is there any benefit. *Managerial Finance*, 40(6), 613–633. https://doi.org/10.1108/MF-08-2013-0225

Baltzer, M., Stolper, O. & Walter, A. (2015). Home-field advantage or a matter of ambiguity aversion? Local bias among German individual investors. *European Journal of Finance*, 21(9), 734–754. https://doi.org/10.1080/1351847X.2013.877514

Barbopoulos, L., Marshall, A., MacInnes, C. & McColgan, P. (2014). Foreign direct investment in emerging markets and acquirers' value gains. *International Business Review*, 23(3), 604–619. https://doi.org/10.1016/j.ibusrev.2013.10.003

Beugelsdijk, S. & Frijns, B. (2010). A cultural explanation of the foreign bias in international asset allocation. *Journal of Banking and Finance*, 34(9), 2121–2131. https://doi.org/10.1016/j.jbankfin.2010.01.020

Bose, U., MacDonald, R. & Tsoukas, S. (2015). Education and the local equity bias around the world. *Journal of International Financial Markets, Institutions and Money*, 39, 65–88. https://doi.org/10.1016/j.intfin.2015.06.002

Chan, K. & Covrig, V. (2012). What determines mutual fund trading in foreign stocks? *Journal of International Money and Finance*, 31(4), 793–817. https://doi.org/10.1016/j.jimonfin.2012.01.003

Chan, K., Covrig, V. & Ng, L. (2005). What determines the domestic bias and foreign bias? Evidence from mutual fund equity allocations worldwide. *Journal of Finance*, 60(3), 1495–1534. https://doi.org/10.1111/j.1540-6261.2005.768_1.x

Chinn, M. D. & Ito, H. (2006). What matters for Financial Development? Capital Control, Institutions and Interactions. *Journal of Development Economics*, 81(1), 163–192.

Choi, C., Rhee, D. E. & Oh, Y. (2014). Information and capital flows revisited: The Internet as a determinant of transactions in financial assets. *Economic Modelling*, 40, 191–198. https://doi.org/10.1016/j.econmod.2014.03.027

Dahlquist, M., Pinkowitz, L., Stulz, R. M., Williamson, R. & Stulz, R. M. (2003). Corporate Governance and the Home Bias. *Journal of Financial and Quantitative Analysis*, 38(1), 87. https://doi.org/10.2307/4126765

Diyarbakirlioglu, E. (2011). Domestic and foreign country bias in international equity portfolios. *Journal of Multinational Financial Management*, 21(5), 301–329. https://doi.org/10.1016/j.mulfin.2011.07.002

Dodd, O. & Frijns, B. (2015). Cross-listing decisions and the foreign bias of investors. *Finance Research Letters*, 15, 160–166. https://doi.org/10.1016/j.frl.2015.09.006

Driessen, J. & Laeven, L. (2007). International portfolio diversification benefits: Cross-country evidence from a local perspective. *Journal of Banking and Finance*, 31(6), 1693–1712. https://doi.org/10.1016/j.jbankfin.2006.11.006

El Hedi Arouri, M., Khuong Nguyen, D. & Pukthuanthong, K. (2012). An international CAPM for partially integrated markets : Theory and empirical evidence. *Journal of Banking and Finance*, 36(9), 2473–2493. https://doi.org/10.1016/j.jbankfin.2012.05.004

Elona, R. (2014). Essays on the Determinants of Foreign Asset Portfolio Allocation, Home Bias and Portfolio Dynamics during the Financial Crisis.

Faruqee, H., Li, S. & Yan, I. K. (2004). The Determinants of International Portfolio Holdings and Home Bias. IMF Working Paper, WP/04/34, International Monetary Fund.

Ferreira, M. A. & Miguel, A. F. (2011). The determinants of domestic and foreign bond bias. *Journal of Multinational Financial Management*, 21(5), 279–300. https://doi.org/10.1016/j.mulfin.2011.07.004

Foad, H. (2011). Immigration and equity home bias. *Journal of International Money and Finance*, 30(6), 982–998. https://doi.org/10.1016/j.jimonfin.2011.06.005

French, K. & Poterba, J. (1991). Investor diversification and international equity markets. *American Economic Review*, 81, 222–226. https://doi.org/10.1126/science.151.3712.867-a

Giofré, M. (2009). The role of information asymmetries and inflation hedging in international equity portfolios. *Journal of Multinational Financial Management*, 19, 237–255. https://doi.org/10.1016/j.mulfin.2008.11.004

Giofré, M. (2013). International diversification: Households versus institutional investors. *The North American Journal of Economics and Finance*, 26, 145–176. https://doi.org/10.1016/j.najef.2013.08.003

Hassan, M. K. (2003). Portfolio investment of the OIC countries and their implications on trade. *Managerial Finance*, 29(2/3), 122–157. https://doi.org/10.1108/03074350310768715

Imazeki, T. & Gallimore, P. (2009). Domestic and foreign bias in real estate mutual funds. *Journal of Property Research*, 26(4), 367–389. https://doi.org/10.1080/09599916.2009.485419

Jafari, Y., Ismail, M. A. & Kouhestani, M. S. (2011a). Determinants of Trade Flows among D8 Countries: Evidence from the Gravity Model. *Journal of Economic Cooperation and Development*, 32(3), 21–38.

Kabir Hassan, M., Sanchez, B. A. & Ershad Hussain, M. (2010). Economic performance of the OIC countries and the prospect of an Islamic common market. *Journal of Economic Cooperation and Development*, 31(2), 65–121.

Kalev, P. S., Nguyen, A. H. & Oh, N. Y. (2008). Foreign versus local investors: Who knows more? Who makes more? *Journal of Banking and Finance*, 32(11), 2376–2389. https://doi.org/10.1016/j.jbankfin.2007.12.031

Ke, D., Ng, L. & Wang, Q. (2010). Home bias in foreign investment decisions. *Journal of International Business Studies*, 41(6), 960–979. https://doi.org/10.1057/jibs.2009.48

Kearney, C. (2012). Emerging markets research: Trends, issues and future directions. *Emerging Markets Review*, 13(2), 159–183. https://doi.org/10.1016/j.ememar.2012.01.003

Kim, H., Cho, S. H. & Kim, Y. (2015). Home bias, risk differential, and cultural spatial spillover effects. *Journal of International Money and Finance*, 51, 114–136. https://doi.org/10.1016/j.jimonfin.2014.10.007

Konara, P. (2020). The role of language connectedness in reducing home bias in trade, investment, information, and people flows. *Research in International Business and Finance*, 52(December 2019), 101180. https://doi.org/10.1016/j.ribaf.2020.101180

Kumar, S. & Goyal, N. (2015). Behavioral biases in investment decision making – a systematic literature review. *Qualitative Research in Financial Markets*, 7(1), 88–108. https://doi.org/10.1108/QRFM-07-2014-0022

Lane, P. R. & Milesi-Ferretti, G. M. (2008). International Investment Patterns. *Review of Economics and Statistics*, 90(3), 538–549. https://doi.org/10.1162/rest.90.3.538

Leblang, D. (2010). Familiarity Breeds Investment: Diaspora Networks and International Investment. *American Political Science Review*, 104(03), 584–600. https://doi.org/10.1017/S0003055410000201

Levy, H. & Sarnat, M. (1970). International Diversification of Investment Portfolios. *American Economic Review*, 60(4), 668–675. https://doi.org/10.2307/1818410

Li, K., Sarkar, A. & Wang, Z. (2003). Diversification benefits of emerging markets subject to portfolio constraints. *Journal of Empirical Finance*, 10(1–2), 57–80. https://doi.org/10.1016/S0927-5398(02)00027-0

Liu, Y., Park, J. L. & Sohn, B. (2018). Foreign Investment in Emerging Markets: International Diversification or Familiarity Bias? *Emerging Markets Finance and Trade*, 54(10), 2169–2191. https://doi.org/10.1080/1540496X.2017.1369403

Maier, M. & Scholz, H. (2018). A return-based approach to identify the home bias of European equity funds. *European Journal of Finance*, 4364, 1–23. https://doi.org/10.1080/1351847X.2017.1415946

Mhadhbi, F. (2013). International Portfolio Diversification and Assets Allocation Bias. *International Journal of Business and Management*, 8(3), 51–71. https://doi.org/10.5539/ijbm.v8n3p51

Mishra, A. V. (2014). Australia's home bias and cross border taxation. Global Finance Journal. https://doi.org/10.1016/j.gfj.2014.06.003

Mishra, A. V. (2015). Measures of equity home bias puzzle. *Journal of Empirical Finance*, 34, 293–312. https://doi.org/10.1016/j.jempfin.2015.08.001

Mishra, A. V. & Conteh, U. B. (2014). Australia's bond home bias. *Review of Pacific Basin Financial Markets and Policies*, 17(1). https://doi.org/10.1142/S0219091514500015

Mishra, A. V. & Ratti, R. A. (2013). Home bias and cross border taxation. *Journal of International Money and Finance*, 32(1), 169–193. https://doi.org/10.1016/j.jimonfin.2012.04.004

Mishra, A. V. (2008). Australia's Equity Home Bias. *Australian Economics Papers*. https://doi.org/10.1111/j.1467-8454.2008.00329.x

Mishra, A. V. (2016). Foreign bias in Australian-domiciled mutual fund holdings. *Pacific Basin Finance Journal*, 39, 101–123.

Mishra, A. V. & Ratti, R. A. (2013). Home bias and cross border taxation. *Journal of International Money and Finance*, 32, 169–193. https://doi.org/10.1016/j.jimonfin.2012.04.004

Mondria, J. & Wu, T. (2010). The puzzling evolution of the home bias, information processing and financial openness. *Journal of Economic Dynamics and Control*, 34(5), 875–896. https://doi.org/10.1016/j.jedc.2009.12.004

Ni, J. (2009). The effects of portfolio size on international equity home bias puzzle. *International Review of Economics and Finance*, 18(3), 469–478. https://doi.org/10.1016/j.iref.2008.03.001

Niszczota, P. (2014). Cross-country differences in personality and the foreign bias in international equity portfolios. *The European Journal of Finance*, 20(10), 934–956. https://doi.org/10.1080/1351847X.2013.856332

Noman, A., Rahman, M. N. & Naka, A. (2015). Portfolio investment outflow and the complementary role of direct investment. *Journal of Financial Economic Policy*, 7(3), 190–206. https://doi.org/10.1108/JFEP-03-2014-0024

Park, D., Taniguchi, K. & Tian, S. (2019). Determinants of foreign and domestic investment bias in global bond markets: Some empirical evidence. *North American Journal of Economics and Finance*, 49(August 2018), 287–303. https://doi.org/10.1016/j.najef.2019.04.012

Poshakwale, S. S. & Thapa, C. (2011). Investor protection and international equity portfolio investments. *Global Finance Journal*, 22(2), 116–129. https://doi.org/10.1016/j.gfj.2011.10.003

Pradkhan, E. (2014). Impact of culture and patriotism on home bias in bond portfolios. Review of Managerial Science, (1964). https://doi.org/10.1007/s11846-014-0146-4

Raimi, L. & Mobolaji, H. I. (2008). Imperative of economic integration among Muslim countries: Lessons from European globalization. *Humanomics*, 24(2), 130–144. https://doi.org/10.1108/08288660810876840

Thapa, C. & Poshakwale, S. S. (2012). Country-specific equity market characteristics and foreign equity portfolio allocation. *Journal of International Money and Finance*, 31(2), 189–211. https://doi.org/10.1016/j.jimonfin.2011.10.011

Vermeulen, R. (2013). International diversification during the financial crisis: A blessing for equity investors? *Journal of International Money and Finance*, 35, 104–123. https://doi.org/10.1016/j.jimonfin.2013.01.003

Wallingford, B. A. & Reilly, F. K. (1979). Investment Analysis and Portfolio Management. In The Journal of Finance (Vol. 34). https://doi.org/10.2307/2327255

Wu, W. L. & Gau, Y. F. (2016). Home bias in portfolio choices: social learning among partially informed agents. Review of Quantitative Finance and Accounting. https://doi.org/10.1007/s11156-016-0560-6

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Narcissism and Entrepreneurship: Evidence from Malaysia Realm

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Abstract: In ensuring the success of an entrepreneurial endeavor, multiple factors come into play. One important aspect is the personality trait of said individual such as narcissism. In Malaysia, there are studies conducted on narcissism in publicly listed companies and CEOs' earnings management, but lacking research on entrepreneurs and their impact on business performance. This conceptual paper aims to explore the level of narcissism in Malaysian entrepreneurs and how narcissistic traits impact businesses. The theory of Stimulus-Organism-Response is used as the underpinning foundation for framing the relations of the variables to narrow the gap of understanding entrepreneurs' narcissistic traits impact specifically in the Malaysian region. After reviewing abundant related literature, three main factors are poised as the stimulus portion of the framework; risk-taking activities, propensity towards entrepreneurship, and business competencies. Meanwhile, the organism portion is represented by the narcissistic trait, and the response portion is evaluated in terms of business performance. The implication of this paper is to spur a more in-depth probe into this matter and further enhance entrepreneurs' successes in the future with preventive measures.

Keywords: *Narcissism, risk-taking, business performance, entrepreneurship.*

1. Introduction and Background

Understanding entrepreneurs' motivation could serve the business structure well where policies, systems, supports, and organizations are aligned to maximize business efficiency. However, some businesses fail due to misunderstanding of what drives the entrepreneurs besides profit making and efficiency. Research has uncovered various facets of entrepreneurs' reasons as the culprit, including the feeling of grandiosity, the right to be worshipped, and standing on a pedestal (Liu et al., 2021). Such traits contribute negatively to the well-being of a business be it in the short or long term. It is a fallacy to think that entrepreneurs will always act for the good of the business and not set up to sabotage his or her creation. Hence it will be beneficial to uncover the negative sides of narcissism that has been plaguing some businesses by their owner. The independent variables to be tested are the narcissistic traits level, entrepreneurship competencies, and risk-taking behavior, and the dependent variable is entrepreneurial intention. Stimulus-Organism-Response theory, Person-environment fit theory and life history theory will be the overarching principles undertaken for this study.

Narcissism has both bright and dark sides to entrepreneurial activities and outcomes. While narcissism makes potential entrepreneurs have higher entrepreneurial intentions and greater willingness to take risks, it also prevents entrepreneurs from discovering opportunities, acquiring resources, and learning from failure (Newman et al., 2017). Besides, results also showed that relations between narcissism and entrepreneurial intentions and performance are more complex. For a deeper understanding of this complex relation and advancing research on narcissism and entrepreneurship, more research is necessary to explore the relations between narcissism and entrepreneurship-related variables from a temporal perspective and at the team level, examine the relationship between narcissism and entrepreneurship ethics, and investigate the interaction effects of narcissism and other personalities (Liu et al., 2021). Research has so far shown the relationships between narcissism and entrepreneurs are complex, which requires further exploration for understanding. In Malaysia, business opportunities are abundant, and so is failure for new and existing businesses. It would serve the county well if studies of entrepreneurs pinpoint indications to help alleviate and decrease failure potential at the onset by recognizing narcissistic traits and offering remedial and preventive steps.

2. Literature Review

Theory of Stimulus-Organism-Response Framework: Behavior in the SOR framework is assumed to be in the form of influenced results from environmental cues and translated to a person's cognitive or emotional response (Wu et al., 2022; Ahmed et al., 2021; Mehrabian & Russell, 1974). In the extant literature, the SOR model is a viable theoretical framework for addressing behavior in online environments (Burnasheva & Suh, 2022; Cao & Sun, 2018). Some recent studies adopted the SOR model to understand consumers' social commerce intention (Miranda et al., 2023) and purchase intention on social networking sites (Dange et al., 2021).

For this research, the SOR theory is adopted as the arching theory model (Jacoby, 2002). In the reconceptualized SOR theory, several dimensions are revised to accommodate nuances of human minds that interact with multi-faceted situations that are faced in daily lives which eventually produce results (Jacoby, 2002). According to the earlier version SOR coined, the organism aspect refers to the internal processes that occur between the perception of the stimulus and the resulting behaviors, including various perceptual, psychological, emotional, and cognitive activities, which in this research content is users' personality traits (Wu et al., 2022; Tucker et al., 2016). According to Jacoby (2002), there exist several categories of organism stored in individuals' emotive and cognitive systems, which includes among others individuals' personality, feelings, and impressions (Jacoby, 2002). This makes it possible to embrace narcissism into an organism as an emotional state and debunks the notion that narcissism is not a proper organism representation. Successful adaptations of the SOR framework have been seen in different fields that uncover the relation between significant causes and reactions such as personality traits and entrepreneurship (Caputo & Pellegrini, 2020), narcissistic entrepreneurs and business opportunities (Leonelli et al., 2022), entrepreneurial personality and narcissism (Mathieu & St-Jean, 2013) and more.

Hence, considering the importance of individual traits' impact on entrepreneurial endeavors, and strong support of the SOR framework in explaining the relations between factors, the premise of the SOR framework for this research is that risk-taking activities, propensity towards entrepreneurship, and business competencies stimulate entrepreneurs' narcissistic trait and impact business performance(response).

Narcissistic personality Trait: Research has found that entrepreneurs have higher narcissism traits due to feeling of high grandiosity (Mathieu & St-Jean, 2013; Moslehpour et al., 2021) to gain admiration from others (Hmieleski & Lerner, 2016; Navis & Ozbek, 2016; Tucker et al., 2016). However, due to the long-term resource requirement of business to be successful and stay afloat, the narcissistic trait is bound to not prosper in the long term due to the banishment of relationships (Hmieleski & Lerner, 2016; Navis & Ozbek, 2016). Furthermore, a narcissistic entrepreneur has fluctuating business performance (Asad, 2021; Bouncken et al., 2020), where in the beginning is mostly positive results due to strong drive and high motivation, but subsequently weakens entrepreneurial strategies in the long run (Asad, 2021; Liu et al, 2021). Some studies find a positive correlation between narcissistic traits and business success when human resource management strategies proactively manage and balance the narcissism trait to reduce the negative impact and heighten the trait to be beneficial (Tucker et al., 2016). It is also found that gender influence on narcissism differs among males and females, where a study concludes that a narcissistic female entrepreneur has fewer narcissism traits compared to their male counterpart and it translates to less risk-taking behavior in R&D. Female entrepreneurs also are not as diligent to patent their ideas, compared to a male entrepreneur.

From previous studies, it is found that narcissism is positively correlated with general self-efficacy, locus of control and risk propensity. Moreover, narcissism plays a significant role in explaining entrepreneurial intentions, even after controlling for self-efficacy, locus of control and risk propensity (Mathieu & St-Jean, 2013). The question of how far narcissism trait impacts entrepreneur endeavors specifically in Malaysia still needs answers as Malaysia has set its sights on being one of the highest producers of entrepreneurs in the next decade. As revealed on 13 August 2020, The National Entrepreneurship Policy (NEP) is a long-term strategy for Malaysia to become an outstanding entrepreneurial nation by 2030 with six strategic thrusts supporting the whole national agenda (Othman et al., 2021).

The propensity towards Entrepreneurship: Research has uncovered various facets of entrepreneurs' reasons as the culprit, including the feeling of grandiosity, the right to be worshipped, and standing on a pedestal (Leonelli et al., 2022). Such traits contribute negatively to the well-being of a business be it in the short or long term. It is a fallacy to think that entrepreneurs will always act for the good of the business and not set up to sabotage his or her creation (Shabbir & Kousar, 2019). Several research studies have found a link between narcissism and business creation. One research particularly discussed that this trait surfaces in a narcissistic individual even before entering a business setting. The group of entrepreneurial students was compared to vocational students, city workers, and managers from financial institutions on a narcissism scale. Results from this study conclude that entrepreneurial student scored significantly higher than other groups (Mathieu & St-Jean, 2013).

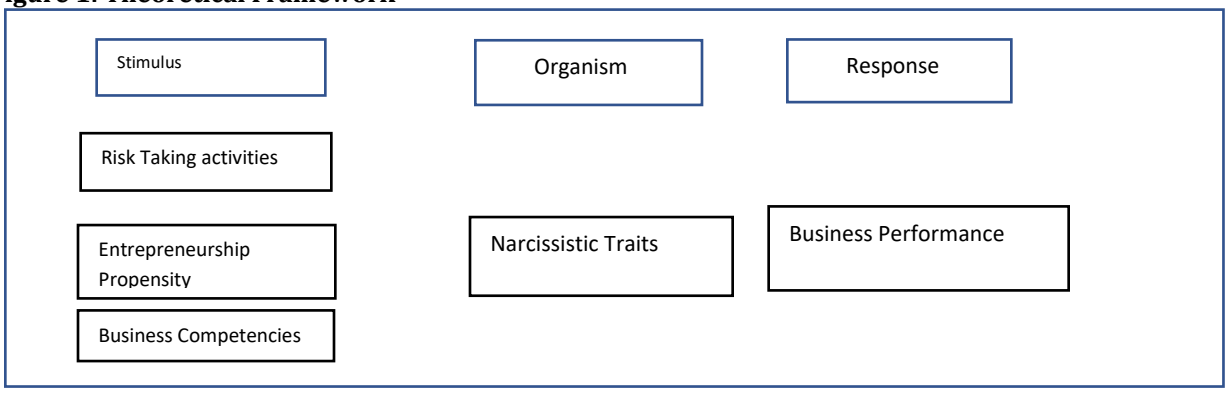
Further research has shown that there are differences in narcissism levels in different genders in startup initiatives as well as patenting ideas and research and development projects (Leonelli et al., 2022). This begs the question of how Malaysian entrepreneurs fare in terms of narcists' male and female counterparts and how significant this phenomenon prevails in local settings. Hence it will be beneficial to uncover the negative sides of narcissism that has been plaguing some businesses by their owner. Research has so far shown the relationships between narcissism and entrepreneurs are complex, which requires further exploration for understanding. In Malaysia, business opportunities are abundant, and so is failure for new and existing businesses. It would serve the country well if studies of entrepreneurs pinpoint indications to help alleviate and decrease failure potential at the onset by recognizing narcissistic traits and offering remedial and preventive steps.

Table 1: Summary of Selected Literature

	Research title	Authors	Variables	Methodology and findings	Limitations
1	Stimulus-Organism-Response Reconsidered: An Evolutionary Step in Modeling (Consumer) Behavior	Jacob Jacoby	Stimulus Organism Response: 1 = Encountered Environment; 2 = Automatic Processing; 3 = Experiential Storehouse; 4 = Conscious- ness; 5 = Nontrace Stimulus-Response Events; 6 = Internal Responses; 7 = External Responses.	* accommodate more - - it is parsimonious - exhaustive in identifying the types of variables thought to be necessary for understanding the psychological dynamics underlying individual consumer behavior. - it permits countless numbers of modi- fications, additions to, and deletions from, each of these seven sectors. - the hework should make it easier to identify, visualize, and understand certain cross-sector, dynamic, and recursive relations - make it easier to compare and contrast the various models - make it easier to understand where and how the various factors come into play.	* problems and extensions not envisioned
2	Impact of dark tetrad personality traits on nascent entrepreneurial behavior: the mediating role of entrepreneurial intention	Li Cai1, Majid Murad1*, Sheikh Farhan Ashraf1 and Shumaila Naz	Narcissism Psychopathy Machiavellianism Sadism Entrepreneurial intention nascent entrepreneurial behavior	convenience sampling technique was Dark tetrad personality traits have a significant and positive effect on entrepreneurial intention, similar to the results of prior studies Individuals select behavioral strategies based on their environmental needs to improve the possibility of survival	conduct a longitudinal study on different samples showing the role of the dark tetrad to make more contribution to the literature on entrepreneur- ship and organizational behavior.
3	Dark triad traits and the entrepreneurial process: A person-entrepreneurship perspective	Tucker, Reginald L. Lowman, Graham H. Marino, Louis D.	Machiavellian, narcissistic, and psychopathic traits	Machiavellian qualities are most beneficial in the evaluation stage of entrepreneurship, and Machiavellian, narcissistic, and psychopathic qualities are beneficial in the exploitation stage of entrepreneurship.	
4	Entrepreneurial behaviou	Caputo, Andrea Pellegrini, Massimiliano M.	Machiavellian, narcissistic, and psychopathic traits, heuristics and biases,	The success, longevity, and survival of SMEs are deeply linked to the effectiveness of individual decision-making processes, and established firms need to develop an entrepreneurial and innovative decision-making processes to maintain competitive advantages in a continuously changing and increasingly turbulent environment.	
5	Entrepreneurial personality: The role of narcissism	Mathieu, Cynthia St-Jean, Étienne	narcissism intention to start a business self-efficacyocu locus of control risk propensity	Narcissism is positively correlated with general self-efficacy, locus of control and risk propensity. Narcissism plays a significant role in explaining entrepreneurial intentions, even after controlling for self-efficacy, locus of control and risk propensity.	Wider survey pool and longitudinal study

Risk-Taking Activities: Studies have reported that risk-taking activities are beneficial for early start-ups due to the uncertainties of a newly developed entity faces (Tucker et al., 2016). However, for the longevity and survival of the business in the long run, other aspects are needed such as effectiveness in decision-making ability, innovative ideas, and competitive advantage to face other businesses in the fast-moving world (Caputo & Pellegrini, 2020). It is found that risk propensity is positively correlated with narcissism in entrepreneurs compared to control groups of non-vocational fields such as non-entrepreneur students, city workers, and employees and managers from a branch of a large financial institution (Mathieu & St-Jean, 2013). Liu et al. (2021) stated that a narcissistic tendency for high risk-taking activities is beneficial for start-ups, however, it prevents entrepreneurs from learning from failures, discovering other opportunities, and acquiring needed resources. Other studies reported risk-taking behaviors to exist in both genders albeit in different degrees (Leonelli et al., 2022). Hence, in Malaysia, such analysis has yet to be conducted on entrepreneurs and narcissism specifically which could address the issues of failures among new start-ups if corrective actions are taken early on. Below is the summary of selected literature on Narcissism and entrepreneurs' studies related to this paper's area of discussion.

Figure 1: Theoretical Framework



Theoretical framework: The independent variables to be tested are the narcissistic traits level, entrepreneurship propensity, business competencies, and risk-taking behavior, and the dependent variable is entrepreneurial intention. Research has so far shown the relationships between narcissism and entrepreneurs are complex, which requires further exploration for understanding. In Malaysia, business opportunities are abundant, and so is failure for new and existing businesses. The above discussion has produced a proposition depicted in the theoretical model in Figure 1, and the propositions are stated below:

P1. Risk-taking activities significantly impact a narcissist in his or her business performance
P2. Entrepreneurship propensity significantly influences a narcist in his or her business performance
P3. Business competencies significantly stimulate narcissists to perform in business.

The next section will discuss the theoretical and research implications of this conceptual work.

3. Theoretical and Research Implications

The three propositions' goals are to gauge the level of narcissism in entrepreneurs and its impact on business performance specific to the Malaysian landscape. Theoretically, the results of future empirical studies could uncover and produce a better understanding of entrepreneurs' motivation. Such discovery would serve the business structure where policies, systems, supports, and organizations are aligned and maximize business efficiency. This is because some businesses fail after misunderstanding what drives the entrepreneurs besides profit-making and efficiency. Furthermore, Malaysian businesses could better understand the impact of narcissistic traits and the possible prevention that could be done to prevent negative business performance. Finally, findings from future research would provide banks and financial institutions with tools to implement special screening for business applicants to have better ROI after testing for narcissism traits. There are several limitations to this conceptual paper; which include limited stimulus variables to affect an entrepreneur's narcissistic trait impact on business performance; the attention span of an individual varies

and could influence the entrepreneur's behavior during the survey session and get agitated and respond with bias; business competencies could varies with years of experience and may or may not trigger organism function of narcissism trait as it is personal victory to be considered competent to an entrepreneur; and narcissistic trait is placed on a spectrum, which might not be captured in this research design.

4. Conclusion

The objective of this paper is to uncover the prevalence traits of narcissism among Malaysian entrepreneurs and the trait's impact on businesses. It is with the evidence from this research, that further studies can be propelled to possibly screen, devise prevention methods, offer counseling sessions, and other initiatives to promote stability for businesses for narcissistic Malaysian entrepreneurs.

References

Ahmed, S., Ramzan, M., Sheikh, A. & Ali, A. (2021). Impact of student's personality traits on social networking sites usage, benefits and risks. *Global Knowledge, Memory and Communication*, 70(6/7), 518-537.

Asad, S. (2021). CEO Narcissism and Board Composition: Implications for Firm Strategy and Performance. Copenhagen Business School [PhD].

Bouncken, R., Cesinger, B. & Tiberius, V. (2020). Narcissism, Machiavellianism, and psychopathy of top managers: Can Entrepreneurial Orientation secure performance? *International Journal of Entrepreneurial Venturing*, 12(3), 273-302.

Burnasheva, R. & Suh, Y. G. (2022). The moderating role of parasocial relationships in the associations between celebrity endorser's credibility and emotion-based responses. *Journal of Marketing Communications*, 28(4), 343-359.

Cao, X. & Sun, J. (2018). Exploring the effect of overload on the discontinuous intention of social media users: An SOR perspective. *Computers in Human Behavior*, 81, 10-18.

Caputo, A. & Pellegrini, M. M. (2020). Introduction to "The entrepreneurial behavior: unveiling the cognitive and emotional aspect of entrepreneurship". In The Entrepreneurial Behavior: Unveiling the cognitive and emotional aspect of entrepreneurship (pp. 1-5). Emerald Publishing Limited.

Dange, A., Gowda, K. R., Srinidhi, V. R. & Halaswamy, D. (2021). Analyzing the Attitude of Social Media Users Towards Ephemeral Marketing as a Digital Marketing Tool. *Acta Universitatis Bohemiae Meridionales*, 24(3).

Hmieleski, K. M. & Lerner, D. A. (2016). The dark triad and nascent entrepreneurship: An examination of unproductive versus productive entrepreneurial motives. *Journal of Small Business Management*, 54, 7-32.

Jacoby, J. (2002). Stimulus-organism-response reconsidered: an evolutionary step in modeling (consumer) behavior. *Journal of consumer psychology*, 12(1), 51-57.

Leonelli, S., Iaia, L., Masciarelli, F. & Vrontis, D. (2022). Keep dreaming: how personality traits affect the recognition and exploitation of entrepreneurial opportunities in the agritourism industry. *British Food Journal*, 124(7), 2299-2320.

Liu, D., Zhu, T., Huang, X., Wang, M. & Huang, M. (2021). Narcissism and entrepreneurship: a systematic review and an agenda for future research. *Frontiers in Psychology*, 12, 657681.

Mathieu, C. & St-Jean, É. (2013). Entrepreneurial personality: The role of narcissism. *Personality and Individual Differences*, 55(5), 527-531.

Mehrabian, A. & Russell, J. A. (1974). An approach to environmental psychology. the MIT Press.

Miranda, S., Trigo, I., Rodrigues, R. & Duarte, M. (2023). Addiction to social networking sites: Motivations, flow, and sense of belonging at the root of the addiction. *Technological Forecasting and Social Change*, 188, 122280.

Moslehpour, M., Dadvari, A., Nugroho, W. & Do, B. R. (2021). The dynamic stimulus of social media marketing on purchase intention of Indonesian airline products and services. *Asia Pacific Journal of Marketing and Logistics*, 33(2), 561-583.

Navis, C. & Ozbek, O. V. (2016). The right people in the wrong places: The paradox of entrepreneurial entry and successful opportunity realization. *Academy of Management Review*, 41(1), 109-129.

Newman, A., Round, H., Bhattacharya, S. & Roy, A. (2017). Ethical climates in organizations: A review and research agenda. *Business Ethics Quarterly*, 27(4), 475-512.

Othman, I. W., Mokhtar, S., Maidin, I. & Moharam, M. M. A. H. (2021). The Relevance of the National Entrepreneurship Policy (NEP) 2030 In Meeting the Needs and Strengthening the Country's Entrepreneurial Ecosystem: A Snapshot. *International Journal of Accounting*, 6(37).

Shabbir, A. & Kousar, S. (2019). Impact of founder CEO and CEO ownership on entrepreneurial orientation, moderating role of CEO narcissism. *Asia Pacific Journal of Innovation and Entrepreneurship*, 13(2), 153-167.

Tucker, R. L., Lowman, G. H. & Marino, L. D. (2016). Dark triad traits and the entrepreneurial process: A person-entrepreneurship perspective. In Research in personnel and human resources management (pp. 245-290). Emerald Group Publishing Limited.

Wu, W., Su, Y., Wu, C. H., Tsai, S. B. & Yuan, Y. H. (2022). WeChat relationships maintenance behavior and social entrepreneurial intention under conditions of dual narcissism: the mediating role of social capital. *Information Technology & People*, 35(1), 392-409.

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The Challenges of Asnaf Entrepreneurs in Forming Entrepreneurial Resilience

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Abstract: Resilience plays an important role in entrepreneurship; however, an in-depth study of the factors that affect the resilience of Asnaf entrepreneurs is unknown. This paper aims to fill this knowledge gap by delving deeper into the challenges that affect the resilience of asnaf entrepreneurs thus hindering their business expansion. The study also observed the ability of asnaf entrepreneurs to deal with economic shocks due to the COVID-19 pandemic. In-depth interviews conducted with 2 executive officers of the entrepreneur development sector and 10 LZS enforcers who supervise 901 asnaf entrepreneurs throughout Selangor present an overview of the impediments that hinder the business progress of asnaf entrepreneurs. From 901 asnaf entrepreneurs, a total of 25 asnaf entrepreneurs were selected based on the criteria that have been outlined, namely those who run food-based businesses and have undergone the LZS micro-entrepreneurship program for more than 6 months. Constraints experienced are analyzed. Three essential themes that enlighten challenges in fostering entrepreneurial resilience emerged, namely; the role of family members, non-tech savvy and fear of failure. These themes are discussed based on the methodology used and the findings of previous studies. The findings provide an insight that is useful for LZS in designing entrepreneur development instruments and organizing periodic entrepreneurship modules.

Keywords: *Asnaf entrepreneurs, Entrepreneurial resilience, Micro-entrepreneurs, Qualitative analysis, Zakat micro-financing.*

1. Introduction and Background

The socio-economic shock of the COVID-19 pandemic has overwhelmed global economies. In the year 2020, more than half of the world's population has experienced a lockdown with strong containment measures. Beyond the health and human tragedy, the pandemic triggered the most serious economic crisis since World War II (OECD, 2020). Many governments at all levels have reacted quickly, applying a 'place-based' or territorial approach to policy responses to the COVID-19 crisis, in particular on the socio-economic to protect small and medium enterprises (SMEs), households, and vulnerable populations. Many countries around the world are managing the COVID-19 crisis by adapting and reopening economies. Although Malaysia's economy has begun to be stimulated through various recovery policies, still, until now, the post-COVID-19 pandemic has shown the difficulty of small entrepreneurs to restore business that was interrupted during the pandemic. A study conducted in April 2020 by the Ministry of Entrepreneur Development and Cooperatives (MEDAC) showed a total of 104,785 entrepreneurs went out of business. In June 2021, the number decreased to 37,415 while in November 2022 it decreased at a slower rate to 33,838 (Raman, 2021).

Financial incompetence has led many small businesses, especially micro-entrepreneurs to seek financial support from financial institutions. For the people of Selangor, among the institutions they turn to is the Selangor Zakat Board (LZS). Apart from assisting in terms of finance and necessities, LZS provides capital assistance to asnaf entrepreneurs to conduct business. Not all asnaf have the opportunity to participate in the micro-entrepreneur program. LZS has set certain criteria in the selection process as it is important for LZS to ensure the seriousness of asnaf entrepreneurs so that success can be realized and LZS's objective to improve the socio-economy of asnaf entrepreneurs is accomplished. The selection is based on the background and interests of the asnaf entrepreneurs, while the capital offered depends on the type of business. Asnaf entrepreneurs lack in terms of business knowledge and experience (Muhamat et al., 2013). The passion to get out of poverty is probably a strong impetus to venture into business and indeed that intention is the main factor that determines success (Bahria et al., 2022). Through the micro-entrepreneur program, asnaf is given training and courses related to business management, marketing and financial management, but it is not comprehensive and the programs run are short-term.

This study aims to reveal the challenges of asnaf entrepreneurs under the Zakat micro-entrepreneur program in forming resilience in the current challenging economic environment to empower their family's economy. Entrepreneurial resilience refers to the entrepreneur's ability to withstand disruptions in his enterprise. These disruptions are crises, challenges and obstacles caused by external and internal factors such as disease outbreaks, economic shocks and domestic problems (IIoanya, 2021). Studies related to the distribution of zakat funds and assistance for micro-entrepreneurs have been widely discussed. However, studies related to the challenges that affect the resilience of asnaf entrepreneurs who are known for their weaknesses and deficiencies in terms of business knowledge in ensuring that their businesses continue to be competitive and grow are very lacking. Hence, it is important to identify obstacles that restrict the endurance and business expansion of asnaf entrepreneurs involved in entrepreneurship programs. In Malaysia, micro-enterprises are not only contributors to the informal industry, but they can open job opportunities and stimulate downstream economic growth in rural areas in particular. Thus, this study can add value to the micro-business literature by contributing new insights into the challenges that hinder the business expansion of asnaf entrepreneurs. The qualitative analysis presented is important for future research in evaluating the effectiveness of LZS training and monitoring programs in the socio-economic improvement of asnaf entrepreneurs.

2. Literature Review

Zakat Micro-financing: LZS is the pioneer of the asnaf entrepreneur program that offers five types of capital assistance for businesses i.e., general business, fishing, agriculture, animal husbandry and working capital. The asnaf entrepreneur program implemented by LZS aims to help asnaf who are interested in doing business to become independent. In addition to allowing the asnaf an opportunity to generate their income, it is an incentive for the asnaf to leave the Mustahiq status and turn into a Muzakki. Zakat funds in the form of capital financing are given to asnaf to run and develop their businesses. In addition to protecting asnaf entrepreneurs from getting caught in usury, the advantage of micro-financing in the form of business capital assistance on a 'one off' basis does not require the asnaf to make repayments. In addition to meeting Maqasid Shariah, this micro-financing aims to avoid mafsadah (Adnan et al., 2021). According to Adnan et al. (2021), micro-financing from zakat funds as a zakat distribution tool greatly helps asnaf to strengthen its economic position. It is supported by Mawardi et al. (2022) who prove that business financing assistance through the zakat empowerment program has a positive impact on asnaf business growth. The role of zakat institutions is particularly vital in supporting the economy of the people affected by the COVID-19 pandemic (Akhsan & Ryandono, 2021).

The COVID-19 pandemic harmed the business ecosystem. Many businesses are temporarily or permanently closed due to slow domestic demand during movement control orders. The slow movement of the business sector affects the amount of zakat collection. The 2020 LZS report shows that LZS has collected a total of RM912.9 million in zakat payments of which RM603.7 million has been channeled to various categories of assistance, and of that amount, a total of 25,544 people have received special COVID-19 assistance amounting to 12.1 million. This assistance covers the group of hawkers, traders and B40 workers of Selangor whose sources of income are affected (eBuletin LZS, 2021). Musa (2020) asserts that this type of financial assistance is permissible as mentioned in Surah Al-Taubah verse 103 which is interpreted as “Take zakat from their wealth, to cleanse and purify them, and pray for them. Indeed, your prayer (causes) peace of mind for them. Allah is All-Hearing and All-Knowing”.

Conceptualize Asnaf Entrepreneurs: Asnaf entrepreneurs are a group of asnaf who want to change from an unproductive asnaf to a productive asnaf through an entrepreneurial platform (Abang Abai et al., 2020). They are identified as asnaf who have the mental and physical strength that reflects the ability to be an entrepreneur (Rahman & Ahmad, 2011; Shiyuti et al., 2021). However, to realize their dreams of becoming entrepreneurs, they need financial assistance from zakat institutions (Raudha et al., 2011) because their life status and financial condition normally become the distress that put them under the asnaf category. Under this category, asnaf is considered non-bankable and excluded from mainstream financial services (Al-Mubarak, 2016).

The asnaf entrepreneur program is aimed at productive efforts to deal with the poor and improve their living standards. Through the asnaf entrepreneurship program, zakat management entities can help asnaf get involved in the business (Muhamat et al., 2013). This program is expected to empower asnaf entrepreneurs and end their asnaf status, thus freeing them from the shackles of poverty (Zakaria & Harun, 2019). LZS has successfully produced many successful asnaf entrepreneurs. The success of asnaf entrepreneurs is based on a willingness to take risks in growing their business and a unique, creative and optimistic marketing strategy to see their business succeed (Halim, et al., 2012). Capital assistance, training and entrepreneurship programs as well as knowledge are factors that influence the success of asnaf entrepreneurs (Muhamat et al., 2013). According to Arif et al. (2020) in addition to a positive attitude, management skills and financial knowledge as well as a conducive environment also play an important role in increasing the performance of an asnaf entrepreneur. This is because a more efficient environment allows them to channel their high potential to achieve their goals. Support for product distribution likewise opens up opportunities for asnaf entrepreneurs to apprehend a larger business market size in addition to increasing entrepreneurial spirit, forming skills and providing valuable experience in pioneering real business activities (Shiyuti et al., 2022). Bahria et al. (2022) explain that life improvement, financial performance, non-financial performance, and maqasid sharia are factors that can be used to measure the success of asnaf entrepreneurs.

Defining the Entrepreneurial Resilience: The importance of resilience in entrepreneurship is never disputed. However, related studies on asnaf entrepreneurs in the existing literature are still under-researched. Many studies have proven that the challenges ahead are very bitter to start a business or recover from a business failure, especially in economic uncertainty. Hence, resilience is important because, in addition to being the basis for strengthening entrepreneurial intentions (Krueger, 2000), it shows the ability to master coping styles and possesses the courage to strategize for business continuity during difficult situations. Past studies prove that resilience is significant in facilitating entrepreneurs' recovery from failure (Corner et al., 2017; Monllor & Murphy, 2017) and subsequently predicts success (Fisher et al., 2016). Personal characteristics, motivation, human capital, belief, formal and informal support, teamwork, resources, culture and rules and regulations are among the factors that influence entrepreneurial resilience (Qalati et al., 2023). Earlier, Korber and McNaughton (2018) revealed that psychological attributes, organizational characteristics and macro-level factors also influence the resilience of entrepreneurs. According to Peregrino de et al. (2022), by considering human capital and social capital, small businesses are synonymous with static resilience responses while larger businesses are associated with dynamic resilience responses.

Resilience can be built through training and learning. It is evident when the Malaysian government through the Majlis Amanah Rakyat (MARA) actively organizes development programs for Bumiputera entrepreneurs intending to improve the quality and competitiveness of entrepreneurs (Mohamad, 2022). Besides, the European Commission also emphasizes that entrepreneurial competence needs to be developed to form quality and resilience in entrepreneurs (European Commission, 2020). Earlier, Ayala and Manzano (2014) revealed that failure was a critical factor that shaped the resilience of 11 entrepreneurs who displayed strength and determination in rebuilding their businesses. As well, a study by Ciptono et al. (2023) shows that the entrepreneurship program can have a positive effect on increasing self-efficacy and entrepreneurial resilience.

3. Methodology

To approach and interview asnaf entrepreneurs, permission from the LZS is required because all the details of asnaf entrepreneurs are confidential and cannot be disclosed even for research purposes. An application to obtain details of Selangor asnaf entrepreneurs has been made and an appeal has also been sent but rejected. However, LZS agreed to cooperate in sharing the information required for this study since they indeed have special officers who are responsible for supervising and providing advisory services to asnaf entrepreneurs according to the region.

Sample: Through purposive sampling, informants are two (2) executive officers of the entrepreneur development sector and ten (10) LZS officers who are responsible for supervising and advising asnaf entrepreneurs who receive training and capital from LZS. An invitation was issued and the informant's confidentiality guarantee was approved by the Ethics Committee, Universiti Teknologi Mara (UiTM) which

ensured that the study could only be conducted with the informant's consent. Selecting them as informants is appropriate as they are responsible for closely following the development of these asnaf entrepreneurs from as early as these entrepreneurs get financial assistance to run their businesses. Each informant had several asnaf entrepreneurs under their supervision. The financial reports, problems, challenges and business developments of each asnaf entrepreneur will be observed, recorded and submitted to LZS for further action. The 10 LZS officers who were interviewed in-depth provided the information needed for this study to delve into the challenges faced by 25 asnaf entrepreneurs around Selangor. The interview with 2 executive officers aimed to strengthen the data obtained based on the periodic reports reported by 10 LZS officers. The asnaf entrepreneurs supervised by these 10 LZS officers on average run a food business. Business locations in urban and rural areas throughout Selangor have successfully produced data enrichment in qualitative analysis.

Design: An inductive approach with in-depth interview instruments was used in examining the perseverance and resilience of asnaf entrepreneurs in their efforts to improve their standard of living. Inductive reasoning can adjust the study according to progress so that the answers to specific questions can be unearthed. It allows trends in a data set to be identified and logical conclusions can be drawn as to the cause of the pattern. Besides, the inductive approach is particularly popular among qualitative researchers (Yin, 2014) because studies conducted on several individuals will lead to hypotheses and ultimately to generalizations (Cohen et al., 2018). Hence, the interrelated challenges and obstacles of several asnaf entrepreneurs in the same business can provide an in-depth interpretation of Asnaf's resilience and determination to run the business.

Research Procedures: Open-ended questions are used to retrieve as detailed information as possible (Friborg & Rosenvinge, 2013). It helps informants to answer questions freely without guidance from the researcher. The interview began by giving freedom to the informants to share their experience of supervising asnaf entrepreneurs. It is followed by 5 main questions which are then followed by some follow-up questions to ensure that the answers given meet the research questions. Among the key questions asked include business development of asnaf entrepreneurs, business and financial management methods, the length of time taken by asnaf entrepreneurs to complete the program, successes and constraints shared by asnaf entrepreneurs as well as supervisors' views on asnaf entrepreneurs under their supervision. Data were analyzed thematically using N-Vivo 12 based on the five phases suggested by Yin (2014).

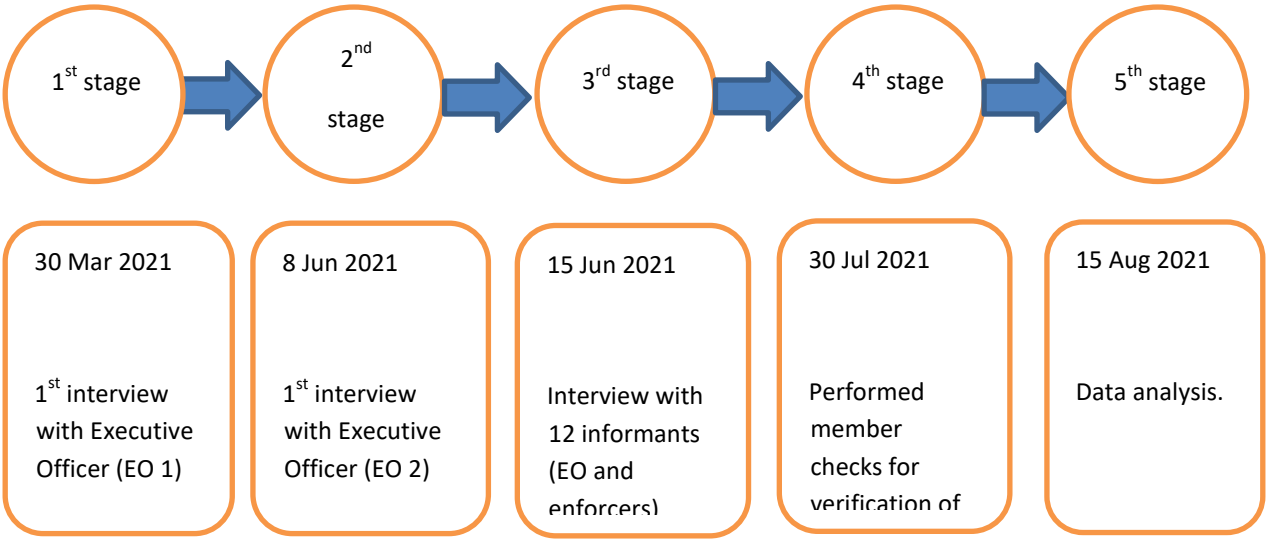
Table 1: Informant profiles

Informant	Designation	stricts	Number of asnaf supervised	The number of asnaf studied/ represented
1	Executive officer	Nil	Nil	Nil
2	Executive officer	Nil	Nil	Nil
3	Enforcer	Ampang	74	1
4	Enforcer	Gombak	86	3
5	Enforcer	Hulu Langat	77	2
6	Enforcer	Hulu Selangor	95	4
7	Enforcer	Klang	78	2
8	Enforcer	Kuala Langat	85	3
9	Enforcer	Kuala Selangor	185	4
10	Enforcer	Petaling	87	2
11	Enforcer	Sabak Bernam	93	3
12	Enforcer	Sepang	41	1
N 12			901	25

The Attributes of Selected Asnaf Entrepreneurs: Briefly, 10 districts in Selangor are supervised by field officers (enforcers). We interviewed 12 informants, 2 of whom were executive officers responsible for managing Asnaf's needs in terms of capital and training. 10 informants are officials responsible for supervising and giving guidance to asnaf in the district that has been determined by LZS. Important information related to the performance and needs of asnaf will be channeled by the field officer to the executive officer. The field officer has the responsibility to visit the asnaf under his supervision every month to evaluate the performance and development of the business. The 25 asnafs that were selected are based on the criteria that have been set, namely running a food-based business and having been in the asnaf entrepreneur program for at least 6 months. Table 1 presents a summary of informant profiles.

Online interviews are conducted in stages. The survey timeline for the study is as in Table 2.

Table 2: Summary of timeline survey



4. Results

Poverty is the impetus for efforts to improve lives. Micro-finance for asnaf entrepreneurs offered by LZS is a golden opportunity for this group who are limited in terms of experience, entrepreneurial knowledge and financial access. Guidance, training and supervision by officers from LZS conducted regularly enable the asnaf under the zakat micro-entrepreneur program to develop their business in a more organized and systematic manner. Unfortunately, only a few have completed the program and the improvement of their socio-economic status now allows them to become Muzakki. We identified 21 codes in the data. The emergence of the most prominent code is grouped into themes. A more detailed analysis allows us to identify the three best themes; the role of family members, non-tech savvy and fear of failure. We describe the themes according to the main categories using sample quotes. Taking into account the majority of asnaf entrepreneurs who are supervised and run a food business, therefore the findings presented are focused on food asnaf entrepreneurs.

The Role of Family Members: Entrepreneurial determination is influenced by the support of family and relatives which gives strength to overcome any challenges (Musa et al., 2016). Asnaf entrepreneurs need the support of their spouses in terms of business advice, help in running a business and encouragement to grow the business, especially in the early stages. However, various problems in the household that need to be addressed make asnaf entrepreneurs discouraged. An LZS official stated:
"Her husband is ill and needs special attention. The children are too young they can't take care of their father or help with the business. So, the business that is conducted is often interrupted, there are times when she does business and sometimes she cannot do business because she has to take care of her sick husband". (LZS 5).

As described by Raman (2021), in addition to finance, familial responsibilities influence the failure of entrepreneurs. For asnaf entrepreneurs who are experiencing divorce, they lose the will to continue the business.
"They started ignoring the business they were running because their minds were disturbed due to the divorce". (LZS 3).

The investigation carried out by LZS officers found that the divorce that occurred was largely caused by her partner's drug addiction, gambling and debt problems.
"When a husband is sent to a rehabilitation center it weakens the wife's morale as she finds it difficult to divide her time into the business and taking care of young children". (LZS 1).

The small businesses run by asnaf entrepreneurs mostly only involve family members. Only a handful hired workers. When the asnaf entrepreneur who leads the business suffers from health problems, it disrupts the smooth running of the business because the treatment process takes time. In addition to disrupting business activities, it also involves financial implications where financial resources that should be used as working capital have to be used for treatment.
"Health problems are also a critical factor for them because a lot of money and time is spent for treatment purposes". (LZS 6).

These data are in line with the study of Hatak and Zhou (2021) who concluded that spousal health condition influences entrepreneurial success. In addition, the age factor also limits business development as there is no support from children. Most children are more comfortable working in the city and are reluctant to pursue a parent's business.
"As they get older, their strength diminishes, and business activities are no longer as active as they used to be. Children rarely return home and show no interest in continuing the legacy of the business." (LZS 2).

An LZS official stated that many asnaf entrepreneurs are middle-aged people whose business is more for survival and daily income. This statement is supported by other LZS officers who see the spirit of developing business as not in the soul of this aged entrepreneur. Nevertheless, some asnaf entrepreneurs are successful businessmen but have suffered losses as a result of the COVID-19 pandemic. Due to the high financial burden that has not yet been paid off, they try to start a new business on a small scale by applying for assistance from Zakat funds. For this group, the entrepreneurial spirit is very high and usually, these people are among the successful asnaf entrepreneurs.

Non-tech Savvy: Implementing digital technology in business can accelerate the success of entrepreneurs (Golob & Babic, 2018). Many entrepreneurs in developing countries have successfully expanded their business potential through social media platforms (Ukpere et al., 2014). However, this is not the case for most asnaf entrepreneurs. Probably due to age factors, they are not savvy in the use of information technology and social media. They don't see the importance of digital knowledge that can help grow their business. They also don't take into account dynamic business trends. Technology illiterate limits the marketing of their business to a wider market and restricts its growth.
"Many asnaf entrepreneurs under my supervision are not good at using social media because they lack exposure to gadgets. So, their business depends a lot on regular customers and locals. Business growth is slowing down as it is more into word-of-mouth marketing among locals and nearby areas". (LZS 1).

In addition, Asnaf entrepreneurs feel burdened by the presence of innovative technology making it an obstacle to their entrepreneurial resilience. Learning technology is considered time-consuming and results in mental and emotional fatigue. This supports Prikhidko et al. (2020) who reveal the existence of extreme fatigue from the use of technology.
"It's not easy to keep up with the (development) of technology, it requires a lot of energy and I feel tired not only physically but also mentally stressed. I think there are many other things (I can do) instead of wasting time focusing on things that are difficult for me to understand". (LZS 7).

Communication devices are also seen to play an important role in adapting technology. For them, being able to connect with customers who are limited to local community groups formed through digital platforms is

contenting. So, it is not surprising when this study found that the average asnaf entrepreneur owns a smartphone in the low and medium range only. They are also not very interested in finding out about the advantages that smartphones provide other than socializing purposes. Overall, it reveals that asnaf entrepreneurs fail to see the capabilities of digital technology as a support system in entrepreneurship. This study is in line with Serben (2014) who found a significant relationship between the factors of age and gender with the use of social media.

"Everyone has a smartphone but the use for most is limited to calling children, socializing on WhatsApp chat groups and Facebook. Only a handful use smartphones to promote and market their sales". (LZS 10).

The business of running a business, managing a household and children who are still in school and only using regular smartphones without being equipped with certain specifications are strong reasons for no opportunity to learn the use of technology. Not to mention, internet access problems and speed disruptions are corresponding explanations for inefficiency in the mastery of digital technology.

"They are busy doing business every day, and the children are not around to teach, so they don't have time to learn about the use of technology. The use of a smartphone is to contact people and to socialize only". (LZS 4).

Fear of Failure: Many asnaf entrepreneurs do business not for the sake of getting rich but more for survival. They just want to live in peace without wanting to think about the hassle of running a business if it is growing rapidly. They want a better life and do not want to be recipients of zakat forever. Yet, at the same time, most of them have no desire to be great entrepreneurs with the belief that success comes with heavy responsibilities and they don't dare to face them.

"They are in a comfort zone. They told me that they have no intention of expanding the business because they are worried it will be difficult to manage. The most worrying thing is if the business fails in the middle of the road". (LZS 3).

Competition in business is also an issue that they try to avoid because they are not confident in their abilities and are not far-sighted. They are horrified to imagine that if a business thrives, there will be many challenges to be faced in terms of additional capital, additional employees, business product development, marketing methods and the diversity of customer needs which if not handled well can result in a painful downfall.

"Many are less educated, even though we have given courses and continue to mentor, but they still have no desire to expand the market. They prefer to focus the market on a small and manageable scope". (LZS 9).

This asnaf entrepreneurial behavior is closely related to the study of Ahmadi and Soga (2022) where there is indeed fear in the course of entrepreneurship. Starting a business does have to go through various phases in decision-making. This process results in either the effort being realized and successful in the marketplace or it may fail and just have to be buried (Caiazza et al., 2019). Thus, after being in their comfort zone for so long, asnaf entrepreneurs are reluctant to explore new methods and markets. More worrying if the intensified efforts fail.

"Some are still renting a house; the children are still studying and still have vehicle debts. So, they do not dare to take risks". (LZS 8).

The need to be proactive in responding to market changes as a result of entrepreneurial activities is very uncomfortable for them.

"They don't have much time to keep up with current business developments and are more comfortable sticking with existing business patterns and methods". (LZS 7).

Lack of self-confidence and fear of failure turn out to be the main factors preventing asnaf entrepreneurs from starting something risky and subsequently, choosing to remain in an easy and safe business situation. It is consistent with the study of Deniz et al. (2011) and Ukil and Jenkins (2022) that the fear of failure prevents entrepreneurs from moving quickly toward their goals.

Discussion: This study reveals the factors that influence entrepreneurial resilience. In practice, it is recognized that entrepreneurial resilience is important in ensuring business survival. Our study focuses on asnaf who theoretically has limitations to financial access but has the potential to enroll in the asnaf entrepreneurship program under the guidance of LZS. Unearthing the resilience of asnaf entrepreneurs is

valuable based on the lack of business education background and the possibility of facing environmental pressure from the economic shock caused by COVID-19. Recent research related to asnaf entrepreneurs investigates the development of entrepreneurs (Mohd Khalil & Mohamed Saniff, 2023), the effects of Islamic microfinance (Redzuan et al., 2023) and financial access (Jauhari et al., 2023). There is very little literature discussing the resilience of asnaf entrepreneurs in the face of unforeseen challenges and hardships. Our contribution to the literature addresses this gap by considering the factors that influence the resilience of asnaf entrepreneurs as antecedents that have received little attention thus revealing their impact on business survival.

5. Managerial Implications and Recommendations

The study deliberately focuses on asnaf entrepreneurs who run food-based businesses operating in Selangor to assess their resilience in facing unexpected situations that have a huge impact on small entrepreneurs i.e., COVID-19. Thus, one of the contributions of this research to entrepreneurs is that entrepreneurial resilience exists when entrepreneurs are willing to change and learn new knowledge to increase self-confidence. It is necessary to avoid staying in the comfort zone, business is not just a source of income, but if entrepreneurs formulate a strategy based on technological development with high confidence, it has the potential to survive even in the face of severe economic shocks, further growing rapidly. The support of family members plays an important role in helping form the resilience of entrepreneurs.

Besides, this study offers methodological implications by providing a deeper understanding of the resilience of asnaf entrepreneurs based on first-hand information. Most studies discussed a lot of achievements of asnaf entrepreneurs (Bahri et al., 2023; Abang Abai & Awang, 2023) and analyzed the impact of providing micro-financing to asnaf entrepreneurs (Redzuan et al., 2023; Harun & Rahman, 2023 & Zahri et al., 2023). This study bridges the literature gap by providing added value that focuses on the factors that affect the resilience of asnaf entrepreneurs, more interestingly; the results are based on lived experience. This study successfully proves that the resilience of asnaf entrepreneurs can be formed not only through entrepreneurship programs but also through self-strengthening and mastery of technology. The study suggests that the LZS needs to see the importance of these aspects in the training module for asnaf entrepreneurs.

Conclusion: This study exposes that specific internal factors are imperative in shaping the resilience of asnaf entrepreneurs to manage adversity, especially in the early stages. Our study through an in-depth interview instrument revealed an underexplored aspect of the challenges in building the resilience of asnaf entrepreneurs who are caught between the desire to improve the family economy with a lack of business skills and the fear of failure. If Ukil and Jenkins (2022) found that fear of failure negatively affects entrepreneurial intentions, we add value to the entrepreneurship literature by proving that it is also a factor that weakens entrepreneurship resilience. Additionally, the focus on asnaf entrepreneurs contributes to a different context from non-asnaf entrepreneurs by contextualizing the notion that there is no financial risk involved in the business run by asnaf entrepreneurs. This qualitative-based research also contributes to the formulation of policies that can strengthen the strategy of the Zakat board to help improve the economy of asnaf. In conclusion, to find the best method of shaping entrepreneurial resilience, it is important to understand the elements that influence it, so that a framework that can balance its impact on micro-entrepreneurs can be formed comprehensively.

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References

Abang Abai, D. S. & Awang, M. D. (2023). Achievements of asnaf entrepreneurs' recipients of business capital assistance from selected zakat institutions in Malaysia from a maqasid shariah perspective. *Journal of Southwest Jiaotong University*, 58(3), 467 - 477. doi: 10.35741/issn.0258-2724.58.3.40.

Abang Abai, D. S., Awang, M. D., Mohd Yusoff, A. N., Ab. Majid, A. & Hamli, H. (2020). Bentuk Bantuan Modal Agihan Zakat Asnaf dan Pencapaian Usahawan Asnaf di Malaysia: Kajian Empirikal. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 5(1), 93 - 99. doi: 10.47405/mjssh.v5i1.353.

Adnan, N. I. M., Roselam, M. A. C., Hamat, Z. & Furqani, H. (2021). The Distribution of Zakat Fund to the Poor Entrepreneurs Using Micro Finance. *International Journal of Academic Research in Business and Social Sciences*, 11(2), 231–240.

Ahmadi, A. & Soga, L. R. (2022). To be or not to be: Latent entrepreneurship, the networked agent, and the fear factor. *Technological Forecasting and Social Change*, 174. doi: 10.1016/j.techfore.2021.121281

Akhsan, A. M. & Ryandono, M. N. (2021). The role of zakat institutions in supporting the economy during the Covid-19 pandemic. *AFEBI Islamic Finance and Economic Review*, 6(2), 94-105. doi.org/10.47312/aifer.v6i02.380.

Al -Mubarak, T. (2016). The Maqasid of Zakah and Awqaf and Their Roles in Inclusive Finance. *Islam and Civilisational Renewal*, 7(2), 217–230.

Arif, M. I. A. M., Mamat, N., Ramli, R. M., Rani, M. A. M. & Adenan, F. (2022). The vital factors in the development of rural asnaf entrepreneurship: A review. *Al-Qanatir International Journal of Islamic Studies*, 26(2), 96-103

Ayala J.C. & Manzano, G. (2014). The resilience of the entrepreneur. Influence on the success of the business. A longitudinal analysis. *Journal of Economic Psychology*, 42, 126–135.

Bahri, E. S.., Mohammad Aslam, M. M., Wibowo, H. & Mubarok, A. (2023). Measuring the effectiveness of zakat distribution at the national board of zakat of Bandung city. *Journal of Islamic Economics, Management and Finance*, 2(2), 99-107.

Bahria, S., Alib, J. & Aslam, M. M. M. (2022). A bibliometric analysis of the conceptual model of asnaf entrepreneur success. *International Journal of Economics, Management and Accounting*, 30(1), 225-251

Caiazza, R., Belitski, M. & Audretsch, D. B. (2019). From latent to emergent entrepreneurship: the knowledge spillover construction circle. *J. Technol. Transf.*, 45(3), 694–704. https://doi.org/10.1007/s10961-019-09719-y.

Ciptono, W. S., Anggadwita, G. & Indarti, N. (2023). Examining prison entrepreneurship programs, self-efficacy and entrepreneurial resilience as drivers for prisoners' entrepreneurial intentions. *International Journal of Entrepreneurial Behavior & Research*, 29(2), 408-432. doi.org/10.1108/IJEBR-06-2022-0550.

Cohen, L., Manion, L. & Morrison, K. (2018). Research methods in education (8th ed.). London: Routledge.

Corner, P.D., Singh, S. & Pavlovich, K. (2017). Entrepreneurial resilience and venture failure. *International Small Business Journal*, 35(6), 687-708.

Deniz, N., Boz, I. T. & Ertosun, Ö. G. (2011). The relationship between entrepreneur's level of perceived business-related fear and business performance Procedia Social and Behavioral Sciences, 24, 579-600

eBuletin LZS Edisi. (2021). https://www.zakatselangor.com.my/wp-content/uploads/2022/07/e-Buletin-JM-siri-2.2021.jpg

European Commission. (2020). Commission presents a European skills agenda for sustainable competitiveness, social fairness, and resilience. available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1196 (accessed 12 September 2020).

Fisher, R. (2016). Does individual resilience influence entrepreneurial success? *Academy of Entrepreneurship Journal*, 22(2), 39-53.

Friborg, O. & Rosenvinge, J. H. (2013). A comparison of open-ended and closed questions in the prediction of mental health. *Quality & Quantity*, 47, 1397-1411. doi: 10.1007/s11135-011-9497-8

Golob, M. & Babic, S. (2018). Entrepreneurs' readiness in small and medium-sized companies to face challenges in digital business. Paper presented at the Economics of Digital Transformation Opatija, Croatia.

Halim, H. A., Said, J. & Yusuf, S. N. S. (2012). Individual characteristics of the successful asnaf entrepreneurs: Opportunities and solutions for zakat organization in Malaysia. *International Business and Management*, 4(2), 41-49. doi: 10.3968/j.ibm.1923842820120402.1040

Harun, N. F. & Ab Rahman, A. (2023). A screening instrument for zakah capital assistance eligibility. *Jurnal Syariah*, 31(1), 66–101. Retrieved from http://ojie.um.edu.my/index.php/JS/article/view/42373

Hatak, I. & Zhou, H. (2021). Health as human capital in entrepreneurship: Individual, extension, and substitution effects on entrepreneurial success. *Entrepreneurship Theory and Practice*, 45(1), 18-42. doi: 10.1177/1042258719867559

Iloanya, O. (2021). The importance of resilience in entrepreneurship. www.linkedin.com. https://www.linkedin.com/pulse/importance-resilience-entrepreneurship-ofodile-iloanya

Jauhari, F. F., Yusoff, S. S. M. & Kassim, S. (2023). Enhancing Access to Finance Amongst Asnaf Micro-Entrepreneurs: How Can Islamic Fintech in Zakat Institutions Play a Role? In: Mansour, N., Bujosa Vadell, L.M. (eds) Islamic Sustainable Finance, Law and Innovation. *Contributions to Management Science*, Springer, Cham. https://doi.org/10.1007/978-3-031-27860-0_31

Mohd Khalil, N. & Mohamed Saniff, S. (2023). Analysis of Asnaf Entrepreneurial Development Based on the First Principle of Islamic-based Development. *KnE Social Sciences*, 8(12), 878–885. https://doi.org/10.18502/kss.v8i12.13733

Korber, S. & McNaughton, R. B. (2018). Resilience and entrepreneurship: a systematic literature review. *International Journal of Entrepreneurial Behavior & Research*, 24(7), 1129-1154. https://doi.org/10.1108/IJEBR-10-2016-0356.

Krueger, N. F. (2000). The cognitive infrastructure of opportunity emergence. *Entrepreneurship: Theory and Practice*, 24(3), 5-23.

Mawardi, I., Widiastuti, T., Mustofa, M. U. A. & Hakimi, F. (2022). Analyzing the impact of productive zakat on the welfare of zakat recipients. *Journal of Islamic Accounting and Business Research*, doi: 10.1108/JIABR-05-2021-0145

Mohamad, H. F. (2022). Fokus bina daya saing usahawan harungi pasca COVID-19. Berita Harian Online. https://www.bharian.com.my/berita/nasional/2022/02/923140/fokus-bina-daya-saing-usahawan-harungi-pasca-covid-19

Monllor, J. & Murphy, P. J. (2017). Natural disasters, entrepreneurship, and creation after destruction: a conceptual approach. *International Journal of Entrepreneurial Behavior and Research*, 23(4), 618-637.

Muhamat, A. A., Jaafar, N., Rosly, H. E. & Manan, H. A. (2013). An appraisal on the business success of entrepreneurial asnaf An empirical study on the state zakat. *Journal of Financial Reporting and Accounting*, 11(1), 51–63. doi:10.1108/JFRA-03-2013-0012

Musa, A. (2020). Pendayagunaan zakat produktif: Konsep, peluang dan pola pengembangan. Lembaga naskah Aceh.

Musa, M., Shuib, R., Selamat, N. H., Isa, S. M., Osman, I. & Bakar, S. A. (2016). A study of women micro-entrepreneurs in Malaysia: Livelihood strategies and challenges. Paper presented at the 3rd Kanita Postgraduate International Conference on Gender Studies, Universiti Sains Malaysia, Penang.

OECD. (2020). The territorial impact of COVID-19: Managing the crisis across levels of government. https://www.oecd.org/coronavirus/policy-responses/the-territorial-impact-of-covid-19-managing-the-crisis-across-levels-of-government-d3e314e1/

Peregrino de, B. R., Lenz, A. K. & Pacheco, M. G. M. (2022). Resilience building among small businesses in low-income neighborhoods. *Journal of Small Business Management*, 60(5), 1166-1201, DOI: 10.1080/00472778.2022.2041197

Prikhidko, A., Long, H. & Wheaton, M. G. (2020). The Effect of Concerns About COVID-19 on Anxiety, Stress, Parental Burnout, and Emotion Regulation: The Role of Susceptibility to Digital Emotion Contagion. *Frontiers in public health*, 8, 567250. https://doi.org/10.3389/fpubh.2020.567250.

Qalati, S. A., Yaya, L. & Bhayo, S. H. (2023). Handbook of research on entrepreneurship and organizational resilience during unprecedented times: Antecedents of entrepreneurial resilience, doi: 10.4018/978-1-6684-4605-8.ch004.

Rahman, R. A. & Ahmad, S. (2011). Entrepreneurship Development Strategy for Poor and Needy Recipients on Capital Assistance through Zakat Distribution. *Jurnal Pengurusan*, 33, 37–44.

Raman, A. (2021). Predicaments in business ventures encountered by women entrepreneurs in Malaysia. *International Journal of Economics and Business Administration*, 0(2), 464-473.

Raudha, M. R., Sanep, A., Wahid, H. & Harun, F. M. (2011). Understanding asnaf attitude: Malaysia's experience in the quest for effective distribution program. International Zakat Conference, Bogor.

Redzuan, N. H., Kassim, S., Rosman, R., Muhammad Zuki, M. F. & Shaharuddin, S. S. (2023). An Analysis of the Impact of Islamic Microfinance Among Asnaf. In: Mansour, N., Bujosa Vadell, L.M. (eds) Islamic Sustainable Finance, Law and Innovation. *Contributions to Management Science*. Springer, Cham. https://doi.org/10.1007/978-3-031-27860-0_16

Serben, D. F. (2014). The Examination of Factors Influencing Social Media Usage by African American Small Business Owners Using UTAUT Model. ProQuest LLC.

Shiyuti, H. B. A., Zainol, F. A. & Ishak, M. S. I. (2021). Conceptualizing Asnaf Entrepreneurship for Zakat Institutions in Malaysia. *The Journal of Management Theory and Practice*, 2(1), 44-49. doi: 10.37231/jmtp.2021.2.1.87

Shiyuti, H. B. A., Zainol, F. A. & Yusoff, M. N. H. (2022). Product Distributional Mechanism as an Asnaf Entrepreneurship Support: A Case Study in Wilayah Persekutuan Kuala Lumpur, Malaysia. In: Alareeni, B., Hamdan, A. (eds) Financial Technology (FinTech), Entrepreneurship, and Business Development. ICBT 2021. Lecture Notes in Networks and Systems, vol 486. Springer, Cham. https://doi.org/10.1007/978-3-031-08087-6_41

Ukil, M. I. & Jenkins, A. (2022). Willing but fearful: Resilience and youth entrepreneurial intentions. *Journal of Small Business and Enterprise Development*, 30(1), 78-99.

Ukpere, C. L., Slabbert, A. D. & Ukpere, W. I. (2014). Rising trend in social media usage by women entrepreneurs across the globe to unlock their potential for business success. *Mediterranean Journal of Social Sciences*, 5(10), 551-559. doi: 10.5901/mjss.2014.v5n10p551

Yin, R. K. (2014). Case study research design and methods (5th ed.). Thousand Oaks, CA: Sage Publications Ltd.

Zahri, A., Muhd Adnan, N. I., Irfan, I. & Mohd Kashim, M. I. A. (2023). Microfinancing from Zakat Fund in Baitulmal Aceh and the readiness of Malaysia's asnaf entrepreneurs. *Samarah: Jurnal Hukum Keluarga dan Hukum Islam*, 7(1), 418-430.

Zakaria, F. & Harun, A. (2019). Skills and success of asnaf entrepreneurs: Islamic Spiritual Practice as Moderators. *International Journal of Accounting, Finance and Business (IJAFB)*, 4(24), 98–108.

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Determinants of Sustainable Energy Saving Behavior among University Students in Malaysia: A Case Study of Management & Science University (MSU)

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Abstract: The increasing energy demand and its impact on climate change pose serious challenges to environmental sustainability. University students, as future leaders and decision-makers, have the potential to adopt and promote sustainable energy-saving behavior in their communities. However, the factors influencing their energy-saving practices are poorly understood, especially in the Malaysian context. Using a cross-sectional survey design, this research examines the factors influencing energy-saving behavior among students of MSU. A self-administered questionnaire was distributed to MSU students, covering demographic details and variables related to energy-saving behavior and its determinants. The study employed stratified random sampling and used exploratory factor analysis (EFA) and structural equation modeling (SEM) for data analysis. The results show that social norms and perceived control over students' behaviors are the only significant factors affecting sustainable behavior to save energy among students. At the same time, environmental awareness, energy literacy, and personal attitudes have no significant effect. Social norms are the strongest driver of energy-saving behavior, followed by perceived behavioral control. The findings suggest that interventions and policies to foster sustainable energy-saving behavior among students should focus on enhancing social norms and perceived behavioral control. This research fills the knowledge gap by offering specific insight into sustainable energy-saving behavior among Malaysian university students.

Keywords: *Sustainable energy-saving behavior; Energy conservation; University Students;Structural equation modeling, Social Norms, Perceived behavioral control*

1. Introduction and Background

Reducing energy consumption is a crucial step toward achieving environmental sustainability and mitigating the adverse effects of climate change, which have become more evident and alarming in recent years (Ayeleru et al., 2023; Curto et al., 2021; Saudi et al., 2019). Energy-saving behaviors are essential not only in domestic and professional settings but also in academic institutions, especially universities (Leal Filho et al., 2022). University students are a key group in promoting energy conservation, as their involvement in energy-saving behaviors can influence their current and future energy consumption patterns (Leal Filho et al., 2022). This research examines factors affecting sustainable behavior to save energy among students at the Management & Science University (MSU) in Malaysia. Previous research has examined several factors determining energy-saving behavior, such as perceived behavioral control, energy literacy, personal attitudes, social norms, and environmental awareness (Cotton et al., 2018; Franco et al., 2022; Lee et al., 2022). However, there is a gap in understanding the specific dynamics of these factors in the Malaysian higher education context. Environmental awareness is a vital factor influencing individuals' knowledge of the environmental impacts of energy consumption and the importance of conservation (Dincă et al., 2022; Kuai et al., 2022). Studies from different regions of the world, such as Romania, China, and Europe, have highlighted the positive relationship between behavior to save energy and environmental awareness in various settings (Udalov et al., 2017). Using an integrated assessment mode in the Gulf Cooperation Council (GCC), Aldulaimi et al. (2022) revealed the necessity for member states to conserve energy and shift focus to renewable energy sources (Babatunde et al., 2023).

Another important factor that affects energy-saving behavior is energy literacy, which pertains to a person's comprehension of energy-efficient technologies and practices (Cotton et al., 2018, 2021). Research from various countries and cultures, such as Vietnam, Brazil, Belgium, and the United Kingdom, has investigated the complex relationship between behavior to save energy and student energy literacy (Franco et al., 2022; Lee et al., 2022). These studies have revealed the different factors, such as values, attitudes, and sustainability

intentions that mediate the link between energy-saving actions and energy knowledge. Personal attitudes, which include beliefs, values, and subjective norms, have also been identified as key determinants of energy-conserving behavior (Chen & Gou, 2022; Wang et al., 2023). Studies in this area emphasize that individuals who believe in energy conservation and feel responsible for reducing their energy consumption are more likely to exhibit energy conservation behaviors in their academic and non-academic domains. However, more studies are needed to investigate the intricate interaction between personal attitudes and other determinants within the specific socio-cultural context of Malaysian university students.

Another factor that shapes energy-saving behavior is social norms, which consist of descriptive norms (what others do) and injunctive norms (what others expect). Many studies in different contexts have shown how social norms affect individual choices related to energy consumption. Understanding the nuances of social norms and how they motivate energy-saving behaviors among Malaysian university students is important for creating a campus culture that supports environmental sustainability (Looi et al., 2022; Wee & Choong, 2019). Similarly, perceived behavioral control, which pertains to a person's understanding of their capacity to execute a particular action and overcome obstacles, has a significant impact (Boomsma et al., 2019; Canova & Manganelli, 2020). Findings indicate that people with higher perceived behavioral control are more inclined to participate in energy-saving activities. Information availability, resource access, and external stimuli enhance perceived behavioral control (Huang et al., 2020; Xuan et al., 2023). Exploring how the complex perceived behavioral control role among Malaysian university students can help design targeted interventions and strategies that empower them to adopt sustainable energy-saving behaviors.

This research fills the existing gaps in the academic literature by examining the relationship between environmental awareness, energy literacy, personal attitudes, social norms, perceived behavioral control, and sustainable energy-saving behavior among Malaysian university students. Focusing on MSU as a case study, this research seeks to enrich the knowledge base on the factors influencing energy-saving behavior. Moreover, the research aims to reveal how these factors can be leveraged to encourage sustainable energy practices within the campus environment. In a country facing energy consumption challenges (Babatunde et al., 2018) and climate change (Babatunde et al., 2021), understanding the drivers of energy-saving behavior among university students has profound implications. By identifying effective strategies to foster energy conservation and environmental responsibility among the younger generation, this research contributes significantly to broader efforts to achieve energy efficiency goals and cultivate a culture of sustainability in Malaysia and beyond.

2. Literature Review

Energy-saving behaviors are essential for achieving environmental sustainability, as they can help reduce energy consumption and mitigate the effects of climate change (Kasavan et al., 2021; Said et al., 2022). Various research has examined the factors that affect individual energy-conservation actions in different settings, such as households, workplaces, and universities. These factors include environmental awareness, social norms, and perceived behavioral control. Moreover, psychological theories, such as the Stimulus-Organism-Behavior-Consequences theory, the Norm Activation Model (NAM), and TPB, have provided useful frameworks for understanding these complex behaviors. This review aims to summarize the main findings from recent research on energy-saving behaviors, focusing on how these factors interact and identifying possible research gaps for further exploration.

Energy Saving Behavior and Environmental Awareness: Dincă et al. (2022) demonstrated that environmental awareness positively influenced energy-saving habits in Romania, alongside other factors such as perceived consumer effectiveness and collectivistic perspective. Kuai et al. (2022) found that increased environmental awareness significantly promoted household energy-saving behavior in China, especially among rural households, male household heads, and younger individuals. Udalov et al. (2017) revealed how motivations related to the environment positively impacted individual investment in energy efficiency and energy conservation actions in Belgium, the Netherlands, and Germany. While these studies provide valuable insights into the role of environmental awareness in promoting energy-saving behavior, they do not specifically focus on university students. Instead, the new study bridges this gap by investigating the determinants of sustainable energy-saving behavior among students in Malaysia, considering additional

factors such as perceived behavioral control, personal attitudes, energy literacy, and social norms. This approach provides a broader insight into energy conservation behavior within the context of higher education institutions.

Energy-Saving Behavior and Energy Literacy: Energy literacy and its relationship with energy-saving behavior have been examined in various contexts. Lee et al. (2022) discovered that high school students in Vietnam had low energy knowledge but high energy-saving behavior, indirectly influencing energy awareness on the intention and behavior to save energy mediated by values and attitude. Franco et al. (2022) explored students' sustainability attitudes and energy-saving intentions in higher education settings in Brazil and Belgium, identifying the main factors affecting student energy-saving, eco-friendly product use, and behavior motivated by financial considerations. Cotton et al. (2018) examined the connection between students' energy literacy and their universities' positions in a sustainability ranking, revealing significant differences in environmental attitudes among students at differently-ranked universities. Cotton et al. (2021) studied university students' energy literacy in China and the United Kingdom, highlighting cultural differences in energy knowledge, attitudes, and behaviors. These studies provide valuable insights into the role of energy literacy in promoting behavior that saves energy. However, there is a need to examine further the role of energy knowledge among university students in Malaysia, as the current study aims to do. By focusing on this specific context and including other determinants, such as personal attitudes, perceived control over behavior, and social norms, the study can contribute to a more comprehensive understanding of energy-saving behavior within higher education institutions.

Energy-Saving Behavior and Personal Attitudes: Several studies have investigated the factors influencing energy-saving behaviors and personal attitudes in recent years, focusing on various populations and settings. The relationship between these two aspects is crucial for understanding how individual choices and actions can contribute to a more sustainable future. For example, research has identified attitudes, personal norms, place attachment (Wang et al., 2023), perceived behavioral control, subjective norms, and moral norms (Chen & Gou, 2022) as significant predictors of intentions and actions related to energy conservation. Additionally, cultural values (Xuan et al., 2023) and visiting purposes (Wang et al., 2023) have been found to moderate these relationships. However, a salient research gap exists in understanding how these factors interact and how their effects may vary across different demographic groups and socio-cultural contexts. Furthermore, there is a need to explore the potential of tailored interventions that address specific populations' unique needs and preferences to promote energy-saving behaviors and attitudes effectively.

Energy-Saving Behaviors and Social Norms: Recent research has explored the connection between energy-saving behaviors and social norms in various contexts, demonstrating the key normative values' role in shaping individual actions. Tersia et al. (2021) and Xu et al. (2020) found that ascription of responsibility, descriptive norms, and injunctive norms influence behaviors to save energy differently in shared offices, while Ruokamo et al. (2022) showed that energy-saving tips, usage feedback, and online energy service platforms could lead to significant reductions in residential electricity consumption. Heib et al. (2023) identified personal norms and behavioral control as the strongest predictors of energy-saving intentions in a university setting. These findings highlight the importance of understanding the complex interplay between social norms and energy-saving behaviors and the need to explore further the role of additional factors, such as individual motivations, socio-cultural influences, and intervention design, to develop more effective strategies for promoting sustainable practices.

Energy-Saving Behaviors and Perceived Behavioral Control: Research on behaviors to save energy has explored various factors contributing to sustainable practices. Boomsma et al. (2019) discovered that heating-related energy-saving behaviors were more frequent in social housing residents experiencing condensation, dampness, and mold, with subjective norms playing a stronger role in energy-efficient homes. Canova & Manganelli (2020) extended the TPB to investigate workplace energy conservation determinants, finding that perceived behavioral control, subjective norm, cognitive attitude, and habit significantly affect intentions to save energy, with perceived behavioral control having the most impact. Huang et al. (2020) examined energy-saving among Chinese rural households, highlighting the positive influence of off-farm employment, democratic participation, literacy training or life skills, cooperative societies, and stable, clean energy usage. However, perceived behavioral control and ecological values only significantly affected energy-

saving behavior, not solar energy use. Xuan et al. (2023) combined SOBC, NAM, and TPB to study the impact of external and internal stimuli on the behavior of urban Vietnamese residents to save energy. The results opined that external factors positively affected energy-saving cultures, whereas internal factors activated personal norms. Furthermore, a positive moderating effect was observed by long-term orientation on the association between intention to save energy, behavior, and habit. At the same time, collectivism only moderated the connection between behavior to save energy and habit. Despite these insights, further research is required to study the role of individual differences in energy-saving behaviors across various contexts.

Energy-saving behaviors are complex phenomena influenced by multiple factors, including environmental awareness, social norms, perceived behavioral control, and contextual elements. While existing theories like the SOBC, the NAM, and the TPB theory have provided valuable insights into understanding these behaviors in various settings like workplaces and households, the specific determinants of university students' behaviors to save energy remain understudied. As the urgency of climate change intensifies, promoting energy conservation and consumption efficiency becomes paramount. Technological innovation in creating energy-efficient equipment is essential, but effective behavioral interventions must complement it to encourage sustainable energy practices. While awareness-raising campaigns are a starting point, they alone may not lead to significant and sustained behavioral change. Consequently, there is a pressing need for research focusing on behavioral interventions, considering the unique context of university students. Identifying the specific factors that influence energy-saving behaviors in this demographic and examining the impact of tailored interventions will provide crucial insights for developing effective strategies to foster energy conservation and environmental sustainability among university students in Malaysia. By addressing these research gaps, this paper advances knowledge on energy-saving behaviors and contributes to the efforts to combat climate change throughbehavioral change at the university level.

3. Methodology

Based on the extended TPB theory, this research employed a cross-sectional survey methodology to collect data and analyze the factors affecting sustainable behavior to save energy among university students. The study focused on the case of MSU and administered a survey questionnaire to the students. The questionnaire is made up of two main sections. The first section (Section A) asked for five demographic items: age, gender, year of study, faculty and type of accommodation. The second section (Section B) measured the participants' level of agreement on 25 items related to six variables: Social Norms, Environmental Awareness, Personal Attitudes, Energy Literacy, Perceived Behavioral Control and Sustainable Energy-Saving Behaviors. The responses for this section used a 5-point Likert scale from one (strongly disagree) to five (strongly agree). Table 1 shows the operationalization of each variable in the questionnaire.

Table 1: Number of Measurement Items

Construct	Number of Question	Per Variable
Environmental Awareness	4	Questions (1-4)
nergy Literacy	4	Questions (5-8)
ersonal Attitudes	4	Questions (9-12)
ocial Norms	4	Questions (13-16)
erceived Behavioral Control	4	Questions (17-20)
ustainable Energy Saving Behavior	5	Questions (21-25)

This study used an online survey created with Google Forms to collect data from the respondents. This method was chosen because of its advantages and suitability for this research. The benefits include a lower budget requirement, as the questionnaire can be emailed and distributed to many respondents simultaneously. Respondents can also complete the questionnaire at their convenience. The data collected is used to test the developed model and examine the relationships between the variables.

Sampling Method: This research employed a technique of stratified random sampling for participant selection. The target population was the university students enrolled at MSU in Malaysia. To ensure

representativeness and account for possible differences among faculties and programs, the population was stratified based on the academic faculties or departments within the university. A proportionate random sampling method was applied to each stratum to select the participants. This sampling method ensured that each stratum was adequately represented in the sample, allowing more accurate generalization of the findings to the target population.

Population and Sample Size: According to the school record, the population of MSU Shah Alam students was about 15,000. Based on Krejci & Morgan's (1975) table, the target sample size for this population size was 375. However, due to poor responses from the respondents, this study only obtained 307 samples. Considering the complexity of the proposed structural equation model and the desire for robust analysis, a sample size of 307 was deemed appropriate. This sample size allowed for sufficient statistical power to detect significant relationships between the variables and increased the reliability and generalizability of the findings.

4. Results and Discussion

Respondents' Profile: The respondents were 41.4% male and 58.6% female MSU students. Their average age was 21.31 years (SD = 2.240); most were year-one students. The respondents came from different faculties or departments within the university: 55.0% from FBMP, 16.9% from FHLS, 9.1% from IMS, 8.8% from FISE, 4.6% from SESS, 3.9% from SPH, and 1.6% from SHCA. Most respondents (54.1%) lived in off-campus private housing, 36.2% in off-campus shared housing and 9.8% in MSU residents.

Reliability Analysis: The reliability analysis of the scales utilized for measurement in the research was assessed using Cronbach's alpha or other appropriate measures. The measure of internal consistency for each construct must exceed a minimum value of 0.6. Sekaran & Bougie (2016) and Awang (2014) suggest that Cronbach's alpha value of more than 0.6 indicates reliable instruments for research. The reliability analysis verifies the instrument's reliability for Perceived Behavioral Control, Environmental Awareness (EA), Personal Attitudes (PA), Energy Literacy (EL), Social Norms (SN) and Sustainable Energy Saving Behavior (SESB). Table 2 shows that Cronbach's alpha value is more than 0.7 for all constructs, indicating high reliability.

Table 2: Assessment of Reliability for All Constructs

Construct	No of Items	Cronbach's Alpha
Environmental Awareness	4	0.774
Energy Literacy	4	0.830
Personal Attitudes	4	0.862
Social Norms	4	0.875
Perceived Behavioral Control	4	0.891
Sustainable Energy Saving Behavior	5	0.840

Normality Assessment: The normality of the data was assessed next. Table 3 displays the values of kurtosis and skewness for each construct. The data is normal if the absolute skewness and kurtosis values are 2.0 or lower (Hair et al., 2010). The results indicate that all constructs have skewness values between -0.401 and -0.043 and kurtosis values between -0.586 and -0.168, which are within the acceptable range. This implies that the data is normally distributed for all constructs.

Table 3: Normality Test

Construct	Skewness	Kurtosis
nvironmental Awareness	-0.062	-0.302
nergy Literacy	-0.043	-0.168
ersonal Attitudes	-0.319	-0.514
ocial Norms	-0.043	-0.394
erceived Behavioral Control	-0.058	-0.586
ustainable Energy Saving Behavior	-0.401	-0.401

Confirmatory Factor Analysis (CFA) Measurement Model: A measurement model combining all the constructs using CFA was established—the measurement model with the factor loadings for all items higher than 0.6, as shown in Figure 1. However, the fitness indexes failed to reach the necessary threshold despite all the factor loadings being within an acceptable range. This issue may be due to redundant items. Redundant items can be identified using Modification Indices (MI). When the MI value is greater than 15 (MI >15), it indicates that a pair of items is redundant. After deleting one item (SESB5) with an MI value greater than 15 and correlating each pair of redundant items, Table 4 shows that the fitness indexes met the level required for the validity of all constructs as recommended by Awang (2014), Awang et al. (2023) and (Zainudin et al. 2017).

Figure 1: The Pooled Measurement Model for Confirmatory Factor Analysis (CFA)

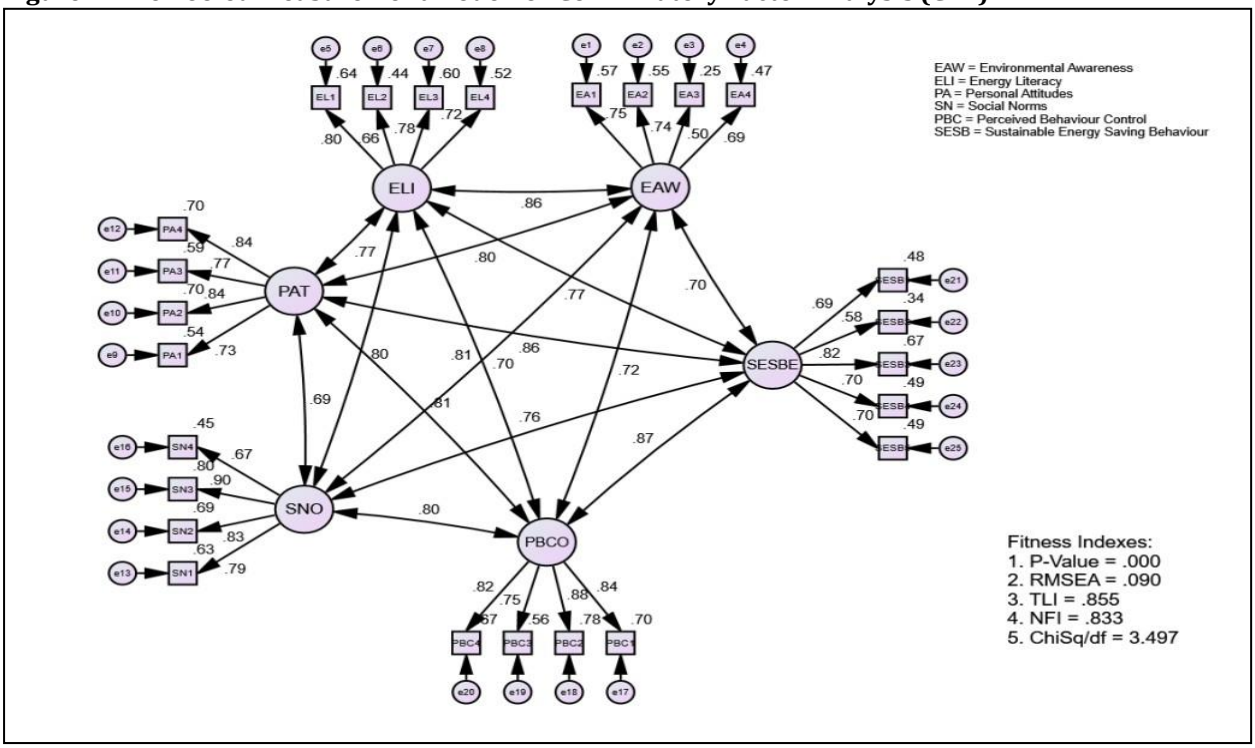


Table 4: Fitness Indexes Assessment for Final Measurement Model

Category	Index	Index Value	Comment
Absolute Fit	RMSEA	0.075	The level required is attained
Incremental Fit	TLI	0.903	The level required is attained
	NFI	0.877	The level required is attained
Parsimonious Fit	Chis/d	2.712	The level required is attained

The results in Table 5 and Table 6 show that the measurement model has good discriminant validity, convergent reliability and validity. Convergent validity refers to the degree to which the items of a construct measure the same concept. Reliability pertains to the degree to which the items of a construct are consistent and free of measurement errors. Discriminant validity means the degree to which the constructs are unique and do not overlap. These findings indicate that the measurement model meets the following criteria for these validity and reliability tests:

- The loadings of all factors for each item exceed 0.6, which indicates that they are significant and relevant for their respective constructs.
- Each construct with an average variance extracted (AVE) of more than 0.5 reveals that their respective constructs account for over fifty percent of the item variance.
- Each construct with a composite reliability (CR) of more than 0.7 reveals that each construct's items

are reliable and internally consistent.

- Each construct with the square root of the AVE for each construct exceeds the correlations between constructs, indicating that each construct has a stronger association with its items than with other constructs.

These results suggest that the measurement model has a higher reliability and validity. The constructs and items are well-defined and measured (Hair et al., 2010).

Table 5: Composite Reliability and Convergent Validity

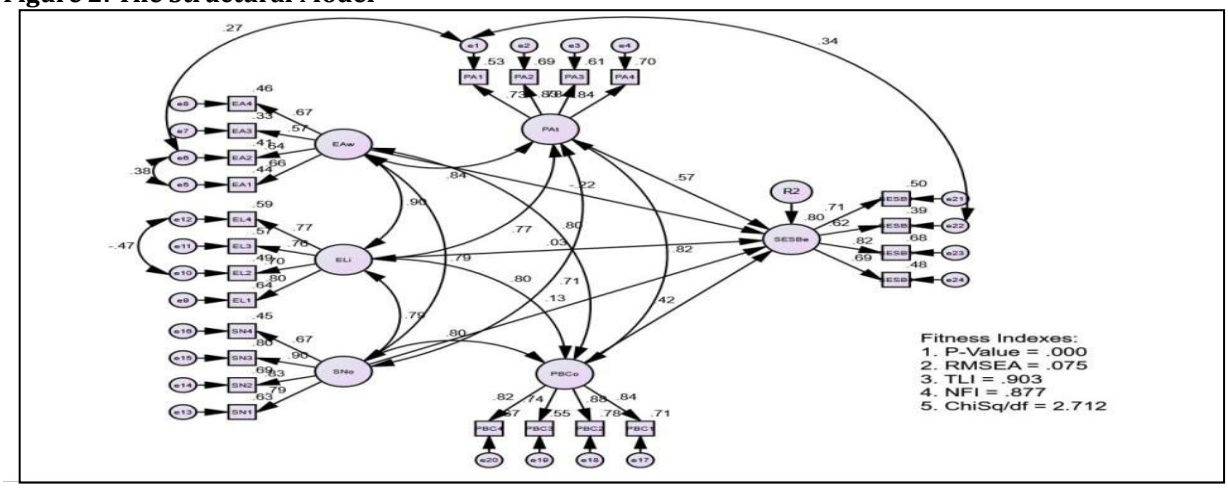
ONSTRUCT	ITEM	FACTOR LOADING	CR	AVE
Environmental Awareness	EA1	0.664	0.740	0.455
	EA2	0.640		
	EA3	0.600		
	EA4	0.675		
Energy Literacy	EL1	0.802	0.843	0.575
	EL2	0.698		
	EL3	0.758		
	EL4	0.770		
Personal Attitudes	PA1	0.726	0.872	0.632
	PA2	0.833		
	PA3	0.779		
	PA4	0.836		
Social Norms	SN1	0.793	0.877	0.643
	SN2	0.830		
	SN3	0.896		
	SN4	0.671		
Perceived Behavioral Control	PBC1	0.840	0.893	0.677
	PBC2	0.883		
	PBC3	0.744		
	PBC4	0.816		
Sustainable Energy Saving Behavior	SESB1	0.710	0.806	0.512
	SESB2	0.622		
	SESB3	0.823		
	SESB4	0.692		

Table 6: Discriminant Validity Index Summary

CONSTRUCT	EA	EL	PA	SN	PBC	SESB
Environmental Awareness	**0.675**					
Energy Literacy	0.420	**0.758**				
Personal Attitudes	0.310	0.360	**0.795**			
Social Norms	0.400	0.500	0.350	**0.802**		
Perceived Behavioral Control	0.390	0.480	0.390	0.520	**0.823**	
Sustainable Energy SavingBehavior	0.360	0.440	0.41	0.480	0.530	**0.716**

Structural Model: After establishing the measurement model's validity and reliability, a structural model was employed to examine the developed hypotheses. Figure 2 shows the results indicating the path coefficient from each exogenous construct to the endogenous construct. Table 7 summarizes the results of the hypothesis testing, showing that two hypotheses were supported and three hypotheses were not supported. The relationships between environmental awareness (β = -0.285, p = 0.359), energy literacy (β = 0.029, p = 0.870) and personal attitudes (β = 0.128, p = 0.160) and sustainable behavior to save energy were not significant. However, both social norms (β = 0.759, p < 0.001) and perceived control over behavior (β = 0.429, p < 0.001) had significant effects on sustainable behavior to save energy.

Figure 2: The Structural Model



The findings of this research showed that environmental awareness, energy literacy, and personal attitudes did not significantly affect the sustainable energy-saving behavior of students, while social norms and perceived behavioral control did. Different theoretical and empirical perspectives can explain these findings. First, according to the value-belief-norm theory, environmental awareness leads to pro-environmental behavior only when it activates personal norms, which are the sense of moral obligation to act environmentally friendly (Stern et al., 1999). Moreover, perceived behavioral control and social support can enhance or inhibit the influence of personal norms on behavior, depending on whether they facilitate or hinder the enactment of one's moral values. Therefore, environmental awareness may not directly affect students' sustainable energy-saving behavior but rather indirectly through personal norms.

Second, according to the TPB (Ajzen et al., 2005), individuals' behaviors are shaped by their intentions, which are, in turn, affected by their social norms, attitudes, and perceived control over their behavior. Attitude pertains to an individual's assessment of behavior as either positive or negative. Subjective norms involve an individual's perception of peer pressure to take part or refrain from taking part in an action, and perceived control over behavior relates to an individual's perception of the simplicity or complexity of executing a behavior. Therefore, energy literacy may not directly affect students' sustainable energy-saving behavior but rather has an indirect effect through perceived control over behavior, attitude, and norms. This conforms with the findings of Lee et al. (2022), who discovered that energy knowledge did not directly affect energy-saving intention or behavior but rather had an indirect effect through energy-related values and attitudes toward energy-saving.

Table 7: Fitness Indexes Assessment for Final Measurement Model

CONSTRUCT	PATH	CONSTRUCT	ESTIMATE	S.E.	C.R.	P	RESULT
SESBe	←	Environmental Awareness	0.285	0.311	0.917	0.359	Not Significant
SESBe	←	EnergyLiteracy	0.029	0.180	0.164	0.870	Not Significant
SESBe	←	PersonalAttitudes	0.128	0.091	1.405	0.160	Not Significant
SESBe	←	Social Norms	0.759	0.177	4.295	***	Significant
SESBe	←	Perceived BehavioralControl	0.429	0.117	3.678	***	Significant

Third, according to the attitude-behavior gap theory (Kollmus & Agyeman, 2002), there is often a discrepancy between what people say they will do and what they do concerning environmental issues. This gap can be explained by factors intervening between attitude and behavior, such as lack of knowledge, resources, time, skills, feedback, trust, social norms, habits, or incentives. Therefore, personal attitudes may not directly affect

students' sustainable energy-saving behavior but rather depend on the presence or absence of these intervening factors. This is supported by the findings of Users TCP and IEA (2020), who argued that personal attitudes are not stable or consistent predictors of behavior, especially when influenced by external factors such as situational constraints, habits, or incentives.

In contrast to these non-significant effects, social norms had a statistically significant impact on students' sustainable behavior to save energy. This reveals that students were more likely to save energy when they perceived that others were doing so or expected them to do so. This finding is consistent with previous studies highlighting social norms' influence on individual energy-saving choices and actions (e.g., Qin & Chen, 2022; Siqueira et al., 2022; Udalov et al., 2017). Social norms can act as a source of information, motivation, or pressure for individuals to adopt or avoid certain behaviors, depending on the perceived prevalence or desirability of the norm (Chen & Gou, 2022). In addition to social norms, perceived behavioral control significantly impacted students' sustainable behavior to conserve energy. This means that students were more likely to save energy when they felt confident performing the behavior and overcoming any barriers.

5. Conclusion

This research investigates the determinants of sustainable behavior to save energy among Malaysian university students, using the extended TPB as our theoretical framework. We collected data from 307 students at MSU through a survey method and analyzed it using SEM-Amos. Our results showed that only perceived behavioral control and social norms had statistically significant influences on sustainable energy-saving behavior among the students. Contrary to our expectations, environmental awareness, energy literacy, and personal attitudes did not significantly impact such behavior. These results pose practical and important theoretical implications.

Theoretically, our study adds to the literature on students' sustainable behaviors by providing empirical evidence for the applicability and extension of the TPB in the Malaysian university context. We confirmed the reliability of the theory's constructs, namely perceived behavioral control, social norms, and personal attitudes, and introduced additional factors such as environmental awareness and energy literacy. Moreover, our study highlighted the different levels of influence these factors had on sustainable energy-saving behavior among Malaysian university students, identifying social norms as the strongest predictor.

Practically, our findings have implications for policymakers, educators, and university administrators who want to foster sustainable energy-saving behavior among Malaysian university students. Our results suggest that enhancing students' perceived behavioral control and social norms can increase their intention and behavior to conserve energy. This insight could inform the development of strategies such as environmental education campaigns, supportive infrastructures, incentives and feedback mechanisms, and peer communication. Furthermore, we recommend fostering energy-saving habits among students through positive reinforcement, continuous practice, and barrier reduction.

Despite the contributions of our study, we acknowledge its limitations. First, the sample size was relatively small and was limited to one university in Malaysia, which could restrict the applicability of our results to a broader context. Future research could use a larger and more diverse sample of university students from different institutions and regions. Second, the paper used a cross-sectional design, which may not capture energy-saving behavior's dynamic and temporal aspects. Examining the causal relationships within a longitudinal or experimental design could provide deeper insights. Third, the study relied on self-reported measures, which may introduce biases such as social desirability or recall errors. Using objective measures, such as meter readings or observations, could improve the accuracy of the data. This study did not consider potential influences such as personality traits, emotions, values, and situational factors. Future research could explore these factors and their interactions with the existing constructs within the TPB model.

In conclusion, our study offers a comprehensive investigation into the factors affecting sustainable energy-saving behavior among Malaysian university students, employing the extended TPB as our guiding framework. The research emphasizes the key roles of social norms and perceived behavioral control in shaping such behavior. These findings are significant for theoretical advancement, practical interventions,

and policy formulation. While our research has limitations, it lays the groundwork for a further thorough study of the complex factors affecting energy-saving behavior. As we collectively strive for a sustainable future, further research could build upon these insights to devise effective strategies for promoting energy conservation among

References

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. https://doi.org/10.47985/dcidj.475

Ajzen, I., Fishbein, M., Lohmann, S. & Albarracín, D. (2005). The influence of attitudes on behavior. In *The handbook of attitudes* 1. 197–255).

Aldulaimi, S. H., Abdeldayem, M. M., Al-Sanjary, O. I. & Abdelhakim, M. (2022). A Paradigm of the Sustainability and Energy Saving Strategies in GCC. 2022 ASU International Conference in Emerging Technologies for Sustainability and Intelligent Systems, ICETSIS 2022, 10–16. https://doi.org/10.1109/ICETSIS55481.2022.9888837

Al Mamun, A., Hayat, N., Masud, M. M., Yang, Q., Salameh, A. A. & Salleh, M. F. M. (2022). Energy Conservation Behavior Among the Malaysian Youth: A Study Under the Premises of Value- Belief-Norm Model. *Frontiers in Energy Research*, *10*(May), 1–10. https://doi.org/10.3389/fenrg.2022.902619

Awang, Z. (2014). A handbook on structural equation modeling using AMOS. MPWS Rich Resources.

Awang, Z., Afthanorhan, W. M. A. W., Hui, L. S. & Zainudin, N. F. S. (2023). SEM Made Simple 2.0: A General Approach of Structural Equation Modelling. Universiti Sultan Zainal Abidin Press.

Ayeleru, O. O., Adeniran, J. A., Ntsaluba, S. B. K., Fajimi, L. I. & Olubambi, P. A. (2023). An Economic Analysis of Energy Consumption at Student Residences in a South African-Based Academic Institution Using NARX Neural Network. *Energies*, 16(2). https://doi.org/10.3390/en16020942

Babatunde, K. A., Fathin, F. S., Nor Ghani, M. N. & Rawshan, A. B. (2018). Reducing Carbon Dioxide Emissions from Malaysian Power Sector: Current Issues and Future Directions. *Jurnal Kejuruteraan*, 1(6), 59–69.

Babatunde, K. A., Said, F. F., Md Nor, N. G., Begum, R. A. & Mahmoud, M. A. (2021). Coherent or conflicting? Assessing natural gas subsidy and energy efficiency policy interactions amid CO2 emissions reduction in Malaysia's electricity sector. *Journal of Cleaner Production*, 279, 123374. https://doi.org/10.1016/j.jclepro.2020.123374

Babatunde, K. A., Mahmoud, M. A., Ibrahim, N. & Said, F. F. (2023). Malaysia's Electricity Decarbonisation Pathways: Exploring the Role of Renewable Energy Policies Using Agent-Based Modelling. Energies, 16(4), 1–15. https://doi.org/10.3390/en16041720

Boomsma, C., Jones, R. V., Pahl, S. & Fuertes, A. (2019). Do psychological factors relate to energy-saving behaviors in inefficient and damp homes? A study among English social housing residents. *Energy Research and Social Science*, 47, 146–155. https://doi.org/10.1016/j.erss.2018.09.007

Canova, L. & Manganelli, A. M. (2020). Energy-saving behaviors in workplaces: Application of an extended model of the theory of planned behavior. *Europe's Journal of Psychology*, 16(3), 384–400. https://doi.org/10.5964/ejop.v16i3.1893

Chen, X. & Gou, Z. (2022). Bridging the knowledge gap between energy-saving intentions and behaviors of young people in residential buildings. *Journal of Building Engineering*, 57, 104932. https://doi.org/https://doi-org.eresourcesptsl.ukm.remotexs.co/10.1016/j.jobe.2022.104932

Cotton, D. R. E., Winter, J., Miller, W. & Dalla Valle, L. (2018). Is students' energy literacy related to their university's position in a sustainability ranking? *Environmental Education Research*, 24(11), 1611–1626. https://doi.org/10.1080/13504622.2017.1395394

Cotton, D. R. E., Zhai, J., Miller, W., Dalla Valle, L. & Winter, J. (2021). Reducing energy demand in China and the United Kingdom: The importance of energy literacy. *Journal of Cleaner Production*, 278, 123876. https://doi.org/10.1016/j.jclepro.2020.123876

Curto, D., Franzitta, V., Guercio, A. & Panno, D. (2021). Energy retrofit. A case study—Santi Romanodormitory at Palermo University. *Sustainability (Switzerland)*, 13(24). https://doi.org/10.3390/su132413524

Dincă, V. M., Busu, M. & Nagy-Bege, Z. (2022). Determinants with Impact on Romanian Consumers' Energy-Saving Habits. *Energies*, 15(11), 1–18. https://doi.org/10.3390/en15114080

Franco, D., Macke, J., Cotton, D., Paço, A., Segers, J. P. & Franco, L. (2022). Student energy- -saving in higher education tackling the challenge of decarbonization. *International Journal of Sustainability in Higher Education*, 23(7), 1648–1666. https://doi.org/10.1108/IJSHE-10-2021- 0432

Hair, J. F., Black, W. C. & Babin, B. J. (2010). Multivariate Data Analysis: A Global Perspective. Pearson Prentice Hall.

Heib, S., Hildebrand, J. & Kortsch, T. (2023). Energy saving behavior in university organizations: The value of norm constructions in a "rational choice" action model. *Frontiers in Psychology*, 14, 1–12. https://doi.org/10.3389/fpsyg.2023.1082061

Huang, F., Liu, J., Wang, Z., Shuai, C. & Li, W. (2020). Of job, skills, and values: Exploring rural household energy use and solar photovoltaics in poverty alleviation areas in China. *Energy Research and Social Science*, 67, 101517. https://doi.org/10.1016/j.erss.2020.101517

Kasavan, S., Bin Sharif Ali, S. S. & Siron, R. (2021). The Behaviour of Households Towards Electricity Consumption: a Case Study At Seremban. *Planning Malaysia*, 19(4), 219–230. https://doi.org/10.21837/pm.v19i18.1047

Kollmus, A. & Agyeman, J. (2002). Mind the Gap: Why Do People Act Environmentally and What Are the Barriers Mind the Gap: why do people act environmentally and what are the barriers? *Environmental Education Research*, August 2002, 37–41. https://doi.org/10.1080/1350462022014540

Kuai, P., Zhang, X., Zhang, S. & Li, J. (2022). Environmental awareness and household energy saving of Chinese residents: Unity of knowing and doing or easier said than done? *Journal of Asian Economics*, 82, 101534. https://doi.org/https://doi.org/10.1016/j.asieco.2022.101534

Leal Filho, W., Dinis, M. A. P., Sivapalan, S., Begum, H., Ng, T. F., Al-Amin, A. Q., Alam, G. M., Sharifi, A., Salvia, A. L., Kalsoom, Q., Saroar, M. & Neiva, S. (2022). Sustainability practices at higher education institutions in Asia. *International Journal of Sustainability in Higher Education*, 23(6), 1250–1276. https://doi.org/10.1108/IJSHE-06-2021-0244

Lee, Y. F., Nguyen, H. B. N. & Sung, H. T. (2022). Energy literacy of high school students in Vietnam and determinants of their energy-saving behavior. *Environmental Education Research*, 28(6), 907–924. https://doi.org/10.1080/13504622.2022.2034752

Looi, Y. H., Nguyen, L. T. P. & Muthaiyah, S. (2022). Factors Affecting University Students' Saving Behaviour in Malaysia. Atlantis Press International BV. https://doi.org/10.2991/978-94-6463- 080-0_8

Qin, B. & Chen, H. (2022). Does the nudge effect persist? Evidence from a field experiment using social comparison messages in China. *Bulletin of Economic Research*, 74(3), 689–703. https://doi.org/10.1111/boer.12313

Ruokamo, E., Meriläinen, T., Karhinen, S., Räihä, J., Suur-Uski, P., Timonen, L. & Svento, R. (2022). The effect of information nudges on energy saving: Observations from a randomized field experiment in Finland. *Energy Policy*, 161(December 2021). https://doi.org/10.1016/j.enpol.2021.112731

Said, F. F., Babatunde, K. A., Nor, N. G. M., Mahmoud, M. A. & Begum, R. A. (2022). Decarbonizing the Global Electricity Sector through Demand-Side Management: A Systematic Critical Review of Policy Responses. *Jurnal Ekonomi Malaysia*, 56(1), 71–91. https://doi.org/10.17576/JEM-2022-5601-06

Saudi, M. H. M., Sinaga, O., Roespinoedji, D. & Tarofder, A. K. (2019). Experimenting with the Energy Economic Variables Regarding the Long-haul Consequences on Indonesia using Vector Error Correction Model. *International Journal of Energy Economics and Policy*, 9(6), 503–510. https://doi.org/10.32479/ijeep.8695

Sekaran, U. & Bougie, R. (2016). *Research Methods For Business: A Skill Building Approach*. Wileyand Sons.

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A. & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, 6(2), 81–97.

Tverskoi, D., Xu, X., Nelson, H., Menassa, C., Gavrilets, S. & Chen, C. fei. (2021). Energy saving at work: Understanding the roles of normative values and perceived benefits and costs in single-person and shared offices in the United States. *Energy Research and Social Science*, 79(May), 102173. https://doi.org/10.1016/j.erss.2021.102173

Udalov, V., Perret, J. & Vasseur, V. (2017). Environmental motivations behind individuals' energy efficiency investments and daily energy-saving behavior: evidence from Germany, the Netherlands and Belgium. *International Economics and Economic Policy*, 14(3), 481–499. https://doi.org/10.1007/s10368-017-0381-7

Users TCP and IEA. (2020). Behavioral insights for demand-side energy policy and programs: An environment scan, User-Centered Energy Systems Technology Collaboration Program. December. https://doi.org/10.47568/6OR105

Wang, Q. C., Lou, Y. N., Liu, X., Jin, X., Li, X. & Xu, Q. (2023). Determinants and mechanisms driving energy-saving behaviors of long-stay hotel guests: Comparison of leisure, business and extended-stay residential cases. *Energy Reports*, 9, 1354–1365. https://doi.org/10.1016/j.egyr.2022.12.051

Wee, S. C. & Choong, W. W. (2019). Gamification: Predicting the effectiveness of a variety of game design elements to intrinsically motivate users' energy conservation behavior. *Journal of Environmental Management*, 233, 97–106.https://doi.org/10.1016/j.jenvman.2018.11.127

Xu, X., Chen, C. F., Li, D. & Menassa, C. (2020). Energy Saving at Work: Exploring the Role of Social Norms, Perceived Control and Ascribed Responsibility in Different Office Layouts. *Frontiers in Built Environment*, 6, 1–12. https://doi.org/10.3389/fbuil.2020.00016

Xuan, V. N., Loan, L. T., Hoa, N. M. & Dao, N. T. (2023). Using a Unified Model of TPB, NAM, and SOBC to Investigate the Energy-Saving Behaviour of Urban Residents in Vietnam: Moderation Role of Cultural Values. *Sustainability (Switzerland)*, *15*(3). https://doi.org/10.3390/su15032225

Zainudin, A., Habsah, M., Fauzilah, S., Mohammad, A. S., Hoque, M. & Kamaruzaman, J. (2017). Social Business Efficiency: Instrument Development and Validation Procedure using Structural Equation Modelling. *International Business Management*, 11(1), 222–231.

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Factors of Gig Job Involvement and the Effect on B40 and M40 Socio-economic Sustainability

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Abstract: The emergence of information and communication technology (ICT) departed from conventional working arrangements to create new ones that permit interaction between employers and employees via apps and systems. The gig economy has arisen as a key theme in a recent independent review of modern employment practices. However, most of the existing literature focused on the implications of growth in these arrangements for workers and their families. Realizing the importance of the research on job involvement for Malaysian citizens specifically among B40 and M40 to opt for gig work is still largely unexplored, hence, this study aims to explore the factors influencing the involvement of a gig worker among B40 and M40 while examining the effect on the enhancement of the B40 and M40 segment's socio-economic sustainability. Using a purposive sampling method, the data were collected through a survey among gig workers in Malaysia. A total of 1415 valid questionnaires were gathered from the gig workers in 14 states of Malaysia. Additionally, SPSS 28.0 was applied to test the hypotheses. The results indicated that circumstances, earnings, risk, prospects, and workload had a positive relationship with the B40 and M40 socio-economic sustainability while flexibility is not significant toward B40 and M40 socio-economic sustainability. The result also shows that there is a significant difference between B40 and M40 income groups toward socio-economic sustainability. Findings from this study contributed new knowledge on the gig economy in Malaysia. The research also assists policymakers in understanding holistically the current job scenario of gig workers to formulate policies, incentives, and development programs.

Keywords: *Gig Job, Gig Economy, Socio-economic, Sustainability*

1. Introduction and Background

A gig economy is an open capitalist model where individuals make money for a short period or a long time Huws et al. (2017). According to Heeks (2017), virtual employment is a rapidly rising economic trend that will shape the future of employment and economic growth in both developing and developed countries. From this point, the working structure is often by commerce rather than traditional employment. Workers in the gig economy are typically employed as subcontractors and are not eligible for minimum wage and overtime protections under federal and state labor laws. The physical gig economy is internet-based work arrangements whereby people discover short-term work or tasks using websites or smartphone apps connecting with clients and workers (Kuhn & Galloway, 2019). Globally, 70 million workers are estimated to have registered with online labor platforms that facilitate remote forms of gig work. Meanwhile, in Malaysia, a study on the agile workforce has found that 38 percent of the respondents in Malaysia who are currently in full-time employment are looking to enter the gig economy in the next 12 months. In addition, Malaysian household income has been categorized into their level of income groups, which are T20, M40, and B40 (Ezzatul Adahwiyah et al., 2021). According to the Department of Statistics Malaysia (DOSM, 2020), based on a survey in 2020, RM 4,850 was indeed the B40 group consisting of 2.78 million households. On the other hand, the M40 group was 2.78 million families, with income ranging from RM 4,851 to RM 10,970. Much of the discussion of the gig economy has focused on the implications of growth in these arrangements for workers and their families. However, the research on job involvement for Malaysian citizens specifically among B40 and M40 to opt for gig work is still largely unexplored and needs to be determined. Hence, this study aims to explore the factors influencing the involvement of a gig worker among B40 and M40 while examining the effect on the enhancement of the B40 and M40 segment's socio-economic sustainability.

2. Literature Review

Numerous variables might influence those who work in the gig economy to accept gig labor. Aside from that, an uncontrolled element directly induces individuals to operate as gig laborers. Many excellent people have been laid off globally as a result of the business's unstable status, which could not last long and was less progressive. Many firms are being forced to shut down due to movements controlled by the monarch and the government. When the government carried out the movement restriction order, the business sector viewed societal engagement as forcibly screaming down. Based on the findings done by the previous researcher, reviewing the existing literature, several factors influence the B40 and M40 populations to be involved in the gig economy as follows:

Earning: Earnings fluctuate between standard jobs and non-standard jobs as well as known as the gig economy where the availability pulls independent workers for a short period and enables to task rate amount. Workers in traditional employment may have to work eight hours every day. However, in the gig economy, employees make more money in less time than by spending eight hours at a desk. Gig workers' engagement with platforms may also differ, and it relies on their commitment to work full-time or part-time, which affects worker remuneration. Keith et al. (2019) point out that gig workers' incomes are flexible and correlate with the gig economy's sectors and how they interpret employment. A study in an online course sought to identify the driving forces behind people's decision to work as gig workers, and the result indicated that economic value is the primary factor in becoming online gig workers (Alif et al., 2020). Moreover, Valente et al. (2019) explored the factors that led people in poor nations to enter the sharing economy as Brazilian Uber drivers and it was found that the main reason was to generate more cash.

The different platforms of the gig economy give extensive thoughtful of the earning and job involvement in the gig economy platform. On the sharing economy platform, 120 Pakistan e-hailing drivers intend to participate in the sharing economy because of the economic benefit they claim managed to earn income as primary and supplementary income (Raza et al., 2021). Silva Júnior et al. (2022) also claimed that app-based drivers are demanding flexible work arrangements by sharing their private assets with the public because of earning extra income from the platform. In addition, Nawaz et al. (2019), pinpoint the driving forces that keep freelancers interested in this field and encourage them to continue. The result specified that economic value significantly impacted the freelancer value proposition. Earning is not only the issue when gig workers are engaged in that platform. Beyond that, the individual becomes the major income distribution in the family. Mahmod and Hassan (2020) claimed that extrinsic motivation acts as money that leads women to participate in the spatial crowdsourcing platform due to being the family's breadwinner. As a whole, gig workers are motivated to supply themselves to get more economic benefits such as more income or supplementary income to maintain their status quo by involving the gig economy platform. Therefore, the following hypothesis developed:
H1: *Earning significantly influences the gig worker's socio-economic sustainability.*

Workload: The concept of workload in gig jobs can vary depending on the nature of the work and the specific gig. Gig workers have control over the number of projects they take on, allowing them to adjust their workload based on their capacity and preferences. According to Churchill and Craig (2019), some gig workers may spend fewer hours on the most uncomplicated assignment to maintain a better work-life balance, while others would have to work extraordinarily long hours to keep up with their pace. Hodor (2020), states that the perception of gig workers differs from conventional employees, and they are more susceptible to incentive compensation. Because of task-based compensation, gig workers are motivated to take on more tasks and responsibilities. Liang et al. (2018) reasoned that people are profit-orientated; they are desirous and extrinsically motivated to make a tremendous effort on tasks and job demands regardless of the job's complexity. It has been widely noted and determined that the gig economy's lighter workload results from its unique features and traits, such as short-term contracts (Katsnelson & Oberholzer-Gee, 2021). According to a study by Banik et al. (2020), freelancers join the gig economy because of their freedom, independence, and control over their work schedules and workload.

Similarly, Pichault and McKeown (2019) contended that increased autonomy also opens up opportunities for job customization, professional assistance in avoiding organizational intrusions, control over workload and

speed of work, skill development, and scheduling of time and space in the contemporary working arrangement. Jain et al. (2021) revealed that workload implicit is the vital factor that drives Gen Z to participate in the gig economy, and the result showed that males and females equally show the most significant workload factor. The author suggests that Gen Z understands the need for reasonable workloads that can be accomplished effectively and on time. As a whole, based on the above discussion hypothesized that workload significantly influences job involvement in the gig economy and acts as a predictor for the socio-economic sustainability of the gig workers.
H2: *Workload significantly influences the gig worker's socio-economic sustainability.*

Flexibility: Flexibility refers to the autonomy and control independent employees have over their work schedules, resulting in flexible and irregular labor based on hours or even shorter durations (Zheng & Yang, 2020). Flexible work schedules are more customizable than typical working days, allowing employees to work around personal or family obligations. Also, flexibility or freedom to execute is available as long as production is observable. Regardless, the entity will always have a benefit and a drawback. According to Ugargol and Patrick (2018), employee engagement and flexibility go hand in hand. In addition, most employees adopted flexible work hours, flexible shifts, and work-from-home arrangements, indicating that these helped them combine work and family life. However, the gig economy will be more flexible for independent contract workers than the contractual workers. For instance, gig workers initialize the responsibility with just access to the internet.

According to Lehdonvirta (2018), the respondents have revealed positive and negative perceptions while working online with flexible work arrangements. For example, the respondents managed to care for their children while doing the job; meanwhile, some claim they did not work because they lacked control over their responsibilities. Nawaz et al. (2019) intended to investigate the motivation factor that drives freelancers to engage in the gig economy platform and autonomy value was significantly correlated with the Freelancer value proposition (FVP) in the course inherited benefit of doing freelancing. In addition, Riyono and Usman (2022) also claimed that most freelancers decided to work full-time in the freelancer IT sector on the grounds of flexibility and adequate time to spend with family members and a degree of freedom to make decisions, namely freedom over decision-making. Wulandari et al. (2019) indicated that flexibility played an essential role in decision-making in opting for the Sribulancer platform. The flexibility factors will undoubtedly come to mind when considering employment in the gig economy in comparison to traditional work settings. Employees have the best of both worlds by working on a gig economy platform that is managed to maintain their socioeconomic status while also allowing them to enjoy flexibility. Hence, the following hypothesis was formulated:
H3: *Flexibility significantly influences the gig worker's socio-economic sustainability.*

Prospect: Prospect is very close to individual psychology, where people keep pushing themselves forward to get better opportunities in the future. Kaufman (2018) defines prospects as those having prior expertise in the subject who may re-engage their creative skills and re-create something, regardless of competence. In this situation, employees might have significant changes to promotion to a higher-level position or get permanent in the organization. Moreover, when employees seek extensive career prospects, knowledge, and experiences play a crucial role. Abraham et al. (2018), argue that the internet's interconnectedness has made it more appealing for businesses to restructure their operations. Technological advancement has been massively changing the business model, function, and workforce for the future to maintain their business. The more advances encountered, the more changes need to be made. The current known new economy is the Gig economy expanding drastically by hiring non-standard employees with flexible working arrangements and algorithmic systems. Additionally, gig workers would not find their job opportunities or career prospects by depending on techno advancement; thus, other factors also work together for job availability. Users are the leading role players in the gig economy; if the number of users increases, job opportunities will be more significant by offering a great deal to the user. Wood et al. (2019) argued that due to customer preferences and the platform's algorithmic ranking of employees within search results, workers with the highest score and the most incredible experience tended to get more employment.

Furthermore, people with minimal qualifications, skills, and lack of opportunity tend to find the option in the gig economy. Churchill and Craig (2019) studied how men and women work on digital platforms and what

kinds of tasks they perform via these platforms. The finding was illustrated that men are mainly dominating in the delivery side proposition, nevertheless, the women most employed for the administrative side to sustain economic purposes. Occur as a result of women with particular abilities finding more significant opportunities online than in traditional employment. Notwithstanding the lack of opportunity and mix-match requirements, the economic crisis is the factor people eventually turn into a gig economy. Parallel with Ahmad (2020), most respondents stated that they believe gig workers have a bright future and contribute to the economy because of the availability of jobs in the gig economy during the Movement Control Order. In summary, it directly influences them to get involved in the gig economy to earn some income while waiting for the desired position. Thus, the following hypothesis is designed:
H4: *Prospect significantly influences the gig worker's socio-economic sustainability.*

Risk: Risk is also an essential factor that needs to be considered in employment status. Having a solid employment status will help to maintain a good living standard. Aligning with Mohammed and Alaa (2018), employment security refers to an employee's assessment of their present working circumstances and prospects in their current job, both positively and negatively. The researcher also studied to identify variables affecting academic staff job satisfaction at two private institutions. Job security and job satisfaction were shown to be strongly linked. At the same time, the employees believe that current employment is stable and fully protected by the Employment Act. It will directly influence to boots up the organization's performance. This interpretation contrasts with Abolade (2018), who argues that job uncertainty contributes to poor organizational performance and high staff turnover rates. The result indicated an inverse relationship between job insecurity and organizational performance. Due to the delay, that employee could not predict how far the employment status will be sustained in the future.

Another viewpoint on independent contract workers is famous for freelancers, task-based employees, etc. This group of workers is classified as the third category of employment type in employment law (Cherry and Aloisi, 2017). However, the gig workers will be left behind where proper law protection does not exist to lift in a conflict situation. Green et al. (2018) argue that, when it comes to the gig economy, there are no labor unions and no clear regulations in place to safeguard employees. The gig workers will face difficulties beyond income, such as job insecurity, benefits, and social protection. Additionally, the risk also comes from the safety and health of gig workers who are required to move geographically from point A to point B. As a result, there is a high possibility that the driver may face a rare event that leads to fatal death. Therefore, the current study hypothesized risk can impact individuals' willingness to engage in gig work and affect socioeconomic sustainability.
H5: *Risk significantly influences the gig worker's socio-economic sustainability.*

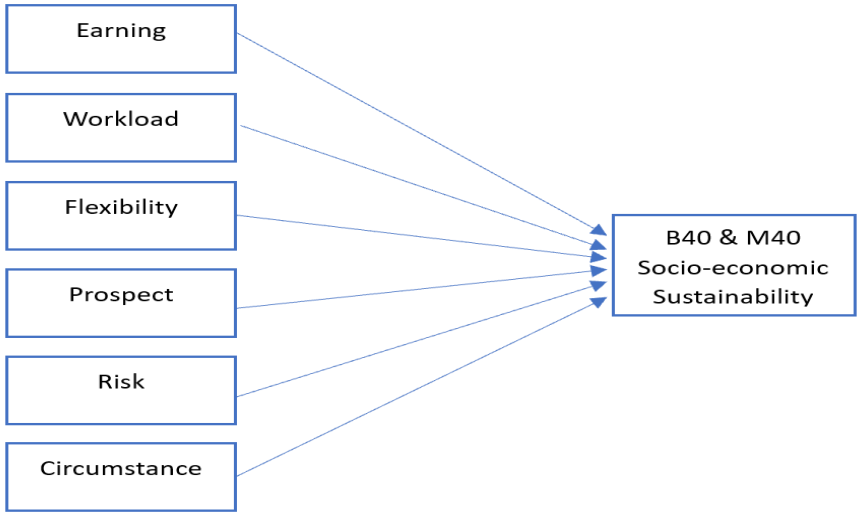
Circumstance: According to a definition provided by Yang and Treadway (2018), the circumstance is the maximal unique significance of an event, an occasion, or a person's contact is a biological, personal, relational-social, and cultural synthesis of interactional impact. The event will manifest itself, influenced by the surrounding group that motivates someone to do something. Specifically, the gig worker is stimulated by the surrounding or group of society that influences them to be involved in the gig economy. Typically, the gig worker might be inspired by a close community that managed to generate more income in a short period. Because earning was the main issue for everyone in managing daily expenses, people surely stepped into the wisdom of making more money. A qualitative study by Gandhi et al. (2018) described people's motivations for working as gig employees. The study found that social networks such as Twitter, YouTube, and Facebook encourage some people to become gig workers in this environment. Based on the in-depth interview, the respondent illustrated that, involved in the project after seeing the success of others on YouTube, which immediately influenced the responder to agree to gig employment. Similarly, Valente et al. (2019) identified most of the respondents claimed that they became full-time Uber drivers because of their friends who formerly worked as Uber drivers for quite a long time.

Furthermore, the social influence motivates some to get involved in the gig economy and as a comfort zone where people tend to get a positive vibe and encouragement to perform tasks. Social interaction is distinguished between the physical and digital-based gig economies (Churchill & Craig, 2019). For example, in the physical gig economy, the gig workers move from point A to B, purposely delivering the food, cleaning, courier services, and pick-drop off a passenger. There will be socializing between the worker and the

customer. However, digital-based gig workers perform their tasks via the virtual office, and there is no social interaction between team members or colleagues. Thus, it is expected that there was a direct relationship between the circumstances incorporated with social influence and job involvement in the gig economy.
H6: *Circumstance significantly influences the gig worker's socio-economic sustainability.*

To sum up, based on the presented discussion above, the current study develops a research framework as illustrated in Figure 1 below:

Figure 1: Research framework



3. Methodology

This study is quantitative research whereby data is collected and analyzed statistically to answer research objectives and questions. This research selected a sample from 1415 gig workers around Malaysia. A purposive random sampling technique was utilized where the target respondents were those who were involved in gig jobs, specifically in the food delivery service within 14 states in Malaysia. A survey questionnaire was conducted and distributed electronically and face-to-face to the gig workers. The questionnaire encompasses five sections. In section A, 10 questions on the basic demographic profiles were asked. While in Section B, discussed questions related to socioeconomic sustainability, earning, workload, flexibility, prospect, circumstance, and risk. Section B used the Likert scale to allow respondents to respond appropriately to the question. The points Likert scale is not being used in the current study because seven points are a good balance between having sufficient discrimination points and maintaining a sufficient number of response options. Seven-point Likert scales appear more suitable for the electronic distribution of usability surveys (Finstad, 2010). The Likert scale used in the questionnaire is as follows: 1-Strongly Disagree, 2-Disagree, 3-Slightly Disagree 4-Moderate, 5- 5-Slightly Agree 6-Agree, 7-Strongly Agree. This research applied SPSS 28.0 to analyze the data and test the hypotheses.

4. Results

This section presents sets of results relating to the profile of respondents based on demographic and geographic characteristics (gender, age, level of education, and region).

Profile of Respondents: Table 1 summarizes the respondents' demographic profiles. According to the table, the majority of the respondents are male (90.8%) and female (9.2%). Most of the respondents were aged between 18 to 25 years old (39.1%) followed those by age 26 to 32 (36.5%), 33 to 39 years old (16%), 40 to 46 years old (6.4%), and 47 and above were (2%). In addition, the respondents were from each of the 13 states in Malaysia in the range of 94 to 138 respondents (6.6% to 9.8%) except for Kelantan only consisted of 54 respondents (3.8%). For the income category, it can be concluded that most of the respondents were from

B40 (B1-B4) which comprised 1362 (96.3%) respondents while M40 (M1-M4) were 53 (3.7%) respondents. For previous employment experiences, the majority of the respondents have 2 to 5 years of experience (42.1%). Meanwhile, most of the respondents have 2 to 3 years of gig job experience (46.4%). Furthermore, 80.1% of the respondent use motorbikes for their gig job and 97.7% own their vehicle. For the gig job platform, the majority of them were from FoodPanda (48.3%) and Grab (43.4%). Finally, in terms of hours required to work, most of the respondents agreed they need to work 8 hours and above (58.6%), followed by 5 to 8 hours (33.8%), and less than 5 hours (7.6%).

Table 1: Respondent Demographic and Geographic Information

Demographic Factor	Category	Frequency (N)	Percentage (%)
Gender	Male	1285	90.8
	Female	130	9.2
Total		**1415**	**100**
Age	18-25	553	39.1
	26-32	517	36.5
	33-39	227	16.0
	40-46	90	6.4
	47 and above	28	2.0
Total		**1415**	**100**
State	Johor	101	7.1
	Kedah	98	6.9
	Kelantan	54	3.8
	Melaka	101	7.1
	Negeri Sembilan	112	7.9
	Pahang	94	6.6
	Penang	102	7.2
	Perak	103	7.3
	Perlis	99	7.0
	Sabah	99	7.0
	Sarawak	113	8.0
	Selangor	138	9.8
	Terengganu	95	6.7
	Wilayah Persekutuan	106	7.5
Total		**1415**	**100**
Income Range	B1 (RM 0 – RM 2500)	818	57.8
	B2 (RM 2501 – RM 3170)	421	29.8
	B3 (RM 3171 – RM 3970)	100	7.1
	B4 (RM 3971 – RM 4850)	23	1.6
	M1 (RM 4851 – RM 5880)	18	1.3
	M2 (RM 5881 – RM 7100)	18	1.3
	M3 (RM 7101 – RM 8700)	9	0.6
	M4 (RM 8701– RM 10970)	8	0.5
Total		**1415**	**100**
Previous Employment Experiences	Less than 1 Year	534	37.7
	2 to 5 Years	596	42.1
	> 5 Years	285	20.1
Total		**1415**	**100**
Gig Job Experiences	Less than 1 Year	603	42.6
	2 to 3 Years	657	46.4
	> 3 Years	155	11.0
Total		**1415**	**100**
Types of Vehicles Used for Gig Jobs	Bicycle	12	0.8
	Motorbike	1133	80.1

	Car	261	18.4
	Others	9	0.6
Total		**1415**	**100**
Vehicles Ownership	Own Vehicle	1382	97.7
	Rental Vehicle	33	2.3
Total		**1415**	**100**
Gig Job Platform	Food Panda	684	48.3
	Grab	613	43.3
	Gojo (Mycar)	5	0.4
	Maxim	77	5.4
	Lalamove	29	2.0
	Deliveroo	3	0.2
	Happy Fresh	4	0.3
Total		**1415**	**100**
Hours required to work	Less than 5 Hours	108	7.6
	5 to 8 Hours	478	33.8
	8 hours and above	829	58.6
Total		**1415**	**100**

Descriptive Statistics: Descriptive statistics for the socio-economic sustainability were conducted and Table 2 below displays the outcome. These provide the average mean scores of the gig worker on their perception of the gig job's socio-economic sustainability. Table 2 illustrates the highest mean of the socio-economic sustainability variable. The item "I would prefer any job while waiting for my desired job" has the highest mean value with 5.53 (SD = 1.395), while the lowest mean is the item "I have my own business to back up my income", with the mean value of 3.79 (SD = 2.167).

Table 2: Descriptive Statistics

Items	N	Mean	Std. Deviation
The incentive by the government helps me to maintain a good living standard.	1415	5.02	1.716
I have my own business to back up my income.	1415	3.79	2.167
I feel capable of using my current income to achieve my financial goals.	1415	5.02	1.660
My spending is always less than my income.	1415	4.58	1.914
I am familiar with the current trends in technology.	1415	5.51	1.418
I chose my current job due to the lack of availability of job opportunities.	1415	5.26	1.678
I would prefer any job while waiting for my desired job.	1415	5.53	1.395
I have a good perception of the reskilling and upskilling programs organized by the government.	1415	5.28	1.495

Hypotheses Testing Analysis: A multiple regression analysis was conducted to test the hypotheses of the current study. Table 3 reveals the factors influencing B40 and M40 socio-economic sustainability and it depicts that the largest beta value of the standardized coefficient is the circumstance (0.339), followed by the prospect (0.185), workload (0.136), earning (0.133), risk (0.094), and flexibility (-0.178). All variables consisting of earnings (p-value < 0.01), workload (p-value < 0.01), prospect (p-value < 0.01), risk (p-value < 0.01), and circumstance (p-value <0.01) positively influenced the socio-economic sustainability. Meanwhile, only one variable which is flexibility (p-value = 0.859) was found not significant toward B40 and M40 socio-economic sustainability. In addition, the R2 value of 0.541 indicates that all the factors explained 54.1% of the variance in socio-economic sustainability.

Table 3: Hypotheses Result

Hypothesis	Relationship	Std Beta	t	Sig	Result
H1	Earning → Socio-economic sustainability	.133	5.031	<.001	Accepted
H2	Workload → Socio-economic sustainability	.136	4.148	<.001	Accepted
H3	Flexibility → Socio-economic sustainability	-.005	-.178	.859	Rejected
H4	Prospect → Socio-economic sustainability	.185	5.602	<.001	Accepted
H5	Risk → Socio-economic sustainability	.094	3.319	<.001	Accepted
H6	Circumstance → Socio-economic sustainability	.339	11.936	<.001	Accepted

T-Test Analysis: A T-test was conducted to examine the differences between the two groups of income from B40 and M40. Table 4 depicts the differences in socio-economic sustainability between the B40 and M40 income range. The result shows there is a significant difference in socio-economic sustainability for both B40 and M40 income groups. Thus, this confirmed that their socio-economic sustainability is different.

Table 4: T-Test for B40 and M40 toward Socio-economic Sustainability

Socio-economic Sustainability	N	Mean	F	Sig
B40	1362	4.9732	28.68410	<0.001
M40	53	5.6368		

5. Discussion and Conclusion

This study aims to examine the relationship between all the gig job involvement factors which are circumstance, earning, flexibility, prospect, risk, and workload toward socio-economic sustainability. The result of the study showed the B40 and M40 socioeconomic sustainability were affected by five of the gig job involvement factors which are circumstances, earnings, risk, prospects, and workload. Meanwhile, flexibility does not have any significant effect on the B40 and M40 socio-economic sustainability. Overall, the factors of circumstances, earnings, risk, prospects, and workload collectively influence gig job involvement by shaping individuals' motivations, commitment, work-life balance, financial security, and career aspirations. These factors vary from person to person, and their interplay determines the level of engagement and sustainability of gig work for individuals. Furthermore, the study also found that there is a significant difference between B40 and M40 income groups in socio-economic sustainability. The significant difference in socio-economic sustainability between B40 and M40 income groups in gig jobs might be influenced by a combination of factors, including income disparities, access to high-value opportunities, financial stability, skills, networks, and policy environments.

Addressing the socio-economic sustainability challenges associated with gig jobs requires a multi-faceted approach. Policymakers, employers, and gig workers themselves can play roles in creating a more sustainable gig economy. This may involve implementing regulations that provide gig workers with increased social protections, ensuring fair pay, promoting access to training and career development opportunities, and fostering social connections among gig workers. Since the current study employed a cross-sectional analysis, future studies are suggested to conduct a longitudinal study that follows gig workers over an extended period to examine how their involvement in gig jobs affects their socio-economic sustainability over time. Future studies could assess income stability, social protections, job security, and career development trajectories, comparing gig workers with those in traditional employment. In addition, future studies should also investigate the impact of gig job involvement on the overall well-being of gig workers, including mental health, job satisfaction, and work-life balance. Assessing the relationship between gig work involvement and well-being can provide insights into the potential social and psychological consequences of gig employment.

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References

Abolade, D. A. (2018). Impact of employees' job insecurity and employee turnover on organizational performance in private and public sector organizations. *Studies in Business and Economics*, 13(2), 5–19. https://doi.org/10.2478/sbe-2018-0016

Abraham, K. G., Haltiwanger, J. C., Sandusky, K. & Spletze, J. R. (2018). Properties of AdeABC and AdeIJK efflux systems of Acinetobacter baumannii compared with those of the AcrAB-TolC system of Escherichia coli. Antimicrobial Agents and Chemotherapy, 58(12), 7250–7257. https://doi.org/10.1128/AAC.03728-14

Ahmad, N. (2020). Mapping gig workers as the new economy post COVID-19. International Seminar on Islam and Science 2020 (Sais 2020), 896–909.

Alif, I., Sucahyo, Y. G. & Gandhi, A. (2020). Determinant factors to become a gig worker in an online course. 2020 International Conference on Advanced Computer Science and Information Systems, ICACSIS 2020, 329–334. https://doi.org/10.1109/ICACSIS51025.2020.9263168

Banik, A., Chaudhuri, A., Suar, D., Vij, M., Sekhar Sarkar, S., Mukherjee, P., Basu, R., Chowdhury, S. R. & Chatterjee, R. (2020). I M I Highlights Gig Economy Financial Stability Efficiency in Auto Sector Opinion on Budget About IMI Konnect Editorial Advisory Board. *An IMI Kolkata Publication*, 9(1).

Cherry, M. A. & Aloisi, A. (2017). "Dependent Contractors" in the Gig Economy: A Comparative Approach. *SSRN Electronic Journal*, 66(3). https://doi.org/10.2139/ssrn.2847869

Churchill, B. & Craig, L. (2019). Gender in the gig economy: Men and women using digital platforms to secure work in Australia. *Journal of Sociology*, 55(4), 741–761. https://doi.org/10.1177/1440783319894060

Department of Statistics Malaysia (DOSM). (2020). Department of Statistics Malaysia Official Portal- Selangor. In Source of Malaysia's Official Statistic (pp. 0–1).

Ezzatul Adahwiyah, A. K., Shahrul Nizam, S. & Chandrashekar, R. (2021). Keperluan Terhadap Pekerjaan Sambilan dalam Kalangan Pekerja B40. *Research in Management of Technology and Business*, 2(1), 1–16. https://doi.org/10.30880/rmtb

Gandhi, A., Hidayanto, A. N., Sucahyo, Y. G. & Ruldeviyani, Y. (2018). Exploring People's Intention to Become Platform-based Gig Workers: An Empirical Qualitative Study. 2018 International Conference on Information Technology Systems and Innovation, ICITSI 2018 - Proceedings, 266–271. https://doi.org/10.1109/ICITSI.2018.8696017

Green, D. D., Walker, C., Alabulththim, A., Smith, D. & Phillips, M. (2018). Fueling the Gig Economy: A Case Study Evaluation of Upwork.com. *Management and Economics Research Journal*, 04, 104. https://doi.org/10.18639/merj.2018.04.523634

Heeks, R. (2017). Decent Work and the Digital Gig Economy: A Developing Country Perspective on Employment Impacts and Standards in Online Outsourcing, Crowdwork, Etc. *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.3431033

Hodor, M. (2020). Gig Workers and Performance Pay: A Dynamic Equilibrium Analysis of an On-Demand Industry. 1–58.

Huws, U., Spencer, N. H., Surdal, D. S. & Holts, K. (2017). Working in the European Gig Economy - Research results from the UK, Sweden, Germany, Austria, The Netherlands, Switzerland and Italy. Foundation for European Progressive Studies, 1.

Jain, I., Bahani, M. & Agarwal, S. (2021). Gen-Z And Gig Economy. *Human Resource Management Practices for Industry*, 4.0, 47–54.

Katsnelson, L. & Oberholzer-Gee, F. (2021). Being the Boss: Gig Workers' Value of Flexible Work. In Harvard Business School.

Kaufman, J. C. (2018). Finding Meaning With Creativity in the Past, Present, and Future. *Perspectives on Psychological Science*, 13(6), 734–749. https://doi.org/10.1177/1745691618771981

Keith, M. G., Harms, P. & Tay, L. (2019). Mechanical Turk and the gig economy: exploring differences between gig workers. *Journal of Managerial Psychology*, 34(4), 286–306. https://doi.org/10.1108/JMP-06-2018- 0228

Kuhn, K. M. & Galloway, T. L. (2019). Expanding perspectives on gig work and gig workers. *In Journal of Managerial Psychology* 34(4), 186–191. Emerald Group Holdings Ltd. https://doi.org/10.1108/JMP-05-2019-507

Lehdonvirta, V. (2018). Flexibility in the gig economy: managing time on three online piecework platforms. *New Technology, Work and Employment*, 33(1), 13–29. https://doi.org/10.1111/ntwe.12102

Liang, H., Wang, M. M., Wang, J. J. & Xue, Y. (2018). How intrinsic motivation and extrinsic incentives affect task effort in crowdsourcing contests: A mediated moderation model. *Computers in Human Behavior*, 81, 168–176. https://doi.org/10.1016/j.chb.2017.11.040

Mahmod, M. & Hassan, H. (2020). Spatial Crowdsourcing: Opportunities and Challenges in Motivating Malaysian Women's Participation in Gig Economy. 2020 IEEE Conference on E-Learning, Management and e-Services (IC3e), 76–81. https://doi.org/10.1109/IC3e50159.2020.9288436

Mohammed, A. A. & Alaa, S. J. (2018). Factors Affecting on Job Satisfaction among Academic Staff. *Polytechnic Journal*, 8(2), 119–128. https://doi.org/10.25156/ptj.2018.8.2.161

Nawaz, Z., Mansoor, R., Zhang, J. & Ilmudeen, A. (2019). Gig workers in sharing economy: Conceptualizing Freelancer Value Proposition (FVP) in e-lancing platforms. *Advances in Management & Applied Economics*, 9(6), 51–75.

Pichault, F. & McKeown, T. (2019). Autonomy at work in the gig economy: analyzing work status, work content and working conditions of independent professionals. *New Technology, Work and Employment*, 34(1), 59–72. https://doi.org/10.1111/ntwe.12132

Raza, A., Asif, M. & Ayyub, S. (2021). The Era of Sharing Economy: Factors that Influence the Behavioral Intentions of User and Provider to Participate in Peer-to-peer Sharing Economy. *Serbian Journal of Management*, 16(1), 103–124. https://doi.org/10.5937/sjm16-24481

Riyono, B. & Usman, R. F. (2022). Life fulfillment: The motivation dynamics of freelancers. *Humanitas: Indonesian Psychological Journal*, 19, 31–40.https://doi.org/10.26555/humanitas.v19i1.2

Silva Júnior, J. T., Carneiro, J. S., Lessa, P. W. B. & Vieira, C. L. S. (2022). Flexibilization and precarization of working conditions and labor relations in the perspective of app-based drivers. Revista de Gestão. https://doi.org/10.1108/rege-08-2021-0153

Ugargol, J. D. & Patrick, H. A. (2018). The relationship of workplace flexibility to employee engagement among information technology employees in India. *South Asian Journal of Human Resources Management*, 5(1), 40–55. https://doi.org/10.1177/2322093718767469

Valente, E., Patrus, R. & Córdova Guimarães, R. (2019). Sharing economy: becoming an Uber driver in a developing country. *Revista de Gestão*, 26(2), 143–160. https://doi.org/10.1108/rege-08-2018-0088

Wulandari, A., Qamara, T. & Bawazir, S. A. M. (2019). ELancing Motivation on Sribulancer, an Evidence from Indonesia. *Journal of World Conference (JWC)*, 1(1), 193–202. https://doi.org/10.29138/prd.v1i1.99

Yang, J. & Treadway, D. C. (2018). A Social Influence Interpretation of Workplace Ostracism and Counterproductive Work Behavior. *Journal of Business Ethics*, 148(4), 879–891. https://doi.org/10.1007/s10551-015-2912-x

Zheng, Q. & Yang, W. (2020). The Characteristics of the Gig Economy. Cambridge Open Engage, 1–18.

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COVID-19 and Emergency Online Learning: Perspective of Learners towards Communication Effect, Satisfaction and Productivity Level

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Abstract: The global COVID-19 pandemic has significantly impacted universities worldwide, necessitating a swift transition from traditional face-to-face learning to online learning within a remarkably short time frame to ensure academic continuity. This study aims to explore COVID-19 and Emergency Online Learning: Perspective of Learners towards Communication Effect, Satisfaction and Productivity Level. Specifically, this study focuses on the experiences of BA118 students at UiTM Melaka and their communication with lecturers. Furthermore, the study aims to discover the satisfaction levels of BA118 students at UiTM Melaka in relation to online classes and to describe how online learning impacts student's productivity. The findings presented in this paper are based on interviews conducted with a randomly selected group of 10 students who enrolled in the Diploma in Office Management and Technology (BA118) at UiTM Melaka.

Keywords: *COVID-19, online learning, communication, Office Management, lecturers, students, satisfaction, productivity.*

1. Introduction

The COVID-19 virus, which was brought on by the new SARS-CoV-2 coronavirus, first raised alarm in December 2019; on March 11, 2020, the World Health Organization (WHO, 2020) proclaimed it to be a pandemic. Social segregation and stay-at-home orders were issued, and schools all across the world were closed while scientists raced to comprehend and manage the virus (Muller, 2021). When the pandemic first started, there was a chance that the shutdown might only last a short while, but as the weeks and months went by, it became obvious that the emergency online learning would not stop soon (Muller, 2021).

The term "online learning" refers to educational activities conducted via the Internet, often known as "e-learning," However, it is important to note that online learning represents just one facet of "distance learning," encompassing any form of education learning occurring outside of the traditional classroom setting and typically spanning a considerable geographic distance. The higher education landscape, students and lecturers were significantly affected by the unforeseen changes brought on by the Covid-19 pandemic as highlighted by Chung et al., (2020). Subsequently, numerous prestigious universities worldwide have wholeheartedly embraced online learning as a means of ensuring uninterrupted education (Chung et al., 2020). To mitigate the spread of COVID-19, the University of Cambridge became the first university in the United Kingdom to transition to a fully online teaching and learning approach for the entire 2020/2021 academic year (Europe News, 2020). Additionally, the Malaysian Ministry of Higher Education has mandated that both public and private universities conduct their teaching and learning activities exclusively through online platforms until the end of December 2020, (Malaysian Ministry of Higher Education, 2020).

Studying communication, particularly within the realm of education, is imperative as effective communication between educators and students has the potential to enhance the learning experience and foster a positive environment (Awalamleh et al., 2020). Communication, as defined by Awalamleh et al., (2020), involves the transfer of information from one person to one person, or group to another.

The objectives of this research are:

- To explore whether online learning affects communication between lecturers and students BA118, UiTM Melaka either in a good or negative term.
- To discover how satisfying it is to take an online class for students BA118, UiTM Melaka.
- To describe the productivity of students increases during online learning classes.

The research questions for this study are as below:

- Does online learning have a good or negative effect on communication between lecturers and students BA118?
- How satisfying it is to take an online class for students of BA118, UiTM Melaka?
- Is the productivity of students increasing during online learning classes?

2. Literature Review

Online Learning: The realm of online learning provides a diverse range of lectures facilitated by lecturers (Simamora, 2020). Instructions can take the form of synchronous communication, where participants engage in real-time interactions through platforms like video conferencing, zoom, Google Meet, MS Team, and WebEx. Alternatively, they can be asynchronous, characterized by interactions occurring at different times and locations, such as e-mail, google form, streaming video content, posting lecture notes and social media platforms as stated by Simamora (2020).

According to the study, the globe totally switched to an online learning system during the first wave of the fictional COVID-19 pandemic; during the second wave, the majority of educational institutions adopted an online learning system (Wang, et al., 2021). Therefore, many institutions in Malaysia have switched from conventional methods to online learning. In an experiment, the usefulness of an online lecture format and a conventional lecture format was compared. The instructor, the subject matter of the lessons, the worksheets, and the assessments were all found to be identical, except for the format (Wang, et al., 2021). For example, with e-learning many lecturers or instructors will use online methods to test students by using Quizlet, Kahoot and Google form, they must shift learning from text-based methods to more interactive, creative and strategic ways that keep the learners engaged throughout the learning process. In the same vein, research has revealed that the main limit to e-learning practices and, consequently, the degree of student satisfaction with the course materials, is an online assessment. Few solutions exist that can truly authenticate the experience of an online examination (Barber et al., 2015).

Communication: Studying communication is essential because virtually all administrative tasks and operations, whether directly or indirectly, rely on some form of communication. Communication, as defined by Awalamleh et al. (2020), refers to the process of conveying information and popular knowledge from one individual to another. Whether it's online or in person, the objective of communication remains consistent: establishing connections, sharing information, and ensuring that one's message is heard and comprehended. Cultivating a sense of community within online classes can enhance students' learning experiences and maintain their engagement throughout the course. The act of sharing thoughts, ideas, and similar content is a means of making information commonly understood and acknowledged. Gestures, signs, signals, expressions, and writing can all be used to communicate thoughts and ideas (Valentzas and Borni, 2014). When people are discussing a topic, conversing on the phone, or exchanging information via letters, they are said to be in communication. The exchange of information, whether written or spoken, is what communication is all about (Valentzas and Borni, 2014).

3. Methodology

A qualitative method was used to conduct the research by utilizing the content analysis of an interview with BA118 students. Purposive sampling was used to select 10 respondents from BA118 students in UiTM Melaka. The interview responses were analyzed and categorized whether online learning has a good or negative effect on communication between lecturers and students BA118, how communication between lecturers and students of BA118 can be improved, and the problems faced in online learning and its effect on students' participation and their productivity level.

For this research, a qualitative approach was employed, involving the content analysis of interviews conducted with students from the BA118 program. A purposive sampling technique was applied to select 10 respondents from the BA118 student body at UiTM Melaka. The responses obtained from these interviews were meticulously examined and categorized into three main themes; the impact of online learning on communication between BA118 lecturers and students (whether positive or negative), strategies for

enhancing communication between BA118 lecturers and students, and challenges encountered in online learning and their influence on student's participation and productivity levels.

4. Findings and Discussion

This section discusses the outcomes derived from the viewpoints expressed by the respondents regarding several aspects. Firstly, it explores whether online learning has a favorable or unfavorable effect on communication between lecturers and students BA118. Secondly, it devolves into strategies for improving communication between lecturers and students of BA118 and finally, it examines the challenges experienced in online learning and their impact on students' participation and their productivity level. This section presents the findings based on the perspectives of the respondents regarding the impact of online learning having a good or negative effect on communication between lecturers and 10 of the students of BA118.

Table 1: The Effect of Online Learning Communication between Lecturers and Students of BA118

Total Respondents	Question	Reasons
5 respondents	• How do you feel when taking your courses online?	• Nervous, I'm afraid if I can't catch up on the lesson
3 respondents		• I'm not ready yet
2 respondents		• I'm ready
10 respondents	• Is it easy for you to ask questions during online learning classes?	• Yes, because we do not need to open the camera when asking the question
8 respondents	• Do you understand the teaching process given by the lecturers during online classes?	• Understand
2 respondents		• Sometimes do not understand

In Table 1, 5 respondents stated that they feel nervous and a little bit afraid if they can't catch up with the lesson or topic given by the lecturer. Three respondents said that they are not ready because this is new for them and they need to be proficient in using applications such as Google Meet, MS Team, Webex, etc. Two respondents said they are ready to learn by using online learning. All respondents said they easily ask questions to their lecturers. They do not need to open the camera because in the physical class sometimes they are a bit shy. Eight respondents said they understand the teaching process given by the lecturers during online classes because lecturers have teaching aids such as slides and videos that make them fun and not boring.

This section provides the findings on the respondents' views on how satisfied taking online classes between 10 students of BA118 and lecturers.

Table 2: How Satisfied Taking an Online Class for Students BA118, UiTM Melaka?

Total Respondents	Question	Reasons
8 respondents	• Do you prefer a classroom or online classes?	• We prefer the classroom. We can concentrate more in class if the lecturer is in front of us
		• Online class is more comfortable because I do not need to get prepared for dressing up and transportation to go to university.
2 respondents		• Online classes, they had mobile or personal computer issues for example damage and not well function

Table 2 shows that eight respondents prefer to go to class because they become more motivated if lecturers are in front of them. They also informed me that they can share thoughts and questions with classmates and lecturers in the classroom. Sometimes, they are not prepared for online learning/classes and classrooms are more interactive. Online classes sometimes, due to many reasons, for example, bad internet connection, bad service that will enable students to enter the online meeting or even listen to the lecturer, mobile or personal computer issues for example damage during online classes, etc.

Table 3: Are the Productivity of Students Increased During Online Learning Classes?

Total Respondents	Question	Reasons
8 respondents	• According to your experience, do you think your productivity as a student has increased?	• No, I become lazier and not in the mood to study. Furthermore, I understand more in-classroom courses because my major needs to be explained directly, otherwise, it will be hard" • Online classroom demotivates, especially with what's happening around us. Classroom classes engage the student to feel more productive" • Long hours in front of a computer make my eyes blurred and painful
2 respondents		• Online class is more comfortable because I do not need to get prepared for dressing up and transportation to go to university.

Table 3 shows that eight respondents became lazier and not in the mood to study. They understand more in-classroom courses because their major needs to be explained directly, otherwise, it becomes hard. Furthermore, online classrooms become demotivated, especially with what's happening around them. Classroom classes engage the students to feel more productive. Productivity decreases because long hours in front of a computer make their eyes blurred and painful. However, two respondents felt more comfortable because they did not need to get prepared for dressing up and save on transportation to get to university.

5. Conclusion and Recommendations

In summary, the study had two main objectives; first to investigate the impact of COVID-19 and emergency online learning from the perspective of learners specifically focusing on the communication effect, satisfaction, and productivity. Second, the study aimed to assess and propose strategies to enhance effective communication between lecturers and students in online courses. Data was collected through interviews with 10 students enrolled in the BA118 at UiTM Melaka. As indicated in the preceding results section, the data analysis and insights shared by the students align with the study's research questions. The majority of the respondents expressed a preference for traditional classroom-based classes over online classes due to several challenges they encountered including lack of motivation, difficulty grasping the course content, and diminished communication between the students and their lecturers.

In light of these findings, it is advisable for lecturers to proactively maintain contact with their students through online learning platforms. Facilitating informal communication channels such as WhatsApp groups, Telegram groups, and private video call meetings can foster better engagement. Furthermore, lectures should encourage active participation and ongoing motivation among students by periodically providing incentives. They can also incorporate interactive activities such as using Kahoot, Quizzes, Quizlet and group discussions to enhance the learning experience. To improve the lecturer's effectiveness in delivering online content, the university should consider organizing additional training sessions. These sessions can equip lecturers with the necessary skills to excel in online teaching.

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References

Alawamleh, M. (2020). COVID-19 and higher education economics, *Journal of Economics and Economic Education Research*, 21(2), 1-2.

Badrasawi, K. J., Solihu, A. & Ahmad, T. B. T. (2020). Second language speaking anxiety among Malaysian postgraduate students at a faculty of education. *International Journal of Education and Literacy Studies*, 8(2), 54-61.

Barber, W., King, S. & Buchanan, S. (2015). Problem-based learning and authentic assessment in digital pedagogy: Embracing the role of collaborative communities. *Electronic Journal of E-Learning,* 13(2), 59–67.

Chung, E., Subramaniam, G. & Christ Dass, L. (2020). Online Learning Readiness among University Students in Malaysia amidst Covid-19. *Asian Journal of University Education, [S.L.],* 16(2), 45-58,

Europe News. (2020). retrieved from https://www.neweurope.eu/article/cambridge-university-moves to-full-year-of-online-learning.

Malaysian Ministry of Higher Education. (2020). Press Release by the Malaysian Ministry of Higher Education, retrieved from https://www.nst.com.my/education/2020/06/599586/overseas-dream-put-hold.

Muller, A. M., Goh, C., Lim, L. Z. & Gao, X. (2021). COVID-19 Emergency eLearning and Beyond: Experiences and Perspectives of University Educators. Educ. Sci.

Simamora, R. M. (2020). The Challenges of Online Learning during the COVID-19 Pandemic: An Essay Analysis of Performing Arts Education Students. *Studies in Learning and Teaching*, 1(2), 86-103. https://doi.org/10.46627/silet.v1i2.3

Velentzas, John. & Broni, G. (2014). Communication cycle: definition, process, models and examples, recent advances in financial planning and product development, proceedings of the 5th international conference on finance, accounting and law (ICFA '14), Istanbul, Turkey, 117-131.

Wang, X. Y., Li, G., Malik, S. & Anwar, A. (2021). Impact of COVID-19 on achieving the goal of sustainable development: E-learning and educational productivity. Economic Research-Ekonomska Istraživanja, 1-17.

World Health Organization. (2020). Retrieved 10 May 2022, from: https://www.who.int/director-general/ speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020 (accessed on 8 July 2022).

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Exploring Holistic Performance Indicators for WAQF Institutions in Malaysia

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Abstract: The practice of waqf (or Islamic endowment) has been recognized as the mainstream social development in Muslim society today since waqf greatly contributes to Malaysia's socio-economic development. Despite the fact that the current development of waqf is not fully utilized, waqf institutions must play a pivotal role in ensuring the attainment of waqf objectives in contemporary society. To achieve their strategic goals and fulfill their accountability towards relevant stakeholders and the public at large, a comprehensive measurement tool is required to assess the performance of waqf institutions holistically. Thus, the objective of this study is to explore the possible key performance indicators for waqf institutions in Malaysia using the balanced scorecard model with four main perspectives: financial perspective, stakeholder perspective, internal process perspective, and learning and growth perspective. The method of this study is based on a review of the literature on relevant performance measurement for waqf institutions in Malaysia. The findings of this study could assist waqf institutions in Malaysia to define their vision and strategy, as well as change their vision and strategy into specific activities, by implementing the proposed indicators that are measurable and comprehensive and are useful for waqf managers to make an accurate and informed decision. The outcome of this study could provide a guideline for designing a holistic and proper measurement system that can be implemented by all waqf institutions in Malaysia to maintain their sustainability and competitiveness.

Keywords: *Waqf institutions, performance indicators, balanced scorecard model, sustainability.*

1. Introduction

Waqf, or Islamic endowment, is deeply ingrained in Malaysia and has emerged as a crucial tool for the nation's socioeconomic progress, notably for religious, educational, and social reasons. The Muslim community in Malaysia has been extensively informed about the advantages of waqf practice, particularly its contribution to social development through charitable initiatives managed by recognized waqf institutions. The prioritization of societal benefit results in a diminished emphasis on performance evaluation, particularly with regard to financial profitability metrics. However, concerns have been raised regarding waqf organizations' legitimacy and long-term sustainability due to their increasing numbers. These concerns primarily revolve around the efficient management of resources; particularly the public funding that is allocated to support philanthropic initiatives (Sani et al., 2019). Despite the significant contributions made by the waqf, the potential and advantages of waqf have not yet been fully realized since waqf institutions must improve their performance to meet their obligations to pertinent stakeholders (Arshad et al., 2018).

Furthermore, Noordin et al. (2017) examined there are many difficulties that waqf institutions confront in evaluating their performance holistically. This includes qualitative approaches that examine waqf services' growth, effectiveness, transparency, and sustainability, as well as economic statistics. Siraj (2012) claims that waqf institution performance measurement practices vary widely, emphasizing the need for uniformity. The trend shows that waqf institutions' performance measurement projects are mostly "top-down" and driven by higher authorities rather than voluntary norms or cultural practise (Noordin et al., 2017). Besides that, Waqif donors and funders are also demanding a comprehensive performance measurement system (PMS). These people donate to Waqf because they believe they will get eternal blessings in this world and the next. Occasionally, waqif imposes restrictions on its use, requiring mutawalli to provide detailed reports. To monitor mutawallis' performance and ensure their accountability in waqf institution management, a comprehensive performance measurement system is needed. Despite the high demand for waqf services, the inability to properly record and evaluate waqf institutions may reduce their cash financing (Khalil et al., 2014).

In addition to that, issues in waqf institution management can vary from one state to another and depend on the specific circumstances and governance structures in place. Addressing these issues in waqf institution management often requires a combination of legal reforms, capacity building, improved governance practices, and increased transparency. Collaborative efforts among governments, civil society, and the private sector are essential to overcome these challenges and maximize the impact of waqf assets for the benefit of society. Research on the accountability of waqf institutions is limited, highlighting the need for more research to improve practice and develop a solid theoretical concept of Islamic accountability and governance, including the comprehensive PMS for waqf institutions (Ainol-Basirah & Siti Nabihah, 2023).

Consistent with the prior studies (Arshad et al., 2018; Masruki et al., 2019), in evaluating the efficacy of PMS within waqf institutions, it is more appropriate to employ non-financial indicators rather than exclusively relying on financial indicators. To address the requirement for comprehensive PMS in waqf institutions, the utilization of the Balanced Scorecard (BSC) is proposed as a holistic performance measurement tool capable of realizing the institutions' vision (Febriandika et al., 2022). The Balanced Scorecard (BSC), initially proposed by Kaplan and Norton in 1992, has undergone various adaptations throughout time to remain relevant in response to evolving economic and business conditions. The BSC model enables non-profit organizations to effectively assess their performance by integrating both financial and non-financial perspectives. This approach facilitates the generation of a comprehensive report that assists in the decision-making process (Hartnett & Matan, 2011).

Therefore, the main objective of this paper is to explore the potential key performance indicators for waqf institutions in Malaysia by employing the BSC model, which encompasses four principal perspectives: the financial perspective, the stakeholder perspective, the internal process perspective, and the learning and growth perspective. The growth of BSC has the potential to enhance the alignment of the four perspectives with an organization's strategic plan. This study could establish a performance measurement model that can serve as a valuable tool for waqf institutions and enable these institutions to assess their performance comprehensively for further improvement. Since this study is conducted based on reviewing relevant prior literature on PMS in waqf institutions, the contribution of the study has suggested several key indicators for PMS in BSC that could serve as best practices and benchmarks for waqf institutions to effectively manage their activities to achieve their objectives, mission, and vision. The incorporation of all components into management techniques has the potential to offer a comprehensive and improved framework for Islamic institutions to effectively fulfil their assigned responsibilities. Consequently, this PMS model, with the indicators in the BSC perspectives, is able to provide a guideline for designing a comprehensive and holistic performance measurement model for waqf institutions in Malaysia.

2. Literature Review

Current Waqf Development in Malaysia: Waqf has long existed in other Islamic countries. Islamic law accepts donations that are religious, pious, or charitable, known as waqf, which means "religious endowment" in Malay. It has been practiced in Islam since the early days and is generally accepted in modern Muslim countries under numerous names. Hubus in Tunisia, habous in France, vaqf in Turkey, and boniyad in Iran, Malaysia called it wakaf, but Arabs call it waqf (Mahamood, 2006). Malaysia has practiced waqf since Islam arrived in the Malay Archipelago in the 17th century. Religious individuals managed most endowed or waqf assets until religious authorities took over a few years after Malaysian independence. Today, the current Malaysian government's national economic development goal includes proactive measures to ensure waqf assets are appropriately managed and contribute to Muslim growth. The development of waqf assets has evolved from its traditional form (such as waqf land for cemeteries and waqf premises for mosques) to its modern form, whereby the scope of benefits and services has been expanded to various sectors, including commercial purposes, education institutions, and medical facilities that provide impactful contributions to the welfare of the ummah (Daud et al., 2022).

In Malaysia, the government has implemented several initiatives to ensure the management and optimal development of waqf assets. The mismanagement of these assets, which provide significant economic potential for the nation, might have adverse consequences. Recent advancements in contemporary economics have introduced a diverse range of economic instruments that can be utilized for the creation of waqf. As a

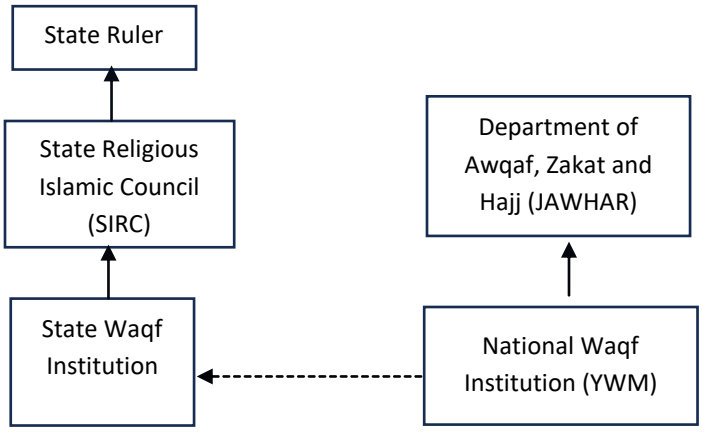
result, it is necessary to supplement conventional manifestations of waqf, such as the establishment of mosques, Islamic educational institutions, prayer spaces, and cemeteries, with modern expressions of waqf. Malaysia, like other countries, offers a diverse selection of contemporary waqf products, including cash waqf, waqf shares, waqf sukuk, REIT waqf, and the Takaful Wakaf Plan, as has been discussed by Mahamood et al. (2018). The aforementioned development is regarded as a favorable outcome given the prevailing uncertainty in the global economy and as one of the most efficient methods to safeguard and sustain the nation's economic development and growth.

Besides that, the development of waqf in Malaysia has extended to the involvement of corporate waqf as practiced in the state of Johor, whereby the Johor religious council collaborates with Johor Corporation in the establishment of the An-Nur Wakaf Clinic. The clinic has successfully garnered further waqf contributions, encompassing monetary funds and equipment, including the dialysis centre located next to the clinic. The clinic operates based on the principle of waqf, where the allocation of waqf funds for the clinic is utilized for both the establishment and ongoing operation of the facility. The establishment in Pasir Gudang, Johor, is the first waqf clinic in Malaysia (Mahamood et al., 2007). This successful collaboration with the business sector shows that Malaysian corporations are becoming aware of their social responsibility, with waqf as an additional route for engagement.

The recent development of waqf also discusses the development of waqf properties and assets in Malaysia based on the Musharakah-based sustainable and responsible investment sukuk model (Zain & Sori, 2020). This model is suggested to develop idle waqf lands through cooperative and waqf concepts by integrating a new degree of participation into the waqf project. Donors are seen as participants in the waqf project, which is supported by the monetary waqf received. Consequently, donors are afforded the chance to benefit from commercialized projects. This new model is supported by Pitchay et al. (2018) to enhance the transparency of the waqf institutions in managing waqf assets and gaining public confidence. Iman and Mohammad (2017) also proposed modelling waqf-based entrepreneurship in the Malaysian waqf system today, as this might improve Muslim society's entrepreneurship activities for economic development. From the above views and examples, it is proven that the evolving landscape of waqf management could make great potential contributions to economic and social development in Malaysia.

Waqf Institutions in Malaysia: In Malaysia, State Islamic Religious Councils (SIRCs) is a body that has been established in every state in line with the relevant state statute. Its primary responsibilities include providing assistance and advice to the Malay Ruler as well as formulating policies about issues related to Islam. The obligation of managing waqf is delegated to SIRCs in accordance with the provisions of the Federal Constitution and State Enactments. According to the stipulations specified in Article 3 of the Malaysian Federal Constitution, the duty of supervising concerns pertaining to Islamic subjects is vested in the Malay Rulers and the respective state governments. The State List, found in the Ninth Schedule of the Constitution, provides a comprehensive listing (1) of Islamic topics that are under the jurisdiction of the state (Rani and Aziz, 2010). In each state's Administration of the Religion of Islam Enactment, the laws that govern the administration of Islamic matters in the state, including the management of waqf, are spelled out (Sulaiman and Zakari, 2019). To facilitate the management of waqf, the SIRCs have implemented a specialized waqf unit or department inside the council or an agency. This unit is responsible for overseeing the administration of waqf within its designated jurisdiction (Sulaiman & Zakari, 2015).

Figure 1: Waqf Management Structure in Malaysia



Source: Sulaiman and Zakari (2019)

The Department of Awqaf, Zakat and Haj (JAWHAR) manages the waqf arm, which provides financial and non-financial support to Social Welfare Institutions. This help includes standards, money, and training. As stated in the JAWHAR website, JAWHAR was established in October 2004 as part of the Federal Government's initiative to facilitate the growth and utilization of Muslim-owned properties, foster economic prosperity and enhance the collective power of the ummah in the forthcoming years. The primary objective of this initiative is to enhance the quality of services provided, bolster the Awqaf, Zakat, and Hajj institutions to promote socio-economic progress and establish effective governance and efficient management in the formulation, coordination, and implementation of government policies and development endeavors pertaining to these institutions (Salleh & Muhammad, 2008).

The government of Malaysia is structured in a federal manner, with jurisdiction divided between the federal and state levels according to the provisions outlined in the Federal Constitution. As a result, waqf laws in Malaysia fall under the purview of the state, and their administration is governed by the enactment of Islamic religious laws in each respective state. Four states, namely Selangor, Negeri Sembilan, Melaka, and Perak, are enacting state endowment (Kamarubahrin et al., (2019). For instance, in Selangor, the SIRCs has established Perbadanan Wakaf Selangor (PWS) as an entity responsible for overseeing the comprehensive administration of waqf in the region. The management of waqf in Sarawak is overseen by Tabung Baitulmal Sarawak, an organization established under the Majlis Agama Islam Sarawak Ordinance (Incorporation) (Amendment) 1984 (Siraj, 2012). According to Ismail et al. (2014), the State of Pulau Pinang Islamic Religious Council has implemented the establishment of Perbadanan Wakaf Pulau Pinang, a subsidiary company of the council, to augment the financial resources of waqf in the region. Table 1 shows the list of Waqf Institutions in Malaysia with the Enactment Adopted for Waqf Management according to state in Malaysia

Table 1: List of Waqf Institutions in Malaysia with the Enactment Adopted for Waqf Management

No	State	Islamic State Council	Waqf Management	Enactment adopted for Waqf Management
1	Perlis	Majlis Agama Islam dan Adat Melayu Perlis (MAIPs)	Bahagian Pembangunan Wakaf, Hartanah dan Mal	Administration of the religion of Islam Enactment 2006 (En. 4/2006)
2	Kedah	Majlis Agama Islam Kedah (MAIK)	Bahagian Wakaf	Administration of Islamic Law (Kedah Darul Aman) Enactment 2008 (En. 5/08 / En.9)
3	Penang	Majlis Agama Islam Pulau Pinang (MAINPP)	Wakaf Pulau Pinang	Administration of The Religion of Islam (State Of Penang) Enactment 2004 (En. 2/2004)

4	Perak	Majlis Agama Islam dan Adat Melayu Perak (MAIPK)	Waqaf Perak Ar-Ridzuan	Administration of The Religion of Islam (Perak) Enactment 2004 (En. 4/2004)
5	Kelantan	Majlis Agama Islam dan Adat Istiadat Melayu Kelantan (MAIK)	Bahagian Baitulmal, Unit Wakaf	Council of The Religion of Islam and Malay Custom, Kelantan Enactment 1994 (En. 4/1994)
6	Terengganu	Majlis Agama Islam dan Adat Melayu Terengganu (MAIDAM)	Wakaf MAIDAM	Administration of Islamic Religious Affairs (Terengganu) Enactment 1422H/2001M (En. 2/2001)
7	Pahang	Majlis Ugama Islam Pahang (MUIP)	Dana Wakaf Pahang	Administration of Islamic Law Enactment 1991 (En.3/1991)
8	Selangor	Majlis Agama Islam Selangor (MAIS)	Perbadanan Wakaf Selangor (PWS)	Wakaf (State of Selangor) Enactment 1999 (En. 7/1999)
9	Kuala Lumpur	Majlis Agama Islam Wilayah Persekutuan (MAIWP)	Pusat Wakaf MAIWP	Administration of Islamic Law (Federal Territories) Act 1993 (Act 505)
10	Johor	Majlis Agama Islam Johor (MAIJ)	Bahagian Wakaf (Saham Wakaf Johor)	Administration of the religion of Islam (State of Johor) Enactment 2003 (En. 16/2003)
11	Melaka	Majlis Agama Islam Melaka (MAIM)	Seksyen Wakaf	Wakaf (State of Malacca) Enactment 2005 (En. 5)
12	Negeri Sembilan	Majlis Agama Islam Negeri Sembilan (MAINS)	Jabatan Wakaf MAINS	Wakaf (Negeri Sembilan) Enactment 2005 (En. 2)
13	Sabah	Majlis Agama Islam Sabah (MUIS)	Bahagian Wakaf dan Baitulmal	Majlis Ugama Islam Negeri Sabah Enactment 2004 (EN. 5/2004)
14	Sarawak	Majlis Islam Sarawak (MIS)	Tabung Baitulmal Sarawak (TBS)	Majlis Islam Sarawak Ordinance 2001 (Chapter 41)
15	Government waqf entity	Yayasan Waqaf Malaysia (YWM)		Akta Pemegang Amanah [Pemerbadanan] 1952 by Jabatan Wakaf, Zakat dan Haji (JAWHAR)

(Source: http://www.jawhar.gov.my/en/majlis-agama-islam-negeri/)

3. Performance Measurement Using Balanced Score Card Model for Waqf Institutions

There is a pressing need for a comprehensive evaluation of the effectiveness of Waqf institutions, specifically in terms of assessing their accountability and management practices in promoting economic and social equilibrium among its stakeholders (Noordin et al., 2017). To achieve comparable levels of effectiveness and success to profit-making organizations, waqf institutions must exhibit a high degree of innovation in the development of reporting practices and measurement systems. This is necessary due to the relatively less advanced and comprehensive nature of the measurement systems utilized in financial reporting by profit-making companies. However, due to the inherent hybridity of these institutions, the processes of performance measurement and reporting provide significant complexity and challenges (Sani et al., 2019). To improve decision-making and ensure responsibility to stakeholders, Waqf institutions must initiate a systematic tracking of their performance.

Moreover, previous research on the measurement of waqf institutions has presented a contingency framework for assessing their performance. This framework emphasizes the performance elements that are relevant to waqf institutions, specifically efficiency, social effectiveness, maqasid al shariah, sustainability, and growth (Arena et al., 2015; Noordin et al., 2017; Arshad & Zain, 2017; Arshad et al., 2018). The inclusion

of additional measurement tools has the potential to enhance the accuracy of evaluations conducted on waqf institutions. Consequently, the Balanced Scorecard (BSC) has been used as a means of measuring these institutions. The BSC was initially employed by for-profit organizations and has since been increasingly adopted by non-profit organizations for expansion purposes. A comprehensive BSC should meet the following criteria. Firstly, it should involve the identification of long-term strategic objectives for each perspective, namely financial, customers/stakeholders, internal business process, and learning and growth. Secondly, it should entail the design of appropriate key performance indicators (performance drivers) to facilitate the achievement of these objectives. Thirdly, it should establish a clear linkage between each perspective in the BSC, incorporating cause-and-effect relationships. Lastly, it should ensure goal congruence by aligning all activities with the organization's objectives (Kaplan, 2009).

The framework of the BSC that is suitable for waqf institutions is derived from the framework utilized by non-profit organizations and social entrepreneurs. Hartnett and Matan (2011) assert that the utilization of the BSC has the capacity to facilitate the transformation of an organization's strategy by enabling the establishment of quantifiable objectives and the development of a structured timeline for implementation. The BSC is a valuable instrument for assessing and monitoring the interconnections between a company's primary goals and the outcomes of both proactive and reactive endeavors. It provides a comprehensive and reliable assessment of the cause-and-effect interactions inside an organization. Hence, to guarantee the efficacy of BSC implementation in waqf institutions, it is imperative to develop a comprehensive measurement framework that encompasses all four key dimensions of BSC, namely the financial perspective, stakeholder perspective, internal process perspective, and learning and growth perspective.

Financial Perspective: This approach is crucial for measuring waqf institutions' financial sustainability. BSC can help waqf institutions discover the primary drivers or approaches to achieve financial success by determining what stakeholders want and what processes they need to implement. Waqf institutions must understand and use their finances to fulfil their strategic goals. Operating income, return on capital, profit margin ratio, return on investment and economic value added are common financial measurements (Kaplan, 2009). Since waqf institutions are not profit-driven, the BSC model focuses on the efficiency of waqf management in managing the funds to pay for their service and cover the overhead costs. Waqf institution management must understand the organization's finances and be comfortable with financial statements and budgets. Financial reports should provide a solid foundation for operations and develop trust with funders/ waqf donors, contributors, grantors, and other revenue sources (Hartnett & Matan, 2011; Khamis & Salleh, 2018).

Stakeholder Perspective: This perspective evaluates contributors, volunteers, and clients' experiences by measuring satisfaction and retention rates and, the non-profit's market share. Non-profits must evaluate their most loyal and influential supporters to improve results. Donor and volunteer involvement is crucial, and the BSC framework can help organizations identify the key drivers and performance indicators that will benefit them (Somers, 2005). Waqf institutions should consider the perspectives of waqifs (donors or funders), recipients, and community development. Similarly, Kaplan and Norton (1996) stressed that the customer value proposition is important to corporate strategy for profit-oriented companies. This proposal includes a company's product, pricing, service, and image. Martello et al. (2008) found that an organization must accurately assess consumer attractiveness and understand its competition to meet customer needs. As with waqf institutions, accurate satisfaction evaluation among beneficiaries and donors is essential to build a value proposition.

Internal Process Perspective: This perspective evaluates a non-profit organization's cost, throughput, and quality of operations, including programs, services, and capacity to meet beneficiaries' needs. The organization's internal focus gives a complete picture of its operational efficiency, allowing the identification of programs and services that meet community requirements. According to Martello et al. (2008), it is essential to establish a linkage between the overall strategy and the enhancements when aiming to improve internal processes. Additionally, it is imperative to have a method for assessing the effectiveness of the approach. In general, internal processes can be assessed by three primary indicators: those relating to cost, time, and quality (Kaplan, 2001). Therefore, to assess the operational efficiency and effectiveness of waqf institutions, it is necessary to incorporate qualitative measurements pertaining to various aspects such as

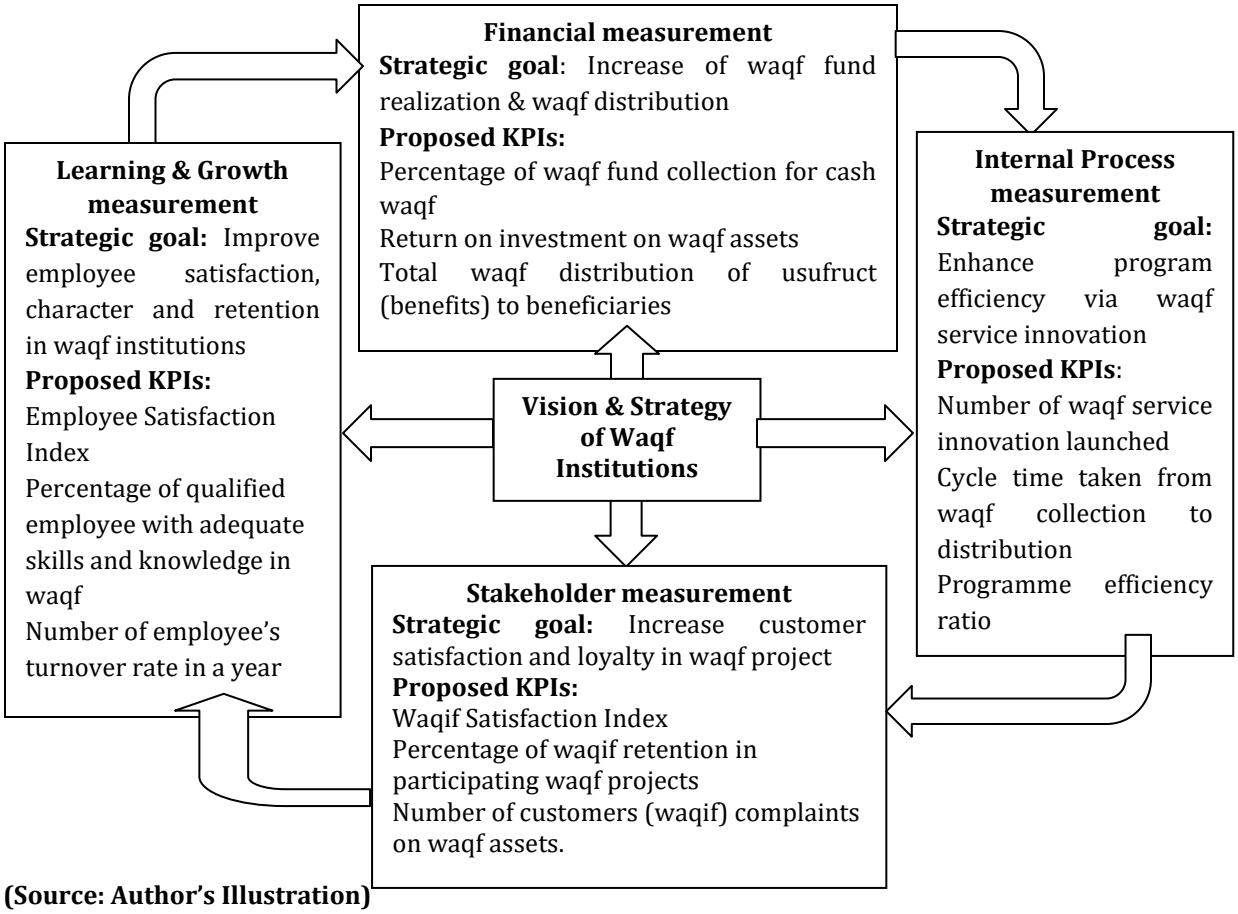
process quality, cycle times, administration and maintenance of waqf land and premises, public awareness, and participant involvement in waqf activities, as well as the development of waqf assets. This viewpoint is supported by previous studies conducted by Figge et al. (2002), Arshad and Mohd Zain (2017), and Arshad et al. (2018). The assessment of the entire impact of each waqf development is crucial to ensure the viability of waqf institutions and their alignment with the evolving society's needs.

Learning and Growth Perspective: This perspective evaluates the non-profit's staff, volunteers, and board of directors' satisfaction, essential skills, community relationships, retention rates, and alignment with its mission. Kaplan (2001) defines the learning and growth perspective as an assessment of employee competencies, technical resources, and an organizational environment that is conducive to strategy implementation. Since staff and volunteers serve as the primary assets for waqf institutions, it is crucial to adequately assess their performance in relation to their human skills and qualifications. Zimmerman (2009) states that non-profits need strong top management/boards, volunteers, and employees to succeed. The learning and growth perspective emphasizes staff development and innovative practices to create organizational value. This perspective strongly links nonfinancial indicators to several human resources elements, including staff turnover, training and skill levels, motivation and satisfaction, the presence of adequately trained workers, and a proper staff remuneration scheme (Arshad et al., 2018).

4. Proposed Balanced Score Card Model for Authorised Waqf Institutions in Malaysia

Based on the compilation from the prior literature on performance measurement in waqf institutions (Febriandika et al., 2022; Noordin et al., 2017; Arshad et al., 2018; Arshad & Mohd Zain, 2016), this paper has proposed a holistic PMS model in line with the Balanced Score Card (BSC) model by identifying the strategic visions from each perspective (i.e. Financial, Stakeholder, Internal Business Process and Learning and Growth) following with the proposed key performance indicators (KPIs) that may be suited with all authorized waqf institutions in Malaysia as shown in Figure 2. This model could become a main reference for the institutions in designing the uniform performance model that meets the strategic objectives of the Waqf institutions for the development of economic and social well-being in Malaysia. The selection KPIs selected in this model could become the best practice and benchmark for them to manage their activities in achieving their objective, mission and vision. The integration of financial and non-financial KPIs may provide a holistic and better guideline for Waqf institutions to be more transparent, accountable and efficient in managing all the waqf assets and executing the responsibility entrusted to them.

Figure 2: The Balanced Score Card Model with Proposed Key Performance Indicators (KPIs) for Authorised Waqf Institutions in Malaysia



(Source: Author's Illustration)

5. Conclusion and Future Research

In conclusion, the Balanced Scorecard (BSC) model serves as a valuable tool for comprehensively monitoring the performance of Waqf Institutions, encompassing both quantitative and qualitative data. The BSC is predominantly utilized as an internal management tool that establishes a cause-and-effect relationship between an organization's strategies, vision, and mission while incorporating suitable assessment techniques (Hoque, 2014). Hence, this research investigates further the conceptual framework of the BSC and identifies potential key performance indicators (KPIs) that might be utilized by authorized waqf institutions in Malaysia. The implementation of a standardized PMS model has the potential to serve as a valuable self-assessment and performance tool for waqf institutions in Malaysia. By utilizing this model, waqf institutions can enhance their operational efficiency and effectiveness in managing waqf assets, while adhering to principles of good governance and Shariah compliance. The establishment of a robust assessment system for waqf institutions holds considerable importance in guaranteeing the long-term viability of these organizations.

Furthermore, it is worth noting that regulatory bodies will have the opportunity to employ more suitable performance indicators while overseeing and delivering pertinent capacity-building programs for waqf institutions. However, the model proposed in this study is limited since the input is only derived from the compilation of relevant literature on PMS. Several pilot cases need to be conducted to verify all the indicators proposed based on each perspective under the BSC model to ensure the reliability of KPIs consistent with the needs of waqf institutions themselves. Future research can be enhanced by more comprehensive data collection to have more accurate and comprehensive findings that can strengthen the formulation of the PMS

model for waqf institutions. This, in turn, would bolster the development and refinement of this model. However, the BSC model provided in this study holds significant potential, as it offers a comprehensive framework for authorities to create an integrated PMS that can be effectively applied by existing waqf institutions in Malaysia. This framework aims to ensure the sustainability and relevance of these institutions, hence maximizing their future benefits.

References

Ainol-Basirah, A.W., & Siti-Nabiha, A.K. (2023). Accountability in waqf institutions: a meta-narrative review. *Journal of Islamic Accounting and Business Research, 14*(1), pp. 181-201.

Arena, M., Azzone, G., & Bengo, I. (2015). Performance measurement for social enterprises. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations, 26* (2), 649-672.

Arshad, R., & Mohd Zain, N. (2017). *Performance measurement and accountability of waqf institutions in Malaysia*. SHS Web of Conferences, 36(00005), EDP Sciences.

Arshad, R., Mohd Zain, N., Urus, S.T., & Chakir, A. (2018). Modelling maqasid waqf performance measures in waqf institutions. *Global Journal Al-Thaqafah,* Special Issue, 157-169.

Daud, M.Z., Hanafi, H., & Hussin, M.F. (2022). Literature on the current development of waqf practices in Malaysia. *Journal of Shariah Law Research, 7* (2), 223-240.

Febriandika, N.R., Siregar, M.R., & El Ashfahany, A.H. (2022). Performance analysis of waqf institution using balanced scorecard analysis: A case study at Laznas Yatim Mandiri. *An-Nisbah: Jurnal Ekonomi Syariah, 9*(1), 25-49.

Figge, F., Hahn, T., Schaltegger, S., & Wagner, M. (2002). *The sustainability balanced scorecard – Theory and application of a tool for value-based sustainability managemen*t. Greening of Industry Network Conference 2002, Gothenburg, 1–32.

Hartnett, B., & Matan, R. (2011). *The balanced scorecard: A strategic tool for the nonprofit sector, 15*. Retrieved September 8, 2023, from http://sobel-cpa.com/sites/default/files/whitepaper.Jan2011 final.pdf

Hoque, Z. (2014). 20 years of studies on the balanced scorecard: Trends, accomplishments, gaps and opportunities for future research. *British Accounting Review, 46*(1), 33–59.

Iman, A.H., & Mohammad, M.T.S. (2017). Waqf for a framework of entrepreneurship. *Humanomics, Vol. 33* (4), pp. 419-440.

Ismail, C. Z., Muda, S., & Hanafiah, N. J. A. (2014). Challenges and prospects of cash waqf development in Malaysia. *Journal of Basic and Applied Scientific Research, 4*(2), 340-348.

Kamaruddin, M.I.H., & Ramli, N.M. (2015). Enhancing financial accountability of Islamic philanthropic organizations through financial disclosure. *Online Journal Research in Islamic Studies*, Volume 2, 29–42.

Kamarubahrin, A. F., Ahmed Ayedh, A. M., & Khairi, K. F. (2019). Accountability Practices of Waqf Institution in Malaysia: A Critical Analysis*. International Journal of Management, Accounting and Economics (2)*, 146-171.

Kaplan, R. S., & Norton, D. P. (1996). Linking the balanced scorecard to strategy. *California Management Review, 39* (1), 53-79.

Kaplan, R. (2001). Strategic performance measurement and management in nonprofit organizations. *Nonprofit Management & Leadership, 3*(Spring), 353 – 370.

Kaplan, R. S. (2009). Conceptual foundations of the balanced scorecard. *Handbooks of Management Accounting Research, 3*, 1253–1269.

Khamis, S.R., & Mohd Salleh, M.C. (2018). Study on the efficiency of cash waqf management in Malaysia. *Journal of Islamic Monetary Economics and Finance, 4* (1), 61-84.

Khalil, I.A., Ali, D.Y., & Shaiban, D.M. (2014). *Waqf fund management in Kuwait and Egypt: Can Malaysia learn from their experiences?* International Conference on Masjid, Zakat and Waqf, Monash University, Kuala Lumpur, p. 69.

Mahamood, S.M., Ab Rahman, A., Zam Ahmad, H.Z., & Muhammad, S. (2007). Konsep wakaf sebagai instrumen pembangunan harta tanah di Wilayah Pembangunan Iskandar (WPI). *Jurnal Pengurusan JAWHAR, 1*(2), 1-32.

Mahamood, S.M. (2006). *Waqf in Malaysia: Legal and administrative perspectives*. University Malaya Press.

Mahamood, S. M., Ab Rahman, A., & Che Seman, A. (2018). Pembentukan Institusi Pengajian Tinggi Berteraskan Wakaf di Malaysia: Cadangan Model Pelaksanaannya: The Establishment of a Waqf-Based

Higher Educational Institution in Malaysia: Proposed Model for Implementation. *Jurnal Syariah, 26*(1), 1–22.

Martello, M., Fischer, M. J., & Watson, J. G. (2008). Implementing a balanced scorecard in a not-for-profit organization. J*ournal of Business & Economics Research, 6*(9), 67–80.

Masruki, R., Mohd Hanefah, M., Aryani, D.N., & Bunyamin. (2019). Performance measurements of socio-economic impact for waqf (endowment) institutions. *International Journal of Innovation, Creativity and Change, 7* (6), 1-16.

Noordin, N.H., Haron, S.N., & Kassim, S. (2017). Developing a comprehensive performance measurement system for waqf institutions. *International Journal of Social Economics, 4*4 (7), 921-936.

Official Portal Department of Awqaf, Zakat and Hajj (JAWHAR Website). Retrieved September 7, 2023, from https://www.jawhar.gov.my/en/corporate-info/history-of-jawhar/waqf/waqf-institutions/

Pitchay, A.A., Thaker, M.A.T., Mydin, A.A., Azhar, Z., & Abdul Latiff, A.R. (2018). Cooperative-waqf model: A proposal to develop idle waqf lands in Malaysia. *ISRA International Journal of Islamic Finance, 10* (2), 225-236.

Rani, M.A., & Aziz, A.A. (2010). Waqf management and administration in Malaysia: Its Implementation from the perspective of Islamic Law. *Malaysian Accounting Review, Special Issue 9*(2), 115-121.

Sani, A.A., Saidin, A., Adanan, S. A., & Bustamam, K. S. (2019). Performance measurement system using balanced scorecard: A case study in Pusat Zakat Melaka, Malaysia. *Journal of Islamic Philanthropy & Social Finance, 1*(1), 15-29.

Salleh, M., & Muhammad, S. (2008). Waqaf development in Malaysia: Issues and challenges. *Jurnal Pengurusan JAWHAR, 2* (1), 13-35.

Siraj, S. A. (2012). *An empirical investigation into the accounting, accountability and effectiveness of waqf management in the State Islamic Religious Councils (SIRCs) in Malaysia*. (Unpublished doctoral dissertation). University of Cardiff, UK.

Somers, A. B. (2005). Shaping the balanced scorecard for use in UK social enterprises. *Social Enterprise Journal, 1*(1), 43–56.

Sulaiman, M., & Zakari, M. A. (2019): Financial sustainability of state waqf institutions (SWIs) in Malaysia. *Journal of Islamic Accounting and Business Research, 10* (2), 236-258.

Sulaiman, M., & Zakari, M. A. (2015). Efficiency and effectiveness of Waqf institutions in Malaysia: Towards financial sustainability. *Bloomsbury Qatar Foundation Journal,* 1, 43-53.

Zain, N.S., & Sori, Z.M. (2020). An exploratory study on Musharakah SRI Sukuk for the development of waqf properties/Assets in Malaysia. *Qualitative Research in Financial Market*, 12, 301–314.

Zimmerman, J. (2009). Using a balanced scorecard in a nonprofit organization. *Nonprofit World, 27*(3), 10–12.

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Evaluating the Effect of Crowd Design, Information and Management on Crowd Safety in KL Car- in Free Morning Sporting Events

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Abstract: The KL Car-Free Morning event in Kuala Lumpur is a popular sporting event promoting physical activity and a healthy lifestyle. It occurs every Sunday and involves closing streets for activities like cycling, running, and walking. With the growing number of participants, safety concerns have emerged, necessitating proper planning and safety measures. Event design includes street closures, accessible route design, safety measures, varied activities, evaluation and monitoring, and community engagement. The purpose of these studies is to investigate the effect of crowd design, information, and management on crowd safety in KL Car-Free Morning Sporting Events. A quantitative method was used research as a research design and a survey method was for data collected. The population of this study are all the participants that join this event either from running, cycling, walking, rollerblading, or skateboarding activities. SPSS was used as a tool for data analysis. The findings of this study present that crowd design and management significantly affect crowd safety and crowd information does not significantly affect crowd safety. This study is important for the event organizer to understand the factors that will affect the safety of the participants.

Keywords: *Crowd Design, Crowd Information; Crowd Management; Crowd Safety.*

1. Introduction

Managing crowded places is challenging (Still, Papalexi, Fan, & Bamford 2020). Safety is an important aspect of sporting events because it ensures the well-being and protection of athletes, coaches, and spectators. Sporting events can be physically demanding and intense, and there is a greater risk of injuries, accidents, and other hazards if proper safety measures are not in place. The safety of humans in crowded environments has been recognized as a rapidly growing research area and has been of significant concern to many government agencies (Helbing et al., 2007). Increases in urban populations and mass events have raised interest among researchers and authorities regarding the problems of pedestrian and crowd dynamics (Haghani and Sarvi, 2018).

The KL Car-Free Morning event in Kuala Lumpur is a popular sporting event promoting physical activity and a healthy lifestyle. It is held in Dataran DBKL, Kuala Lumpur, every Sunday from 7.00 a.m. until 9.00 a.m. and involves closing streets for activities like cycling, running, and walking. The event offers a diverse range of activities, catering to various preferences and fitness levels of the participants. The first KL Car-Free Morning event took place in May 2014, marking the beginning of a recurring event that provides opportunities for residents and visitors to engage in physical activities in a car-free environment. The KL Car-Free Morning event in Kuala Lumpur can attract many participants, with the number reaching up to 3000. Event planning and execution prioritize the safety and security of all attendees, including participants, spectators, and staff. The specific risks associated with each event influence the safety and security plans.

Crowd safety has become an increasingly important concern in recent years due to a rise in mass gatherings and events worldwide (Haghani, Coughlan, Crabb, Dierickx, Feliciani, van Gelder, et al., 2023). According to Carmack (2016), a professional safety presence at any large sporting event is a must. A sports arena demands an extremely high level of safety. It's a large space with people coming and going, possibly inebriated fans, and the potential for security issues and conflict situations. This is especially important in high-risk events such as running or cycling that are placed on the road. Furthermore, putting in place proper safety measures can help reduce the risk of litigation and legal action.

Crowd safety risks can take various forms, including physical injuries, property damage, stampedes, violence, fire or explosion hazards, communicable diseases (Taibah et al., 2020), and other hazards that may arise from the interaction of large numbers of people in a confined space (Subramanian and Verma, 2022). If an accident or injury occurs and it is determined that adequate safety precautions were not taken, the event organizers or facility owners may be held liable. Not only that, but safety is essential for the event's continuity and integrity. A safety incident can cause the event to be canceled or delayed, which can have an impact on the event's overall outcome and the audience's experience (The Chivalry Group, 2021).

Hence, the purpose of these studies is to investigate how event organizers manage events while ensuring safety measures are in place. This can include the factor crowd design, crowd management, and crowd information as independent variables and crowd safety as dependent variables. The goal of these studies is to identify best practices and effective methods for event organizers to manage events while prioritizing the safety of all involved. This can help mitigate the risk of accidents, injuries, and other hazards that can occur during an event and ensure a positive experience for attendees.

2. Literature Review

Event and Safety: Safety is a critical aspect of any sporting event, as large crowds of people are often present. A study by Still and Papalexi, (2020), highlights the importance of safety in sporting events, due to the rising number of incidents at such events and the responsibility of event organizers and city officials to ensure the safety of participants and spectators. Recent studies have also emphasized the need for effective event management and crowd management strategies to maintain safety at sporting events and suggested best practices such as implementing technology-based solutions and conducting risk assessments to prevent incidents. These studies demonstrate the need for further research in this area to improve safety measures and crowd management techniques to ensure the safety and enjoyment of all attendees.

Crowd Management: Crowd management is a critical aspect of safety at sporting events. It involves the organization and coordination of people in a crowd, as well as the implementation of measures to ensure the safety of the crowd. Crowd management includes several different elements, such as crowd design, crowd information, and specific crowd management strategies. Crowd design involves the physical layout of the event and the placement of crowd control barriers, as well as the placement of emergency exits and the number of available seating options. Crowd information includes providing clear and accurate information to the crowd, such as event schedules, seating arrangements, and emergency procedures. Specific crowd management strategies include the use of security personnel, the implementation of security screenings, and the use of technology such as CCTV cameras to monitor the crowd. Overall, effective crowd management is crucial for the safety and well-being of the crowd, as well as the smooth and efficient operation of the event. It requires a proactive approach, careful planning, and the coordination of various stakeholders, including event organizers, security personnel, and local authorities (Munirah et al., 2022).

Crowd Design: Recent studies have focused on the design of car-free events and how they can impact participation and community engagement. A study from 2020, conducted in Paris, France, found that closing the streets to motorized traffic for the car-free event not only increased the number of people cycling but also led to an increase in the number of people walking and socializing (Glazener et al., 2022). Furthermore, a study from 2021, conducted in New York City, USA, found that the design of the car-free event, including the inclusion of various activities such as fitness classes, live music, and food vendors, led to increased participation and community engagement (OECD, 2020).

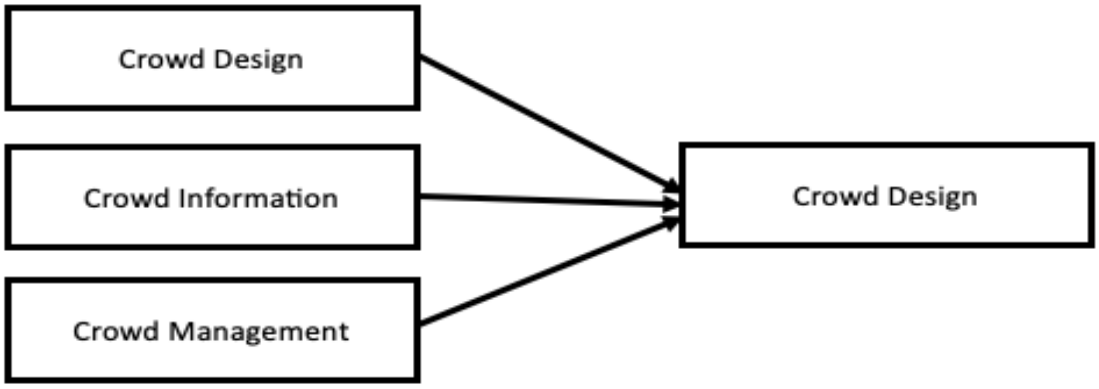
Crowd Information: Recent studies have also focused on the role of information in promoting car-free events and increasing participation. A study from 2020, conducted in Berlin, Germany, found that providing information about the event through social media and other online platforms, as well as through traditional media such as newspapers and television, significantly increased awareness, and participation (Schulz et al., 2022). Additionally, a study from 2021, conducted in London, UK, found that providing real-time information about the event through mobile apps and social media helped to increase participation and promote active transportation (Abbas et al., 2019).

Crowd Management: Recent studies have also emphasized the importance of effective management in the success of car-free events. A study from 2020, conducted in Sydney, Australia, found that effective management and coordination with local organizations and businesses helped to increase participation and support for the event (OrthoMedia, 2021). Similarly, a study from 2021, conducted in Mexico City, Mexico, found that effective management and coordination with local government and community groups helped to increase participation and support for the event, and helped to improve air quality during the event (Molina et al., 2019).

Safety Measurements of an Event: Safety measurements at sporting events are crucial in ensuring the safety of attendees. A study by Still and Papalexi, (2020), found that implementing measures such as security screenings, crowd management strategies, and emergency response plans can significantly reduce the risk of injuries and accidents at sporting events. The study also highlighted the importance of regular evaluations and updates to these safety measures to ensure they remain effective. Another suggestion suggests that the use of technology, such as CCTV and incident management software, can also play a vital role in enhancing the safety and security of sporting events. The study found that these technologies can improve communication, coordination and response time during an emergency, and aid in the identification and management of potential risks.

Research Framework (Conceptual / Theoretical): The theoretical framework was adapted and modified from previous studies one of them from Still et al. (2020) about assessing crowd safety management and from Peckover et al. (2022). Based on the study of crowd management, the report by Still et al. (2020) showed the importance of crowd safety in a sporting event. Based on the study of crowd satisfaction, the report by Peckover et al., (2022) showed the importance of participant's satisfaction in a sporting event.

Figure 1: Research Framework



Sources: Adapted from Still et al. (2020) and Peckover et al. (2022).

3. Methodology

A quantitative method was used to analyze the research data collected for this study. The population of this study are all the participants that join this event either from running, cycling, walking, rollerblading, or skateboarding activities. This study utilized a convenience sample. To gather information, this study implemented a questionnaire. The survey will provide a few sections of questions from Sections A (demographic questions), B (Independent variable), and section C (Dependent variable). All the data that have been collected from our questionnaire will be analyzed using Statistical Package for Social Science (SPSS) software because it provides a wide range of statistical tools and methods that are well-suited for analyzing social science data. The main analysis used for this study is descriptive analysis to analyze the demographic profile, reliability analysis, and regression analysis to analyze the effect between the independent variable and dependent variable.

4. Research Findings and Discussion

Table 1 contains information on the demographic data of the respondents and in this study, a total of 67 respondents were surveyed. The gender distribution revealed that 53.7% of the respondents identified as male, while 46.3% identified as female. Among the participants, 41.8% fell within the 18-25 age range, with the majority being undergraduate students. The second-largest age group was 26-30 years of age, accounting for 29.9% of the sample. The age groups of 31-40 years old and 41 and above constituted 20.9% and 7.5% of the student participants, respectively. In terms of monthly income, 31.3% of the university students reported earnings below RM2000, 40.3% earned between RM2000 and RM5000, 19.4% earned between RM5000 and RM7500, and 9% reported earning more than RM7500.

Table 1: Demographic Analysis

Category	Demographic	Frequency	Percentage
gender	Male	36	53.7
	Female	31	46.3
Age	18 - 25	28	41.8
	26 - 30	20	29.9
	31 - 40	14	20.9
	41 and above	5	7.5
Income	Below RM2000	21	31.3
	RM2000-RM5000	27	40.3
	RM5000-RM7500	13	19.4
	More than RM7500	6	9.0
Employment Status	Full-time	49	73.1
	Retired	1	1.5
	Student	16	23.9
	Unemployed	1	1.5
Education Level	High school (SPM)	8	11.9
	Diploma	15	22.4
	Bachelor's Degree	33	49.3
	Master's Degree	11	16.4
Frequency of Participating in a Running Event	Never	7	10.4
	Weekly	14	20.9
	Monthly	28	41.8
	Yearly	18	26.9

When examining the employment status, it was found that most university students were engaged in full-time studies (73.1%), while a small percentage were either retired (1.5%) or unemployed (1.5%). Regarding education level, the university students represented a diverse group, with 11.9% having completed high school (SPM), 22.4% holding a diploma, 49.3% having a bachelor's degree, and 16.4% possessing a master's degree. Finally, in terms of the frequency of participating in running events, 10.4% of the university students reported never participating, while 20.9% participated every week. Monthly participation was reported by 41.8% of the students, and 26.9% participated in running events every year.

Reliability Analysis: Based on Cronbach's alpha analysis, all variables are considered reliable because they achieve an alpha value of more than 0.60. The results shown in Table 2, crowd management has the highest Cronbach's alpha value where its alpha value is 0.951, followed by crowd information where its alpha value is 0.937, and then crowd design with an alpha value of 0.900. The dependent variable crowd safety presents a 0.939 reliability value.

Table 2: Reliability Analysis

Variable	No of Item	Cronbach's Alpha
Crowd Design	5	0.900
Crowd Information	5	0.937
Crowd Management	5	0.951
Crowd Safety	5	0.939

Regression Analysis: The result in Table 3 indicates that R = 0.829, R2 = 0.795, adj R2 = 0.785, F = 80.263, p<0.001. The multiple correlation coefficient between the variables which are crowd design, crowd information, and crowd management towards crowd safety is 0.890. It indicates that the independent factors considered in the regression model are highly and positively correlated with the dependent variable. Therefore, it represents a high contribution to the crowd safety. The three independent factors account for 79.5% of the variance in crowd safety reflecting convergent validity. Hence, 20.5% of the variations in crowd safety are due to other factors not investigated in this study.

Table 3: Regression Analysis

Independent Variables	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t-stat	p-value	VIF
Constant	1.278	-	1.581	0.119	
Crowd Design	0.248	0.247	2.145**	0.036	4.014
Crowd Information	0.235	0.243	1.553	0.125	7.393
Crowd Management	0.441	0.441	2.979**	0.004	6.631
R				0.829	
R^2				0.795	
Adjusted R^2				0.785	
F-test				80.263	
Sig.				0.001	

Dependent Variable: Crowd Safety

The adjusted R^2 is 0.785 indicating the result of this study is generalizable to other populations. Given that the adjusted R^2 is close to the R^2 value, it represented that no overfitting of the model to the sample occurred (Hair et al., 2006). The regression model fits the data very well. The F-test is 80.263 at p<0.001 indicating a significant association between the variables. In viewing the unstandardized coefficients, the positive sign on the independent factors is an indication of a positive relationship between independent and dependent variables.

Table 3 present the effect between the independent and dependent variable. based on the analysis, crowd design (B=0.248, t=2.145, p=0.036) and crowd management (B=-0.441, t=-2.979, p=0.004) shows the significant effect toward crowd safety. In contrast, crowd information (B=0.235, t=1.553, p=0.125) presents an insignificant effect on crowd safety.

Discussion: Crowd design and management are pivotal for ensuring event safety. Proper planning and execution in these areas help prevent overcrowding, enabling safe movement within the venue. In emergencies, effective crowd management ensures swift and orderly evacuations, reducing the risk of stampedes or panic. Based on the findings of the research, the majority of the participants are found to be satisfied with the overall safety of the KL Carfree Morning Event. Visible safety personnel, clear signage, and well-defined pedestrian and traffic zones managed by DBKL event organizers contributed towards participant's sense of security and comfort.

Effective crowd control, which includes well-trained staff, smooth traffic flow, and well-organized registration procedures, contributes to participant satisfaction overall and increases the possibility that they will attend future athletic events. This demonstrates the significance of the discoveries made by Still et al. (2020) and Peckover et al. (2022). Managing crowds well is essential for reducing disputes, boosting security, and responding quickly to medical emergencies. It is important to take accessibility into account so that everyone

can participate securely. Clear communication and trained personnel are important for enforcing safety regulations and managing potential dangers. Crowd design and management are proactive strategies that protect attendees, uphold the event's reputation, and guarantee that everyone has a safe and happy time.

However, the finding of this study shows that crowd information has little bearing on crowd safety. Because it cannot, on its own, stop accidents or emergencies, crowd intelligence is not always important for crowd safety. Planning, managing, and communicating effectively are the main factors that affect safety. Information can be useful, but to assure safety at crowded events, it must be combined with effective crowd design and management strategies.

5. Conclusion

Every event must prioritize crowd safety because it directly affects both the attendees' welfare and the event's overall success. First and foremost, it is a moral and ethical obligation to protect the crowd. Every breach in crowd safety can result in accidents, injuries, or even fatalities, which can have severe repercussions for people and communities. Event organizers have a responsibility to safeguard the lives and health of attendees. Second, the reputation of the event planners as well as the event itself depends on audience safety. An organization's reputation might be damaged and legal liabilities could result from a single safety event. A negative public opinion of an event may also have an impact on future attendance and sponsorships.

Effective crowd safety measures improve attendees' overall experience. When people feel secure and at ease, they are more likely to enjoy and take part in events. Everyone may participate completely in the event's offerings, from concerts and sporting events to festivals and conferences, if the crowd is properly handled. In conclusion, crowd safety is more than simply a logistical issue; it's also a moral duty, a way to protect one's reputation, and a way to make the event experience better. Crowd safety is a crucial consideration in event planning that should never be disregarded.

The study's main drawback is the small sample size. This study is crucial for comprehending the significance of crowd safety and will aid event planners in planning their events. Findings from this study will aid event planners in developing plans and long-term business strategies. So, as a suggestion for future research, the researcher might consider additional variables including venue choice, audience size, and behavior, as well as emergency response and medical services. All of these are significant factors that necessitate research to make the event viable.

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References

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.

Badd. (2018, July 23). Three Klang Marathoners were hit by a car. Here's how it may change future running events. CILISOS.

Bjeljac, Z. & Radovanovic, M. (2003). (PDF) Sports events as a form of tourist product, relating to the ... Sports Events as a Form of Tourist Product, Relating to the Volume and Character of Demand.

Brochado, A. (2021). Organizing Sports Events: the Promoters' Perspective.

Carmack, N. (2022, January 21). Why a security presence at your sporting event is Vital. BOS Security.

Chinomona, E. (2016). Corporate Sustainability and customer loyalty: The case of the railway ... Corporate sustainability and customer loyalty: the case of the railway industry.

Cho, Y., You, J., Choi, Y., Ha, J., Kim, Y. H., Kim, J., Kang, S. H., Lee, S., Lee, R. & Kim, T. (2022). Career change events of highly educated women with doctoral degrees in South Korea. *European Journal of Training and Development*.

Clancy, K. (2022, March 23). Health and safety for organizers of sports events - sport - UK. Health And Safety for Organisers of Sports Events - Sport - UK.

Ferreira, L. B., Giraldi, J. de, Maheshwari, V. & Oliveira, J. H. (2022). Impacts of host city image in the country destination branding in sport mega-event context: Exploring cognitive and affective image dimensions. *International Journal of Event and Festival Management,* 13(4), 486–505.

Glazener, A., Wylie, J., van Waas, W. & Khreis, H. (2022). The impacts of car-free days and events on the environment and human health. Environmental Health Reports, 9(2), 165-182.

Gutierrez, D., Zboja, J. J., Briggs, K. & Sheehan, K. M. (2022). The impact of special events and fan–player bonding on identified fan consumption – a study of professional soccer in the USA. *Sport, Business and Management: An International Journal*, 13(2), 141–160

Helsen, K., Derom, I., Corthouts, J., Bosscher, V. D., Willem, A. & Scheerder, J. (2021). Participatory sports events in times of COVID-19: Analyzing the (virtual) sport behavior of event participants. *European Sport Management Quarterly*, 22(1), 35–54.

Hollander, K., Klöwer, M., Richardson, A., Navarro, L., Racinais, S., Scheer, V., Murray, A., Branco, P., Timpka, T., Junge, A. & Edouard, P. (2021). Apparent temperature and heat-related illnesses during International Athletic Championships: A prospective cohort study. *Scandinavian Journal of Medicine & Science in Sports*, 31(11), 2092–2102.

Kamarudin L. M., Aziz N. A. R. A. & Ramely A. (2022). Understanding Crowd Management in Sports Events: A Preliminary Study. *Journal of Tourism, Hospitality & Culinary Arts,* 14(1), 393-410.

Kusumawati, A., Pangestuti, E. & Supriono, S. (2022). The antecedent of event attachment influence on tourism sustainability: The case of member fashion carnival, Indonesia. *International Journal of Tourism Cities*, 8(4), 1000–1018.

Libber, M. L. A. M. (2021). Safety and security of sporting events in the modern era. Sports Destination Management.

M. Khairul, A. (2017). National Cycling coach on hit-and-run accident: 'That driver has ... National cycling coach on hit-and-run accident: 'That driver has destroyed us'.

Maybee, M. (2022, September 19). Emergency preparedness for event planners: A crisis management guide. Tag Talk.

Mohammadfam, I., Mahdinia, M., Aliabadi, M. M. & Soltanian, A. R. (2022). Effect of safety climate on safety behavior and occupational injuries. Effect of safety climate on safety behavior and occupational injuries: A systematic review study.

Mohialdeen, Z. S. & Ebrageem, M. A. (2022). Car-free zone as planning vision to enhancements transportation in city centers (Holy Najaf city center-Iraq). *IOP Conference Series: Earth and Environmental Science*, 961(1), 012074.

Munirah, L., Raihan, N. A. & Ramely, A. (2022). *Understanding Crowd 2022,* 14(1). management in sports ... - FHTMV2. Understanding Crowd Management in Sports Events: A Preliminary Study.

Peckover, S., Raineri, A. & amp; Scanlan, A. T. (2022). Implementation of CongestionRelated Controls Improves Runner Density, Flow Rate, Perceived Safety, and Satisfaction during an Australian Running Event.

Schulz, A., Fletcher, R. & Nielsen, R. K. (2022). The role of news media knowledge for how people use social media for news in five countries. New Media & Society, 146144482211089.

Still, K., Papalexi, M., Fan, Y. & Bamford, D. R. (2020). Place crowd safety, crowd science? Case studies and application.

Team, B. (2022). 10 safety risks every event manager should plan for. Blerter.

Teare, G. & Taks, M. (2021). Sports events for sports participation: A scoping review. Frontiers in Sports and Active Living, 3. https://doi.org/10.3389/fspor.2021.655579

Thomas, K. & Stephen, S. (2022). Understanding the management theory in event management - Researchgate. Understanding the Management Theory in Event Management.

Still, K., Papalexi, M., Fan, Y. & Bamford, D. (2020). Place crowd safety, crowd science? Case studies and application. *Journal of Place Management and Development,* 13(4), 385-407.

Helbing, D., Johansson, A. & Al-Abideen, H. Z. (2007). Dynamics of crowd disasters: an empirical study, *Physical Review E,* 75(4), 046109.

Haghani, M. & Sarvi, M. (2018). Crowd behavior and motion: empirical methods, *Transportation Research Part B: Methodological,* 107, 253-294.

Haghani, M., Coughlan, M., Crabb, B., Dierickx, A., Feliciani, C., van Gelder, R. & Wilson, A. (2023). A roadmap for the future of crowd safety research and practice: Introducing the Swiss Cheese Model of Crowd Safety and the imperative of a Vision Zero target. *Safety Science,* 168, 106292.

Taibah, H., Arlikatti, S., Andrew, S. A., Maghelal, P. & DelGrosso, B. (2020). Health information, attitudes and actions at religious venues: Evidence from hajj pilgrims. *International Journal of Disaster Risk Reduction*, 51, 101886.

Subramanian, G. H. & Verma, A. (2022). Crowd risk prediction in a spiritually motivated crowd. *Safety Science*, 155, 105877.

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Employer's Satisfaction on Accounting Internship in Digital Learning Environment

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Abstract: The accounting profession plays a vital role in organizations' financial stability and transparency, making it imperative to examine the satisfaction levels of employers regarding the quality and preparedness of accounting interns. Limited knowledge about how employers perceive the value of accounting interns who have engaged in digital learning experiences throughout their undergraduate studies is known. The study aims to examine the impact of digital learning environments on employer satisfaction with accounting interns in three different aspects, namely technical and functional skills, communication skills and organizational management skills. The study surveyed a sample of employers that had hosted accounting internships in 2022. The findings of this study revealed that employers have a high level of satisfaction towards accounting interns in the digital learning environment. This has significant implications for various stakeholders, including educational institutions, employers, accounting interns and the accounting profession as a whole. It offers insights into how academic institutions can better align their curriculum and support systems with the needs and expectations of employers, thus bridging the gap between classroom learning and real-world accounting practice.

Keywords: *Internship, Employers' Satisfaction, Intern Skills, Digital Learning, Accounting.*

1. Introduction

The integration of theory and practice plays a crucial role in preparing students for their future careers. Internship programs serve as a vital bridge between academia and the professional world, providing students with real-world experience and an opportunity to apply their acquired knowledge. In the field of accounting, internships hold particular significance, as they allow aspiring accountants to gain practical skills, understand industry practices and develop a deeper understanding of the profession. The lack of effort by students to establish linkages between the classroom and the job has resulted in challenges when attempting to apply acquired abilities in different contexts (Zehr & Korte, 2020). Thus, accounting internships are an essential part of the accounting curriculum, allowing students to gain hands-on experience and learn about the profession. Employers are increasingly looking for accounting graduates with practical experience, and internships can help students develop the skills and knowledge that employers are looking for (Che Abdul Rahman et al., 2007).

The significance of accounting internships in influencing the accounting profession is widely acknowledged. Accounting internships serve as a place where aspiring accountants are exposed to the practical complexity of financial management, auditing and regulatory compliance (Sawani et al., 2016). The problem at hand centers on the uncertainty surrounding whether accounting internships, particularly those who engaged in digital learning environments during their undergraduate studies, successfully fulfill the needs and expectations of employers. Employers invest resources in mentoring, training, and integrating interns into their organizations, anticipating that this investment will yield skilled and adaptable future professionals. However, there is a lack of comprehensive research examining employer satisfaction as a fundamental measure for evaluating the overall success of these internships.

Internship programs offered by public universities serve as a valuable resource for both students and employers (Cheong et al., 2014). These programs enable students to engage in hands-on training, while employers benefit from the interns' fresh perspectives and up-to-date knowledge. However, it is essential to evaluate whether employers find these interns capable, knowledgeable and well-prepared for the challenges of the accounting industry. This research paper aims to examine the level of employer satisfaction with accounting interns who have engaged in digital learning experiences throughout their undergraduate studies and determine the generic skills that interns should possess during their internship program. By exploring the perspective of employers, we aim to shed light on the effectiveness and value of internships in nurturing competent accounting professionals.

There is a growing body of research on factors contributing to employer satisfaction with accounting internships (Sawani et al., 2016; Warinda, 2013). However, there is limited research on the impact of digital learning environments on employer satisfaction with accounting internships. Understanding employer satisfaction with accounting interns is crucial for several reasons. Firstly, it helps in assessing the effectiveness of the public university internship program in meeting the expectations and requirements of employers. Secondly, it allows for the identification of areas where improvements can be made to enhance the quality of the intern's experience. Finally, it provides insights into the skills and competencies employers value most in accounting interns, thus aiding in developing a comprehensive accounting curriculum.

The structure of this paper is as follows, whereby the second section provides a review of the relevant literature. The third section is the methodology of the study, followed by the fourth section, which is the results and discussion of the study on the level of employer satisfaction with accounting interns in three different aspects, namely technical and functional skills, communication skills and organizational management skills. The final section concludes the paper and provides recommendations for future research.

2. Literature Review

Accounting Education and Internship: The contemporary landscape of education is confronted with a notable challenge due to the emergence of globalization and advancements in technology. The current trend in accounting education involves a shift towards digitalized or mixed instructional approaches for teaching and learning (blended learning). In many education institutions, enhanced teaching methods have been implemented since the onset of the COVID-19 epidemic in 2020. Several tools and software have been developed to enhance the facilitation of teaching and learning during the pandemic. There has been a notable rise in the reliance on electronic resources for accessing high-quality teaching videos, educational content and network interactions for easy exchange of data (Frolova et al., 2020). The new educational paradigm places significant emphasis on incorporating technology in education, namely through the utilization of accounting software and the provision of video-based learning. These technological advancements have transformed how students engage with and retrieve diverse learning resources (Salem, 2013).

Digital learning has been found to yield numerous advantages. Dickfoss, Cameron and Hodgson (2014) suggest that implementing the blended learning technique has yielded a favorable outcome in enhancing self-reflection and assessment. From the standpoint of students, the elevator pitch resource can be evaluated in terms of its positive and negative aspects. On the positive side, it aids students in organizing their presentations effectively. Additionally, the use of video format helps alleviate their anxiety related to delivering presentations, which could otherwise have detrimental effects on their academic performance and self-confidence. Specifically, it allowed students to recognize areas of their oral communication abilities that necessitate enhancement and rectify any misunderstandings they may have had regarding their oral communication skills. Moreover, it is worth noting that the students successfully adjusted to the implementation of digitalized education, demonstrating their ability to take ownership of their learning. The individuals asserted that they were compelled to acquire knowledge regarding contemporary technology, software, applications, and tools to facilitate their online learning experience, yielding future advantages (Shamsudin et al., 2023).

Despite the advancements in teaching approaches, various concerns have been identified concerning accounting graduates, which necessitate improvements by universities. Phan et al. (2021) reveal intriguing insights into the realm of accounting education and the cultivation of competencies in the Southeast Asian region. First, the evolving economy and business landscape in the Southeast Asian region have necessitated the acquisition of novel skills and competencies. Second, accounting graduates frequently encounter challenges in obtaining recognition from local professional organizations due to concerns regarding the perceived inadequacy of their training and the quality of their education. Third, it has been observed that some skills, considered essential by businesses, have not met the level of satisfaction determined by professional accounting groups in the British region.

In addition to the above, accounting graduates who have completed a degree in accounting have the necessary competencies required for the accounting profession. However, their proficiency in information

technology (IT) skills was found to be lacking and not fully developed (Phan et al., 2021). A suggestion has been made to universities to revise their accounting curriculum to incorporate IT skills instruction. This recommendation stems from the fact that firms that may potentially hire accounting graduates are increasingly emphasizing the importance of IT skills in their training and development initiatives for recruits. Proficiency in accounting software and information systems, and adeptness in leveraging technology, are crucial to effectively and precisely handling financial data.

One way to adequately prepare graduates with the essential skills before entering the professional workforce, especially for accounting graduates, is through their participation in internship programs. Internship programs have become important learning tools in higher education. For the accounting discipline, an internship helps bridge the gap between technical inputs in class and actual applications in real-time transactions. The accounting internship program develops students' accounting experience by enabling them to learn the ropes from more experienced professionals. At the end of the program, students are expected to gain relevant experience to help them decide the area that suits them best (Sawani et al., 2016).

Technical and Functional Skills: The acquisition of technical skills is of utmost significance for accounting graduates, as they serve as the fundamental basis for executing accounting duties with precision, effectiveness, and adherence to ethical standards. According to the International Education Standard (2005), technical and functional skills encompass both general abilities and skills that are specifically relevant to the field of accountancy, which encompass numeracy and information technology proficiency, decision modeling and risk analysis, measurement, reporting, as well as compliance with legislative and regulatory standards.

Accounting graduates who have successfully obtained a degree in accounting possess the essential skills and knowledge necessary for the accounting profession through various improvements made to the curriculum and input from various industry experts. Employers are generally satisfied with accounting graduates who demonstrate strong technical and functional skills (Shamsuddin et al., 2015). Accounting graduates have the opportunity to use the knowledge they acquire during their university education through participation in internship programs. Internships are a significant factor in enhancing students' technical and functional abilities (Warinda, 2013). Even professional accountants acknowledge the necessity for accounting graduates to acquire a diverse set of technical and generic abilities to thrive in their professional endeavors (Klibi & Oussii, 2013), and these skills can be acquired during internships.

However, a study revealed that recent auditing graduates had incomplete development in terms of their technical knowledge and ability to navigate real-world scenarios (Damoah et al., 2021). The study conducted by Phan et al. (2021) found that the participants' competence in information technology (IT) abilities was deficient and not adequately cultivated. It was also observed that the interns lacked adequate knowledge, and exhibited weaknesses in their proficiency to prepare technical reports indicating a lack of technical competency required by the employer (Sawani et al., 2016).

Communication Skills: Communication is a fundamental process by which individuals transmit, receive, and exchange ideas and information. Its effectiveness is contingent upon the recipient's ability to comprehend and interpret the conveyed message proficiently. Effective communication has a pivotal role in fostering and nurturing improved interpersonal connections. Relationships founded on effective communication tend to be more resilient and can potentially facilitate personal development. Moreover, such relationships enhance conflict resolution skills, foster empathy and trust, and promote self-awareness. Research findings suggest that there is a collective awareness among students regarding the significance of communication skills in achieving success in the accounting field. Nevertheless, individuals often perceive their abilities in writing communication to be inadequately developed (Oussii & Klibi, 2017).

In the accounting field, verbal communication is widely regarded as a crucial professional ability that businesses deem essential for accounting graduates upon their entry into professional accounting organizations (Ismail, Ahmad & Ahmi, 2020). However, accounting graduates' oral communication skills continue to be deficient in their oral communication skills (Phan et al., 2021; Damoah et al., 2021; Sawani et al., 2016). Furthermore, in a study conducted among accounting students in Australia, Evans and Cable

(2011) observed a notable increase in the prevalence of language and communication challenges among accounting graduates, as reported by employers.

Organizational Management Skills: The accounting profession places significant importance on the relevance and indispensability of organizational management abilities. Accountants bear the responsibility of managing financial information, guaranteeing adherence to regulatory frameworks, and facilitating decision-making procedures within organizational contexts. The possession of effective organizational management skills empowers accounting professionals to execute their duties with efficiency and make valuable contributions to the overall performance of the organizations they are affiliated with. For example, the skill of maintaining ethical standards and the alignment of financial practices with regulatory obligations. Accountants must possess the capacity to recognize and resolve ethical quandaries and legal concerns. Employers continue to place importance on a solid grasp of fundamental accounting skills and robust analytical abilities. However, they increasingly emphasize the need for "business awareness" and practical knowledge about real-world contexts (Kavanagh & Drennan, 2008).

In the Malaysian context, it can be inferred that there exists a favorable correlation between the proficiency of accounting graduates in organizational and business management skills and the degree of satisfaction experienced by employers (Shamsuddin et al., 2015). The Asian study yielded comparable findings, indicating a discernible inclination among Asian organizations to prioritize the recruitment of graduates who possess strong organizational and business management skills (Zaharim et al., 2009).

3. Research Methodologies

The data for this study was collected from structured questionnaires distributed to the employers participating in the public university internship program that was completed in 2022 and who have had direct experience working with accounting interns. The questionnaire was developed to assess both the program outcome and the level of satisfaction experienced by employers on the generic skills possessed by students using a Likert scale ranging from "Poor" to "Excellent". A descriptive data analysis was carried out to assess employers' satisfaction levels towards accounting interns.

The study population comprised employers who engaged in the internship program according to the batch of interns who completed their internship program in the year 2022. The survey questionnaires are distributed to the entire population of employers for 230 interns. An employer of the intern is defined as a person who works in the same organization as the intern and is their superior, including supervisors, managers, audit partners, team leaders or others. An email is sent to the employer after four months of internship duration, and one month is given to the employers to return the completed survey questionnaires. Email collection was selected because all the internship placements were in various areas, states and regions throughout Malaysia. The employers were readily accessible via email.

4. Discussion and Findings

Demographic: A total of 230 responses were collected for this study. The respondents are the employers of 230 accounting interns who graduated from their internship program in 2022. Table 1 depicts the demographic data of the interns and employers. There were two batches of internship for 2022 which ended in February and August. 180 interns completed their internship program in February 2022, which comprises 78%, and most of them are female. The employers are scattered around Peninsular Malaysia as well as East Malaysia. For Peninsular Malaysia, the employers are categorized into four regions, namely Northen (state comprised of Perlis, Kedah, Pulau Penang, Perak), Central (Selangor, Wilayah Persekutuan Kuala Lumpur and Putrajaya), Southern (Negeri Sembilan, Melaka, Johor) and Eastern (Kelantan, Terengganu, Pahang). As for East Malaysia, it is referring to Sabah and Sarawak. Furthermore, the employers are grouped by the type of organization, whether it is an audit firm or a non-audit firm. Audit firms refer to firms that provide professional services to their clients, including accounting, auditing and assurance services. It is discovered that the majority of the employers are audit firms for both batches, which in total comprise 81% throughout 2022.

Table 1: Demographic

		Frequency (n=230)	Percentage	Batch	
				February	August
Region	Northern	1	0.4	0	1
	Central	164	71.3	130	34
	Southern	51	22.2	46	5
	Eastern	7	3.0	2	5
	East Malaysia	7	3.0	2	5
Types of organization	Audit Firm	186	80.9	149	37
	Non-audit Firm	44	19.1	31	13

Employers' Satisfaction: The following will further discuss the employer's satisfaction level with the accounting interns. The employers were asked for three major skills that will represent their satisfaction level, which are technical and functional, communication skills and organizational management skills. Several indicators are used to illustrate the assessed skills.

Table 2 represents the distribution of respondents regarding the intern's technical and functional skills. In general, most employers lean toward the positive, with responses ranging from "Good" to "Excellent" on the statement being presented to them. The employers rated the intern's knowledge and understanding of accounting concepts and report writing ability as "Good", represented by 56% and 51%, respectively. In addition, for job competency, there is an equal distribution for "Good" and "Excellent", which total up to 88%. Hence it shows that the intern's ability and behavior are exceptional for a successful job performance with the support and training by the employers. The area of concern is the "Moderate" and "Poor" responses on the intern's knowledge and understanding of accounting concepts, representing 5% of interns. This is undeniable given that some students underperform academically, consequently affecting their professional judgment and job performance.

Table 2: Employers' Responses on Technical and Functional Skills

	Responses (frequency/percentage)				
	Poor	Moderate	Satisfactory	Good	Excellent
Job competency	0	3	25	100	102
		(1.3)	(10.87)	(43.48)	(44.35)
The intern's knowledge and understanding of concepts	1	11	55	130	33
	(0.43)	(4.78)	(23.91)	(56.52)	(14.35)
Report writing ability	0	4	53	117	56
		(1.74)	(23.04)	(50.87)	(24.35)

In the next section, the employers were asked to express their satisfaction level with the communication skills of the interns, including interpersonal skills and the ability to communicate ideas. A summary of their responses is captured in Table 3. The majority of the employers agreed that their interns have strong interpersonal skills (65%) and were able to communicate their thoughts to the third party (46%).

Table 3: Employers' Responses on Communication Skills

	Responses (frequency/percentage)				
	Poor	Moderate	Satisfactory	Good	Excellent
Interpersonal Skills	0	0	11	69	150
			(4.78)	(30)	(65.22)
The intern's ability to communicate his ideas	0	0	23	101	106
			(10)	(43.91)	(46.09)

The next section assessed the intern's organizational management skills. Again, most employers responded positively to the intern's general skill and motivation in completing the job, their responsibilities on job-related work, and their compliance with the working requirements, as shown in Table 4. The most positively responded criteria are on the compliance with requirements by the company, which comprises 70% being "Excellent". This is consistent with the behavior of accounting students, who are considered to have a high level of discipline and are attentive to instructions.

Table 4: Employers' Responses on Organisational Management Skills

	Responses (frequency/percentage)				
	Poor	**Moderate**	**Satisfactory**	**Good**	**Excellent**
General skill and motivation	0	0	16 (6.96)	77 (33.48)	137 (59.57)
Responsibility	0	1 (0.43)	17 (7.39)	73 (31.74)	139 (60.43)
Compliance with working requirements	0	2 (0.87)	13 (5.65)	55 (23.91)	160 (69.57)

The overall quality of interns, as evaluated by their employers, is summarized in Table 5. It shows that 99% of employers have a favorable satisfaction level. Nearly half of the employers (49%) rated the interns as "Performed work as directed", and 41% of the respondents rated interns as "Required little supervision". This is consistent with the high score for "Compliance with the working requirement", as shown in Table 4, indicating that interns carried out their duties as instructed. However, there are 0.9% of employers classify the intern as "Required constant supervision, over-dependent", which conforms to the finding in Table 2 of the poor rating for "The intern's knowledge and understanding of concepts".

Table 5: Overall Quality of Interns

Overall Evaluation	**Responses (no/%)**
Worked independently	21 (9.1)
Required little supervision	95 (41.3)
Performed work as directed	112 (48.7)
Lacked initiative, must be instructed from time to time	0 (0)
Required constant supervision, over-dependent	2 (0.9)

Other Feedback from Employers: In addition to their previous evaluations, the employers provided additional comments regarding the interns. Among other responses received were regarding the strength of the interns as follows,
"The students can adapt to required surroundings fast"
"Punctuality person and can complete the tasks on time."
"The intern is very committed to the assigned job and less supervision"

Other than that, the employers also further comment on the interns' opportunities in the future.
"Overall, this intern doing his job well and can improve better in the future."
"Overall a pleasant, reliable, committed and dedicated staff"
"There is room for improvement in decision making"
"Always show an effort to learn new things"
"Need to learn more/varied areas"
"Keep learning and explore more"

By previous consensus, employers reiterate the importance of interns' development of a diverse range of skills. These highlighted competencies include the following observations:

"Keep ongoing knowledge in accounting, audit and taxation through various sources"
"You must have your initiative and effort on how to upgrade your knowledge and skills"
"Need more exposure to sharpen the skill and knowledge"
"To upskill herself with complex working paper and analysis skills"
"Can improve soft skills in the future."
"….need more soft skills to improve inner self to become a good worker"
"To improve communication skills and report writing skills"
"To develop and enhance critical thinking skills and technical knowledge"
"To improve report writing skills"
"Need a little improvement in communication skills and critical thinking"
"Need to understand the accounting concept"
"Improve on the social skills"

Overall, the feedback received from employers provides further support for the findings that indicate a high level of satisfaction among employers about the technical and functional skills, communication skills and organizational management skills of the accounting interns.

5. Conclusion and Recommendations

In summary, this research paper examines employer satisfaction with accounting interns in a digital learning environment. The findings of this study indicate that employers express a high level of satisfaction regarding the proficiency of accounting interns in three different aspects, including technical and functional skills, communication skills and organizational management skills. The study also revealed that employers generally have positive perceptions of accounting interns who have undergone digital learning experiences throughout their undergraduate studies. The study further suggests that the accounting internship program in a digital learning environment is a valuable experience for both interns and employers. By understanding the employer's perspective, policymakers, educators and program coordinators can revise the accounting curriculum and internship experiences to better align with industry demands. Ultimately, it will enhance the quality of accounting education, produce highly competent graduates, and increase the employability of accounting interns in the ever-evolving professional landscape.

This study has limitations that must be taken into consideration. Firstly, the targeted respondents are limited only to one public university for accounting interns in 2022. The selected demographic may not accurately reflect the broader population of graduates who engaged in digital learning experiences during their undergraduate education. Hence, the outcomes of this research are specifically relevant within the confines of its scope. While the results are not conclusive, they may suggest a similar outcome for a larger sample size. Another limitation is the challenge of collecting data through survey questionnaires. Survey respondents will interpret surveys differently. Some respondents may perceive the same survey item differently, and others may be confused by survey questionnaire wordings, leading to different interpretations. Nevertheless, survey questionnaires are commonly utilized because they deliver faster, cheaper and more accurate data compared to other methods.

Further research should be conducted to empirically assess the level of employer satisfaction with accounting interns throughout Malaysia and compare it with other countries. It might also take into consideration the internship programs run by other public and private universities. Moreover, other additional skills for interns can also be explored to reach more comprehensive results. Due to the small sample size of this study, future research should expand the response size to ensure the result will be more representative.

References

Che Abdul Rahman, M. R., Tengku Abdullah, T. A., Agus, A. & Rahmat, M. M. (2007). Universities – Workplace competency gaps: A feedback from Malaysian practicing accountants. *Journal of Financial Reporting & Accounting*, 5(1), 119 – 137. https://doi-org.ezaccess.library.uitm.edu.my/10.1108/19852510780001579

Cheong, A. L.H., Yahya, N., Shen, Q. L. & Yen, A. Y. (2014). Internship experience: An in-depth interview among interns at a business school of a Malaysian private higher learning institution. *Procedia - Social and Behavioral Sciences*, 123, 333 – 343. doi: 10.1016/j.sbspro.2014.01.1431

Damoah, O. B., Peprah, A. A. & Brefo, K. O. (2021). Does higher education equip graduate students with the employability skills employers require? The perceptions of employers in Ghana. *Journal of Further and Higher Education*, 45(10), 1311-1324. https://doi.org/10.1080/0309877X.2020.1860204

Dickfoss, J., Cameron, C. & Hodgson, C. (2014). Blended learning: making an impact on assessment and self-reflection in accounting education. *Education + Training*, 56(2/3), 190-207. https://doi.org/10.1108/ET-09-2012-0087

Evans, E. & Cable, D. (2011). Evidence of improvement in accounting students' communication skills. *International Journal of Educational Management*, 25(4), 311-327. 10.1108/09513541111136612

Frolova, E. V., Rogach, O. V. & Ryabova, T. M. (2020). Digitalization of education in modern scientific discourse: New trends and risks analysis. *European Journal of Contemporary Education*, 9(2), 313–336. https://doi.org/10.13187/ejced.2020.2.313

International Education Standard (IES 3). (2005). Professional skills and general education contents - IFAC. Retrieved 25 August 2023: https://www.ifac.org/system/files/publications/files/ies-3-professional-skills-1.pdf

Ismail, Z., Ahmad, A. S. & Ahmi, A. (2020). Perceived employability skills of accounting graduates: The insights from employers. *Ilkogretim Online - Elementary Education Online,* 19(4), 36-41. doi:10.17051/ilkonline.2020.04.104

Kavanagh, M. & Drennan, L. (2008). What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer expectations. *Accounting and Finance*, 48(2), 279 - 300. DOI:10.1111/j.1467-629X.2007.00245.x

Klibi, A. F. & Oussii, A. A. (2013). Skills and attributes needed for success in an accounting career: Do employers' expectations fit with students' perceptions? Evidence from Tunisia. *International Journal of Business and Management*, 8(8), 118-132. doi:10.5539/ijbm.v8n8p118

Kwarteng, J. T. & Mensah, E. K. (2022). Employability of accounting graduates: Analysis of skills sets. Heliyon, 8. https://doi.org/10.1016/j.heliyon.2022.e09937

Oussii, A. A. & Klibi, M. F. (2017). Accounting students' perceptions of important business communication skills for career success: An exploratory study in the Tunisian context. *Journal of Financial Reporting and Accounting*, 15(2), 208-225. DOI: 10.1108/JFRA-10-2015-0092

Phan, D., Yapa, P. & Nguyen, H. T. (2021). Accounting graduate readiness for work: A case study of South East Asia. *Education + Training*, 63(3), 392-416. DOI 10.1108/ET-02-2019-0036

Salem, M. S. M. (2013). The future of accounting as a subject in a business school: A literature review. *The Journal of Human Resource and Adult Learning,* 9(2), 62-69.

Sawani, Y., Abdillah, A., Rahmat, M., Noyem, J. A. & Sirat, Z. (2016). Employer's satisfaction on accounting service performance: A case of public university internship program. *Procedia - Social and Behavioral Sciences*, 224, 347 – 352. doi: 10.1016/j.sbspro.2016.05.386

Shamsuddin, A., Mohamad Ibrahim, M. I. & Ghazali, M. H. (2015). Employers' level of satisfaction towards accounting graduates. *South East Asia Journal of Contemporary Business, Economics and Law*, 7(1), 22-31.

Shamsudin, A., Mamat, S. N., Pauzi, N. F. & Karim, M. S. (2023). Adapting to changing expectations: Accounting students in the digital learning environment. *International Journal of Information and Education Technology*, 13(1), 166-175.

Warinda, T. (2013). Accounting students' evaluation of internship experiences from a skills perspective. *International Journal of Asian Social Science*, 3(3), 783-799.

Zaharim, A., Yusoff, Y. M., Omar M. Z., Mohamed, A. & Muhamad, N. (2009). Engineering employability skills required by employers in Asia. Proceedings of the 6th WSEAS International Conference on Engineering Education, 195-201.

Zehr, S. M. & Korte, R. (2020). Student internship experiences: Learning about the workplace. *Education + Training*, 62(3), 311-324. DOI 10.1108/ET-11-2018-0236

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Nexus between Macroeconomic Factors and Economic Growth in Malaysia: An Autoregressive Distributed Lag Approach

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Abstract: This review study digs into the complex relationship that exists between the development of GDP in Malaysia and major macroeconomic variables, such as the country's money supply, inflation rate, and currency rate. In a time when countries all over the world are working hard to achieve maximum economic prosperity through efficient economic strategies, the irregularities in GDP growth that occur within a nation can lead to an increased prevalence of poverty and impede progress in crucial areas such as healthcare, education, crime rates, and overall economic development. It is of the utmost importance to gain an understanding of the elements that influence GDP development to reduce the risk of sociopolitical instability. Because nations are becoming more aware of the various elements that could potentially affect economic growth, this study was prompted to determine the precise mechanisms that are at play because of this awareness. This study employs the Autoregressive Distributed Lag (ARDL) methodology to yield robust statistical insights into the nexus between macroeconomic variables and economic growth in Malaysia. We have used quarterly data ranging from the initial quarter (Q1) of 2000 to the last quarter (Q4) of 2020 for our analysis. The findings of this study provide important insights into the dynamic links between GDP growth and the selected macroeconomic determinants. As a result, the findings provide policymakers, academics, and practitioners with significant information that can be used to design economic plans that are informed by relevant data. In addition, this study emphasizes the necessity for future research endeavors to go deeper into this topic, bringing attention to the requirement for new views and the active participation of new academics, politicians, and practitioners. This concerted effort is necessary to promote sustainable economic growth and stability in Malaysia and elsewhere.

Keywords: *Real GDP, Money Supply (M2), Inflation rate, Exchange rate, ARDL.*

1. Introduction

The situation in Malaysia right now is characterized by tremendous development progress, and the nation is currently on its way to becoming a developed nation. The nation has been successful in transforming its economic model from one that was highly dependent on agriculture into one that is defined by a diverse manufacturing and service-based economy. This transformation has been possible because the nation has been able to effectively adapt its economic model. This shift is aligned with Sustainable Development Goal (SDG) 8, which aspires to guarantee inclusive and sustained economic growth, full and productive employment, and decent labor for all people. The Gross Domestic Product (GDP) is one of the most important economic indicators that can be used to measure the growth and performance of Malaysia's economy. According to the World Bank (2023), Malaysia's manufacturing sector has seen tremendous expansion in recent years, to the point that it now accounts for more than 60 percent of the country's total exports and contributes 25 percent to the country's Gross Domestic Product (GDP). In addition, the contribution that the service sector makes to the GDP has grown to the point where it now accounts for 54% of the total, which is far more than the contribution that the mining and quarrying industries make, which is just 9% (World Bank, 2023).

However, irregular rates of GDP growth within a nation can contribute to a range of societal concerns, such as rising rates of poverty, delayed progress in areas such as health and education, increased crime rates, and impediments to overall economic development. These problems can all be traced back to the nation's economy. Despite a GDP growth rate that was comparatively high at 5.4% in 2022 and a forecasted growth rate that was 4.0% in 2023, Malaysia confronts challenges in continuing this growth trajectory. The price of food and utilities has been on the rise, which has contributed to an acceleration of inflation. Additionally, the policy objective of the administration is not totally visible, and the federal government is still running deficits.

In addition, external variables like as global headwinds, such as Russia's conflict with Ukraine and China's zero-Covid policy, may pose further hurdles for the Malaysian economy, particularly in the fourth quarter of 2023. This is particularly true if the conflict between Russia and Ukraine continues. Inflation, government deficits, and economic pressures from outside Malaysia all need to be overcome if the country is to keep up its current rate of economic expansion. It is essential to achieve consistent and equitable growth in terms of per capita GDP growth if one intends to alleviate poverty, improve the well-being of society as a whole, and sustain economic development. This growth must be achieved to fulfill these goals. In conclusion, finding solutions to the challenges associated with GDP growth and maintaining economic stability are both essential to the continued development and prosperity of the country in the future.

2. Literature Review

Real Gross Domestic Product: The Real Gross Domestic Product, often known as Real GDP, is a fundamental economic metric that can be used to evaluate a country's or region's overall economic performance and growth. It is an essential indicator for policymakers, economists, and analysts to use to comprehend the state of an economy and its future course of development. According to Fix (2019), real GDP is an unreliable indicator because it is subjective and relies on a quantity that does not exist. On the other hand, Dritsaki (2015) applies econometric models to the forecasting of the real GDP rate in Greece and finds that it is improving consistently over time. Vintrova (2005) draws attention to the limitations of GDP and proposes complementing it with other metrics, particularly in open economies with small populations where exports play a big role. Finally, Morales-Zumaquero (2016) studies convergence in real GDP growth and finds evidence of convergence in different income categories. This is even though the impact of financial crises and exchange-rate regimes varies between countries (Fix, 2019; Dritsaki, 2015; Vintrova, 2005; Morales-Zumaquero, 2016). In general, the articles present a variety of perspectives, some of which conflict with one another, on the usefulness and restrictions of real GDP as an indicator of economic progress.

In previous studies, GDP is heavily influenced by macroeconomic conditions. Hsing's (2004) research revealed a positive association between Mexico's real GDP, real M2, government deficit spending, stock prices, U.S. output, and world oil prices. It was also found that the government debt ratio, peso depreciation, and expected inflation rate negatively impacted Mexico's real GDP. Yildirtan's analysis in 2016, focusing on EU member states, identified the variable with the highest GDP volatility to be "bond yield," which exhibited significant fluctuations and exerted the greatest influence on GDP. Hsing's study in 2005, conducted in Venezuela, identified several factors that contributed positively to real GDP, including rising real M2, government deficit spending, Bolivar depreciation, expected inflation, and world oil prices. Arratibel's examination of EU Member States in Central and Eastern Europe in 2009 discovered a positive correlation between lower exchange rate volatility and higher economic growth, FDI (Foreign Direct Investment) stocks, current account deficits, and excess credit (Arratibel, 2009; Hsing, 2004; Yildirtan, 2016).

Money Supply (M2): The role of money in the economy is a significant concern for policymakers and economists due to its impact on crucial macroeconomic indicators such as inflation and exchange rates (Yousfat, 2015). The M2 money supply refers to a broad measure of the amount of money circulating in an economy, including currency, demand deposits, time deposits, and near money. Near money refers to highly liquid assets that can be easily converted into cash, such as money market funds and savings accounts. Recently, there has been a growing focus on the convergence between the money supply and various macroeconomic variables in the fields of monetary and financial economics, resulting from ongoing debates among economists and financial scholars regarding the relationship between the money supply and various economic factors. These modifications in macroeconomic policies have far-reaching effects on national income, price levels, interest rates, and exchange rates, thereby impacting overall economic development. The diversity of opinions among economists concerning the effectiveness of short- and long-term growth-enhancing policies underscores the importance of macroeconomic policies for long-term development. Gatawa et al. 2017 argue that monetary variables are more effective and reliable than fiscal variables in driving changes in economic activity. Nevertheless, the exploration of the impact of macroeconomic variables on Nigeria's economy has given rise to conflicting viewpoints. Existing research diverges in terms of interpretation and directional relationships. Several findings underscore the significant influence of

macroeconomic variables, with particular emphasis on the moderating role of the money supply, a perspective supported by Gatawa et al. 2017 and Olawale in 2015.

While there is agreement that economic performance plays a pivotal role in driving macroeconomic changes, these studies differ in their conclusions regarding the direction of this effect. Another study by Ditimi et al. focused on the impact of money supply on inflation in Nigeria from 1970 to 2016. Using co-integration tests and error correction approaches, the study found a significant positive relationship between money supply and economic growth in Bangladesh. These findings suggest that increasing the money supply can have a positive effect on GDP growth. On the other hand, some studies indicate a minor relationship between interest rates and GDP, with money supply having a greater impact (Ershad & Mahfuzul, 2017). For instance, a study focusing on a selection of ASEAN countries found a positive correlation between the money supply and economic growth (Matres & Le, 2021). This research indicated that an increase in the money supply led to an uptick in GDP growth, suggesting that a higher money supply provides businesses and consumers with more capital for investment and consumption, thereby stimulating economic activity and GDP growth. Kausar (2020) found a positive effect of money supply on GDP in Pakistan. Hameed (2010) also observed that growth in the money supply greatly affects GDP in Pakistan. Dingela (2017) found a statistically significant positive relationship between money supply and economic growth in South Africa. Ihsan (2013) emphasized the role of money supply in influencing GDP in Pakistan, stating that excessive money supply can lead to high inflation rates and that controlling indicators such as CPI and interest rates can contribute to increase GDP.

Conversely, another study by Kormendi and Meguire (1985) identified a negative relationship between the average growth rate of the money supply and real output growth in a cross-country analysis. This implies that an increase in the money supply may not necessarily result in higher GDP growth and could even have adverse effects on the economy. Furthermore, the study conducted by Levine and Revelt (1992) did not uncover a strong correlation between monetary indicators and real GDP growth across countries. Given these divergent findings, it is essential to recognize the intricate and multifaceted nature of the relationship between the money supply and GDP growth. In summary, the relationship between the money supply and GDP growth is a complex and multifaceted issue that has been the subject of ongoing research and debate among economists. While some studies suggest a positive correlation between the money supply and economic growth, others indicate a negative relationship or a limited connection between interest rates and GDP. Therefore, the motivation for this study arises from the necessity to conduct a comprehensive examination of the relationship between GDP and the money supply (M2).

Inflation Rate: Inflation and GDP growth are two important macroeconomic indicators that have been the subject of extensive research in the literature. Inflation and GDP growth are two important macroeconomic indicators that are closely related. Inflation refers to the rate at which the general level of prices for goods and services is rising, while GDP growth measures the increase in the value of goods and services produced by an economy over a certain period. The relationship between inflation and GDP growth has been the subject of much debate in the literature. This literature review aims to examine the effect of inflation rate and GDP growth by analyzing recent studies.

Some studies suggest a positive relationship between inflation and GDP growth, arguing that moderate levels of inflation can stimulate economic activity. For instance, research on the relationship between inflation and GDP growth in Pakistan found that inflation has a positive impact on GDP growth by encouraging productivity and output (Khan, 2021). Kankpeyeng (2021) found that GDP grows positively at a general level of inflation and low rates of inflation in Ghana. On the other hand, Uddin (2021) and Ayyoub (2011) found a positive relationship between inflation and GDP growth in Pakistan, indicating that an increase in inflation is associated with an increase in GDP growth. However, Ayyoub (2011) also suggests that after a certain threshold level, inflation becomes harmful to GDP growth in Pakistan.

Other studies, however, suggest a negative relationship between inflation and GDP growth. These studies argue that high levels of inflation can have negative effects on economic growth. They suggest that inflation can lead to a crowding-out effect on private investment and create inflationary pressures, which can hinder economic growth (Maku & Ogbuji, 2019). Moreover, high inflation rates can distort economic activity and reduce investment in productive enterprises, further impacting economic growth negatively (Bhattacharya &

Patnaik, 2017). A study conducted in South Africa found that inflation has a significant negative impact on economic growth (IMF, 2022). The study also found that economic growth became more responsive to changes in the inflation rate in the long run after the adoption of inflation targeting. Another study conducted in Sri Lanka found that when inflation rises by 1%, economic growth slows by 0.61%, and when inflation declines by 1%, the economy grows by 0.53% (Madurapperuma, 2016). This means that a high-inflation scenario can be more destructive than the benefits gained from a low-inflation scenario. A review of the international literature found that the impact of inflation on economic growth varies from country to country and over time. The impact of inflation on GDP growth is a complex and multifaceted issue.

Exchange Rate: The literature has extensively discussed the relationship between exchange rates and GDP growth, with some research suggesting a favorable impact on economic growth, while others have reported varying outcomes. This review of literature intends to assess recent research concerning the influence of exchange rates on GDP growth.

Many studies find evidence linking economic growth to the behavior of the exchange rate. Hausmann et al. (2004) conclude that the acceleration of growth is positively correlated with the depreciation of the real exchange rate, among other factors. The exchange rate regime can influence economic growth through investment or increased productivity. Pegged regimes have higher investment; floating regimes have higher productivity. Momodu (2015) found that exchange rate regimes in Nigeria did not influence the level of output. However, Abbas (2022) found a positive effect of the exchange rate on economic growth using panel data from various countries.

Razzaque (2017) focused on Bangladesh and found that a 10% depreciation of the real exchange rate was associated with a 3.2% rise in aggregate output in the long run. Vorlak (2019) studied Cambodia and found a positive correlation between exchange rate and GDP, but a negative correlation between trade openness and GDP. Overall, the papers suggest that the relationship between exchange rate and GDP growth is complex and may vary depending on the country and specific circumstances. Ferreira et al. (2016) reinforce the idea that the exchange rate can affect the country's productive structure since depreciation. Excessive exchange rate volatility can be counterproductive for the real economy. The threshold above which exchange rate volatility starts to have negative effects on economic growth varies across countries and depends on the level of development, the degree of financial development, and the exchange rate regime. Petreski (2009) finds evidence that the exchange rate regime does not affect economic growth. The literature suggests that the relationship between exchange rate and GDP growth is complex and may vary depending on the country and specific circumstances.

The literature suggests that the relationship between exchange rate and GDP growth is complex and may vary depending on the country and specific circumstances. While some studies have found a positive effect of the exchange rate on economic growth, others have found mixed results. Policymakers need to consider the specific characteristics of their country's economy when formulating exchange rate policies to promote sustainable economic growth.

3. Method and Data

Source of Data Collection: The research utilized secondary data from DataStream and the World Bank Database. In this study we have used the quarterly data ranging from the initial quarter (Q1) of 2000 and the last quarter (Q4) of 2020, focusing on macroeconomic variables such as Gross Domestic Product (GDP), money supply (M2), exchange rate (EXR), and inflation rate (IFR). To better exemplify the bond between explained and explanatory variables, the following econometric equation was developed.

$$RGDPt = \beta_{\circ} + \alpha 1MSt + \alpha 2IFRt + \alpha 3ERt + + \varepsilon t \quad (1)$$

In Equation (1), the RGDP is a measure of the total value of all finished goods and services produced within a country's borders during a specific period. The MS is an acronym for money supply, illustrating Money supply (M2) is a measure of the total amount of money in circulation in an economy, including cash and various types of deposits that can be easily converted to cash, such as checking accounts, savings accounts, and certificates of deposit (CDs). The inflation rate is abbreviated as IFR, showing a measure of the percentage change in the general price level of goods and services in an economy over some time (Ogbuji &

Ezeoke, 2021). ER is the exchange rate which shows the conversion rate of Malaysian currency compared to the U.S. dollar. The subscript t shows the nature of variables, i.e., time series, β is constant, and εt, a residual term.

Methodology Discussion: The ARDL (Autoregressive Distributed Lag) cointegration technique was first introduced by Pesaran, Shin, and Smith in 2001. In a recent study on the structural effects of economic growth on environmental pollution in Ethiopia (Gebreegziabher and Gebreegziabher, 2021), the researchers employed the ARDL approach to examine the long-run relationship between the variables. The ADF test was used to detect the presence of a unit root in the time series sample data, which was crucial in determining the appropriate cointegration method to adopt. Assuming that the variable of interest has a unit root that is integral of the same order, the cointegration method used to test the long-term relationship can be either the Engle-Granger method or the Johansen-Juselius method. However, since the variables in the study were integrated in order (I(1) and I(0)), the ARDL approach was chosen as the most suitable method for examining the long-run relationship of the variables**.**

The ARDL models are usually specified and estimated when an appropriate lag length is determined. The generalized form of the ARDL (m, n; p) model with p exogenous variables can be expressed as

$$\gamma_1 = \alpha_0 + \sum_{i=1}^{m} \alpha_t y_{t-1} + \sum_{j=1}^{p} \sum_{i=1}^{n} \beta_{ij} \chi_{jt-1} + \varepsilon_t \quad (1)$$

where $\varepsilon_1 \sim iid(0, \sigma^2)$.

However, equation (1) can be expressed using the lag operator $L^n_{Z_t} = Z_{t-n}$ as

$$\alpha(L)\, \gamma_1 = \alpha_0 + \sum_{J=1}^{P} \beta_J(L)\, x_{ij} + \varepsilon_1 \quad (2)$$

Where,

$$\alpha(L) = 1 - \sum_{i=1}^{m} \alpha_t L^i, and\ \beta(L) = \sum_{j=1}^{n} \beta_{jt} L^1$$

In a research study examining the correlation between the growth output (real gross domestic product or RGDP) and the exchange rate (EXR), interest rate (IFR), and money supply (M2) in Malaysia, the autoregressive distributed lag (ARDL) model was employed to assess the associations among these variables. The decision criterion for ARDL Bound tests of Cointegration entails rejecting the null hypothesis that there is no cointegration relationship among the variables of the ARDL model if the calculated F statistic exceeds the predetermined upper critical value of 5%. The Autoregressive Distributed Lag (ARDL) model is a versatile model that may be employed for the analysis of both stationary and non-stationary time series data. Estimation of the ARDL model is commonly conducted using conventional least squares approaches. The determination of the optimal number of lags for the model can be accomplished by the utilization of diverse methodologies, such as economic theory, residual diagnostics, and bounds tests (Endut & Abdullah, 2018). The ARDL model is a widely utilized tool for analyzing the enduring association between variables, and it has been employed in numerous research endeavors to explore the correlation between macroeconomic variables and other economic indicators (Kamarudin & Abdul-Rahman, 2019).

Hypothesis of the Study: The research aims to identify the relationship between money supply (M2), inflation rate and exchange rate to Real Gross Domestic Product.

H1: There exists a significant long-run relationship between Money Supply (M2) and Real Gross Domestic Product (RGDP)

H2: There exists a significant long-run relationship between the Inflation Rate (IFR) and Real Gross Domestic Product (RGDP)

H3: There exists a significant long-run relationship between the Exchange Rate (EXR) and Real GRPSS Domestic Product (RGDP)

4. Direction for the Future Research

Our upcoming research will use the ARDL approach to thoroughly examine the relationship between macroeconomic variables and GDP in Malaysia, considering several important elements. First, in recognition of the significant impact these factors have on GDP dynamics and the dynamic nature of their linkages over time, we will continuously broaden the range of macroeconomic variables we consider, including inflation, currency rates, fiscal policy, and global trade. Second, we'll take a more detailed approach through sectoral analysis, focusing on the industry, service, and agricultural sectors of Malaysia's economy to reveal sector-specific patterns for focused policy insights.

Additionally, we intend to span additional economic cycles and structural changes in our time-series data to better capture long-term linkages. We will also use Granger tests to study causality, investigate threshold effects to detect nonlinearities and regime shifts and use multivariate techniques to show complex interconnections between macroeconomic factors. Our study will explore regional disparities, looking at how macroeconomic factors differ in their effects on GDP across regions with different economic structures and levels of development. We will also critically evaluate policy implications, looking at the effect of changes in monetary and fiscal policies on Malaysian GDP.

5. Conclusion

The primary objective of this study is to analyze the complex relationship between macroeconomic variables and GDP in Malaysia by employing the ARDL framework. The study utilizes a comprehensive methodology, consistently revising and broadening the range of macroeconomic indicators, investigating the dynamics within different sectors, extending the temporal scope of the data, analyzing causality through Granger tests, scrutinizing regional discrepancies, and examining the impact of global economic circumstances and external disturbances. The study additionally incorporates machine learning methodologies, does thorough assessments of robustness, constructs predictive models, and transforms the results into practical policy suggestions. The utilization of an interdisciplinary approach, which incorporates knowledge and perspectives from several domains, enhances the depth and breadth of analyses and insights. The objective of this study is to enhance the comprehension of Malaysia's economic dynamics and sustainable development.

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References

Abbas, Q. (2022). Exchange rate and economic growth: Evidence from panel data analysis. *Journal of Economics and Business*, 115, 1-15.

Arratibel, O. (2009). Exchange rate and trade integration in the European Union. European Central Bank. Retrieved from https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1029.pdf

Ayyoub, M. (2011). Inflation and economic growth nexus in Pakistan: An empirical investigation. *Journal of Economic Cooperation and Development*, 32(3), 1-22.

Bhattacharya, R. & Patnaik, I. (2017). Inflation and economic growth in India. *Journal of Asian Economics*, 52, 56-69. https://doi.org/10.1016/j.asieco.2017.03.001

Bhattacharya, R. & Patnaik, I. (2018). Inflation and economic growth in India: A re-examination. *Journal of Asian Economics*, 55, 1-14. https://doi.org/10.1016/j.asieco.2017.12.002

Central Bank of Sri Lanka. (2019). Annual Report 2018. Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2018/en/Full_AR2018.pdf.

Dingela, S. I. & Khobai, H. (2017). The Relationship between Money Supply and Economic Growth in South Africa. Journal of Economics and Behavioural Studies, 9(5), 97-106. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Ditimi, A., Ogebe, J. O. & Odey, F. I. (2017). The impact of money supply on inflation in Nigeria. *International Journal of Economics, Commerce and Management*, 5(3), 1-11.

Dritsaki, C. (2015). Econometric modeling of real GDP rate in Greece. [Include the title of the journal or book here, if available, and the volume and page numbers.]

Endut, I. R. & Abdullah, M. A. (2018). The relationship between macroeconomic variables and stock market performance in Malaysia: An ARDL approach. *International Journal of Economics, Commerce and Management,* 6(6), 1-11. https://doi.org/10.11648/j.jbed.20180606.11

Ershad, N. & Mahfuzul, H. (2017). The impact of interest rate on economic growth: Evidence from Bangladesh. *International Journal of Economics, Commerce and Management*, 5(3), 1-11.

Fix, J. (2019). The reliability of real GDP as an economic indicator. [Include the title of the journal or book here, if available, and the volume and page numbers.]

Gatawa, A. A., Bello, M. O. & Abubakar, M. (2017). The impact of macroeconomic variables on economic growth in Nigeria. *International Journal of Economics, Commerce and Management*, 5(3), 1-11.

Gebreegziabher, Z. & Gebreegziabher, T. (2021). Structural effects of economic growth on environmental pollution in Ethiopia: An ARDL approach. *Journal of Cleaner Production,* 315, 128255. https://doi.org/10.1016/j.jclepro.2021.128255

Hameed, A. & Padda, I. U. H. (2010). Impact of Money Supply on GDP in Pakistan. *International Journal of Business and Management*, 5(8), 97-106. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Hausmann, R., Pritchett, L. & Rodrik, D. (2004). Growth accelerations. *Journal of Economic Growth*, 9(4), 303-329.

Hsing, Y. (2004). Impact of macroeconomic variables on the U.S. stock market. *Journal of Policy Modelling*, 26(2), 267-275.

Hsing, Y. (2005). The relationship between exchange rates and interest rates in Southeast Asian countries: Evidence from unit root and cointegration analyses. *Contemporary Economic Policy*, 23(1), 59-71.

International Monetary Fund. (2022). IMF Executive Board Concludes 2022 Article IV Consultation with the United States. Retrieved from https://www.imf.org/en/News/Articles/2022/06/30/pr22287-united-states-imf-executive-board-concludes-2022-article-iv-consultation.

Ihsan, M. & Shah, S. Z. A. (2013). The Impact of Money Supply on GDP in Pakistan. *International Journal of Business and Social Science*, 4(4), 97-106. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Kamarudin, N. H. & Abdul-Rahman, A. R. (2019). The impact of macroeconomic variables on stock market performance in Malaysia: An ARDL approach. *Journal of Economics and Business*, 2(2), 1-12. https://doi.org/10.31014/aior.1992.02.02.1

Kankpeyeng, J. G., Maham, I. & Abubakar, M. (2021). Impact of inflation on gross domestic product growth in Ghana. *Ghana Journal of Development Studies,* 18(2), 1-22.

Kausar, R., Qayyum, A. & Khan, M. M. (2020). An Effect of Money Supply on Economic Growth: Evidence from Pakistan. *Journal of Economics and Sustainable Development,* 11(16), 1-9. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Kausar et al. (2020) investigated the impact of money supply on domestic product in the example of Pakistan. Their dynamic ARDL model was set up.

Khan, F. K. (2021, June 10). Impact of Exchange Rate on Economic Growth of Bangladesh. https://scite.ai/reports/10.24018/ejbmr.2021.6.3.891

Kormendi, R. C. & Meguire, P. G. (1985). Macroeconomic determinants of growth: Cross-country evidence. *Journal of Monetary Economics,* 16(2), 141-163.

Levine, R. & Renelt, D. (1992). A sensitivity analysis of cross-country growth regressions. *American Economic Review,* 82(4), 942-963.

Madurapperuma, M. W. (2016). Impact of inflation on economic growth in Sri Lanka. *Journal of World Economic Research,* 6(1), 1-6.

Maku, O. E. & Ogbuji, C. N. (2019). Inflation and economic growth in South Africa: An empirical analysis. *Journal of Economics and Behavioral Studies*, 11(2), 1-11.

Matres, A. & Le, T. H. (2021). The relationship between money supply, inflation, and economic growth: Evidence from selected ASEAN countries. *Journal of Asian Business and Economic Studies,* 28(1), 1-14.

Momodu, A. S. (2015). Exchange rate regimes and economic growth in Nigeria. *Brazilian Journal of Political Economy*, 35(1), 1-16.

Morales-Zumaquero, Amalia & Sosvilla-Rivero, Simón. (2016). A Contribution to the Empirics of Convergence in Real GDP Growth: The Role of Financial Crises and Exchange-Rate Regimes. SSRN Electronic Journal, 48. 10.2139/ssrn.2405923.

Ogbuji, C. N. & Ezeoke, C. C. (2021). Inflation and economic growth nexus in Nigeria: An empirical investigation. Journal of Economics and Behavioral Studies,

Olawale, F. A. (2015). The impact of macroeconomic variables on economic growth in Nigeria. *International Journal of Economics, Commerce and Management*, 3(1), 1-9.

Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289-326. https://doi.org/10.1002/jae.616

Petreski, M. (2009). Exchange rate regimes and economic growth: How robust is the relationship*? Journal of Economic Integration,* 24(1), 1-21.

Razzaque, M. A. (2017). A panel data investigation of real exchange rate misalignment and growth. *Economia e Energia*, 1(1), 1-15.

Shah AUM, Safri S. N. A., Thevadas, R., Noordin, N. K., Rahman, A. A., Sekawi, Z., Ideris, A. & Sultan, MTH. (2020). COVID-19 outbreak in Malaysia: Actions taken by the Malaysian government. *Int J Infect Dis,* 97, 108-116. doi: 10.1016/j.ijid.2020.05.093. Epub 2020 Jun 2. PMID: 32497808; PMCID: PMC7264933.

Uddin, M. M. & Alam, M. M. (2021). Inflation and economic growth nexus in Pakistan: A threshold regression approach. *Journal of Economic Structures*, 10(1), 1-22.

Vintrova, E. (2005). Limitations of GDP and the case for supplementary metrics in open economies. [Include the title of the journal or book here, if available, and the volume and page numbers.]

Vorlak, M. (2019). Exchange rate and economic growth: Evidence from Cambodia. *Journal of Economics and Development Studies*, 7(2), 1-10.

Yildirtan, O. (2016). Bond yield, stock prices, and exchange rates: A VAR model. *Journal of Economics, Finance, and Administrative Science*, 21(41), 31-37.

Yousfat, A. (2015). The role of money in the economy. *International Journal of Economics, Commerce and Management,* 3(5), 1-10.

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Exploring Communication Channel Selection for Enhanced Audit Quality: Internship Student's Perspective

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Abstract: Effective communication is essential for maintaining audit quality and providing assurance over financial information. This study investigates auditors' communication channel preferences and their impact on audit quality in the context of digitalization and changing communication norms. The research aims to address two primary questions: the communication channels auditors prefer and use for audit-client communication, and how the choice of communication channels influences audit quality. The audit quality is measured through audit effort and auditor performance using a descriptive and quantitative research design. The preferred and actual communication channels are categorized as traditional (face-to-face) and technology-mediated (e-mail, instant messaging, phone calls). The findings reveal that while auditors prefer in-person meetings and texting platforms, they mostly use technology-mediated communication during audits, possibly due to factors like the COVID-19 pandemic. The study contributes to a deeper understanding of auditors' communication choices and their impacts on audit quality. It suggests that the complex relationship between communication channels and audit quality needs further exploration, potentially through larger sample sizes and mixed-method approaches. The insights gained from this research can benefit audit practitioners, regulators, and educators in enhancing audit communication practices and quality.

Keywords: *Communication, Audit Quality, Internship, Digitalization, Audit.*

1. Introduction

The importance of quality is paramount in conducting audits of financial statements, as it ensures the provision of reliable and trustworthy assurance on the financial facts disclosed by the audit client. The audit quality is determined by the effectiveness of the audit team in detecting substantial misstatements in the financial statement and reporting them (De Angelo, 1981, Wooten, 2003). The informative nature of audit findings holds significant implications, as the quality of the audit directly influences a multitude of decisions. To enhance the quality of audits, regulatory and professional entities have established standards, best practices, and frameworks to provide support for audit quality. Audit firms are likewise dedicated to the ongoing enhancement of audit quality.

Despite being in the best interests of many, audits are not always of high quality. Public company audits worldwide are subject to annual inspection by the Public Company Audit Oversight Board (PCAOB) to evaluate quality. The inspections indicated the presence of persistent audit problems that have occurred repeatedly for many years. The PCAOB report in 2022 shows about 40% of several audits inspected with significant deficiencies, a surge from the findings observed in 2021 (34%) and 2020 (29%).

In Malaysia, the Audit Oversight Board (AOB) inspection report 2022 also showed an increase in the number of engagements inspected that require significant improvements, 36%, up from 24% in 2021. The general cause of the deficiencies resulted from incomplete audit procedures, insufficient audit evidence obtained or potentially owing to auditors not putting up enough effort during the audit, which ultimately compromised the audit quality. There have not been enough studies so far to investigate reasons for audit firms to compromise audit quality although there has been a great discussion about poor audit quality being to blame for audit failures. Concern over the quality of auditing continues to grow with the rapid spread of digital transformation along with the global crisis which will increase the need for quality digital auditing. The shift to digital auditing increased the risk of miscommunication (Satya & Shauki, 2022).

In the era of digitalization, large businesses are increasingly using digital technologies to enhance business operations, hence facilitating the feasibility of digital auditing. The traditional channels of face-to-face (f2f) communication during the audit are becoming less common. It is more prevalent to see young auditors' preference for digital written communication, namely e-mail over f2f communication (Bennet & Hatfield, 2018). Digital audit communication has witnessed the widespread adoption of many technological channels such as WhatsApp, teleconference, and video calls as common audit communication. Input provided by the performer of audits on their channel preferences in audit communication has been limited.

Despite the importance of communication within an auditing context, relatively little about how staff auditors choose a channel of communication and how this choice affects their audit quality. As such, this study explores auditors' choice of communication channel and how staff auditors perceived the change to a more digitalized communication channel in audit fieldwork. This study is to accomplish the following objectives, firstly to identify the auditors' preference and most used choice of communication channels when communicating with client management during the audit process and secondly to examine the relationship between the auditors' choice of communication channels and audit quality. The rest of the paper discusses the following: Section 2 explores the literature reviews; Section 3 discusses the sample data and research method; Section 4 elaborates on the discussion of the results; and the last section concludes the paper.

2. Literature Review

Effective Communication on Audit Quality: Effective communication plays a crucial role in the auditing procedure as it enables the exchange of information, resolution of uncertainties, and cultivation of a trusting relationship between auditors and clients. Effective communication is pivotal in bolstering the auditor's capacity to discern risks, assess evidence, and render well-informed judgments, culminating in enhanced audit quality.

The client-auditor relationship is significantly impacted by effective communication, leading to favorable outcomes such as the acquisition of essential information and enhanced cooperation. Consistent and customized communication, by the client's preferences, can cultivate trust and transparency, resulting in enhanced audit quality. In a study conducted by Setyaningrum & Kuntadi, (2019) communication has a positive effect on the efficacy of the internal audit. Communication between the auditor and the client is crucial, particularly regarding the deliverance of audit reports that have been prepared reliably and are accompanied by relevant and timely evidence. Communication is effective when the client comprehends what the auditors say (Lim et al., 2016). This is in line with the study conducted.

Auditing activities are seen to benefit greatly from the strong communication skills of the auditors. Communicating in collecting audit evidence has an association with the overall client satisfaction in responding to the audit query leading to a higher audit quality. A high-quality audit process results in increased audit effort, prompt reporting, fewer legal complaints, efficient audit work and ultimately greater audit fees (Iskandar, et al., 2010). Similarly, Chouhan et al. (2021) collected data from both auditors and auditees and the study also proved that effective communication is one of the quality attributes influencing audit quality. According to the media richness theory, which Daft and Lengel developed in 1984, various communication channels have varying degrees of effect on the quality of communication, which in turn affects the quality of work (Ishii et al., 2019).

Choice of Communication: The choice of communication channels impacts the exchange of information, understanding of complex issues, and the overall relationship between auditors and clients. Client size, legal regulation, the nature of the audit engagement, the complexity of issues, geographical distance, and the urgency of matters posed challenges in coordination and communication in auditing (Downey & Bedard 2019), especially in global audit. As such all contribute to the choice of communication method. In the study conducted by Mamat et al. (2022), within the established framework from a business perspective, it is indisputable that the efficacy of corporate information flow significantly impacts the selection of the communication channel. The factors that contribute to the selection of a communication channel include the quality, utility, and accessibility of the information being conveyed corporate networking is an additional determinant that affects the corporate communication channel. It pertains to the establishment of trust

among users and the overall quality of the information being transmitted. Moreover, the level of user literacy on the digital platform also plays a significant role in determining the preferred communication medium.

Numerous researches have been conducted to examine the communication channel choice of auditors in the context of auditor-client contact. According to Tkalac et al. (2020), there exists a significant statistical relationship between the choice of communication channel and the level of communication satisfaction. The process of channel selection involves deliberate and strategic decision-making over the most suitable and anticipated means of communication (Zack, 1993). Multiple research investigations have consistently demonstrated that face-to-face communication surpasses other forms of communication due to its inherent capacity for conveying a greater breadth and depth of information.

According to Short, Williams, and Christie (1976, cited in Saiewitz and Kida, 2018), effective communication occurs when the recipient senses the other's presence. Higher presence increases interaction awareness. Many oral and nonverbal clues are used in direct communication. Bad communication codes may present the organization as engaging with a less trustworthy person. Face-to-face communication increases understanding due to the volume of information shared. People are more responsive and inclined to disclose more information if they understand (Pollman, et al., 2021). Being understood improved relationship satisfaction and sustainability.

There are other cases where continual communication tactics can alleviate issues, depending on the degree of intricacy involved. Increased participation of the component auditor in various meetings, including the engagement kick-off, instruction discussions, and fraud brainstorming, serves to alleviate the difficulties that arise from complicated global systems and language/cultural boundaries (Downey & Bedard, 2019).

Saiewitz and Kida (2018), on the other hand, discovered mixed results. In light of the absence of urgent demands and the client's satisfaction with the lack of interruptions from auditors, it is anticipated that the response to the email query will exhibit a bias toward supplying information that is more advantageous to the organization. In contemporary audit communication, there has been a notable increase in the utilization of digital platforms such as WhatsApp, teleconference, and video calls. However, auditors are required to exercise their professional skepticism in giving professional judgment (Satya & Shauki, 2022). Video recording, such as Zoom meetings, is frequently employed to elicit feedback from clients (Durkin, Jollineau, & Lyon, 2020) because it heightens the sense of presence and information richness. However, the use of multimedia elements in video communication might potentially lead to distraction, since individuals tasked with auditing must allocate their attention to both the substantive material and the visual enhancements present in the video. This situation may lead auditors to readily accept the explanations provided by customers, hence reducing the probability of engaging in subsequent interactions with clients. In contrast to electronic mail, auditors are afforded a greater amount of time to analyze and assimilate the material provided by clients, hence minimizing potential sources of interruption. Videos might potentially hinder the performance of junior audit employees, hence limiting their effectiveness as auditors.

Traditional vs. Technological Communication Channels: Advancements in technology have expanded the range of communication options available to auditors and clients. Video conferencing, email, instant messaging, and collaboration tools offer efficient ways to bridge geographical gaps and facilitate real-time communication. As such virtual communication can enhance the timeliness of information sharing and decision-making.

According to Srikanth and Puranam (2011), the use of technological advancements to support distant cooperation and the utilization of electronic tools for sharing work in progress might enhance the mutual predictability of actions, hence mitigating communication difficulties. The increased accessibility and dependence on electronic tools can be advantageous in situations when there is a high level of complexity arising from linguistic or cultural limitations. Compare and contrast traditional communication channels (e.g., face-to-face meetings, phone calls) with technological channels (e.g., email, video conferencing, instant messaging). Explore how technological advancements have expanded the options available for auditors to communicate with clients (Downey & Bedard, 2019).

There are additional new indications that digital communication is preferred. Texting would be a suitable alternative to face-to-face contact during times when it is not possible. Written communication may be more effective than speaking face-to-face or over the phone. A survey of auditors revealed that under certain circumstances, auditors would prefer email over face-to-face communication (Carlisle & Hamilton, 2021). The decision depends on the situation's urgency and the form of evidence to be gathered. Due to the age and experience difference, auditors feel more at ease communicating with senior client personnel via email because they can verify more evidence (Bennett & Hatch, 2018) and communication via Email does not necessitate instantaneous responses (Drossman et al., 2020). Rahim et al. (2020) demonstrate that the mode of communication employed during the auditing process has a significant impact on the collection of audit evidence by both audit staff and auditors. Effective communication serves as a guiding mechanism for audit staff and auditors, enabling them to obtain the necessary audit evidence required to fulfill their respective responsibilities.

The selection of a communication channel has a substantial impact on the quality of audits as it influences the sharing of information, comprehension of intricate subjects, and the relationships between clients and auditors. When determining the most suitable communication channels, it is important to take into account several elements like the preferences of clients, the specific characteristics of the audit engagement, the level of technological preparedness, cultural issues, and regulatory obligations. By using a variety of communication strategies and cultivating channels for receiving feedback, it is possible to achieve heightened levels of audit quality and ultimately better overall results.

3. Methodology

Population and Sample under Study: This study used a descriptive and quantitative method to examine the association between independent and dependent variables. The study's dependent variable in this study was represented by audit quality, which was measured through audit effort and auditor performance. The independent variables, on the other hand, were characterized by various choices of communication channels, grouped by traditional channels (in-person face-to-face meetings) and technology-mediated communication (e-mail correspondence, instant messaging, and telephone calls).

The population in this study were 65 undergraduate accounting practical students of UiTM Cawangan Melaka who are doing internship training in various audit firms in Malaysia as proxies for staff auditors. These students had participated in audit engagement with at least 6 months of audit experience. Staff auditors in practice frequently interact both formally and informally with audit clients and more frequently perform audit procedures and make inquiries (Hawkins, 2023). Therefore, students are appropriate respondent groups to study the effects of the auditors' choice of communication channels on audit quality. The total sample respondents were 36 students. Isaac and Michael (1995, as cited in Hill, 1998) justified that a sample size of 10-30 is sufficient for an exploratory study.

Instrument of the Study: The instrument used for gathering data is a survey method and this study used an online questionnaire for that purpose. Bougie and Sekaran (2019) highlighted the use of a questionnaire as a written set of questions that record respondents' answers, and it is considered the most effective and efficient approach to collecting data. The reason for choosing the questionnaire method is to maintain the confidentiality of the information and protect the identity of respondents.

Measurement of Variables: The formulation of the questions used to measure the variables was derived from the arguments from previous literature. The measurement of variables in this questionnaire was assessed using a 5-point Likert scale, ranging from 'Not Important–1 to Very Important–5. The questionnaire comprised three sections, each corresponding to the measurement for each variable. The first section (Section 1) of the survey instrument pertained to the demographic information. The respondents were required to provide some basic information such as gender, the type of audit firms they are currently doing their internship, and the state which would be useful when performing a descriptive analysis.

The second section (Section 2) encompassed the communication channel choice such as the level of audit client that the auditor frequently communicates with and the frequency of the communication. Respondents

were also asked about the preferred and actual channels (face-to-face, e-mail, instant messaging, video conferencing, phone calls, and others) used by them during the audit process.

Section 3 represented the measurement of audit quality. Respondents were first asked in open questions to describe what they know about audit quality to assess their basic understanding. Then, they were asked regarding their effort and performance from the use of their choice of communication channel. The items for the audit quality all started with "Which channel you used contributes the most in..." The audit quality is measured from 6 statements: Audit effort (3 statements) and auditor's performance (3 statements). The pertinent questions regarding channel choice and audit quality were developed based on prior studies and changed to fit the needs of this study.

Pilot Test: A pilot test was conducted one week before the questionnaires were sent out to selected respondents. The questionnaire items were reviewed by two audit lecturers to evaluate the reliability of the contents. Both lecturers were selected to participate in the pilot test due to their expertise in the audit process. They have extensive knowledge, skills, and experience in teaching auditing to undergraduate students as well as being involved in several studies related to audits and surveys. The purpose of the pilot test was to ensure the clarity of the questionnaire to respondents and to detect other possible weaknesses in the questionnaire. Some feedback received from the pilot study helped to improve the questionnaire, especially in Sections 2 and 3, where they suggested suitably worded statements for better understanding, from an auditor's perspective.

4. Findings

For this study, the undergraduate accounting practical students of UiTM Cawangan Melaka represented the unit of analysis. All respondents are aged between 21-30 years old, have a bachelor's degree as their highest qualification and have less than one year of audit experience.

Demographic Information: This section presents the demographic data of respondents comprising questions on gender, type of audit firms and the state where they are doing the internship training. Table 1 shows the detailed results of the demographic profile based on section 1 of the survey. The results are as follows:

Table 1: Demographic File on Gender, Types of Audit Firms and Its State

Demographic Profile	Freq.	Percent
1. Gender		
Male	12	33.33
Female	24	66.67
2. State		
Kuala Lumpur	12	33.33
Selangor	8	22.22
Others	16	44.44
3. Type of Audit Firm		
Big Four	1	2.78
Non-Big Four	35	97.22
Total	36	100.00

Based on gender, it shows that out of 36 respondents, 24 respondents or 66.67 percent were female and 12 respondents or 33.33 percent were male. This indicates that both genders participated in the study. About 20 respondents are doing internships in Kuala Lumpur and the Selangor area while others working in firms located in other states such as Melaka and Negeri Sembilan. This implied that the samples are not limited by geography and thus versatility offered in the survey as the regional norms of a location can influence communication preferences. Of the 36 respondents, 35 or 97.22 percent are doing internships at non-Big Four firms while only one respondent representing 2.78 percent working at a Big Four firm.

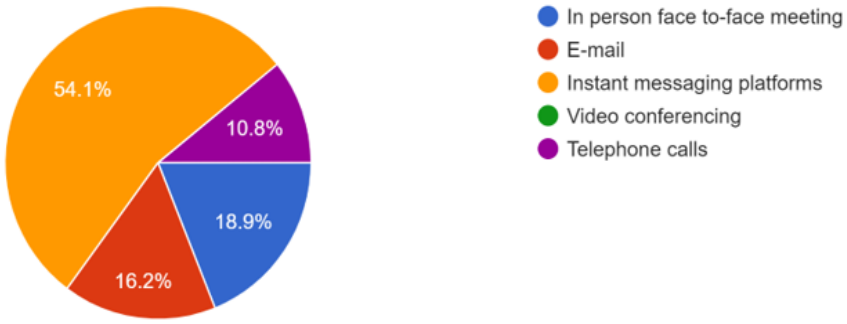
Research Objective 1: Respondent's Communication Channel Choice: Table 2 presents results on the level of audit clients with whom respondents frequently communicate based on Section 2 in the survey, as follows. The frequency and percentage that provide the descriptive information were analyzed.

Table 2: Results of the Audit Client Level and Frequency of Communication

Communication Usage	Freq.	Percent
1. Level of Audit Client		
Lowest Management	24	66.67
Middle Management	8	22.22
Top Management	4	11.11
2. Frequency of Communication		
Seldom	9	25.00
Once a month	3	8.33
Once a week	4	11.11
Several times a week	18	50.00
Daily	2	5.56

According to the above data analysis, it indicates that 24 respondents, or 66.67 percent of them often interact with the lowest management level of audit clients namely with either the Supervisors or Executives. It followed by 8 respondents or 22.22 percent who frequently interact with the middle level of audit client management (i.e., Departmental Managers) and only 4 respondents, or 11.11 percent who frequently interact with the top management such as the CEO, Managing Director, and other Board of Directors. This implied that practical students are the appropriate respondents' group as a proxy to staff auditors who frequently interact with client management and therefore can offer reliable information required for the study. When asked about the frequency of audit-client communication during the audit process, it shows that the majority of respondents (50 percent) communicated with clients several times a week, while only 5.56 percent communicated daily. About 25% of respondents had rarely communicated with clients during the audit. It implied that the frequency can vary depending on factors such as the complexity of audits, the level of client cooperation or the strength of the auditor-client relationship. The other descriptive data is about the most preferred and used communication channel when communicating with audit clients. It can be seen from the figure 1 below:

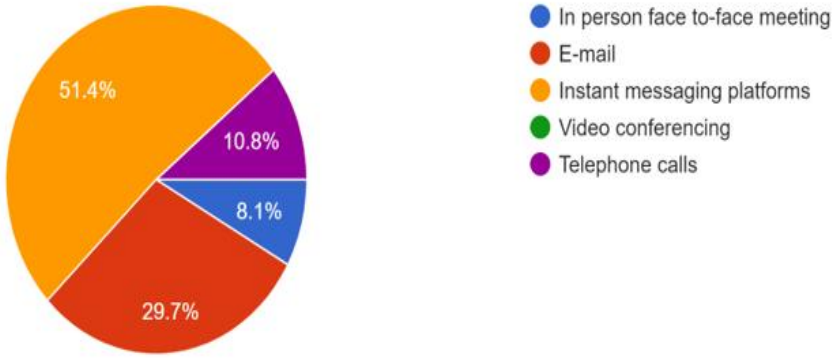
Figure 1: Preferred Communication Channel in Regular Audit-Client Communication



From the above chart, it can be seen that the respondents prefer instant messaging platforms (54.1 percent) followed by in-person face-to-face meetings (16.2 percent) in their regular audit-client communication and the least preferred channel is through telephone conversation. Instant messaging or texting promotes quicker response time and more back-and-forth communication (Saiwietz & Kida, 2018). It is positively associated with understanding, but only when face-to-face communication is low (Pollman, et al., 2021). This is evidenced by the recent health crisis where the restricted movement orders were implemented causing people to work from home and the usual f2f communication used for audit communication is falling away. The cause of the audio platform appears to be less preferred (10.8 percent) by auditors might be due to

clients not seeing visual cues in the auditor's behavior, resulting in delayed response (Saiwietz & Kida, 2018). Delays in responding would cause an audit delay.

Figure 2: Most Used Communication Channel in Regular Audit-Client Communication



According to the data in Figure 2, the majority of the respondents used instant messaging platforms (51.4 percent) for client communication during the audit process relatively equally with what they preferred followed by e-mail (29.7 percent), with the least usage of in-person face-to-face meeting platforms (8.1 percent). The reason could be due to the COVID-19 pandemic brought new norms, and most of the communications during the pandemic were by e-mail (Albitar, Kikhia & Hussainey, 2021).

We present evidence that despite many of the respondents prefer to communicate via texting and face-to-face, they mostly use technology-mediated communication, namely instant messaging platforms, e-mail, and telephone calls more often during the audit process compared to face-to-face. The advent of the Pandemic has resulted in a significant shift in communication, transitioning from traditional to digital channels (Melović, Baynazoğlu & Šerić, 2023).

Research Objective 2 The Relationship of Communication Channel Choice and Audit Quality: Section 3 presents results on students' perception of the impact of various communication channels on audit quality, investigating the appropriate communication channel that contributes the most to achieving high audit quality. Respondents were first asked an open-ended question to define audit quality, then, asked about their level of agreement on whether channels affect audit quality, and followed by asking 6 statements to represent audit quality.

Figure 3: Results generated from Word Cloud for the Definition of Audit Quality



The above figure was extracted from the respondents' answers when asked to define the audit quality. Some of the answers provided by the respondents are as follows:

"Audit quality refers to how well an audit is done. An audit is like a careful check of a company's financial information to make sure it's accurate and follows the rules. Good audit quality means the check is unbiased, the auditors are skilled, they follow ethical rules, focus on important areas, communicate clearly, and use modern tools. This helps people trust the company's financial statements and make informed decisions".
"I define the audit quality as the result of professional judgment by an auditor that fits the required standards of auditing".
"The report must complete with information and statements provided by the client and also follow audit procedures".
"How the audit is conducted properly and effectively".
"Consist of completeness, throughout testing and sufficient evidence".

The responses demonstrated the respondents' strong opinions about audit quality. They had been exposed to audit courses in the University before the internship program, and being under internship, as a result, they fully understand the concept of audit quality in the overall audit process. This implied that the respondents could provide the study with reliable information.

Table 3: Results of Respondents' Perceptions of the Impact of Channel on Audit Quality

Impact of Communication Channel on Audit Quality	Freq.	Percent
Yes	34	94.44
No	2	5.56

From Table 3, almost all respondents, except two samples, agreed with the statement when asked whether they believed that the choice of communication channel could affect the quality of an audit.

Table 4: The Means of the 5-Likert Scale Score on the Importance of Effective Communication Channels

Mean estimation	Mean	Std. Err.	Number of obs = 36 [95% conf. interval]
Importance of Effective Channels	4.666667	.0890871	4.48581 4.847523

When further asked on the level of importance, it can be seen from Table 4 that all 36 respondents gave answers ranging from important to very important, giving rise to a mean score of 4.67 for the role that effective communication channels play in achieving audit quality.

Reliability Test: The audit effort and auditor's performance are the two characteristics of audit quality that, the study employs, and the study makes use of a variety of statements. Statements must be reliable or consistent if they are to be employed for measurement purposes. A reliability test was carried out for this, and the results are summarized in Table 5 and explained below.

Table 5: Items Used for Measuring Audit Quality

Dimension	Item Used to Measure the Dimension	Sample Item	Cronbach α
Audit Effort	15, 16 and 20	Which communication channel(s) contribute the most in terms of asking more follow-up questions with audit clients?	0.7683
Auditor's Performance	17, 18 and 19	Which communication channel(s) contribute the most to the timely completion of your audit work?	0.6781

To measure the reliability of the question items and the content validity of the statements to measure audit quality, the Cronbach alpha value is estimated. The analysis was done using STATA software version MP17. The Cronbach alpha values were acceptably ranging from moderately reliable to high scale for audit effort and auditor's performance respectively. Khalique, Shaari, and Isa (2015, as cited in Szucs, Szabo, Lakner and

Szekacs, 2018) posited that a Cronbach alpha value within the range of 0.5-0.7 is indicative of an acceptable level, while a value over 0.7 is at an excellent level.

Relationship between Communication Channel Choice and Audit Quality: Table 6 shows a positive but insignificant correlation between auditors' communication channel choice and audit quality. The Pearson Correlation coefficient between the two variables is 0.2195. The p-value is greater than 0.05, thus, is statistically insignificant. A study by Jung and Seock (2018) also revealed no significant impact between types of communication channels on the quality of services. The positive relationship however is supported by previous literature (Berezan, et al., 2015) (Deepa & Baral, 2022) (Fritz, 2022).

Table 6: Summary Statistics of Correlation Analysis between Communication Channel Choice and Audit Quality

Variable	Audit Quality	
	Pearson Coefficient of Correlation (*r*)	*p*-value
Communication Channel Choice	0.2195	0.1983

Regression Analysis

Table 7: Summary Statistics of Regression Equation

Group	Mean	Std. dev.	*t*-value	*p*-value
Traditional Communication Channel	3.736111	.283619	-1.3120	0.1983
Technology-Mediated Communication Channel	4	.3364116		

The t-statistic is a measure of the difference between the means of the two groups (traditional channels and technology-mediated channels) relative to the variability within each group. A paired samples t-test was performed to compare audit quality in traditional communication channels (in-person face-to-face meetings) and technology-mediated communication channels (e-mail, instant messaging, and phone calls). Table 7 shows the summary of the test. There was not a significant difference in the audit quality between respondents' choice of communication through traditional channels (M = 3.736111, SD = 0.283619) and technology-mediated channels [(M = 4, SD = .3364116). The *t*-value is -1.312 and the corresponding two-tailed *p*-value is 0.1983. The *p*-value is greater than the conventional significance level of 0.05. This indicates that the difference in audit quality ratings between the two groups (traditional channels and technology-mediated channels) is not statistically significant at the 0.05 significance level.

The evidence from the data is not strong enough to reject the null hypothesis that there is no significant difference in audit quality between the two types of communication channels. The *t*-value being negative (-1.312) indicates that the mean audit quality rating for the technology-mediated channels group is lower than the mean for the traditional channels group, but again, this difference is not statistically significant. The mean values in the technology-mediated channels are lower due to the most used channel, namely e-mail is grouped with the least used channel, phone calls. Consequently, this grouping of channels leads to the observed result. The negative relationship is supported by previous studies (Tkalac Verčič & Špoljarić, 2020). Traditional channels have a greater impact on satisfaction and are more relevant. There is still prevailing reliance on the traditional channel as certain information is dominantly conveyed and communicated via traditional media.

5. Conclusion

The first objective of this study was to identify the auditors' preference and most used choice of communication channels during audit communication. The results showed that many of the auditors, proxied by accounting practical students, preferred to communicate via texting and having in-person face-to-face meetings with clients, but they were using texting platforms and e-mail more often during the actual audit process compared to face-to-face. Our analyses suggest that at times, auditors may occasionally encounter situations that limit their ability to use their preferred communication channel, necessitating the usage of other suitable channels. The second objective was to examine the relationship between communication channel choice and audit quality. The results showed that there is no strong statistical evidence to conclude

that there is a significant difference in audit quality between the two communication channel choices (traditional channels and technology-mediated channels) among the respondents. The insignificant result might be attributed to the limited sample size, perhaps leading to inconclusive findings. Moreover, there might be other variables that are influencing audit quality, which are not accounted for in the analysis. These variables used in the study may distort the actual relationship between communication channels and audit quality.

The study findings indicate a need to study how emerging communication tools impact auditors' choices and their subsequent impacts on audit quality. The results of the study can contribute to a more comprehensive understanding of the complex relationship between auditors' choice of communication channel and their subsequent impact on the quality of audits. Consequently, these findings can provide valuable insights for practitioners, regulators, and educators within the auditing profession.

This study is also subject to several other limitations. The individuals who took part in the survey may possess different motivations and characteristics in comparison to the auditors themselves, who have varying levels of work experience. Respondents might have difficulty recalling past experiences related to communication channel choice and audit quality, leading to biased responses. Furthermore, it is worth noting that the survey might have overlooked certain questions that could have potentially resulted in more, better insights into the impact of communication channels on audit quality. Taking into consideration these constraints could potentially strengthen the design and execution of future research.

Several recommendations arise from this research. First, future research could consider increasing the sample size to enhance the ability to detect significant differences. Second, it would also be beneficial for future studies to further identify additional variables that could potentially influence audit quality but were not considered in the current study. A mixed-method approach combining quantitative and qualitative methods could be considered appropriate to help further explore the topic and provide a better understanding of the relationship between communication channels and audit quality.

References

Albitar, K., Gerged, A. M., Kikhia, H. & Hussainey, K. (2021). Auditing in times of social distancing: the effect of COVID-19 on auditing quality. *International Journal of Accounting and Information Management*, 29(1), 169–178.

Bennett, G. B. & Hatfield, R. C. (2018). Staff auditors' proclivity for computer-mediated communication with clients and its effect on skeptical behavior. *Accounting, Organizations and Society*, 68–69, 42–57.

Berezan, O., Yoo, M. & Christodoulidou, N. (2016). The impact of communication channels on communication style and information quality for hotel loyalty programs. *Journal of Hospitality and Tourism Technology*, 7(1), 100–116.

Bougie, R. & Sekaran, U. (2019). Research Methods for Business: A Skill Building Approach. Wiley.

Chouhan, V., Sharma, R. B., Goswami, S. & Ali, S. (2021). Factor affecting audit quality: A study of the companies listed in Bombay Stock Exchange (BSE). *Academy of Accounting and Financial Studies Journal*, 25, 1-9.

Daft, R. L. & Lengel, R. (1984). Information Richness: A New Approach to Managerial Behavior and Organizational Design. Greenwich, CT: JAI Press.

DeAngelo, L. E. (1981). Auditor Size and Audit Quality, *Journal of Accounting and Economics,* 3(3), 183-199.

Deepa, R. & Baral, R. (2022). Is my employee still attracted to me? Understanding the impact of integrated communication and choice of communication channels on employee attraction. *Corporate Communications*, 27(1), 110–126.

Downey, D. H. & Bedard, J. C. (2019). Coordination and communication challenges in global group audits. *Auditing: A Journal of Practice & Theory*, 38(1), 123-147.

Fritz, A. (2022). Technological innovation's impact on audit quality and audit fees: Evidence from Distant Audits [Unpublished doctoral dissertation]. Michigan State University.

Hawkins, E. M. (2023). The Influence of Communication Medium on Professional Skepticism in Auditor-Client Interactions [Unpublished doctoral dissertation]. University of South Carolina.

Hill, R. (1998). What sample size is "enough" in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, 6(3–4), 1–12.

Iskandar, T. M., Rahmat, M. M. & Ismail, H. (2010). The relationship between audit client satisfaction and audit quality attributes: Case of Malaysian listed companies. *International Journal of Economics and Management*, 4(1), 155-180.

Ishii, K., Lyons, M. M. & Carr, S. A. (2019). Revisiting media richness theory for today and the future. *Hum Behave & Emerg Tech*, 1, 124–131.

Jung, N. Y. & Seock, Y. K. (2018). The role of communication channels in delivering service recovery in an online shopping environment. *International Journal of Electronic Marketing and Retailing*, 9(1), 59–76.

Lim, Y. M., Lee, T. H., Yap, C. S. & Ling, C. C. (2016). Employability Skills, Personal Qualities, and Early Employment Problems of Entry-level Auditors: Perspectives from Employers, Lecturers, Auditors, and Students. *Journal of Education for Business*, 91(4), 185-192.

Mamat, S. N., Saidin, A., Bustamam, K. S., Sani, A. A., Adanan, S. A. & Samad, K. A. (2022). A Review of Factors Influencing Business Communication Channels during Pandemic. *International Journal of Academic Research in Business and Social Sciences,* 12(10), 979 – 989.

Melović, M., Baynazoğlu, M. E. & Šerić, N. (2023). Family businesses in tourism – the use of digital technologies in times of uncertainty and crisis. *Journal of Family Business Management*, 13(1), 185–209.

Pollmann, M. M. H., Norman, T. J. & Crockett, E. E. (2021). Computers in Human Behaviour Reports a daily-diary study on the effects of face-to-face communication, texting, and their interplay on understanding and relationship satisfaction. *Computers in Human Behaviour Reports*, 3(April), 100088.

Releases, N. (2023). PCAOB Report: Audits with Deficiencies Rose for Second Year in a Row to 40 % in 2022

Rahim, S., Ahmad, H., Nurwakia, N., Nurfadila, N. & Muslim, M. (2020). The Influence of Audit Staff Quality and Client Type on Audit Evidence Collection with Communication Type as Moderation. *Journal of Accounting and Strategic Finance,* 3(1), 103-117.

Saiewitz, A. & Kida, T. (2018). The effects of an auditor's communication mode and professional tone on client responses to audit inquiries. *Accounting, Organizations and Society*, 65, 33–43.

Satya, R. I. & Shauki, E. R. (2022). Remote Audit Post Covid-19 Pandemic in Achieving Professional Skepticism Auditor: Implementation of Social Presence Theory (Case Study on the Financial and Development Supervisory Agency). *Proceedings of the 7th Sriwijaya Economics, Accounting, and Business Conference (SEABC 2021)*, 647(Seabc 2021), 346–354.

Setyaningrum, D. & Kuntadi, C. (2019). The effects of competence, independence, audit work, and communication on the effectiveness of internal audit. *Journal of Economics, Business, & Accountancy Ventura*, 22(1), 39-47.

Szűcs, V., Szabó, E., Lakner, Z. & Székács, A. (2018). National seasoning practices and factors affecting the herb and spice consumption habits in Europe. *Food Control*, 83, 147–156.

Tkalac Verčič, A. & Špoljarić, A. (2020). Managing internal communication: How the choice of channels affects internal communication satisfaction. *Public Relations Review*, 46(3).

Wooten, T. C. (2003). It Is Impossible to Know the Number of Poor-Quality Audits that simply goes undetected and unpublicized. In *The CPA Journal*, 78(1), 48–50.

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Measuring Financial Planning for Retirement of Gig Workers in Malaysia: A Pilot Study

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Abstract: Financial planning for retirement for gig workers is relatively hard given their insecure employment. Factors like employer misplacement of gig workers, a lack of employer-sponsored pension plans, uncertain income, and insufficient financial guidance may make it difficult and stressful for gig workers to arrange their money for retirement. The researchers offer a relationship model in this study, with a quantitative research design chosen to validate the hypothesized elements and construct linkages between them. The main factors that may influence financial planning for retirement stated as financial literacy, retirement goals, future time perspective, social influence, and saving attitude as a mediator. To confirm that, a design questionnaire, which is reliable and acceptable, two steps of verification have followed. First, there is a validation phase in which the questionnaire is reviewed by a panel of experts. Before moving on to the next level, the feedback gathered was followed up on. Second, the pilot study proceeding to investigate the consistency of the instrument analyzed through Cronbach's Alpha coefficient reliability screening in SPSS 26 software package. Moreover, the results found that all the items were reliable and the Cronbach's Alpha coefficient above 0.7.

Keywords: *financial planning for retirement, gig workers, pilot study, questionnaire*

1. Introduction

Financial planning enables people to make decisions that will provide them with financial stability in later life, such as regular saving or home ownership (Ghadwan et al., 2022). This financial aspect contains the process of establishing retirement income objectives as well as the actions, behaviour, and decisions required to accomplish those goals (Murari et al., 2021). Retirement planning is a goal-oriented behaviour in which people try to be ready for their retirement life (Liu et al., 2021). All efforts, whether they are related to non-financial or financial areas of life, from a worker's first employment through and after retirement should be included in proper retirement planning. Yeung and Zhou (2017) emphasize that planning for retirement involves four areas, including financial, health, social life, and psychological preparation. This study places more emphasis on the components of retirement financial planning.

According to Pavia and Grima (2019), the act of looking at one's financial condition and deciding to place money aside expressly for usage in retirement is referred to as financial planning for retirement. Retirement-minded people actively choose to forego some pleasure today by not spending all of their money now in order to have a better future (Pavia & Grima, 2019). Because many people opt to retire while their pensions are still insufficient, poor financial planning also has long-term effects that might lead to issues in the future (Hutabarat & Wijaya, 2020; Jimenez et al., 2018). This issue would be much worse especially when the nature of the job is precarious such as gig workers.

The unstable employment of gig workers is a significant issue with implications for retirement. Because of its intricacy, gig labour is now a growing sector of the workforce and has gained more attention from academics (Watson et al., 2021). The misclassification of gig workers is one of the main issues that gig workers now face (Tan et al, 2021). Gig workers do not receive the same benefits and protections as full-time employees because companies misclassify them as such.

Additionally, it may be difficult and frightening for gig workers to set up their finances for retirement due to the absence of an employer-sponsored pension plan, unpredictable income, and poor financial guidance. Recent studies showing that most gig workers struggle to make financial plans for their retirement serve as evidence for this. Therefore, it is evident that gig workers must make sound financial preparations for retirement. Subsequently, numerous studies have since highlighted the elements that go into retirement financial planning such as financial literacy (Baker et al., 2020; Hutabarat & Wijaya, 2020), retirement goals (Tomar et al., 2021; Rasiah et al., 2020), future time perspective (Larisa et al., 2021; Alkhawaja & Albaity, 2020; Kimiyagahlam et al., 2019) and social influence (Shariff & Ishak, 2021; Zandi et al., 2021). At the same time, some research has focused on the function of saving attitudes as a mediating factor in retirement financial planning (Hajam, 2020; Kimiyagahlam et al., 2019).

The objective of this study was to investigate the reliability and validity of the questionnaire design of financial literacy, retirement goals, future time perspective, and social influence and saving behavior on financial planning for retirement among Malaysian gig workers. This paper has been structured in five section, in addition to this introduction in first section and conclusions in last section. In the second section, the literature review and theoretical model is discussed. In the third section, research method is discussed which includes questionnaire design and validation of questionnaire. Next is the fourth section where the pilot study result is reported. Finally, the final section where discussions of the analysis as well as contributions of this study is presented before conclusions.

2. Literature Review

Underpinning Theory: In this study, the research framework is underpinned by two theories that explain the variables such as financial literacy, retirement goals, future time perspective, social influence, and saving attitude. Hence, this section describes the theoretical orientation that helps to better understand the underpinning theories that support the research. At the same time, the theoretical orientation would help provide a clearer understanding on the relationship of the determinants of financial planning for retirement.

Interdisciplinary Financial Planning Model: The Interdisciplinary Financial Planning Model, developed by Hershey et al. in 2010, incorporates theoretical frameworks from Beach's Image Theory and Mowen's 3M Theory of Personality. The model proposes a sequence of relationships among personality constructs, cognitive constructs, and behavior related to retirement planning. The central traits, such as future time perspective, are seen as causal precursors to surface traits like goal clarity and financial knowledge, which, in turn, influence retirement planning activities. The model suggests that goal clarity partially mediates the relationship between future time perspective and financial knowledge, and all three psychological variables contribute to planning activities and savings adequacy. In addition to these core variables, the model includes social support indicators, economic variables, and background variables to further explain the influence on retirement planning behavior.

The model incorporates 10 additional variables, including three social support indicators. These indicators assess the influence of parents in early financial learning experiences, the support of a spouse or partner in retirement savings, and the support of friends and colleagues. The model suggests that the impact of social support on planning and saving adequacy is fully mediated through goal clarity and future time perspective. Social influence pathways are hypothesized to shape beliefs, values, and social norms regarding retirement planning, as well as expectations about the timing of retirement.

Furthermore, the model includes three economic variables: perceptions of employer pension quality, possession of investment assets for retirement, and perceptions of the state's provision of pension income. These variables directly affect perceived saving adequacy. Lastly, four background variables—educational level, age, gender, and household income—are included as control variables in the model.

Overall, the Interdisciplinary Financial Planning Model integrates various psychological, cognitive, social, and economic factors to explain retirement planning behavior. It suggests that personality traits, cognitive factors, social support, economic circumstances, and background variables all contribute to an individual's retirement planning activities and savings adequacy.

Theory of Planned Behavior: The Theory of Planned Behaviour (TPB) was developed by Ajzen (1991) as an extension of the Theory of Reasoned Action. It aims to predict and understand people's behavioral choices by focusing on their intentions to engage in specific behaviors. Intentions are seen as crucial indicators of an individual's motivation and effort to perform a behavior. The theory proposes three drivers of intention: attitude toward the behavior, subjective norms, and perceived behavioral control.

Attitude toward the behavior is formed by a person's positive or negative appraisal of the behavior, consisting of affective, behavioral, and cognitive components. These components contribute to the complexity of attitudes and their relationship with behavior. Subjective norms refer to the influence of significant others, such as family, friends, and colleagues, who approve or disapprove of the behavior. Social pressure and the motivation to conform to others' expectations play a role in predicting behavior. Perceived behavioral control relates to an individual's belief in their ability to perform the behavior, taking into account past experiences and anticipated obstacles. Confidence in one's ability to perform the behavior strongly influences the likelihood of engagement. Factors like time, money, and opportunities can enhance an individual's perceived behavioral control.

In summary, the TPB suggests that stronger intentions to engage in a behavior are influenced by more favorable attitudes, subjective norms, and higher perceived behavioral control. The relative impact of these predictors may vary depending on the behavior and context. Attitudes may have a significant influence on intentions in some cases, while in others, attitudes combined with perceived behavioral control are sufficient to explain intentions. In certain situations, all three predictors contribute independently to an individual's intention to perform a behavior.

Financial Planning for Retirement: Financial planning for retirement refers to a person's long-term spending patterns and investments to get ready for their post-retirement existence (Seidl et al., 2021). Additionally, financial planning for retirement necessitates a sequence of deliberate decisions, which in turn necessitates knowledge of the options and the capacity to calculate the odds of various outcomes for each option (Rostamkalaei et al., 2022). To ensuring that people have enough funds to live the lifestyle they choose in retirement, financial planning is a crucial step (Hansson, 2019). Effective financial planning for retirement helps people to be financially independent, live comfortably, and accomplish their retirement goals (Hansson, 2019).

According to Hershey et al. (2013), three factors—capacity, willingness, and opportunity—determine how well people prepare for and save for retirement. The term "capacity" refers to the cognitive traits—aptitude, understanding, and knowledge—that set two people apart from one another. The psychological and emotional traits that provide people the motivation to begin and keep up with retirement planning are used to describe the second component, willingness. It

contains elements that define a person's self-image, such as attitude, clarity in one's financial and retirement objectives, personality traits, ethics, virtues, and rectitude. The third dimension, opportunity, involves elements that are outside of a person, such as the availability of pension plans for employees, a wide range of investing possibilities, long-term trends in the economy and financial markets, fiscal policies, and tax laws.

Additionally, there has been documented discussion of financial planning for retirement in the literature. For instance, Rasiah et al. (2020) investigated the factors that influence retirement readiness in Malaysia. A total of 200 participants in the study, which was based on the Life Cycle Hypothesis Theory, were between the ages of 35 and 60. This study used attitude towards retirement, financial literacy, goal clarity, and probable conflict in retirement as independent variables. Only financial literacy and goal clarity, with goal clarity being the most important influencing factor, were shown to significantly increase Malaysian working persons' readiness for retirement. This study also highlighted that the younger generation may not have clear goals as they begin their career, but would slowly become more aware of their goals when they move into their retirement age.

Financial Literacy: Financial literacy is the capacity to comprehend and put into practice a variety of financial abilities, including personal financial management, budgeting, and saving, that enable people to handle their money sensibly (Yong et al., 2018). Financial literacy is defined by Burchi et al. (2021) as a collection of awareness, information, ability, attitude, and behaviour needed to make good financial decisions and achieve one's financial well-being. The capacity to understand and apply knowledge about personal finances is measured by a person's financial literacy (Hauff et al., 2020). Other ideas of financial literacy also include the assumption that people will make wise financial decisions if they comprehend the connection between their personal financial situation and the state of the economy (Hastings & Mitchell, 2020).

Financial literacy aids people in deciding whether or not to invest in retirement plans (Li et al., 2017). To invest in a retirement plan that is suitable for their lifestyle, people need to be aware of the many types of retirement plans (Bacova & Kostovicova, 2018). Understanding the benefits of retirement plans, whether they are private or public, the best time to start saving for retirement, and how to properly evaluate a particular investment-linked retirement program are all examples of financial literacy (Zandi et al., 2021). Before deciding on a retirement strategy, people with financial literacy may take into account all relevant external factors. Most individuals evaluate their retirement plan based on sociological and economic factors such as risk tolerance, returns to investment, and market trends (Ali & Frank, 2019).

Retirement Goals: Retirement goals may be characterized as a long-term plan that offers a person a great deal of direction, stability, and importance (Alcaide et al., 2020). According to Ong et al. (2020), retirement objectives are a predetermined milestone that each person sets for themselves that is connected to their retirement vision and outlook on life. Clear retirement goals entail the establishment of clear financial objectives for the level and calibre of living in retirement. They also serve as a powerful motivator for individuals who have already established their goals to begin the planning process (Jiun et al., 2021). Similarly, Zhu and Chou (2018) concur that people's behaviors and attitudes regarding retirement are influenced by their ability to clearly articulate their retirement goals.

According to a research by Tomar et al. (2021), among Indian professional women planning for retirement, the retirement objective had a significant impact on financial decisions. According to the study, women who have distinct, well-defined, and realistic goals have a high degree of

engagement in financial planning activities and retirement saving behaviour. It was suggested that motivating women to create exact goals at a strategic level was important. To help individuals begin retirement planning, they should estimate their post-retirement requirements. Rai et al. (2020) suggested that financial planning for retirement, whether it is long term or short term, is likely to be influenced by retirement goals. According to their study, financial planning for retirement was strongly influenced by retirement goals, financial literacy, and financial risk tolerance, all of which were interdependent for efficient operation.

Future Time Perspective: Future time perspective, also known as future orientation, is the degree to which a person considers the future, predicts potential outcomes, and makes preparations for the future before acting (Kooij et al., 2018). Future time perspective is defined by Alkhawaja and Albaity (2020) as people's desire for a long-term outlook and a long-term viewpoint of planning. The idea of "future orientation" refers to decisions taken today that will have an impact on the future or is also known as "concern for future implications" (Haron et al., 2019). According to a research by Stolarski et al. (2018), the concept behind the Time Perspective Theory is that people's sense of time is impacted by their emotions, perceptions, and actions. Time perspective models divide people's time perspective into three chronological categories which is past, present, and future.

Additionally, a key personality attribute that emphasizes how one can see the future is future time perspective (Tomar et al., 2021). People that are future-focused enjoy thinking about the future, are interested in what it has to offer, and are more inclined to make plans in advance (Eismann et al., 2019). Eismann et al. also emphasized the significance of two different forms of time perception in the context of retirement. The first one, called future time perspective, measures how much an older worker is focused on the future. The second one, referred to as projected life expectancy, concerns how long a senior worker believes the "future" will last (Eismann et al., 2019). In other words, individuals who think about the future would plan their finances more carefully as they want to have effective personal financial management practices in the future (Ponchio et al., 2019).

Social Influence: Social influences are the use of social power by people or organizations to modify the attitudes or behaviors of other individuals or groups in order to achieve a certain purpose (Awang & Abdullah, 2021). According to Cucinelli and Bongini (2019), social influence is the societal pressure placed on a person to choose whether or not to engage in a particular behaviour. The change in a person's thoughts, feelings, communication, or behaviour as a result of the thoughts, feelings, communication, or behaviour of one or more other individuals is how Kim and Hollingshead (2014) define social influence. According to Gass (2015), there are two types of social impact. The first kind is purposeful, like in the case of persuasion, which deals with how people use messages to exert influence on others. Social influence, however, may also be accidental or inadvertent, as in the instance of social proof, when people use the actions of frequently uninformed others to guide their own behaviour in ambiguous circumstances.

Social support from friends, family, and coworkers, in the context of retirement planning, enables better judgements and is useful in fostering better retirement experiences and in managing financial issues. For instance, parents have a significant role in helping children develop the skills and habits necessary to manage their finances. This may have an impact on how they behave and make decisions in the future, particularly once they are on their own (Gavurova et al., 2019). The spouse relationship is the mark of important roles as the spouse of an individual gives a more satisfying sense of relationship, a sense of companionship, and a greater propensity to retire together in the future. In addition, family relationships are the symbol of resilience to overcome

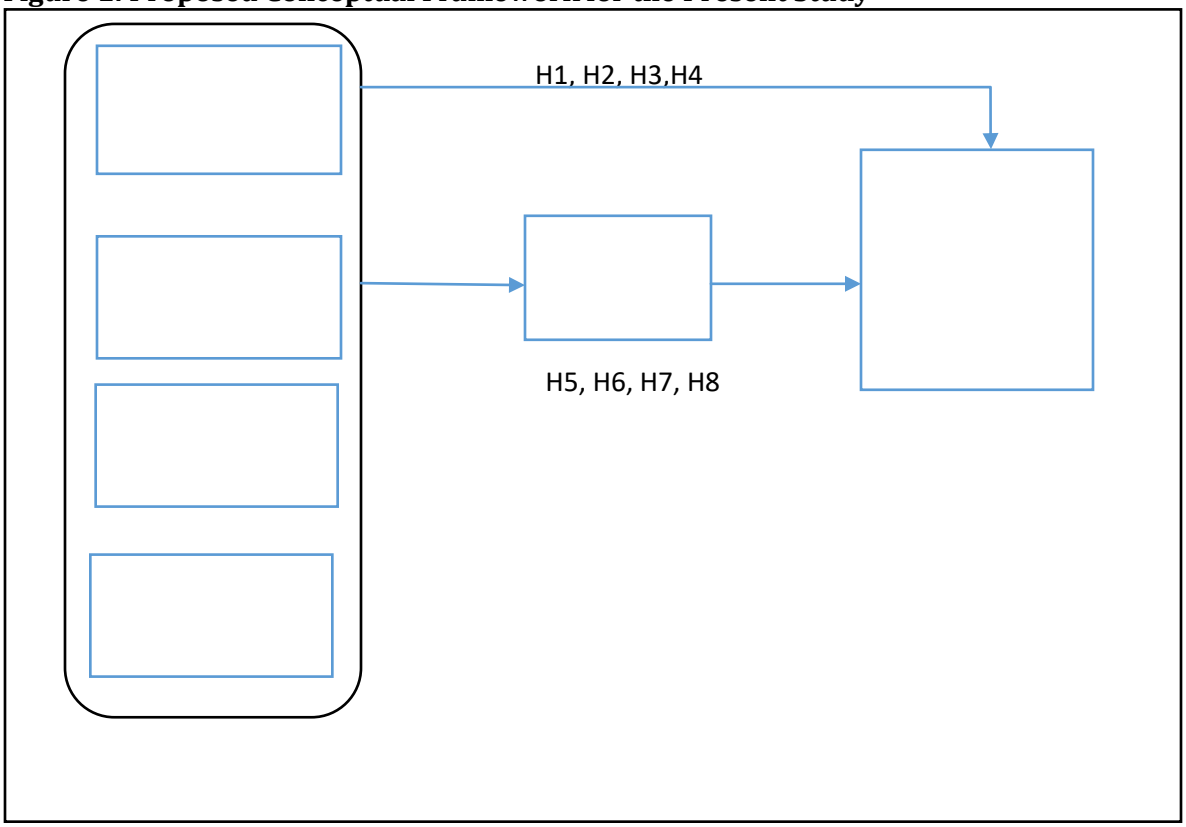
obstacles and help the pre-retiree to obtain more social support from the family itself (Awang & Abdullah, 2021).

Saving Attitude: Saving may be defined as the practice of reserving funds for future use while avoiding current expenditures (Kadir & Jamaludin, 2020). According to Fiergbor (2020), saving is the act of laying away a portion of one's current income for future needs. Meanwhile, the term "saving attitude" describes a person's purpose or propensity to save money for future requirements (Alex et al., 2019). People differ in their level of saving attitude owing to variances in mindset, behaviour, knowledge, and social environment (Rameli & Marimuthu, 2018). When someone is faced with a circumstance where there is a conflict between long-term "good" goals and short-term "bad" behaviour, saving behaviour is a suitable context example (Bucciol & Zarri, 2019).

Similarly, Bucciol and Zarri (2019) highlighted that individuals often express intentions to save and have money to cover unforeseen emergencies when planning for the long-run, but when asked about their actual saving, households often admit that they save less than originally planned. However, according to Alekam et al. (2018), the likelihood of having a positive saving attitude is highly associated to saving regularity. As an example, the act of setting aside a portion of the income as saving consistently would most likely to lead to higher probability of having positive saving attitude (Alekam et al., 2018). Similarly, Hajam (2020) proposed that someone with a high incentive to save has a tendency to set away portion of their earnings for savings.

Theoretical Model: This study creates a conceptual framework based on previous literature as well as the Interdisciplinary Financial Planning Model (IFPM) and Theory of Planned Behaviour (TPB) theories. In the context of this study, IFPM suggests that financial literacy, retirement goals, future time perspective and social influence all serve as possible underpinnings for people's financial planning for retirement activities. Comparatively, TPB in the context of this study also claimed that attitudes and subjective norms influence people's behavioral intentions. Numerous researches have also demonstrated the importance of the mediating role played by saving attitude in the correlations between all independent variables and financial planning for retirement. Therefore, combining the underpinning theories and review of literature, this present study intends to explore the relationship between financial literacy, retirement goals, future time perspective, and social influence with financial planning for retirement. This study will also explore the mediating role of saving attitude in the relationship between both variables. The proposed conceptual framework for this investigation is depicted in Figure 1.

Figure 1: Proposed Conceptual Framework for the Present Study



3. Methodology

Research Method: The overview of the present research indicated that it is descriptive in nature, which is a type of research design that it is purely on a theoretical basis where the individual collects data, analyses, prepares, and then presents it in an understandable manner. Therefore, cross-sectional research design was selected to examine the determinants of financial planning for retirement. A questionnaire technique was applied for data collection in order to define gig workers' views about confirming the research variables.

Questionnaire Design: All the questions were adapted from various studies that founded on the contents of every factor illustrate in Table I. For each item have Five Likert scales (strongly disagree, disagree, neutral, agree, strongly agree) used in the current study to identify the level of agreement between the respondents. Five Likert scales are one of the widely applied scales for provides an understandable view of the individual proposition in a certain aspect. Before starting the answer to the questionnaire, the questionnaire divided into 7 sections. Section I contains the demographic profiling of the respondents, followed by Section II which consists of 6 items measuring financial literacy. In Section III, there are 6 items measuring retirement goals while Section IV consists of 6 items regarding future time perspective. In Section V, there are 6 items regarding social influence while Section VI consists of 6 items regarding saving attitude. Finally, Section VII contains 6 items related to financial planning for retirement.

Table 1: Questionnaire items and sources

Factor	Number of items	Sources
Financial Literacy	6	Guptan et al. (2021), Afthanorhan et al. (2020)
Retirement Goals	6	Tomar et al. (2021), Afthanorhan et al. (2020)
Future Time Perspective	6	Kimiyagahlam et al. (2019), Tomar et al. (2021), Kooij et al. (2018)
Social Influence	6	Petkoska & Earl (2009), Kimiyagahlam et al. (2019)
Saving Attitude	6	Afthanorhan et al. (2020), Sereetrakul et al. (2013), Kimiyagahlam et al. (2019)
Financial Planning for Retirement	6	Kimiyagahlam et al. (2019), Murari et al. (2021), Tomar et al. (2021)

Validation: The validation of the questionnaires evaluated by took two steps before final distribution to ensure that the items are acceptable and understandable for respondents. First step: involves presented the questionnaire to three experts from academician and one expert from industrial. The academician experts are from UiTM for the purpose of content validation and language validation, while one industrial expert is representative from gig worker's association for the purpose of content validation. Before beginning the distribution, the researcher followed the modifications based on some suggestions and comments from experts.

4. Pilot Study Result

The purpose of this study is to check the questionnaire whether it is easy to understand and free of error. All questionnaires need to test to confirm of its feasibility and reliability. Consequently, the survey distributed among gig workers in Selangor, Negeri Sembilan and Melaka. The total of the distribution was 105 and all returned. According to Saunders et al. (2009), there are at least ten samples are used in pilot testing and the amount can reach between one hundred and two hundred in large-scale research. Therefore, the demographic information from the responses explained in Table 2 to understand the characteristics of this study sample while factors reliability for all Items explained in Table 3.

Table 2: Demographic Information of the Study Sample

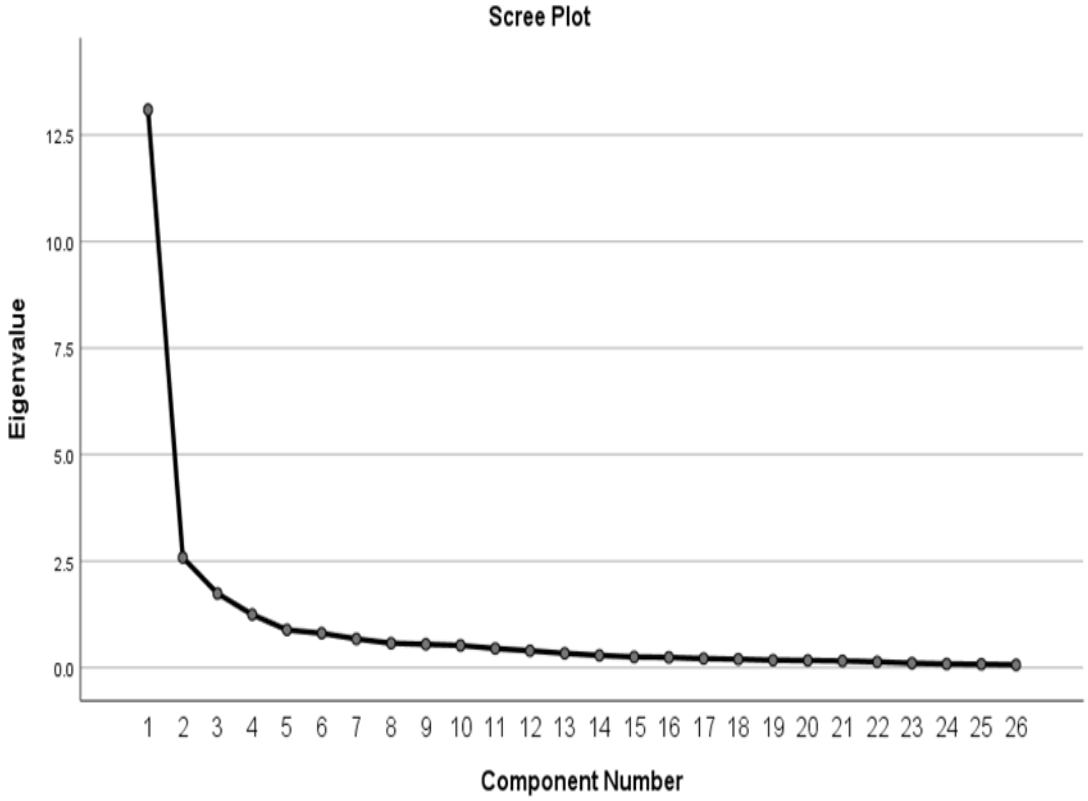
Measure	Categories	Frequency	Percent	Cumulative Percent
Age	18 - 29 years old	68	64.8	64.8
	30 - 39 years old	26	24.8	89.5
	40 - 49 years old	9	8.6	98.1
	50 - 59 years old	1	1.0	99.0
	60 and above	1	1.0	100.0
Gender	Male	102	97.1	97.1
	Female	3	2.9	100.0
Residence	Kedah	1	1.0	1.0
	Selangor	24	22.9	23.8
	Putrajaya	1	1.0	24.8
	Kuala Lumpur	1	1.0	25.7
	Negeri Sembilan	12	11.4	37.1
	Melaka	65	61.9	99.0
	Terengganu	1	1.0	100.0
Race	Malay	100	95.2	95.2
	Chinese	2	1.9	97.1
	Indian	3	2.9	100.0
Marital Status	Single	57	54.3	54.3
	Married	46	43.8	98.1
	Divorced	2	1.9	100.0
Education	SPM and below	60	57.1	57.1
	Diploma degree	25	23.8	81.0
	Bachelor degree	18	17.1	98.1
	Master degree	2	1.9	100.0
Gig Company Worked For	Foodpanda	46	43.8	43.8
	Grab	48	45.7	89.5
	Grab, Foodpanda	2	1.9	91.4
	Grab, Foodpanda, Lalamove	1	1.0	92.4
	Grab, Foodpanda, Lalamove, Borzo	1	1.0	93.3
	Grab, Foodpanda, Shopee	1	1.0	94.3
	Grab, Lalamove	2	1.9	96.2
	Grab, McDelivery	1	1.0	97.1
	Grab, Shopee	1	1.0	98.1
	Lalamove	2	1.9	100.0
Gig Employment Status	Full-time	74	70.5	70.5
	Part-time	31	29.5	100.0
Monthly Income in Gig	Less than RM1,000	21	20.0	20.0
	RM1,001 - RM3000	71	67.6	87.6
	RM3,001 - RM5,000	13	12.4	100.0
Number of Working Years in Gig	Less than 1 year	48	45.7	45.7
	1 - 2 years	40	38.1	83.8
	2 - 5 years	14	13.3	97.1
	More than 5 years	3	2.9	100.0
Any Other Job	Fireman	1	1.0	1.0
	Driver	2	1.9	2.9
	Fast Food Worker	1	1.0	3.8

	Government Servant	2	1.9	5.7
	Computer Technician	1	1.0	6.7
	Factory Worker	2	1.9	8.6
	Lecturer	1	1.0	9.5
	Mover	1	1.0	10.5
	Fisherman	1	1.0	11.4
	None	88	83.8	95.2
	Not Say	2	1.9	97.1
	Part Time Islamic Law Consultant	1	1.0	98.1
	Part Time Teacher	1	1.0	99.0
	Part Time Electrician	1	1.0	100.0
Monthly Income from Other Job	None	87	82.9	82.9
	Less than RM1,000	6	5.7	88.6
	RM1,001 - RM3000	7	6.7	95.2
	RM3,001 - RM5,000	3	2.9	98.1
	RM5,001 - RM10,000	2	1.9	100.0
No of Working Years in Other Job	None	87	82.9	82.9
	Less than 1 year	6	5.7	88.6
	2 - 5 years	3	2.9	91.4
	More than 5 years	9	8.6	100.0
Total Savings Accumulated	Less than RM1,000	47	44.8	44.8
	RM1,001 - RM5,000	34	32.4	77.1
	RM5,001 - RM10,000	17	16.2	93.3
	Above RM10,001	7	6.7	100.0
Total Spend / Month	Less than RM2,000	65	61.9	61.9
	RM2,001 - RM3,000	28	26.7	88.6
	RM3,001 - RM4,000	8	7.6	96.2
	RM4,001 - RM5,000	3	2.9	99.0
	Above RM5,001	1	1.0	100.0

Table 3: Factors Reliability for all Items

Factor	Cronbach's Alpha Coefficient	Number of Items
Financial Literacy	.830	3
Retirement Goals	.918	4
Future Time Perspective	.936	5
Social Influence	.885	5
Saving Attitude	.868	4
Financial Planning for Retirement	.845	5
KMO measure of sampling adequacy		.899
Bartlett's test of sphericity		2426.630***
Eigenvalues		13.092
***significant at .000		

Figure 2: Scree-plot of All Items



Reliability is the best method for evaluating the quality of the tools to be used in data gathering, according to Cronbach's alpha. The allowable range for Cronbach's Alpha values is between 0 and 1. A greater dependability number corresponds to a higher level of range. Brilliant values range from 0.9 and above; good values range from 0.8 and above; decent values range from 0.7 and above; uncertain values range from 0.6 and above; and bad values range from less than 0.6. The values of each component in Cronbach's Alpha were calculated for this study using the statistical package for the social sciences (SPSS) program. According to Table 3, all Cronbach's alpha values are credible. A variety of tests should be performed prior to factor extraction to determine the suitability of the respondent data for factor analysis. As a result, the exploratory factor analysis was used to determine the Kaiser Meyer Olkin (KMO) and the significant level of all factors. The KMO index, in particular, is recommended when the case-to-variable ratio is less than 1:5. The KMO index ranges from 0 to 1, with 0.50 indicating that it is acceptable for factor analysis. For factor analysis to be suitable, the Sphericity Test should be significant ($p<05$). Table 2 shows that the KMO of this investigation is over 0.8 value and Bartlett's test were significant. As a result, the exploratory factor analysis (EFA) taking into account within the acceptable threshold and suited for all components.

Discussion: The findings of this study suggested that the questionnaire is reliable and can be used in the main study. A successful pilot study increases the reliability of research instruments. According to Leon et al. (2011), pilot studies play a significant role in the development of interventions and, when interpreted correctly, can increase the effectiveness and validity of subsequent clinical trials by improving subject recruitment, intervention delivery, and by enabling researchers to more precisely determine the necessary sample sizes. The researcher is also able to

pinpoint and remedy any research instrument flaws thanks to this investigation. To improve the reliability of the questionnaire that will be used in the primary study, any flaws in the research instruments, especially problematic items, can be changed or eliminated. Moreover, by conducting this study, the researchers are able to determine what or how much resources are needed for the main study.

5. Conclusion

The objective of this study was to investigate the reliability and validity of the questionnaire design. All the indicators of the items were adopted from the previous studies. However, the pilot study was conducted in the context of gig workers to make sure that the instruments are valid and reliable. The content validity checked number of experts. As per the expert's opinion and suggestion, certain changes were made in the questionnaire to make it understandable and clearer to the respondents. The questionnaire distributed among 105 gig workers in Selangor, Negeri Sembilan and Melaka. Then the exploratory factor analysis and Cronbach alpha coefficient measurements were used to test the reliability of this questionnaire. The result revealed that the design of the instrument is reliable since the values of Cronbach's alpha are higher than 0.70 and the KMO values is over 0.8. Thus, it can be considered as acceptable.

This study adds to the existing literature in a number of ways. In one regard, this study adds to the body of knowledge on pilot studies since, as Teijlingen & Hundley (2002) note, comprehensive descriptions of pilot studies are uncommon in the research literature. Additionally, some of these procedures and results from both successful and unsuccessful pilot studies may be extremely helpful to others starting projects employing related techniques and tools (Hassan et al, 2006). Another crucial point is that, depending on the goals of the study and the populations it is intended to reach, pilot studies enable researchers to examine the efficacy of various data collection techniques (Watson, 2016).

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References

Alekam, E., Salniza, M., Salleh, B. M., Sanuri, S., Com, W. A., Mohammed, J. & Mokhtar, M. (2018). INTERNATIONAL JOURNAL OF ORGANIZATIONAL LEADERSHIP The Effect of Family, Peer, Behavior, Saving and Spending Behavior on Financial Literacy among Young Generations. *In International Journal of Organizational Leadership*, (Vol. 7).

Alex, T. C. X., Cheong, W. L., Chong, C. J., Lee, R. & Liou, Y. H. (2019). *The individual savings behaviour in Malaysian new villages*.

Ali, S. B. & Frank, H. A. (2019). Retirement Planning Decisions: Choices Between Defined Benefit and Defined Contribution Plans. *American Review of Public Administration*, 49(2), 218–235. https://doi.org/10.1177/0275074018765809

Alkhawaja, S. O. & Albaity, M. (2022). Retirement saving behavior: evidence from UAE. *Journal of Islamic Marketing*, 13(2), 265–286. https://doi.org/10.1108/JIMA-03-2020-0072

Awang, W. Q. & Abdullah, A. (2021). Financial Literacy, Social Influence, Goal Clarity, And Retirement Experience. E-Proceeding 8th International Conference On Public Policy and Social Science (ICOPS) 2021.

Bačová -Lenka Kostovičová, V. (2018). Too far away to care about? Predicting psychological preparedness for retirement financial planning among young employed adults (Vol. 66).

Baker, H. K., Tomar, S., Kumar, S. & Verma, D. (2021). Are Indian professional women financially literate and prepared for retirement? *Journal of Consumer Affairs*, 55(4), 1416–1441. https://doi.org/10.1111/joca.12332

Bello, H. (2019). Planning towards a successful retirement: Issues and Opportunities Impact of Changing Lifestyle on Municipal Solid Waste Generation in Residential Areas: Case Study of Qatar View Project the Six Factor Building Assessment Tool: Application on the Qatar Faculty of Islamic Studies (QFIS) Building, Doha View project. https://www.researchgate.net/publication/334193308

Bucciol, A. & Zarri, L. (2019). Saving education received in early life and future orientation in adulthood. *Journal of Financial Counselling and Planning*, 30(1), 67–82. https://doi.org/10.1891/1052-3073.30.1.67

Burchi, A., Włodarczyk, B., Szturo, M. & Martelli, D. (2021). The effects of financial literacy on sustainable entrepreneurship. *Sustainability (Switzerland)*, 13(9). https://doi.org/10.3390/su13095070

Cucinelli, D. & Bongini, P. (2019). University students and retirement planning: never too early. *International Journal of Bank Marketing*, 37(3), 775–797. https://doi.org/10.1108/IJBM-03-2018-0066

Eismann, M., Verbeij, T. & Henkens, K. (2019). Older workers' plans for activities in retirement: The role of opportunities, spousal support, and time perception. *Psychology and Aging*, 34(5), 738–749. https://doi.org/10.1037/pag0000377

Fiergbor, D. D. (2020). The habit of savings among college students. Global Economics Science, 38–43. https://doi.org/10.37256/ges.11202069.38-43

Gass, R. H. (2015). Social Influence, Sociology of. International Encyclopaedia of the Social & Behavioral Sciences, 22. https://doi.org/http://dx.doi.org/10.1016/B978-0-08-097086-8.32074-8

Gavurova, B., Kubak, M., Huculova, E., Popadakova, D. & Bilan, S. (2019). Financial Literacy and Rationality of Youth in Slovakia. *Transformations In Business & Economics*, 18(3), 43–53.

Ghadwan, A., Wan Ahmad, W. M. & Hanifa, M. H. (2022). Financial planning for retirement: The mediating role of culture. Risks, 10(5), 104. https://doi.org/10.3390/risks10050104

Hajam, M. A. (2020). The Effect of Future Orientation and Financial Literacy on Family Retirement Planning Mediated by Saving Attitude. *Jurnal Sosial Humaniora (JSH) 2020*, *13*. http://creativecommons.org/licenses/by/4.0/

Hansson, I. (2019). Retirement and life satisfaction: a resource-based dynamic perspective.

Haron, H., Razali, N. N. S. M. & Mohamad, F. (2019). Factors influencing financial planning retirement amongst employees in the private sector in East Coast Malaysia: Literature Review and research agenda. KnE Social Sciences. https://doi.org/10.18502/kss.v3i22.5115

Hassan, Z. A., Schattner, P. & Mazza, D. (2006). Doing A Pilot Study: Why is it Essential? Malaysian Family Physician, 1(2). http://www.ejournal.afpm.org.my/

Hastings, J. & Mitchell, O. S. (2020). How financial literacy and impatience shape retirement wealth and investment behaviors. *Journal of Pension Economics and Finance*, *19*(1), 1–20. https://doi.org/10.1017/S1474747218000227

Hauff, J. C., Carlander, A., Gärling, T. & Nicolini, G. (2020). Retirement Financial Behaviour: How Important Is Being Financially Literate? *Journal of Consumer Policy*, *43*(3), 543–564. https://doi.org/10.1007/s10603-019-09444-x

Herrador-Alcaide, T. C., Hernández-Solís, M. & Topa, G. (2021). A model for personal financial planning towards retirement. *Journal of Business Economics and Management*, *22*(2), 482–502. https://doi.org/10.3846/jbem.2020.13978

Hershey, D. A., Jacobs-Lawson, J. M. & Austin, J. T. (2013). Effective financial planning for retirement. In M. Wang (Ed.), The Oxford handbook of retirement (pp. 402–430). Oxford University Press, Inc. https://doi.org/10.1093/oxfordhb/9780199746521.013.0133

Hutabarat, A. S. S. & Wijaya, C. (2020). Analysis the effect of financial literacy on financial planning for retirement (case study lecturers and administrative staffs in Universitas Indonesia). *International Journal of Management*, 11(5), 741–750. https://doi.org/10.34218/IJM.11.5.2020.066

Jais, J. B. & Asokumar, A. (2020). Psychological Process, Social and Environmental Influence on Retirement Planning: Malaysian Energy Industry Perspective. *Management and Marketing*, *15*(2), 134–153. https://doi.org/10.2478/mmcks-2020-0009

Jiun, T. Y., Satar, N. H. M. & Ishak, N. A. (2021). Malaysian Undergraduate Students' Expectation of Life Satisfaction After Retirement: The Role of Parental Influence and Financial Knowledge. Journal of Wealth Management & Financial Planning, 8.

Kadir, J. M. A. & Fadhilah, R. (2020). Retirement Planning and its Impact on Working Individuals Intention to Use Biodegradable Drinking Straw View Project Developing a Fuel Subsidy Framework View project. https://www.researchgate.net/publication/359576348

Kerry, M. J. (2018). Psychological antecedents of retirement planning: A systematic review. Frontiers in Psychology, 9. https://doi.org/10.3389/fpsyg.2018.01870

Kim, Y. J., & Hollingshead, A. B. (2015). Online social influence: Past, present, and future. *Annals of the International Communication Association*, 39(1), 163–192. https://doi.org/10.1080/23808985.2015.11679175

Kimiyagahlam, F., Safari, M. & Mansori, S. (2019). Influential Behavioral Factors on Retirement Planning Behavior: The Case of Malaysia. https://doi.org/10.1891/1053-3073.30.2.244

Kooij, D. T. A. M., Kanfer, R., Betts, M. & Rudolph, C. W. (2018). Future Time Perspective: A systematic review and meta-analysis. *Journal of Applied Psychology*, 103(8), 867–893. https://doi.org/10.1037/apl0000306

Larisa, L. E., Njo, A. & Wijaya, S. (2021). Female workers' readiness for retirement planning: an evidence from Indonesia. *Review of Behavioral Finance*, 13(5), 566–583. https://doi.org/10.1108/RBF-04-2020-0079

Leon, A. C., Davis, L. L. & Kraemer, H. C. (2011). The role and interpretation of pilot studies in clinical research. *Journal of Psychiatric Research*, 45(5), 626–629. https://doi.org/10.1016/j.jpsychires.2010.10.008

Li, Y., Burr, J. A. & Miller, E. A. (2019). Pension Plan Types and Financial Literacy in Later Life. *Gerontologist*, *59*(2), 260–270. https://doi.org/10.1093/geront/gnx135

Liu, C., Bai, X. & Knapp, M. (2021). Multidimensional Retirement Planning Behaviors, retirement confidence, and post-retirement health and well-being among Chinese older adults in Hong Kong. *Applied Research in Quality of Life*, 17(2), 833–849. https://doi.org/10.1007/s11482-020-09901-7

Moffatt, S. & Heaven, B. (2016). 'planning for uncertainty': Narratives on retirement transition experiences. *Ageing and Society*, 37(5), 879–898. https://doi.org/10.1017/s0144686x15001476

Murari, K., Shukla, S. & Adhikari, B. (2021). Do psychological social and financial perceptions of post-retirement life and demography influence the retirement planning behaviour? *International Journal of Social Economics*, 48(11), 1545–1566. https://doi.org/10.1108/IJSE-08-2020-0581

Nivalainen, S. (2022). From plans to action? Retirement thoughts, intentions and actual retirement: An eight-year follow-up in Finland. *Ageing and Society*, *42*(1), 112–142. https://doi.org/10.1017/S0144686X20000756

Ong, K. T., Awang, S. R., Zakuan, N., Sulaiman, Z., Chin, T. A., Mas'od, A., Jusoh, A. & Ahmad, U. N. U. (2020). Goal Clarity and Financial Literacy towards Retirement Confidence among Working Adults in Southern Region, Malaysia. *Test Engineering & Management*, 83, 9965–9971.

Pavia, S. & Grima, S. (2019). Retirement planning by Maltese nationals: A study of influential factors. In *Contemporary Studies in Economic and Financial Analysis*, 101, 227–259. Emerald Group Publishing Ltd. https://doi.org/10.1108/S1569-375920190000101016

Ponchio, M. C., Cordeiro, R. A. & Gonçalves, V. N. (2019). Personal factors as antecedents of perceived financial well-being: evidence from Brazil. *International Journal of Bank Marketing*, 37(4), 1004–1024. https://doi.org/10.1108/IJBM-03-2018-0077

Rai, K., Vidyapeeth, J., Tyagi, A. & Sahni, S. (2020). Modelling The Factors of Financial Planning for Retirement Among Individuals Using Ism. https://doi.org/10.13140/RG.2.2.15973.32484

Rameli, R. S. & Marimuthu, M. (2018). A Conceptual Review on the Effect of Attitudes towards Retirement on Saving Intentions and Retirement Planning Behavior. *SHS Web of Conferences*, *56*, 02005. https://doi.org/10.1051/shsconf/20185602005

Rasiah, R., Mathew Bilong, F., James Turner, J., Waheed, H., Somasundram, S., Pei Leng, K., Taylor, J. & Jaya, S. (2020). A Structural Equation Modelling Study of the Determinants of Retirement Preparedness. In *International Journal of Innovation, Creativity and Change. www.ijicc.net* (Vol. 11, Issue 6). www.ijicc.net

Rostamkalaei, A., Nitani, M., & Riding, A. (2022). Self-employment, financial knowledge, and retirement planning. *Journal of Small Business Management*, 60(1), 63–92. https://doi.org/10.1080/00472778.2019.1695497

Seidl, J., Neiva, E. R. & Murta, S. G. (2021). Planning and Reasons for Retirement: Focus Groups with Brazilian Workers. *Trends in Psychology*, 29(3), 456–473. https://doi.org/10.1007/s43076-021-00063-5

Shariff, N. S. M. & Ishak, W. W. M. (2021). Statistical analyses on factors affecting retirement savings decision in Malaysia. *Mathematics and Statistics*, 9(3), 243–248. https://doi.org/10.13189/ms.2021.090305

Stolarski, M., Fieulaine, N. & Zimbardo, P. G. (2018). Putting time in a wider perspective: The past, the present, and the future of time perspective theory. https://doi.org/10.4135/9781526451163.n28ï

Tan, Z. M., Aggarwal, N., Cowls, J., Morley, J., Taddeo, M. & Floridi, L. (2021). The ethical debate about the gig economy: A review and critical analysis. *Technology in Society*, 65, 101594. https://doi.org/10.1016/j.techsoc.2021.101594

Teijlingen, E. V., & Hundley, V. (2002). The importance of pilot studies. *Nursing Standard*, 16(40), 33–36. https://doi.org/10.7748/ns.16.40.33.s1

Tomar, S., Kent Baker, H., Kumar, S. & Hoffmann, A. O. I. (2021). Psychological determinants of retirement financial planning behavior. *Journal of Business Research*, 133, 432–449. https://doi.org/10.1016/j.jbusres.2021.05.007

Topa, G., Lunceford, G. & Boyatzis, R. E. (2018). Financial planning for retirement: A psychosocial perspective. *Frontiers in Psychology*, 8(JAN). https://doi.org/10.3389/fpsyg.2017.02338

Watson, F. A. (2016). Lessons learned on approaches to data collection and analysis from a pilot study. *Nurse Researcher*, 24(1), 32–36. https://doi.org/10.7748/nr.2016.e1444

Watson, G. P., Kistler, L. D., Graham, B. A. & Sinclair, R. R. (2021). Looking at the gig picture: Defining gig work and explaining profile differences in gig workers' job demands and resources. *Group & Organization Management*, 46(2), 327–361. https://doi.org/10.1177/1059601121996548

Yeung, D. Y. & Zhou, X. (2017). Planning for retirement: Longitudinal Effect on retirement resources and post-retirement well-being. *Frontiers in Psychology*, 8. https://doi.org/10.3389/fpsyg.2017.01300

Yong, C. C., Yew, S. Y. & Wee, C. K. (2018). Financial Knowledge, Attitude and Behaviour of Young Working Adults in Malaysia. In *Institutions and Economies*, 10(4).

Zandi, G., Torabi, R., Yu, O. T., Sivalingam, A. D. & Khong, T. T. (2021). Factors affecting the intention of generation y in Malaysia to invest for retirement. *Advances in Mathematics: Scientific Journal*, 10(3), 1485–1507. https://doi.org/10.37418/amsj.10.3.36

Zhu, A. Y. F. & Chou, K. L. (2018). Retirement Goal Clarity, Needs Estimation, and Saving Amount: Evidence from Hong Kong, China.

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Understanding Customer Intention to Use E-Payment for Online Shopping

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Abstract: The emergence of e-commerce has sparked a huge change in consumer behavior, transforming how individuals purchase and conduct transactions. E-payment has become a pillar of this digital transition. However, some customers are still hesitant to adopt e-payment despite its advantages. This paper aims to unravel the factors influencing customer intentions to use e-payment for online shopping. Based on a review of existing literature on the Technology Acceptance Model (TAM Model) and additional external factors, a proposed model was developed to test consumer's intention to use e-payment for online shopping. The result of this study would be useful to understand consumers' behaviors in employing electronic transactions when making payments for online purchases. This paper also provides valuable insights for e-payment service providers and online retailers on how to promote sustainable online shopping in the future.

Keywords: *E-Payment, Customer Intention, Online shopping, Perceived Security and Social Influence.*

1. Introduction

Electronic payment (henceforth known as "e-payment") has become increasingly popular in recent years, with more and more customers opting for digital payment methods over traditional ones (Sahi, et al., 2021). It has become a global phenomenon and an important facet of consumerism as it allows for shopping to be carried out anywhere and anytime via online transactions. This payment tool can speed up the payment process and it is also much safer, all at a relatively lower cost compared to the anterior instruments of transaction such as credit or debit cards. According to Bank Negara Malaysia, e-payment services recorded an increase in usage by 30.2% to 7.2 billion transactions in 2021, up from 5.5 billion transactions in 2020 (13.5%).

Online shopping has become more popular in tandem with the growth of the purchasing power of millennials and more convenient because of how rapid technology, particularly in the field of information and communication, is developing. This has resulted in the expansion of the internet in recent years, from which e-commerce is benefiting the most (Bressolles et al., 2014; Faqih & Jaradat, 2015; Towers & Xu, 2016). Additionally, there is sufficient evidence to suggest that an increase in internet usage will positively affect online purchasing (Lee & Lin, 2005; Wong et al., 2014), hence the reason to highlight the significance of e-payment development in fulfilling the demands in this sector of the retail industry.

Nevertheless, there are still several concerns surrounding the use of e-payment. According to Drozdov (2019), even though enterprises in the market use a wide range of alternative payment methods, they still face serious issues such as long transaction times, lengthy payment processes, and costly and complex transactions. The major hurdle to using e-payment is security, with approximately 59% of customers believing that e-wallets can lead to credit and debit fraud (Tan, 2019). As a result, if the e-payment systems do not satisfy the safety criteria and customer expectations, customers will be discouraged from using e-payment. Therefore, research must be conducted to determine the elements that influence the use of e-payment among consumers. The findings from such research may help commercial organizations enhance or reinforce the elements that may influence and encourage customers to utilize e-payment.
Therefore, this study aims to investigate the determinants that influence consumers' adoption of online payment methods within the context of online purchasing. This study holds significance for major stakeholders in e-commerce as it enables them to gain awareness of and recognize the challenges encountered by customers when using e-payment, hence facilitating subsequent enhancements.

2. Literature Review

Intention to Use e-Payment: Intention is a motive that can affect a person in molding desired behaviors and can be used to determine how much of someone's wishes and efforts are expended to achieve the behavior (Azjen, 1991). The customer intention research model was created to increase user acceptance of technological information. Davis et al. (1989) implemented the Technology Acceptance Model (TAM) to examine computer usage behavior. The model is a technology acceptance and utilization hypothesis, used to describe the application of technology that has been developed (Venkatesh et al., 2003).

According to the notion of technology adoption and usage, intention to utilize technology may be impacted by effort expectancy, expected success, and social impact. Consumers should determine the behavioral purposes and conditions that allow a technology to be used. In the case of e-payment, the perceived ease of use of such technology on e-commerce transactions can be defined as effort expectancy, which is also concerned with systems that are simple to comprehend and operate without requiring any specific abilities (Gholami et al., 2010). Performance expectancy refers to how customers perceive e-payment systems' capability to support and benefit online transactions, particularly within the context of security, speed, and convenience (Venkatesh et al., 2000). Additionally, Gholami et al. (2010) noted that social power is particularly important in encouraging people to adopt e-payment, and such influence is especially critical for families, couples, and organizations.

Perceived Usefulness: Perceived usefulness pertains to the level of utility experienced by consumers when engaging in online buying transactions or their perception of the advantages and benefits associated with such transactions (Teck, 2002). The perceived utility of an online shopping platform is demonstrated by several means, such as providing a wide range of product options and expediting the buying process, hence enhancing convenience and reducing time expenditure for consumers. According to Islam and Daud (2011), consumers often find it convenient to spend less time shopping as that means they can allocate the time saved from one activity to engage in other pursuits. The issue of perceived usefulness holds significant importance, particularly within the context of luring online buyers by offering advantages over traditional shopping (Ramayah & Ignatius, 2005).

The decision of users to use e-payment was found to be impacted by its perceived utility, as indicated by a study conducted by Davis et al. (1989). According to Lin and Nguyen (2011), it is posited that the perceived utility of a specific system might enhance an individual's job performance by capitalizing on its associated advantages. The perceived utility of online purchasing is related to consumers' beliefs regarding their ability to engage in item inspection and comparison, access information, secure reduced costs, and accrue additional advantages throughout their online purchases (Broekhuizen & Huizingh, 2009).

Perceived Ease of Use: The aspect of perceived ease of use holds significant importance in the acceptability of information systems and technology as the adoption of technology by individuals is significantly influenced by their perception of simplicity of use. Therefore, it is crucial to consider the impact of perceived ease of use surrounding the context of online transactions' research and implementation. The examination of this perception of the simplicity of use should be undertaken through rigorous research investigations, and its implications should be considered during the development and implementation of online platforms about practical applications considering its crucial role in influencing individuals' desire to adopt a certain technology (Gong et al., 2013).

According to Gitau and Nzuki (2014), perceived ease of use refers to the extent to which consumers anticipate that a system or technology will be user-friendly. Likewise, Juniwati (2014) said that this concept is concerned with an individual's belief regarding the extent to which using a specific technology would be straightforward. According to a study by Gefen et al. (2003), perceived ease of use is a metric used to assess the cognitive effort needed to effectively utilize and navigate new information technology. Zhu et al. (2014) proposed that the likelihood of reaping benefits from a technology or a program is higher when it is user-friendly, and characterized by ease of use and implementation. The investigation also reported that there exists a significant relationship between the perceived ease of use and the desire to use a website for inquiries. However, this relationship does not extend to the intention to use the website for making

purchases. Hence, organizations must ensure that their website exhibits clarity and precision and facilitates seamless execution of e-payment transactions. The perceived ease of use of e-payment may lead customers to presume its convenience, hence influencing their decision to utilize it. This statement is supported by Abrazhevich (2001), whose findings indicate that the user's perspective places great significance on the effective design of an e-payment system to encourage its adoption and usage.

Perceived Security: The issue of security is widely recognized as a significant obstacle to Internet commerce due to transparency being an intrinsic characteristic of the Web, as stated by Zorkadis and Karras (2000). The concept of perceived security refers to a customer's subjective evaluation of the level of protection provided by an e-payment system (Linck et al., 2006). According to Grandinetti (1996), perceived security refers to the actions of unauthorized individuals who unlawfully manipulate or damage data security without intention. Furthermore, Lim (2008) acknowledged that the adoption of e-payment systems might be influenced by security concerns. In other words, the level of security provided by the e-payment systems significantly influences the decision-making process of users when considering its implementation.

Therefore, through the implementation of improved and more robust security protocols inside network infrastructures, customers will be more inclined to adopt and utilize e-payment. Nevertheless, the link between perceived security and use was found to be unfavorable because of varying expectations among individuals, leading to uncertainty, especially among novice users (Liébana-Cabanillas et al., 2014). The concerns surrounding consumer privacy and security have long been a topic of interest, as individuals have consistently expressed apprehension regarding the potential utilization of their obtained data by various organizations across multiple platforms. The reluctance of customers to engage in Internet commerce might be attributed to privacy and security concerns, as noted by Udo (2001) and Grandinetti (1996). Privacy refers to the deliberate choice made by a firm to utilize consumer data in various manners. The primary concern within the realm of security is the apprehension experienced by customers regarding potential unauthorized access to their personal information and data by external entities, such as hackers or identity thieves. This is exacerbated by the fact that it has been determined through subsequent observations that hackers may not necessarily require physical access to an organization to carry out their activities. This phenomenon might be attributed to the likelihood that a portion of the hackers are situated in undisclosed areas external to the organization (Saleem & Naveed, 2020).

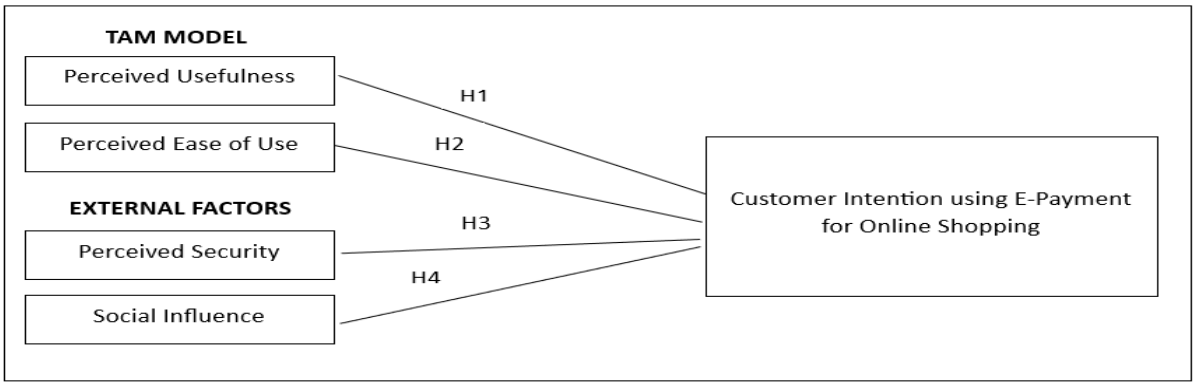
Social Influence: For organizations to remain competitive in the contemporary business landscape, they must also take into account the factor of social influence in adopting and updating new technologies. Scholars are generally in agreement that the incorporation and utilization of digital technology into daily operations are subject to social influence (Venkattesh et al., 2003; Lee & Lin. 2005; Venkatesh & Davis, 2000).

Subjective norms are seen as fundamental components of social influence within the framework of social pressure (Albarracin, 2001). This concept refers to an individual's perception of societal acceptance or disapproval of certain behaviors (Fishbein & Azjen, 2005) and the collective motivation of individuals to conform to and comply with the opinions and moral values of reference groups (Neighbors et al., 2007).

3. Conceptual Framework

Figure 1 depicts the conceptualization framework developed for this study. The framework comprises the factors that are believed to be related to customer intention to use e-payment for online shopping, based on the components adapted from the TAM model and additional external factors from Deka (2020): perceived usefulness, perceived ease of use, perceived security, social influence, promotion.

Figure 1: Proposed Conceptual Framework (modified from Deka, 2020)



4. Hypotheses and Future Direction

The research aims to identify the relationship among perceived usefulness, perceived ease of use, perceived security, social influence, and customer intention to use e-payment for online shopping.

H1: Perceived usefulness has a positive relationship to customer intention to use e-payment for online shopping.

H2: Perceived ease of use has a positive relationship to customer intention to use e-payment for online shopping.

H3: Perceived security has a positive relationship to customer intention to use e-payment for online shopping.

H4: Social influence has a positive relationship to customer intention to use e-payment for online shopping.

These independent variables lead to customer intention as an intervening variable and actual use as a dependent variable. Based on these variables, the hypotheses H1, H2, H3, and H4 will be tested to determine whether there is a positive relationship between these variables and customer intention to use e-payment for online shopping. The proposed model is expected to determine the extent to which the use of e-payment is adopted and subsequently, it will also lead us to understand the degree of support provided to cashless customers as they conduct online shopping in Malaysia.

Direction for the Future Research: Our future research will be concerned with implementing the factors influencing customers' intention to use e-payment for online shopping. Research may be conducted using the qualitative approach of data collection to gain a deeper knowledge of every element considered to influence customer intention to use e-payment. The Statistical Package for Social Sciences (SPSS) method will be used to analyze the data gathered as part of the research's quantitative analysis. Further studies also may be done to find out how customer intention, which is impacted by factors influences, might become real behavior.

5. Conclusion

The proposed model in this study will be used to examine consumer intention to use e-payment for online shopping in Malaysia. The hypotheses of this study are based on the TAM model and three additional external factors to investigate customer intention to use e-payment for online shopping. Then, to prove these hypotheses, several measures have been proposed to support a model of factors influencing customer intention to use e-payment for online shopping and to provide an overview of future research. It is hoped that the findings based on the proposed model will be useful for upcoming researchers, business operators, and the government, having cast light on the subject of customer intention in using e-payment.

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References

Abrazhevich, D. (2004). Electronic payment systems: a user-centered perspective and interaction design. Technische Universiteit Eindhoven.

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.

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

Bank Negara Malaysia. (2020). Bank Negara Malaysia | Central Bank of Malaysia. Bnm.gov.my. https://www.bnm.gov.my/

Broekhuizen, T. & Huizingh, E. (2009). Online purchase determinants Is their effect moderated by direct experience? *Management Research News,* 32(5), 2009, 440-457.

Bressolles, G., Durrieu, F. & Senecal, S. (2014). A consumer typology based on e-service quality and e-satisfaction. *Journal of Retailing and Consumer Services*, 21(6), 889-896.

Davis, F. D., Bagozzi, R. P. & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982-1003.

Deka, P. K. (2020). Intention to use mobile wallets by youths in northeast India. *Journal of Management in Practice,* 5(1).

Drozdov, A. (2019). Payments Problem https://medium.com/paybycps/payments-problem-statement-997cb201267f

Faqih, K. M. & Jaradat, M. I. R. M. (2015). Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective. *Journal of Retailing and Consumer Services*, 22, 37-52.

Fishbein, M. & Ajzen, I. (2005). Attitudes and voting behavior: An application of the theory of reasoned action. *Progress in applied social psychology,* 1(1), 253-313.

Gefen, D., Karahanna, E. & Straub, D. W. (2003). Trust and TAM in online shopping: *An integrated model. MIS Quarterly*, 27(1), 51-90.

Gitau, L. & Nzuki, D. (2014). Analysis of determinants of m-commerce adoption by online consumers. *International Journal of Business, Humanities and Technology*, 4(3), 88-94.

Gong, W., Stump, R. L. & Maddox, L. M. (2013). Factors influencing consumers' online shopping in China. Journal of Asia Business Studies.

Gholami, R., Ogun, A., Koh, E. & Lim, J. (2010). Factors affecting e-payment adoption in Nigeria. *Journal of Electronic Commerce in Organizations (JECO)*, 8(4), 51-67.

Grandinetti, M. (1996). Establishing and maintaining security on the Internet. *Sacramento Business Journal*, 13(25), 22.

Islam, M. A. & Daud, K. A. K. (2011). Factors that influence customers' buying intention on shopping online. *International Journal of Marketing Studies*, 3(1), 128.

Juniwati, J. (2014). Influence of perceived usefulness, ease of use, risk on attitude and intention to shop online. *European Journal of Business and Management,* 6(27), 218-229.

Liébana-Cabanillas, F., Sánchez-Fernández, J. & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in human behavior*, 35, 464-478.

Lim, K. S., Lim, J. S. & Heinrichs, J. H. (2008). Testing an integrated model of e-shopping website usage. *Journal of Internet Commerce,* 7(3), 291-312.

Lim, B., Lee, H. & Kurnia, S. (2007). Exploring the reasons for a failure of electronic payment systems: A case study of an Australian company. *Journal of Research and Practice in Information Technology*, 39(4), 231-243.

Linck, K., Pousttchi, K. & Wiedemann, D. G. (2006). Security issues in mobile payment from the customer's viewpoint.

Lin, C. & Nguyen, C. (2011). Exploring e-payment adoption in Vietnam and Taiwan. *Journal of Computer Information Systems,* 51(4), 41-52.

Lee, G. & Lin, H. (2005). Customer perceptions of e-service quality in online shopping. *International Journal of Retail & Distribution Management*, 33(2), 161–176.

Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N. & Larimer, M. E. (2007). Are social norms the best predictor of outcomes among heavy-drinking college students? *Journal of studies on alcohol and drugs*, 68(4), 556-565.

Ramayah, T. & Ignatius, J. (2005). Impact of perceived usefulness, perceived ease of use and perceived enjoyment on intention to shop online. *ICFAI Journal of Systems Management (IJSM)*, 3(3), 36-51.

Saleem, H. & Naveed, M. (2020). SoK: Anatomy of data breaches. *Proc. Priv. Enhancing Technol,* 2020(4), 153-174.

Sahi, A. M., Khalid, H., Abbas, A. F. & Khatib, S. F. (2021). The evolving research of customer adoption of digital payment: Learning from content and statistical analysis of the literature. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(4), 230.

Teck, T. K. (2002). The Impact of Perceived Web Security. Perceived Privacy Loss, Perceived Usefulness and Perceived Ease of Use on the Web-Based Online Transaction Intent, MBA Thesis, School of Management.

Towers, N. & Xu, K. (2016). The influence of guanxi on physical distribution service quality availability in e-commerce sourcing fashion garments from China. *Journal of Retailing and Consumer Services*, 28, 126-136.

Udo, G. J. (2001). Privacy and security concerns as major barriers for e-commerce: a survey study. *Information management & computer security*, 9(4), 165-174.

Venkatesh, V. & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186-204.

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.

Wong, C. K., Yeung, D. Y., Ho, H. C., Tse, K. P. & Lam, C. Y. (2014). Chinese older adults' Internet use for health information. *Journal of Applied Gerontology,* 33(3), 316-335.

Tan, J. Y. (2019, July 22). Digital transformation in Malaysia seeing returns but companies are still failing [Review of Digital transformation in Malaysia seeing returns, but companies are still failing]. Digital News Asia. https://www.digitalnewsasia.com/digital-economy/digital-transformation-malaysia-seeing-returns-companies-are-still-failing

Zorkadis, V. & Karras, D. A. (2000). Security modeling of electronic commerce infrastructures. In IEEE/AFCEA EUROCOMM 2000. Information Systems for Enhanced Public Safety and Security (Cat. No. 00EX405) (pp. 340-344). IEEE.

Zhu, D. H., Chang, Y. P., Luo, J. J. & Li, X. (2014). Understanding the adoption of location-based recommendation agents among active users of social networking sites. *Information Processing & Management*, 50(5), 675-682.

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Competitive Advantages amongst Travel Agencies in Malaysian SMEs: The Role of IOE Factors and Web Technologies & E-Business Adoption

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Abstract: In response to the volatile industrial landscape, particularly about Small and Medium-sized Enterprises (SMEs), organizations have extensively embraced electronic business (e-business) as a strategic initiative aimed at enhancing their competitive advantage mechanisms. Nevertheless, the adoption of e-business amongst local Small and Medium Travel Agency (SMTAs) is still negligible. This study seeks to introduce a comprehensive model encompassing the factors driving and the consequences resulting from the adoption of e-business within SMTAs. The determinants of e-business adoption and the adoption of web-based technologies were empirically examined by employing data obtained from a sample of 323 managerial personnel. The collected data was subjected to analysis through structural equation modelling methods. The findings revealed the significance of specific determinants in influencing the adoption of e-business. Particularly, owner support, perceived ease of use, and government support emerged as critical factors influencing the decision to adopt e-business within SMTAs. In contrast attitude, competitive pressure, and relative advantage were found not significant. While e-business adoption has a major impact on SME functioning and operational progress, it also influences competitive advantage. This study's exploration of the factors influencing, and the consequences associated with the adoption of e-business offers valuable insights. These findings offer e-business practitioners and managers practical guidance for enhancing the efficiency and effectiveness of e-business adoption within their respective organizations. The results also provided a basis for more precise e-business studies to be conducted for small and medium companies in developing countries.

Keywords: *Web-Technology & E-Business Adoption; competitive advantage; travel agencies; Malaysia; SMTAs.*

1. Introduction

The advent of the internet has transformed traditional business models into online settings, giving rise to Online Travel Agents (OTAs) that have become pivotal in the tourism industry's growth. Consequently, travel agencies have witnessed a paradigm shift as consumers increasingly prefer e-commerce for their travel needs. This study underscores the importance of small and medium travel agencies (SMTAs) in Malaysia in adopting web technology and e-business strategies, grounded in the potential of Innovation, Organisational factors, and Environmental considerations (IOE factors), to secure and strengthen their competitive positions.

Furthermore, realizing the potential of Information and Communication Technology (ICT) through network technologies is contingent on a clear web technology and e-business strategy. Given that travel agencies fall within the SME services sector in Malaysia, a comprehensive study on web technology and e-business adoption is imperative, given the sector's vital role in contributing to the country's wealth and prosperity. This study aims to uncover the reasons behind the lag in web technology and e-business adoption amongst Malaysian SMTAs, shedding light on their failure to integrate, develop, and measure these technologies to harness their competitive advantage potential.

The service sector, recognized as a major contributor to the country's Gross National Income (GNI) in the Twelfth Malaysia Plan (2021-2025), underscores the urgency of addressing these issues. Acknowledging the significance of business development, policymakers have undertaken measures to promote ICT diffusion by offering support and incentives across business operations. To enhance market access, boost ICT adoption amongst SMEs, and empower local service firms to gain competitive advantages, strategies aimed at raising awareness, investing in human capital, and safeguarding intellectual property rights are essential.

Reassessing the current state of web technology and e-business adoption is paramount in guiding SMEs to strengthen their e-business segments.

Despite promising opportunities and advanced technological options in the tourism industry, the Malaysian tourism sector remains entrenched in traditional offline booking systems. Astonishingly, only one-third of registered Malaysian travel agents employ e-commerce websites, trailing behind the global tourism market's full utilization of online databases. It is expected that Malaysian small and medium travel agencies will gradually evolve in response to shifting consumer demands and expectations. To mitigate the risk of disintermediation, industry experts recommend investments in ICT tools like e-commerce, e-business applications, and digitalization.

This paper aims to deepen our understanding of web technology and e-business adoption's role as a source of competitive advantage amongst small and medium travel agencies in Malaysia. The study examines the contributions of IOE factors to web technology and e-business adoption and how these factors correlate with six critical dimensions of competitive advantage: product development, quality of products and services, price competitiveness, accessibility and connectivity, firm branding, and human resources development. This study enriches our knowledge of the latest trends in web technology and e-business use, particularly amongst small and medium-sized enterprises.

In conclusion, this research aims to bridge existing knowledge gaps and provide insights to guide SMTAs in their web technology and e-business investments, subsequently improving the quality of services offered to modern tourists. From a strategic management perspective, gaining competitive advantages necessitates strategic initiatives led by general managers or owners. Efficient resource utilization, continuous growth, exploration of innovative technologies, software applications, and new product development are critical components of success in an increasingly technology-driven and globalized tourism industry.

The Contribution of IOE Characteristics and Web Technology and E-Business Adoption in Achieving Competitive Advantage Literature

The Impact of Innovational Characteristics on Web Technology & E-Business Adoption: This paper explores the innovational characteristics of relative advantage, compatibility, complexity, and social influence on the degree of adoption of innovation within a social system, following Roger's framework from 1995. Previous research findings have revealed inconsistencies in these factors. Khemthong and Roberts (2006) found that relative advantages of ICT adoption enhance communication with stakeholders, improve business efficiency, and strengthen relationships. However, Kilangi (2012) discovered an insignificant relationship between the relative advantages and web-technology and e-business adoption, although usage was significantly related. Overall, SMTAs are inclined to adopt web-technology and e-business when they perceive these innovations as superior to existing methods. This perception brings benefits such as enhanced communication, efficiency, market expansion, and the ability to offer a wide range of online travel services, ultimately facilitating real tours and travel transactions.

Recent research on the relationship between compatibility and web adoption has produced varying results. Some studies, including those by Kilangi (2012), Grandon and Pearson (2004), and Ghobakhloo et al. (2012), have identified a significant positive relationship, suggesting that compatibility enhances web adoption. However, Hussein et al. (2012) noted inconsistent findings in previous research regarding the impact of compatibility on innovation adoption. Houghton and Winklhofer (2002) and Poorangi et al. (2013) have examined the impact of complexity in ICT adoption. While some studies indicate a negative relationship between complexity and adoption, others show no significant correlation. For SMTAs, perceiving web-technology and e-business as complex can hinder adoption, especially when facing financial constraints. Meanwhile, Lee and Runge (2001) and Kilangi (2012) found no significant effects of social influence on ICT adoption in Malaysia. However, the evolving landscape of networking and communication technologies may require a re-evaluation of social influence's role. Understanding these factors, as identified by previous research, is essential for SMTAs to make informed decisions about adopting web-technology and e-business. These factors collectively shape the adoption process and impact the competitiveness of businesses in the dynamic tourism industry.

The Impact of Organisational Characteristics on Web Technology & E-Business Adoption: Information and Communication Technology (ICT) adoption has become a critical determinant of competitiveness and sustainability for Small and Medium Enterprises (SMEs) across industries. In the context of the tourism sector, Small and Medium Tourism Enterprises (SMTAs) are increasingly recognizing the potential benefits of ICT adoption, including web technology and e-business, to enhance their operations, reach a wider market, and provide better services. However, the adoption of these technologies is not a straightforward process and is influenced by various Organisational Characteristics (OCs).

This paper delves into the multifaceted relationship between OCs and the readiness of SMTAs in Malaysia to embrace ICT innovations. We explore how specific OCs, including firm location, organizational e-resources, top management support, data secrecy and confidentiality, and training and human capital investment, interact to shape the readiness of SMTAs for ICT adoption.

The geographical location of the firm is a crucial OC that significantly impacts ICT adoption in SMTAs. The digital divide between urban and rural areas in Malaysia is a stark reality. Firms situated in rural areas face limited access to ICT vendors, Internet service providers, ICT technicians, and institutions offering ICT support and training. In contrast, urban-based SMTAs tend to have better access to these resources, facilitating their ICT infrastructure and support services. The geographical context, therefore, plays a pivotal role in determining the readiness for ICT adoption in SMTAs (Zaremohzzabieh et al., 2016).

Meanwhile, organizational e-resources encompass human, technological, and business properties that are pivotal in influencing ICT adoption. The availability of financial resources, in-house ICT expertise, and other critical resources significantly determines the ability of SMEs, including SMTAs, to adopt and implement ICT solutions effectively. Financial constraints and resource scarcity can impede the adoption process, particularly among small enterprises (Kilangi, 2012).

For top management support, particularly from owner-managers, is a critical determinant influencing the adoption of modern technology. Owners and managers hold significant sway over the adoption rate of technology within their organizations. Their commitment, attitude, and leadership qualities play a crucial role in inspiring or discouraging technology adoption. Numerous studies have highlighted the positive correlation between TMS and successful technology adoption across organizations, both large and small (Bennett & Savani, 2011; Bruque & Mayano, 2007).

In an era marked by increasing digitalization, concerns about data secrecy and confidentiality are paramount. Security and trust issues, along with the legal framework surrounding data protection, significantly influence adoption decisions. These concerns are particularly relevant in the tourism sector, where sensitive customer information is managed regularly (Hussin et al., 2008).

Training and human capital, encompassing competencies, attitudes, and intellectual agility, is increasingly recognized as an asset for organizations. Training and skill development initiatives are instrumental in enhancing ICT adoption, especially amongst SMEs. The level of education, the cost of ICT-related training, and the availability of skilled personnel all weigh heavily on the decisions of SME owners and managers regarding ICT adoption. Well-trained employees are more likely to have informed perceptions of new ICT and can drive successful adoption (Venkatesh & Bala, 2008; Mughal, 2011).

In conclusion, the readiness of SMTAs in Malaysia to adopt ICT innovations, specifically web technology and e-business, is intricately linked to a range of organizational characteristics. These characteristics include firm location, organizational e-resources, top management support, data secrecy and confidentiality, and training and human capital investment. Recognizing the role of these OCs in shaping adoption readiness is crucial for formulating effective strategies to promote ICT adoption within the tourism sector. This comprehensive analysis sheds light on the multifaceted dynamics that underpin ICT adoption amongst SMTAs and underscores the importance of considering these factors in the digital transformation of small and medium enterprises in Malaysia's tourism industry.

The Impact of Environmental Characteristics on Web Technology & E-Business Adoption: In light of current trends and the evolving tourism business landscape, the preparedness of Malaysian Small and Medium Tourism Enterprises (SMTAs) to embrace Information and Communication Technologies (ICTs), with a particular focus on web technology and e-business, is markedly shaped by Environmental Characteristics (ECs).ECs encompass various external pressures, such as industry and customer demands, as well as vendor support. Several researchers have highlighted the role of these factors in shaping ICT adoption (Premkumar & Roberts, 1999; Andreu et al., 2010; Iacovou et al., 1995; Mehrtens et al., 2001; Gono et al., 2013). While previous studies have explored the impact of governmental support (Seyal et al., 2007; Alam et al., 2009), the Malaysian government's initiatives to promote ICT adoption, like the eCommerce Initiative, were also discussed. Competitive pressure, another EC, has shown mixed results in influencing ICT adoption (Thong, 1999; Premkumar & Roberts, 1999). However, it can encourage SMTAs to embrace ICT, facilitating global market access and alliances (Mamaghani, 2009). The adoption status of trading partners also plays a role (Beck et al., 2005). Previous studies also recorded external support, both formal and informal, in SMEs' ICT adoption (Levy & Powell, 2003; Poon & Swatman, 1999; Parker, 2009). It is posited that ECs, including competitive and governmental support, is significantly related to Web-Technology and E-Business Adoption (WEA) amongst Malaysian SMTAs.

Therefore, due to the important contributions of Innovational, Organisational, and Environmental factors (IOE characteristics) to the development of web technology and e-business adoption amongst small and medium travel agencies, it is posited that:

H1a: Innovation characteristics are significantly related to SMTA's Web and e-business adoption.
H1b: Organisational characteristics are significantly related to MTA's Web Technologies and e-business adoption.
H1c: Environmental characteristics are significantly related to MTA's Web Technologies and e-business adoption.

Web-Technology & E-Business Adoption and Competitive Advantage Literature: The adoption of web technology has become a crucial competitive advantage for travel agencies (Mihajlovic, 2012). Internet applications have transformed how tourism products are purchased, demanding user-friendly experiences and convenience (Álvarez, Martín. Mamaghani (2009) further mentioned that to stay viable in today's competitive business, future travel agents must compete with destinations that offer user-friendly activities, values, and convenient travel services. Failing to embrace technology leaves travel agencies at a competitive disadvantage. Technological innovation offers a competitive edge, while agencies that systematically ignore modern technologies and their benefits will, unfortunately, lag in the competition. This paper will examine how web technology and e-business adoption can help small and medium travel agencies to achieve competitive advantages, via product development, quality of services, price competitiveness, accessibility and connectivity, and human resource development.

Several authors have confirmed that web technology and e-business adoption offer numerous benefits to businesses, including access to worldwide suppliers, improved quality, and delivery options (Croom & Johnson, 2003). These technologies also reduce carrying costs, expand cash flow, and provide discounts (Ferguson, 2010), leading to better transaction value (Afzal, 2007), and cost-effective service delivery compared to traditional methods (Lorette, 2013). Additionally, they increase sales and broaden market coverage (Abu Abid et al., 2011), potentially enabling Small and Medium Travel Agencies (SMTAs) to compete globally by leveraging technology as a valuable tool (Lorette, 2013). In light of these advantages, it is proposed that SMTAs can enhance their product development for travel and tour agency services by actively engaging in web technology and e-business activities.

Quality of service is a critical factor in the success of the tourism industry. Research has identified quality as a key determinant of competitive advantage in various tourism sectors, such as hotels, cruise ships, and special events. The advent of e-business and web technologies offers opportunities to enhance service quality by providing a broader range of services to meet evolving customers' expectations. However, despite its importance, service quality has sometimes been overlooked by travel agencies. To remain competitive, travel agencies must prioritize service quality by focusing on aspects like product offerings, value-added services,

efficiency, promptness, and overall service excellence, using web technologies and e-business tools to adapt to changing customer demands.

In the ever-evolving landscape of e-business and tourism, the quality of services provided to customers stands as a pivotal factor for success. Over the past decades, researchers have delved into the multifaceted relationship between e-business and service quality, unearthing valuable insights that shed light on the industry's transformation. Mihajlovic (2013), in his study, focused on a strategic perspective emphasizing the significance of service quality in shaping strategic development plans for tourism. He highlighted the importance of a low-cost strategy and delivering value in services as key elements for improving service quality. However, Mihajlovic cautioned that such a strategy might require substantial investments due to seasonality and capacity utilization fluctuations. In a different study, Lam and Zhang (2019) focused on customers' perceptions of service quality within the travel agent sector, particularly in Hong Kong. Their research revealed a gap between customer expectations and their perceptions of reliability, signalling room for improvement in aligning service quality with customer needs. These findings provide a comprehensive and evolving understanding of how e-business shapes service quality in tourism. This journey through a decade of research exemplifies the dynamic nature of the industry, continually adapting to meet the ever-changing needs and expectations of travellers in the digital age.

Price Competitiveness: SMEs need to set a competitive price range for tour and travel services in a longer-term pricing strategy to attract volume and credibility and to establish agency brands with the capability to establish a regular competitive range of online booking prices. For e-business opportunities, pricing strategies help SMEs win over customers, develop competitiveness, and grow margins for tour and travel services. This proposition is seconded by a study by McCormick (2018) which stated that according to The Global Business Travel Association (GBTA) in 2018, worldwide travel prices dramatically grew by 3.5 % due to high demands and rising oil prices. Anent this, Chang (2007) discovered that the Internet makes it easier for SMEs to compare prices that otherwise require physical visits to stores which is a time-consuming and costly process.

Accessibility and Connectivity: With regards to accessibility and connectivity, Croom and Johnson (2003) affirmed that e-business allows firms to access worldwide suppliers, thus enjoying better prices, better quality, and better delivery. In a different study, Zakaria and Hashim (2004) think that e-business allows for effective multiple concurrences of order handling compared to telephone orders, which is time-saving. Additionally, e-business allows firms to be able to cast a wider net of markets and increase their sales (Abu Abid et al., 2011), aids customer service, and helps increase sales (Kidd, 2001). Furthermore, because of wide and fierce competition, SMEs must work hard to achieve a competitive advantage to grab a solid market share. Any business aiming to compete on the larger or global stage must set gaining competitive advantage as a major goal and must realize technology can be of great assistance (Lorette, 2013).

Human Resource Development: E-business can upgrade the facilities and equipment, keep and expand market share, encounter and avert competition, enhance employees' compensation and benefits, and use novel promotional strategies to entice more customers. Vucetic (2012) his study identified the relationship between human resources and servicing of travel agencies' market niches which is an effort to develop superior values for consumers via qualification structure, improvement of employees, provision of high-quality training, advocating accepting the lifelong learning concept, engagement in the motivational concepts, stimulation of innovativeness of the employees were recorded as the contributing competitive advantages factors for Montenegro travel agencies. Training and development activities have led to better performance and are considered essential tools for developing employees and the organization's future growth (Omar et al., 2009). Malaysia faces the challenge of a lack of workforce planning and insufficient investment in staff training and development. However, human resources transformation can be achieved via three strategies technological investment, cross-border talent recruitment and human resources shared services (Pain, 2015). On top of that Al Hrou and Mohamed (2014) mentioned in their study that it is important to encourage productivity and employees' attitudes to further improve the human resources of the hospitality and tourism sector.

Therefore, recognizing the importance of web technology and e-business adoption in achieving competitive advantage, it is posited that:
H2: Web technology and e-business adoption are related to competitive advantage.

Innovational, Organisational and Environmental (IOE characteristics) and Competitive Advantage (CA) Literature: This paper explores the intricate relationship between three dimensions of IOE characteristics and their impact on achieving Competitive Advantage (CA). Innovation, defined as changes in products, processes, or organizations derived from existing technologies applied in new contexts, is a significant determinant of CA. Innovation relies on human capital, creativity, and research work. Successful innovation necessitates focusing on customers and adding value, making it vital for organizations (Zizlavsky, 2011; Zemplinerova, 2010; Molina-Morales et al., 2011; Martin-de Castro et al., 2013; Hana, 2013; Bartes, 2009). Travel agencies can gain CA by embracing technological innovations like web technologies and e-business, leading to cost-effective products, improved branding, and enhanced quality (Mihajlovic, 2012; Braun, 2008).

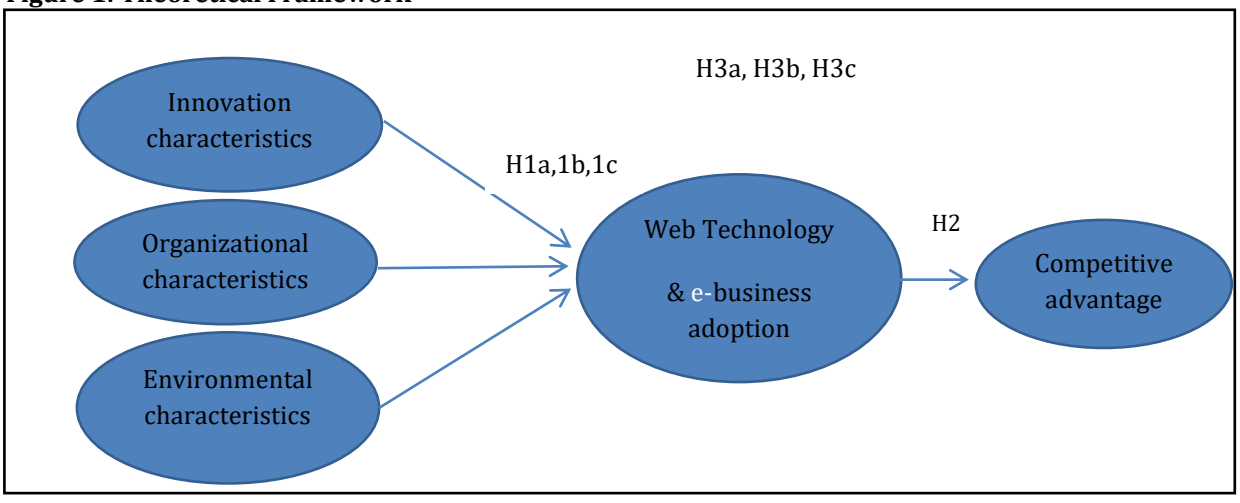
Organisational CA is achieved through tourism managers' acceptance of modern technology in their planning processes, emphasizing internal knowledge-based resources, and competencies (Moutinho, 2002; Ziethamal, 2001; OECD, 2013). Shared understanding within an organization plays a vital role in focusing efforts and increasing the likelihood of success (King, Fowler, & Ziethamal, 2001). The adoption of web technologies and e-business can help traditional travel agencies access global markets, expand services, and meet customer expectations (Golob & Regan, 2001; Mamaghani, 2009; Kenneth et al., 2012).

Environmental characteristics require an innovative culture, specialist teams, flexibility, openness to change, and effective internal communication (Molina-Morales et al., 2011). Achieving commendable work performance and employee engagement is closely linked to loyalty and fulfilling organizational goals (Lukasova, 2010). Adopting ICT and integrating it into the global supply chain can help SMEs in developing nations remain competitive (Kushwaha, 2011). Incorporating these three dimensions of IOE characteristics can significantly influence CA for Small and Medium Travel Agencies (SMTAs). By fostering innovation, optimizing organizational resources, and adapting to environmental changes, SMTAs can enhance their competitive positions in the tourism industry. Therefore, based on several inconsistent findings of previous researchers and the importance of incorporating IOE characteristics in achieving competitive advantage for SMTAs, it is hypothesized that:
H3a: Innovational Characteristics significantly influence Competitive Advantage.
H3b: Organisational Characteristics significantly influence Competitive Advantage.
H3c: Environmental Characteristics significantly influence Competitive Advantage.

2. Theoretical Framework

Based on the research objectives, a literature review on IOE determinants on web technology & e-business adoption, and the analysis of the relationship with competitive advantage supported by previous researchers, the framework on which this research is founded is shown below:

Figure 1: Theoretical Framework



3. Methodology

A quantitative analysis has been employed for the study. Data were collected through a formal survey using a structured questionnaire method. After the questionnaire had undergone a pilot study, some of the tools were enhanced to confirm that the instrument was able to yield high internal reliability. The finalized version of the survey set was then disseminated to selective respondents.

As an attempt to obtain more data, the questionnaire was also disseminated in hard copy to selected companies via the drop-and-pick method of collection by visiting their business premises. These companies had been engaged via phone calls before the visit to prevent any potential inconvenience. Interestingly, it is learned that paper-based survey instruments recorded a higher percentage of respondents compared to their online counterparts. Overall, the entire response rate for this study is 71.7 %, representing 323 respondents from both online and paper-based instruments from 450 selected travel agencies in Malaysia. For the inferential analysis, this study used analysis of the AMOS program using several multivariate techniques such as confirmatory factor analysis, correlation analysis, and multiple regression analysis. The questionnaire consists of 139 items from 23 constructs; therefore, factor analysis is useful to be deployed to avoid any redundant factors by focusing on key items (factors) rather than considering meaningless factors for the study.

Table 1: KMO and Bartlett's Test of All Constructs

Bartlett's Test of Sphericity				
Construct	**KMO**	**Approx. Chi-Square**	**Distance of Freedom (df)**	**P value (0.00)**
ICs	0.770	527.872	6	0.000
OCs	0.877	1059.561	10	0.000
ECs	0.709	388.826	3	0.000
WEA	0.864	1056.034	10	0.000
CA	0.897	1501.100	15	0.000

SPSS Version 23 was used to perform an Exploratory Factor Analysis (EFA) on a sample of 323 respondents, according to Hair et al.'s (2010) recommendation for a sample size of 100 or more. The Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity were employed to evaluate sample adequacy, with KMO values surpassing the 0.5 threshold, indicating data suitability. Bartlett's test demonstrated statistical significance.

Data analysis followed a two-step Structural Equation Modelling (SEM) procedure, as per Enderson and Gerbing's (1988) proposal. SEM is a statistical method for modelling multivariate relationships amongst latent constructs, enabling confirmatory assessment of measurement and structural models.

The study confirmed convergent validity as all item loadings exceeded the acceptable threshold. Confirmatory Factor Analysis (CFA) was conducted on responses from five Malaysian regions to assess construct homogeneity. A second-order CFA confirmed WEA as the main construct with three underlying sub-constructs related to IOE characteristics. Items with loadings below 0.5, recommended by Hair et al. (2010), were removed. To enhance model fitness, item parcelling techniques were employed due to the large sample size. Overall, the study employed a rigorous approach, combining EFA, CFA, and SEM, to revalidate the measurement model for the WEA construct and its dimensions.

Table 2: Model Fit Indices for the WEACA model

Indicators*	**Chi-Square**	**Df**	**Chi-Square/df**	**CFI**	**TLI**	**GFI**	**AGFI**	**RMSEA**
	684.205	220	3.110	.917	.904	.840	.799	0.082

Notes: *model fit indicators

After several modifications were made for both first and second-order CFA, the Measurement Model yielded a good model fit of indices as follows: Chi-Square (2) = 696.660, df = 220, p = .000, Relative 2 (2/df) = 3.167, AGFI = .797, GFI = .838, CFI = .913, IFI = .913, NFI, .878, TLI = .900, RMSEA = .082. From these Goodness-of-Fit indices, it is decided that the Measurement Model fits the data for this analysis as mentioned by Hair et al.

(2010), as it was suggested that, if any 3 – 4 of the Goodness-of-Fit indices (any of the values from Dff, Chi-Square, CFI, TLI, GFI, AGFI or RMSEA) as in the case of this study shown in Table 2, showed data fit for the development of MM. Moreover, the Cronbach's Alpha values for the entire measured variables were above .70 signifying the reliability of the data.

Table 3: Standardised Regression Weight in the Hypothesised Path Model

Hypothesised Relationships			B	S. E	β	*CR*	*P*	*Results*
WEA_ADPT	<---	INNO_XTICS (ICs)	.495	.214	.259	2.310	.021	S
WEA_ADPT	<---	ORG_XTICS(OCs)	.770	.172	.369	4.465	.000	S
WEA_ADPT	<---	ENV_XTICS (ECs)	-.100	.178	-.064	-.562	.574	NS
COM_ADV	<---	ENV_XTICS (ECs)	.239	.092	.233	2.609	.009	S
COM_ADV	<---	INNO_XTICS (ICs)	.758	.120	.599	6.313	.000	S
COM_ADV	<---	ORG_XTICS (OCs)	-.235	.087	-.170	-2.683	.007	S
COM_ADV	<---	WEA_ADPT (WEA)	.146	.033	.220	4.470	.000	S

R^2 for WEA_ADPT = .27; R^2 for COM_ADV = .65

Note: WEA_ADPT: - Web-technology & E-Business Adoption; COM_ADV: - Competitive Advantage; INNO_XTICS: - Innovation Characteristics; ORG_XTICS: - Organisation Characteristics; ENV_XTICS: - Environmental Characteristics; B: - Unstandardised Regression Weight; S.E: - Standard Error; β: - Standardised Regression Weight; CR: - Critical Ratio; p: - Significant – *p*.

The Modified Structural Model (Table 3) shows that ICs significantly predict WEA (β = .259, CR = 2.310, p < .05), supporting H1a. Likewise, OCs, including location, e-resources, top management support, data security, confidentiality, and training, significantly contribute to WEA (β = .369, CR = 4.465, p < .05), validating H1b. However, ECs do not have a significant relationship with WEA (β = -.064, CR = -.562, p > .05), refuting H1c. Conversely, WEA is a significant predictor of CA (β = .220, CR = 4.470, p < .05), confirming H2.

Furthermore, ICs significantly predict CA (β = .599, CR = 6.313, p < .05), supporting H3a. OCs also contribute significantly to CA (β = -.170, CR = -2.683, p < .05), endorsing H3b. Finally, ECs are significantly related to CA (β = .233, CR = 2.609, p < .05), validating H3c. This indicates that competitive pressure, external support, and government support all play a role in enhancing the competitive advantage of SMTAs in Malaysia.

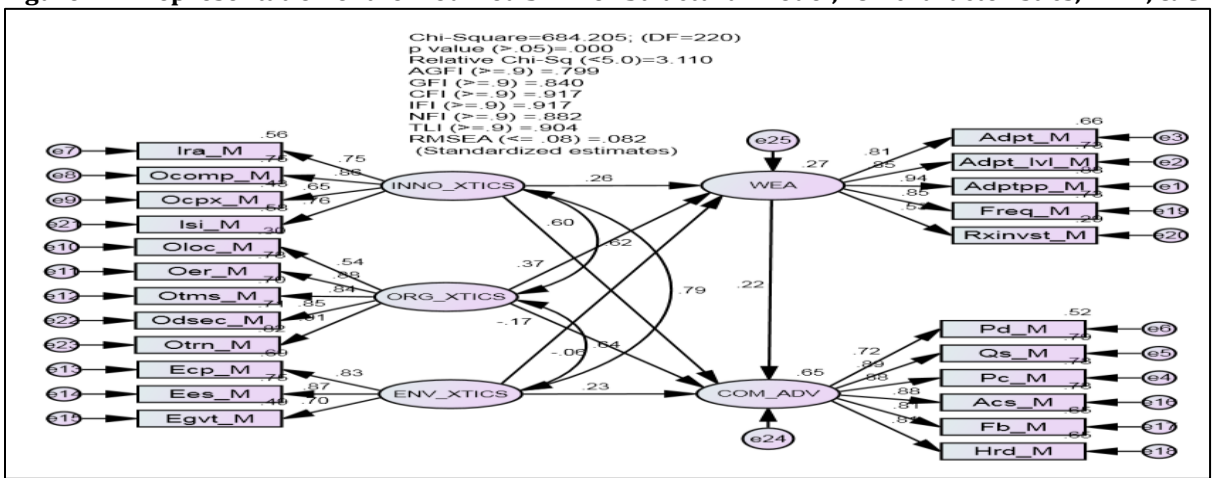
4. Results and Discussion

Descriptive Analysis of the Company Profile: The descriptive analysis of the company profiles in this study involved data collection from 323 owners-managers of Small and Medium Tourism-Related Businesses (SMTAs) across five regions in Malaysia. Google Forms and site visits were used to engage respondents, achieving a commendable 71.7 percent response rate out of 450 distributed questionnaires (including 100 via Google Forms). Roughly 28 percent of respondents did not fully answer the questions, largely due to missing values or uncertain responses, which were addressed using Missing Value Analysis (MVA) in SPSS, revealing no missing value cases.

The analysis of business profiles showed that the participating companies are predominantly engaged in both online and offline operations (68%) and are typically micro-businesses with 1-5 employees. The primary focus of these businesses is on Inbound, Outbound and Ticketing Services (41%). A significant portion holds private limited company status (34%) and has been in operation for six to twenty years (50%). Geographically, 39% of these businesses are located in the central region of the country. In terms of investment, 47% have invested up to five million, with the majority reporting annual revenues of less than RM 300,000. Additionally, 35% of respondents reported generating internet sales in addition to offline sales and payment systems.

The Contribution of IOE Characteristics to Web Technology & E-Business Adoption and Competitive Advantages: This study achieved two objectives. Firstly, it investigated the impact of IOE characteristics on the correlation between six web technology dimensions and e-business adoption. Secondly, it examined the relationship between web technology, e-business adoption, and six competitive advantage dimensions, providing a comprehensive analysis of these interconnected factors.

Figure 2: A Representation of the Modified SEM for Structural Model; IOE characteristics, WEA, & CA



The validity of the model was evaluated through SEM analysis, displayed in Figure 2. Findings revealed that standardized path coefficients provided substantial support for the proposed hypotheses, signifying significant connections between predictor and criteria variables. Consequently, hypotheses H1, H2, and H3 were substantiated.

Moreover, the Structural Model disclosed that around 27% of the variance in WEA and a substantial 65% of the variance in CA could be elucidated by the predictor variables linked to IOE characteristics within the Structural Equation Modelling.

Objective one of this paper is derived from the examination of determinants of web technology adoption amongst Small and Medium-sized Technology-based Enterprises (SMEs) in Malaysia's travel and tour industry. It delves into factors within the innovational context (ICs), organizational context (OCs) and environmental context (ECs), and the relationship between web technology adoption (WEA). The study aims to provide insights into the factors influencing technology adoption and their implications for the industry.

Three key determinants within the innovational context of relative advantage, complexity, and social influence were tested. Relative advantage refers to the perception that web technology adoption offers a competitive edge. The findings suggest that SME owner-managers in Malaysia understand the significance of internal factors of IOE characteristics and web technologies and e-business practices for business growth, consistent with previous research (Agarwal & Prasad, 1997; Kwon & Zmud, 1987). Relative advantage is a robust predictor of WEA amongst SMEs (Chong & Pervan, 2007).

Compatibility is significantly attributed to WEA. Web technology and e-business are said to be compatible with a firm's values, beliefs, and business needs. The findings of this paper are under previous studies by Kilangi (2012) and Khemthong & Roberts (2006), as it has been revealed that SME owner-managers are concerned with WEA and are constantly updating business needs based on digital technology via sophisticated gadgets, smartphones, travel port, and digital information kiosk. The findings are, however, in contrast with Hussein et al (2012) who discovered a non-significant relationship between compatibility and innovation adoption. It is believed that those SME firms that ignore innovative technologies will minimize their changes to strive and adapt to the dynamic needs of the market environment. Complexity is a significant determiner of WEA related to the perceived difficulty of adopting web technologies. While web technologies are user-friendly, challenges arise due to a lack of skills and training. SMEs need to invest in employee

training to overcome these challenges. Notwithstanding, Kilangi (2012) found no significant relationship between complexity and web technology adoption. Social influence, such as the preferences of modern travellers, significantly predicts WEA. Social media not only enables tourists and travellers to access and share information but also fosters meaningful connections and networking, facilitates thought-sharing, supports product and service evaluation, and influences tourism-related decision-making (Mariani et al., 2019; Wang et al., 2002). This is aligned with findings by Kilangi (2012) and Khemthong and Roberts (2006), emphasizing SMEs' concern for WEA to stay relevant in the market.

From the organizational perspective, three determinants within the organizational context are examined: location, e-resources, and top management support. Location significantly influences WEA, with the Malaysian government promoting ICT initiatives and providing widespread broadband access. Telecommunication providers offer high-speed internet, but affordability remains a concern.

Consistent with prior research (Kuan & Chau, 2001; Ramdani et al., 2009), it has been discovered that e-resources, including IT infrastructure and online databases, have a substantial impact on WEA, and they enable businesses to provide updated information and personalized experiences to travellers. Top management support is a crucial determinant, reflecting the commitment of management to technology development. It promotes user support, training, and incentives, echoing findings by Bennett and Savani (2011), and Thiesse et al. (2011). Data confidentiality is also significant, as consumers in Malaysia prefer online payments due to reliable banking services (Tan et al., 2008). However, challenges related to data protection and legal frameworks hinder WEA adoption (Hoi, 2006).

Training and human capital investment significantly predicts WEA. Training programs improve competency and help employees respond to online orders and traveller inquiries effectively. These findings conform to previous research done by Dakhli and De Clercq (2004), and Barczak and Wilemon (2003). The profound changes ushered in by Information and Communication Technologies (ICT) have significantly reshaped business operations, subsequently prompting alterations in administrative processes and procedures (Hooi, 2012).

From an environmental perspective, the environmental context includes competitive pressure, external support, and government support. Competitive pressure positively influences WEA, pushing SMTAs to adopt web technologies for cost efficiency and improved services, as suggested by Porter and Millar (1985). External support from business partners, suppliers, and associations, does not significantly predict WEA. SMEs do not rely on external support for technology adoption, as they often lack resources and prefer localized operations. Government support also lacks a significant relationship with WEA. Despite the government’s initiatives to promote technology adoption, domain and technology registration costs remain barriers.

This updated the multifaceted determinants of web technology adoption amongst SMTAs in Malaysia's travel and tour industry. Relative advantage, complexity, social influence, location, e-resources, top management support, data confidentiality, training, competitive pressure, and government support, all play distinct roles in influencing WEA.

While some determinants are aligned with previous research, such as relative advantage and top management support, others, like location and e-resources, reflect the unique challenges and opportunities faced by Malaysian SMEs. These findings underscore the need for tailored strategies to promote web technology adoption in the travel and tour industry, the result of which may enhance competitiveness and meet the demands of modern travellers in the digital age.

Figure 3 depicts the results of the Modified Structural Model for WEACA, highlighting the key factors influencing web technology and e-business adoption (WEA) and competitive advantage (CA). These factors include ICs, OCs, and ECs, with WEA itself contributing to CA. The model consists of three predictive constructs based on two criteria constructs.

The Relationship between Web Technology Adoption and Competitive Advantage: Objective two of the study investigates the relationship between Web Technology Adoption (WEA) and Competitive Advantage (CA) in Small and Medium-sized Technology-based Enterprises (SMTAs) in Malaysia. Using linear regression analysis, the research demonstrates a significant and positive correlation between WEA and CA across various dimensions, including product development, service quality improvement, effective communication, wider distribution channels, enhanced firm branding, and market expansion.

The findings highlight the pivotal role of technology adoption in gaining a competitive edge. To succeed in the travel and tour industry, SMTAs should prioritize building ICT capabilities, diversifying products, refining services based on real-time feedback, optimizing online pricing, and enhancing firm branding. Challenges remain, primarily due to limited online business development knowledge and skills, but the study recommends strategic planning, training, and incentives to overcome these hurdles.

In conclusion, embracing web technology and e-business is crucial for SMTAs to excel globally, with user-friendly systems, comprehensive training, and profit optimization as key factors for success.

5. Conclusion and Recommendations

The travel industry is no stranger to the winds of change, and today, the digital revolution is sweeping through the sector. Small and Medium Travel Agencies (SMTAs) in Malaysia, a crucial segment of this industry, find themselves at a pivotal juncture. A recent study sheds light on their adoption of web technology and e-business practices, revealing intriguing insights into their current state, growth potential, and the challenges they face.

The study's findings underscore both the opportunities and challenges faced by SMTAs. Notably, many of these agencies have been relatively conservative in their investments in web technology and e-business, primarily conducting business within local boundaries. However, the positive aspect appears when we learn that over 50% of respondents have embraced web technology and e-business at a more advanced level, leveraging it for communication, order management, and customer updates. They have even embraced online booking and payment systems.

One of the primary challenges lies in the knowledge gap and skill shortage when it comes to developing online business platforms. Bridging this gap appears as a crucial step toward realizing the full potential of web technology and e-business for SMTAs.

To succeed in the ever-changing tourism industry, Small and Medium Travel Agencies (SMTAs) in Malaysia must consider several critical recommendations. Firstly, they should prioritize skills development, ensuring their teams are proficient in online business platforms and digital marketing. Additionally, engaging with external stakeholders – including government agencies and suppliers, is essential to garner support for web technology adoption. Higher Learning Institutions should revise their curricula to include ICT-related subjects, preparing future graduates for the industry's digital demands. Industry players must invest in comprehensive training programs to bridge the knowledge gap and promote digital innovation. Lastly, developing a clear strategic business plan, emphasizing Innovational, Organisational, and Environmental (IOE) characteristics, can significantly enhance competitiveness.

In an era defined by digital transformation, SMTAs in Malaysia have a choice to embrace web technology and e-business as catalysts for growth or risk falling behind in a rapidly evolving industry. The path forward is clear; the tools are at their disposal. The future belongs to those who can adapt and innovate, and for SMTAs, that future starts with embracing the potential of web technology and e-business. This study's findings supply valuable insights and a roadmap for them to embark on this transformative journey.

References

Abu Abid, A., Rahim, M. M. & Scheepers, H. (2011). Experienced Benefits and Barriers of E-Business Technology Adoption by SME Suppliers. Communications of the IBIMA, 1–11. https://doi.org/10.5171/2011.791778

Afzal, H. (2007). EC Adoption and Critical Success Factors of EC in SMEs in Iran. Lulea University of Technology Division of Industrial Marketing and E-Commerce.

Al Hrou, S. A. & Mohamed, B. (2014). Human Resource Management Practice Tourism and Hotel Industry. *SHS Web of Conferences*, 12, 01076. https://doi.org/10.1051/shsconf/20141201076

Alam, S. S. & Mohammad Noor, M. K. (2009). ICT Adoption in Small and Medium Enterprises: An Empirical Evidence of Service Sectors in Malaysia. *International Journal of Business and Management,* 4(2). https://doi.org/10.5539/ijbm.v4n2p112

Alvarez, S. A. & Busenitz, L. W. (2007). The entrepreneurship of resource-based theory. In Entrepreneurship: Concepts, Theory and Perspective (pp. 207–227). https://doi.org/10.1007/978-3-540-48543-8_10

Andreu, L., Aldás, J., Bigné, J. E. & Mattila, A. S. (2010). An analysis of e-business adoption and its impact on relational quality in travel agency–supplier relationships*. Tourism Management*, 31(6), 777–787. https://doi.org/10.1016/j.tourman.2009.08.004

Barczak, G. & Wilemon, D. (2003). Team member experiences in new product development: views from the trenches. *R and D Management,* 33(5), 463–479. https://doi.org/10.1111/1467-9310.00311

Beck, R., Wigand, R. T. & König, W. (2005). The Diffusion and Efficient Use of Electronic Commerce amongst Small and Medium-sized Enterprises: An International Three-Industry Survey. *Electronic Markets*, 15(1), 38–52. https://doi.org/10.1080/10196780500035282

Bennett, R. & Savani, S. (2011). Retailers' preparedness for the introduction of third wave (ubiquitous) computing applications: A survey of UK companies, *International Journal of Retail & Distribution Management*, 39(5), 306-325. https://doi.org/10.1108/09590551111130748

Braun, P. (2008). Creating values to tourism products through tourism networks and clustering: uncovering destination value chain. Business Networking-Trends and Cases. Icafai Press.

Bruque, S. & Moyano, J. (2007). Organizational determinants of information technology adoption and implementation in SMEs: The case of family and cooperative firms. *Technovation,* 27(5), 241–253. https://doi.org/10.1016/j.technovation.2006.12.003

Chong, S. & Pervan, G. (2007). Factors Influencing the Extent of Deployment of Electronic Commerce for Small and Medium-Sized Enterprises. *Journal of Electronic Commerce in Organizations*, 5(1), 1–29. https://doi.org/10.4018/jeco.2007010101

Croom, S. & Johnston, R. (2003). E-service: enhancing internal customer service through e-procurement. *International Journal of Service Industry Management*, 14(5), 539-55.

Dakhli, M. & De Clercq, D. (2004). Human capital, social capital, and innovation: a multi-country study. *Entrepreneurship & Regional Development,* 16(2), 107–128. https://doi.org/10.1080/0898562041000167783 5

Dupeyras, A. & Maccallum, N. (2013). Indicators for Measuring Competitiveness in Tourism: A guidance document. OECD Tourism Papers, 2013/02, 1–62. https://doi.org/10.1787/5k47t9q2t923-en

Ferguson, N. (2010). E-Commerce-e-Business Cost Benefit Remarkable Ideas Ltd. PO Box 633, Tokoroa 3444, Waikato, New Zealand

Ghobakhloo, M., Hong, T. S., Sabouri, M. S. & Zulkifli, N. (2012). Strategies for Successful Information Technology Adoption in Small and Medium-sized Enterprises. *Information*, 3(4), 36–67. https://doi.org/10.3390/info3010036

Golob, T. F. & Regan, A. C. (2001). Impacts of information technology on personal travel and commercial vehicle operations: Research challenges and opportunities. *Transportation Research Part C: Emerging Technologies*, 9(2), 87–121. https://doi.org/10.1016/S0968-090X(00)00042-5

Gono, S., Harindranath, G. & Berna Ozcan, G. (2013). Challenges of ICT Adoption by South African SMEs: A study of Manufacturing and Logistics Firms. Annual Conference of The Institute for Small Business and Entrepreneurship, 1–23. https://doi.org/10.1080/15332860802086367

Grandon, E. E. & Pearson, J. M. (2004). Electronic commerce adoption: An empirical study of small and medium US businesses. *Information and Management,* 42(1), 197–216. https://doi.org/10.1016/j.im.2003.12.010

Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (2010). Multivariate Data Analysis: A Global Perspective (7th Edition). Pearson Prentice Hall, New Jersey.

Hooi, L. W. (2006). Implementing e-HRM: The readiness of small and medium-sized manufacturing companies in Malaysia. *Asia Pacific Business Review,* 12(4), 465–485. https://doi.org/10.1080/13602380600570874

Houghton, K. A. & Winklhofer, H. (2004). The effect of websites and e-commerce adoption on the relationship between SMEs and their export intermediaries. *International Small Business Journal*, 22(4), 369–388. https://doi.org/10.1177/0266242604044305

Hussein, R., Ennew, C. & Kortam, W. (2012). The Adoption of Web-Based Marketing in the Travel and Tourism Industry: An Empirical Investigation in Egypt. Journal of Innovation Management in Small & Medium Enterprises, 2012, 1–23. https://doi.org/10.5171/2012.143325

Iacovou, C. L., Benbasat, I. & Dexter, A. S. (1995). Electronic data interchange and small organizations: Adoption and impact of technology. *MIS Quarterly,* 19(4), 465–485. Retrieved from http://www.jstor.org/stable/249629.

Khemthong, S. & Roberts, L. M. (2006). Adoption of The Internet and Web-technology for Hotel Marketing: A Study of Hotels in Thailand. *Journal of Business Systems, Governance and Ethics,* 1(2), 47–66. https://doi.org/688992359828482

Kidd, P. (2023, September 16). eBusiness Benefits [Review of eBusiness Benefits]. Cheshire Henbury. https://www.cheshirehenbury.com/ebusiness/ebbenefits.html

Kilangi, A. M. (2012). The Determinants of ICT Adoption and Usage among SMEs: The Case of Tourism Sector in Tanzania. PhD Thesis, Vrije Univ.

Kuan, K. K. Y. & Chau, P. Y. K. (2001). A perception-based model for EDI adoption in small businesses using a technology-organization-environment framework. *Information and Management*, 38(8), 507–521. https://doi.org/10.1016/S0378-7206(01)00073-8

Kushwaha, G. S. (2011). Competitive Advantage Through Information and Communication Technology (ICT) Enabled Supply Chain Management Practice. *International Journal of Enterprise Computing and Business Systems,* 1(2).

Lee, J. & Runge, J. (2001). Adoption of Information Technology in Small Business: Testing Drivers of Adoption for Entrepreneurs. *Journal of Computer Information Systems,* 42(1), 44–57. https://doi.org/10.1080/08874417.2001.11647038

Levy, M. & Powell, P. (2003). Exploring SME, the Internet adoption: towards a contingent model. *Electronic Markets*, 13(2), 173–181. https://doi.org/10.1080/1019678032000067163

Lorette, K. (2013). The Advantages of E-Business, Houston Chronicle P.O. Box 4260 Houston, Texas 77210-4260

Mamaghani, F. (2009). Impact of E-commerce on Travel and Tourism: An Historical Analysis*. International Journal of Management*, 26(3), 365–376.

Mariani, M., Styven, M. E. & Ayeh, J. K. (2019). Using Facebook for travel decision-making : an international study of antecedents. International Journal of Contemporary Hospitality Management https://doi.org/10.1108/IJCHM-02-2018-0158

Martin, F. M., Ciovica, L. & Cristescu, M. P. (2013). Implication of Human Capital in the Development of SMEs through the ICT Adoption. *Procedia Economics and Finance,* 6, 748–753. https://doi.org/10.1016/S2212-5671(13)00198-6

Mehrtens, J., Cragg, P. B. & Mills, A. M. (2001). A model of Internet adoption by SMEs*. Information & Management*, 39(3), 165–176. https://doi.org/DOI: 10.1016/S0378-7206(01)00086-6

Mihajlović, I. (2012). The Impact of Information and Communication Technology (ICT) as a Key Factor of Tourism Development on the Role of Croatian Travel Agencies. *International Journal of Business and Social Science,* 3(24), 151–159.

McCormick, M. (2018, June 27). Pricing Strategies for Tour Operators and Online Travel Agents. Blog.blackcurve.com. https://blog.blackcurve.com/pricing-strategies-for-tour-operators-and-online-travel-agents

Moutinho, L. (2002). Strategic Management in Tourism. CABI Publishing, UK.

Pain, R. (2015, May 6). Malaysia's Untapped Competitive Advantage: HR Transformation. SSON. 2015

Parker, C. M. & Castleman, T. (2009). Small firm e-business adoption: a critical analysis of theory. *Journal of Enterprise Information Management*, 22(1/2), 167–182. https://doi.org/10.1108/17410390910932812

Poon, S. & Swatman, P. M. C. (1999). An exploratory study of small business. The Internet commerce issues. *Information and Management,* 35(1), 9–18. https://doi.org/10.1016/S0378-7206(98)00079-2

Poorangi, M. M., Khin, E. W. S., Nikoonejad, S. & Kardevani, A. (2013). E-commerce adoption in Malaysian small and medium enterprises practitioner firms: A revisit on Rogers' model. *Anais Da Academia Brasileira de Ciencias*, 85(4), 1593–1604. https://doi.org/10.1590/0001-37652013103512

Porter, M. E. (1985a). Competitive Advantage. Competitive Advantage: Creating and Sustaining Superior Performance. https://doi.org/10.1182/blood-2005-11-4354

Premkumar, G. & Roberts, M. (1999). Adoption of new information technologies in rural small businesses. *Omega*, 27(4), 467–484. https://doi.org/10.1016/S0305-0483(98)00071-1

Ramdani, B., Kawalek, P. & Lorenzo, O. (2009). Knowledge management and enterprise systems adoption by SMEs: Predicting SMEs' adoption of enterprise systems. *Journal of Enterprise Information Management*, 22(1/2), 10–24. https://doi.org/10.1108/17410390910922796

Seyal, A. H. & Rahman, Mohd. N. A. (2003). A Preliminary Investigation of E-Commerce Adoption in Small & Medium Enterprises in Brunei. *Journal of Global Information Technology Management,* 6(2), 6–26. https://doi.org/10.1080/1097198x.2003.10856347

Tan, K. S. & Eze, U. C. (2008). An Empirical Study of the Internet-Based ICT Adoption Among Malaysian SMEs. *Communications of the IBIMA,* 1, 1–12.

Thiesse, F., Staake, T., Schmitt, P. & Fleisch, E. (2011). The rise of the "next-generation bar code: an international RFID adoption study. Supply Chain Management: *An International Journal*, 16(5), 328–345. https://doi.org/10.1108/13598541111155848

Thong, J. Y. L. (1999). An Integrated Model of Information Systems Adoption in Small Businesses. *Journal of Management Information Systems*, 15(4), 187–214. https://doi.org/10.1080/07421222.1999.11518227

Twelfth Malaysia Plan, 2021-2025. (n.d.). Rmke12.Ekonomi.gov.my. https://rmke12.ekonomi.gov.my/en

Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a unified view. *MIS Quarterly,* 27(3), 425–478. https://doi.org/10.1017/CBO9781107415324.004

Zakaria, M. & Hashim, M. K. (2004). Perceptions of E-business among Malaysian SMEs: A recent survey. *Malaysian Management Review,* 39(1), 86-93.

Zaremohzzabieh, Z., Samah, B. A., Muhammad, M., Omar, S. Z., Bolong, J., Hassan, S. B. H. & Mohamed Shaffril, H. A. (2016). Information and Communications Technology Acceptance by Youth Entrepreneurs in Rural Malaysian Communities: The Mediating Effects of Attitude and Entrepreneurial Intention. *Information Technology for Development,* 22(4), 606–629. https://doi.org/10.1080/02681102.2015.1128384

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Exploring the Research Landscape of Turnover Intention: A Bibliometric Analysis

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Abstract: Employee turnover intention remains a critical area of interest for organizational researchers and practitioners, as it directly impacts workforce stability and productivity. This study presents a comprehensive bibliometric analysis of turnover intention from 1957 to 2023 to uncover key trends, influential authors and institutions, and future directions. A systematic literature search was conducted using the Scopus database, resulting in a large dataset of scholarly articles spanning several decades. The analysis conducted in this paper demonstrates a noteworthy increase in the body of research on turnover intention across time, underscoring its enduring significance in organizational studies. Through mapping the research landscape, this study has effectively identified a distinct cluster of scholarly research focusing on turnover intention, job satisfaction, personnel management, and personnel turnover. The trends, influential authors, and institutions of turnover intention fields are identified through citation analysis, shedding light on seminal works and leading contributors in the field. This bibliometric analysis enhances the current body of knowledge by providing a contemporary overview of the literature on turnover intention. It identifies critical research contributions and offers guidance for future research. Finally, this study provides a fundamental basis for scholars who aim to further the area, enhance techniques for organizational retention, and cultivate more satisfying work environments for employees.

Keywords: *Bibliometric Analysis, Trends, Turnover Intention, Citation Network, Scopus.*

1. Introduction and Background

Employee turnover is mainly a topic of interest to Human Resource Management (HRM) scholarship and practice. The withdrawal of individuals from a company can disrupt internal operations and necessitate recruiting, hiring, and training new personnel (Clercq, 2022). Understanding the underlying reasons why employees develop a sense of intention to leave their organizations is of utmost importance, as it serves as a precursor to their subsequent turnover actions (Tett & Meyer, 1993; Tse et al., 2013). Furthermore, many scholars encounter difficulties investigating employee turnover due to its susceptibility to several uncontrolled variables, including employment change and status (Li et al., 2021). Several definitions of turnover intention have been developed through years of research on employee turnover intentions. The term "turnover intention" does not imply that an employee will resign but rather that they are considering doing so. Based on Hom et al. (2000), the most reliable predictor of actual turnover behavior is turnover intention. Following the definition developed by Tett and Meyer (1993), turnover intention is defined as an employee's tendency and readiness to leave their profession.

Extensive research has been undertaken to investigate the phenomenon of turnover intention, owing to its significant implications for business performance and productivity (Sai & Pinapati, 2023; Yin et al., 2023). The act of resigning from the business signifies discontentment in the workplace and has the potential to lead to the departure of an essential employee possessing extensive expertise and talents (Ahmad et al., 2021). Employee turnover could threaten the organization's efficiency and productivity (Das et al., 2017). This is particularly significant as it pertains to the company's ability to maintain long-term viability and attain a competitive edge in the current era of global competition (Zahra et al., 2018). Turnover intention, as conceptualized by Haque et al. (2019), refers to the inclination of individuals to depart from their current organization and pursue employment opportunities elsewhere. It serves as an antecedent to actual employee turnover.

Over the past decade, many authors, including academicians and practitioners, have published works concerning employee turnover. However, there are limited comprehensive discussions of the current trend

regarding employee turnover. In particular, the conceptual structure and emerging trends in studies of employee turnover have not been examined or addressed in depth. To facilitate an in-depth examination of the present bibliometric analysis, this research attempts to comprehensively explore the relevant scholarly literature spanning the years 1957 to 2023. The selection of bibliometric analysis as the methodology for this study was based on its reputation for being a rigorous approach to examining and evaluating enormous quantities of scientific data. This tool facilitates the examination of the dynamic intricacies within a specific discipline, shedding light on new aspects and providing valuable understanding. Therefore, this study aims to explore and assess the research on employee turnover intention and to view the development growth of this topic. In addition, the main focus of this bibliometric analysis study is to review turnover intention research through publication trends, analyze its effects based on specific indicators, and visualize and map the literature based on particular network analyses.

2. Literature Review

In the contemporary era of globalization, a significant challenge faced by many organizations is the inability to maintain a stable workforce over an extended period. Becker (1960) has drawn attention to employee turnover, positing that the inclination to leave an organization originates in employee discontent. According to Haque et al. (201), in instances where individuals experience dissatisfaction, they are likely to disengage from the organization, resulting in the loss of valuable knowledge and skills they possess. This, in turn, can have a detrimental impact on their overall performance.

Definition of Turnover Intention: Researchers have devised numerous definitions of employee turnover intention over the years. For instance, Carmeli and Weisberg (2006) defined turnover intention as the individual's anticipation of leaving the organization in the future. Takase (2010) describes turnover intention as the immediate precursor to turnover intention, which is the likelihood that the employee will quit within a specific time frame. Moreover, Chao et al. (2015) refer to turnover intention as the conscious intent of the employee to quit their position voluntarily within a specified time frame, which reflects their attitudes toward the work and organization. In addition, Zaheer et al. (2019) refer to turnover intention as the employee's willingness to leave their current position, either by transferring to a different department within the same organization or by remaining in their current job while pursuing employment with another company.

The Consequences of Employee Turnover Intention: There are numerous repercussions of turnover intention to the organization. Turnover intention is a significant indicator that describes the psychological propensity of employees to quit their current workplace and seek new job opportunities (Mowday et al., 1979). Organizations are committed to reducing employee turnover intention due to the importance of turnover intention in maintaining the internal structure of an organization (Yang et al., 2021). The turnover intention significantly impacts the organization regarding finances, knowledge, resources, and profit and may significantly impact organizational efficiency and performance (Ghosh et al., 2018). Moreover, turnover can cost twice as much as the current employee's salary because the organization must spend more on advertising, attracting, recruiting, and training employees (Guzeller & Celiker, 2020; Deraman et al., 2018).

According to Laily et al. (2020), one of the adverse effects of turnover intention is that the organization must compensate adequately for employment substitution. Karatepe (2013) noted that the negative perception of the organization, decreased employee engagement, and persistent job disenchantment in the workplace were some of the effects of turnover intention on an organization. The organization must retain the employee's talent to confront the challenges of today's intense global competition since Alias et al. (2018) asserted that the employee's talent cannot be transferred to another. Thus, the researchers argued that the organization should develop or modify the workplace dynamic and that relevant policies should be implemented or modified to prevent employees from departing (Alola et al., 2019; Lu & Gursoy, 2016; Prentice & King, 2013; Rashid et al., 2020). Understanding turnover intention rates may aid in mitigating actual turnover rates and enabling solutions to be implemented to reduce human resource loss.

As a result, the organization must reduce employee intentions to avoid incurring additional costs associated with recruiting and training new employees. Since numerous costs are associated with replacing employees,

organizations must invest in employee retention programs, such as creating plans to work better and improve working conditions (Wickramasinghe & Kumara, 2010). In addition, organizations must implement comprehensive rules and procedures to foster an environment that will keep employees. An adequately implemented retention strategy is one of the most effective recruitment techniques (Mathimaran & Kumar, 2017).

Bibliometric Analysis and Turnover Intention Research: In 1969, Pritchard defined the concept of bibliometrics, which involves using mathematical and statistical techniques in analyzing literature and various modes of communication. The term "biblio" originally derives from the fusion of the Latin and Greek words "billion," denoting a written work or record. According to Ahmi (2022), "books" in this context include scholarly works such as journal articles, conference proceedings, book chapters, editorials, review notes, and short surveys. Metrics are derived from the Latin and Greek words "metricus' or "metricos". Metrics refer to the measurement, which indicates the meter science. In this study, the researchers will measure the properties of a collection of books and articles related to turnover intention.

Although numerous studies have been conducted on the causes of employee turnover, the turnover rate continues to rise while the employee retention rate begins to decline yearly. This has increased the relevance of topic and retention issues today. To the best of our knowledge, limited research has been done focusing on turnover intention. Only 24 articles with the term turnover intention were discovered to be associated with the bibliometric study out of 3414 papers in the Scopus database. Therefore, this study implements bibliometric analysis to determine the global trend of employee turnover intention. There are three research objectives for this study. Firstly, this study seeks to determine the current publication trend in turnover intention and identify the most influential authors and institutions on turnover intention. Secondly, this study intends to measure the impact and performance within turnover intention publication by looking at the numbers of citations and h-index. Finally, this study aims to identify the density visualization of the co-occurrence of turnover intention themes.

3. Methodology

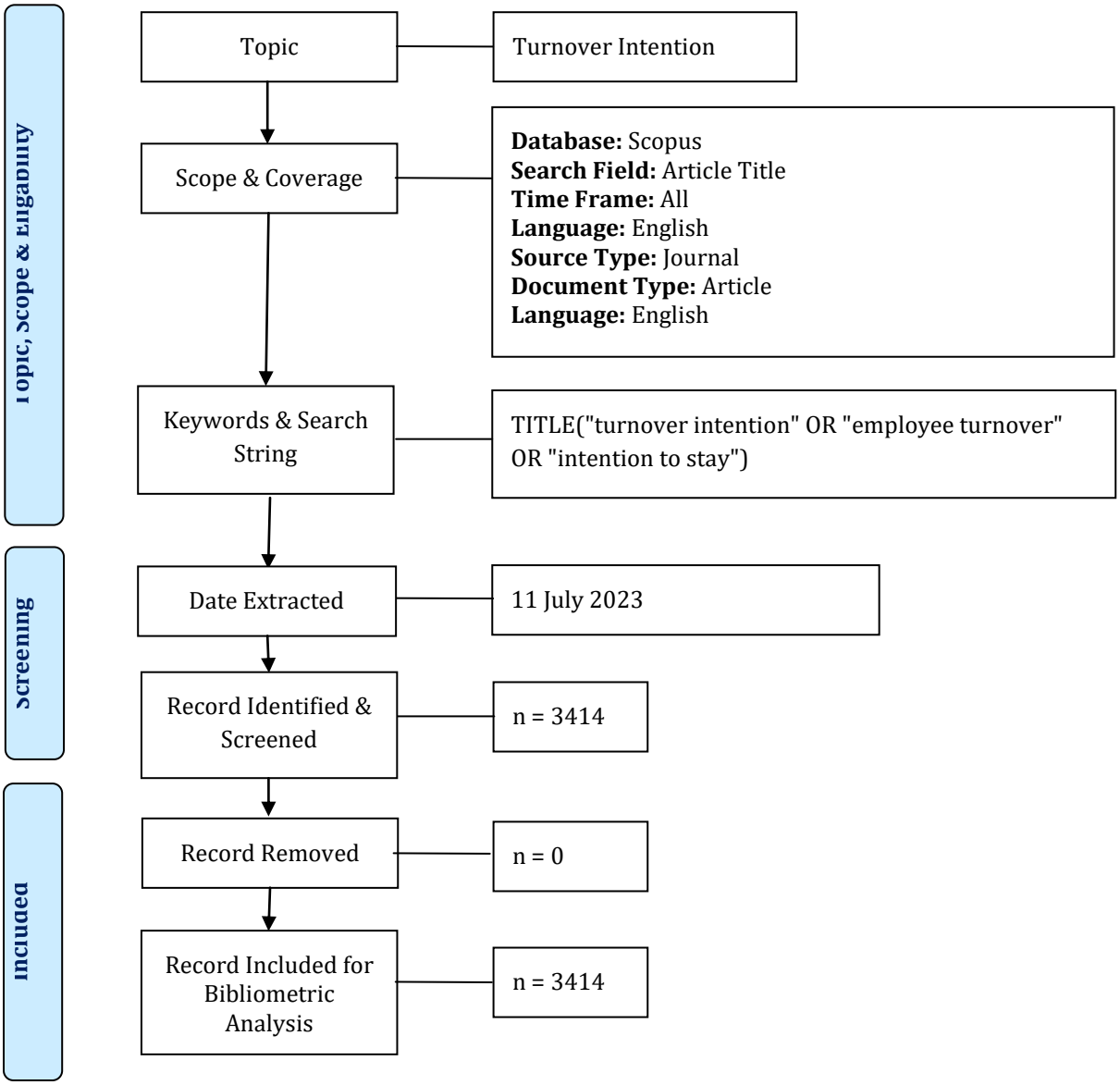
This study used bibliometric analysis to analyze the published articles on the turnover intention fields. Bibliometric analysis is a comprehensive method for exploring and interpreting vast amounts of scientific data (Donthu et al., 2021). It allows the researcher to examine the evolutionary nuances of a particular discipline while offering insight into the growing fields. The researcher's first step in conducting bibliometric analysis is to conduct a literature search by choosing the topic and obtaining the dataset for a particular problem. For this study, the researchers used the university database for Scopus to examine the changing trends in turnover intention. The researchers then utilized Harzings' Publish or Perish software to determine the number of citations and h-index to evaluate the effect of previous authors' published works.

In order to perform bibliometric analysis, the researcher employs two techniques: citation analysis and co-occurrence analysis. The first technique is based on Dzikowski (2018), which cites significant studies. This analysis includes the publication trends by year, most active authors, active institutions, and countries. The researchers' second technique is co-occurrence analysis, which will be assessed using VOSviewers software. In this co-occurrence analysis, this study will identify how the work association method determines the significant relationship between words. More profoundly, the occurrence analysis evaluates the keywords repeated among different papers and evaluates them in the same document by visualizing and mapping the knowledge networks.VOSviewers is a software application that assists in constructing and visualizing networks of documents, sources, authors, organizations, and countries (Martinez-Lopez et al., 2018).

Data Collection: Figure 1 presents the systematic protocols for getting the dataset. The process protocols pertain to the study's specific plan. The following research protocol is designed to help the researchers answer the study questions and achieve the objectives. The researchers used the modified PRISMA diagram to explain the research process in this study. Figure 1 summarizes the strategy, beginning with the study's topic, scope, and coverage, which are based on some criteria for the total number of documents to be studied in the bibliometric study.

The process described in Figure 1 began with a document search in the Scopus database, with the scope and coverage limited to article titles focusing on journals and the English language. Next, the keyword and search string process started with a screening of the fundamental paper about "turnover intention," OR "employee turnover," OR "intention to stay." The approach for gathering data from the Scopus database includes phrase searching (using double quotation marks) and Boolean operators (such as OR) in the search document box. The final result of the screening and identified records downloaded on 11 July 2023 comprised 3414 articles.

Figure 1: Systematic Protocol of Getting the Datasets



(Source: Present study)

4. Results and Discussion

This section begins by analyzing and interpreting the data gathered from the Scopus database. There are three research objectives for this study. Firstly, to determine the current publication trend in turnover intention, identify the most active authors on turnover intention, and recognize the most active institutions on turnover intention. This study's second objective is to measure the impact and performance within the

turnover intention publication by the number of citations and h-index. Finally, this study aims to identify the density visualization of the co-occurrence of turnover intention keywords. The dataset results are evaluated and described in two parts to answer the research questions and achieve the objectives.

Descriptive Analysis: This section presents the descriptive analysis results of research question one, which aims to investigate the current publication trend in turnover intention, identify the authors who have been most active in studying turnover intention, and recognize the institutions that have been most active in researching turnover intention. The evaluation of the descriptive analysis will contribute to the attainment of the first objective.

Publication Trends by Year: Table 1 shows the publication trend results by year on turnover intention. There is a total of 3414 articles from the year 1957 until 2023. The first research on turnover intention, entitled need satisfactions and employee turnover, by Gong et al. (1957), was published in 1957. Even though the first study of turnover intention was documented in 1957, Table 2 reveals that the number of studies on the subject began to increase after 2004 and increased in 2022 with a total of 488 publications. From 2004 to 2022, there has been a rise in studies on turnover intention and related organizational behaviors for various reasons, including the growing importance of human resources. Organizations began to pay more attention to employee turnover and retention as they recognized the vital role of human resources in their success. High turnover rates can be expensive in terms of recruiting, training, and lost productivity, driving employers to look for solutions and tactics to reduce turnover intention.

Besides that, it is anticipated that the increased number of publications is due to the greater emphasis on employee's well-being. Employee well-being and satisfaction at work become increasingly important as the 21st century evolved. Organizations began to recognize the importance of a contended and engaged workforce for productivity and success. Thus, more research on factors influencing turnover intention and measures to improve employee satisfaction were completed. Finally, the increasing numbers of publications from 2004 to 2023 are related to the technology advancement and data availability for the topic turnover intention. The Internet and digital tools have transformed the way research is conducted. Researchers now have more access to a broader range of data sources, online surveys, and research papers, making it easier to collect data and conduct large-scale studies on various topics, including turnover intention.

Table 1: Publication by Year

Year	TP	Percentage (%)	Cumulative Percentage (%)
1957	1	0.03%	0.03
1968	1	0.03%	0.06
1969	1	0.03%	0.09
1971	3	0.09%	0.18
1972	2	0.06%	0.24
1973	2	0.06%	0.30
1974	1	0.03%	0.33
1975	1	0.03%	0.36
1977	1	0.03%	0.39
1978	3	0.09%	0.48
1979	6	0.18%	0.66
1980	4	0.12%	0.78
1981	5	0.15%	0.93
1982	5	0.15%	1.08
1983	5	0.15%	1.23
1984	5	0.15%	1.38
1985	4	0.12%	1.50
1986	8	0.23%	1.73
1987	8	0.23%	1.96
1988	8	0.23%	2.19
1989	7	0.21%	2.40
1990	7	0.21%	2.61

1991	7	0.21%	2.82
1992	9	0.26%	3.08
1993	3	0.09%	3.17
1994	8	0.23%	3.40
1995	11	0.32%	3.72
1996	13	0.38%	4.10
1997	8	0.23%	4.33
1998	7	0.21%	4.54
1999	20	0.59%	5.13
2000	9	0.26%	5.39
2001	18	0.53%	5.92
2002	8	0.23%	6.15
2003	14	0.41%	6.56
2004	24	0.70%	7.26
2005	25	0.73%	7.99
2006	34	1.00%	8.99
2007	53	1.55%	10.54
2008	56	1.64%	12.18
2009	56	1.64%	13.82
2010	76	2.23%	16.05
2011	91	2.67%	18.72
2012	95	2.78%	21.5
2013	110	3.22%	24.72
2014	120	3.51%	28.23
2015	151	4.42%	32.65
2016	182	5.33%	37.98
2017	192	5.62%	43.6
2018	210	6.15%	49.75
2019	267	7.82%	57.57
2020	334	9.78%	67.35
2021	372	10.90%	78.25
2022	488	14.29%	92.54
2023	255	7.47%	100
Total	**3414**	**100.0**	**-**

Note: TP = Total number of publications

Figure 2 depicts a line chart of turnover intention publication trends by year. From 2004 to 2022, the number of related articles on turnover intention increased gradually. However, as seen in the figure below, there has not been much study published on turnover intention from 1957 to 2003. It is anticipated that the lack of research during this period was because organizational behavior and human resource management were not as well-established or popular as they are now. The investigation could have centered on other urgent or pertinent topics. In addition, it is posited that the notion of turnover intention and its significance in organizational behavior may not have been as well delineated or acknowledged during that particular era. Researchers may not have recognized the significance of the subject matter as they currently do. Finally, the cultural attitudes towards work and career choices may have differed during that period. Job loyalty and tenure might have been more valued, leading to less emphasis on studying turnover intention.

Figure 2: Publications Trends by Year from 1957 to 2023

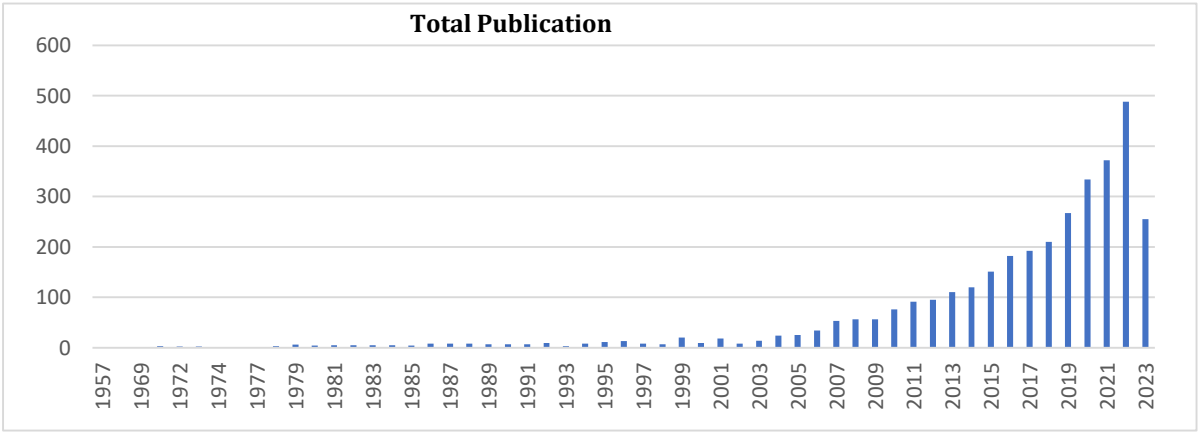


Table 3 shows the top ten of the most active authors within the turnover intention field in the previous decade. Out of the ten authors below, it is found that Allen, D. G. from Texas Christian University has actively published documents on turnover intention. He has been cited 7086 times and with a 39 h-index. The author's article, "The Effects of perceived organizational support and perceived supervisor support on employee turnover," was cited more than 376 times by many worldwide authors. In addition, Hom, P. W. was recorded as the second most prolific author, behind Allen D. G., with 7635 citations. His article, "A meta-analysis of antecedents of employee turnover: update, moderators test, and research implication for the next millennium," was cited 2523 times by previous authors.

Table 3: Top 10 Most Active Authors

Author Name	TD	%	TC	h-index	Affiliation	Country
Allen, D. G	14	0.41%	7086	39	Texas Christian University	United States
Hom, P. W.	14	0.41%	7635	36	W. P. Carey School of Business	United States
Griffeth, R. W	13	0.38%	9536	35	Ohio University	United States
Karatepe, O. M.	13	0.38%	8907	56	Eastern Mediterranean University	Turkey
Labrague, L. J.	12	0.35%	3491	33	Sultan Qaboos University	Oman
Lee, T. W.	12	0.35%	7881	34	Foster School of Business	United States
Lin, C. P	12	0.35%	4921	38	National Yang Ming Chiao Tung University	Taiwan
Zeytinoglu, I. U.	10	0.29%	1259	23	DeGroote School of Business	Canada
Battistelli, A.	8	0.23%	1086	19	Laboratoire de Psychologie	France
Mitchell, T. R.	8	0.23%	14615	58	University of Washington	United States

Source: Prepared by the Authors

Table 4 lists the ten most active institutions worldwide that published turnover intention articles. Based on the result, Universiti Sains Malaysia and Universiti Teknologi Malaysia from Malaysia recorded the highest total publications with 31 articles. The third position is occupied by Yonsei University from South Korea and Huazhong University of Science and Technology from China with 28 articles, followed by Renmin University of China from China with 26 articles. Based on the obtained findings, it can be inferred that the research on turnover intention has exhibited a greater degree of development and progress in Malaysia compared to other nations.

Table 4: 10 Most Active Institutions

Institutions	TP	Percentage (%)	Country
Universiti Sains Malaysia	31	0.91%	Malaysia
Universiti Teknologi Malaysia	31	0.91%	Malaysia

Yonsei University	28	0.82%	South Korea
Huazhong University of Science and Technology	28	0.82%	China
Renmin University of China	26	0.76%	China
Universiti Putra Malaysia	24	0.70%	Malaysia
Pennsylvania State University	22	0.64%	United States
University of the Punjab	22	0.64%	Pakistan
Hong Kong Polytechnic University	21	0.62%	China
University of Central Florida	21	0.62%	United States

Citation Metric Analysis: The second study question assesses the impact and performance of turnover intention publication by measuring citations and h-index. To answer this research question, this study performed the citation metric analysis by assessing the turnover intention publication number of citations and h-index. Baker et al. (2020) assert that assessing an article's impact depends upon the number of citations it receives from other scholarly works. Thus, this study used Harzing's Publish or Perish (PoP) software to analyze the citation metric.

Table 5 shows information about the datasets and the impact and performance of the overall turnover intention publications. The study of turnover intention was recorded from 1957 to 2023 and resulted in a total of 3414 publications from 165 authors. The citation per paper (average number of citations per paper) is 26.94, and the citation per year is 1393.41. In addition, the average number of citations per author is 609.55, and the average number of papers per author is 1441.89.

In addition, the h-index is one of the metrics that can help measure productivity and citation impacts (Ahmi, 2022). The h-index is based on the set of highly cited papers for a particular collection. In this study, the h-index is 128. In other words, there are 128 publications, each with at least 128 citations. Like the h-index, the g-index is another alternative metric to measure productivity and citation impact. Egghe (2006) posits that when ranking a collection of articles in descending order according to their citation counts, the g-index represents the highest value for which the cumulative number of citations received by the top g articles is equal to or exceeds g^2. The present study reveals a g-index value of 215, indicating that the author has successfully written 215 papers with a minimum of 430 citations.

Table 5: Citation Metrics

Item	Data
Publication years	1957-2023
Citation years	66
Papers	3414
Citations	91965
Citations per year	1393.41
Citations per paper	26.94
Citations per author	609.55
Papers per author	1441.89
Authors per paper	3.06
h-index	128
g-index	215

Network Analysis: The justification for performing co-occurrence and keyword analysis is that an author's chosen keyword adequately captures the essence of an article's subject (Comerio & Strozzi, 2019). In this study, a network visualization analysis was performed to address the third research question, which pertains to the prevalence of the 10 most common themes related to turnover intention among researchers. In meeting the research objective, this study used VOSviewer software for constructing and visualizing the networks of documents (journals and articles).

Co-Occurrence of the Ten Most Keywords in Turnover Intention Research: Table 6 summarizes the top ten keywords used in the research on employee turnover intention. According to the findings in Table 6, turnover intention emerges as the predominant keyword employed in the existing body of literature on

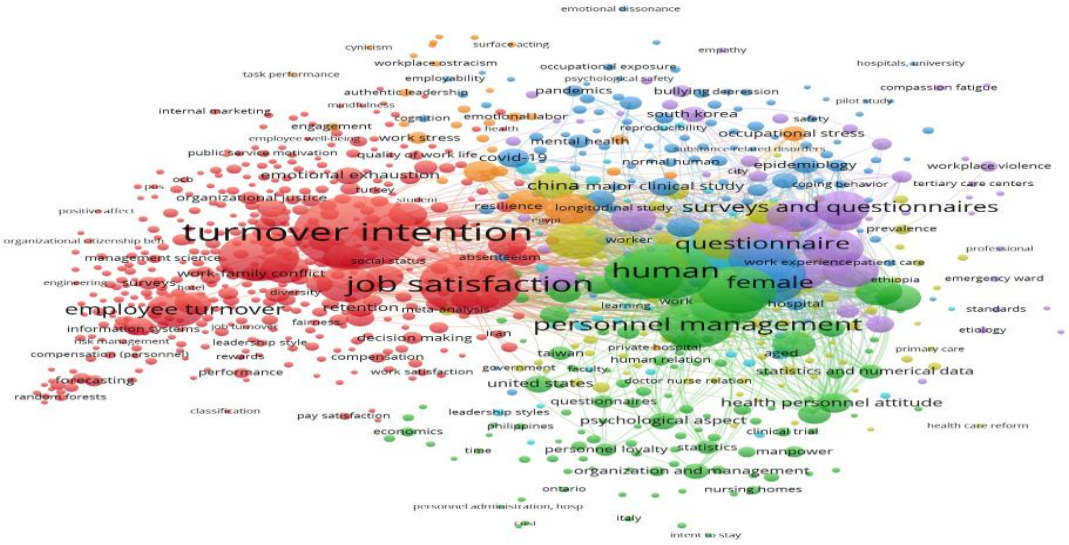
turnover intention with a frequency of 1306. The keyword frequently utilized in second place is "job satisfaction," indicating that the predominant focus of turnover intention research is employee satisfaction with the firm. Turnover intention is commonly observed when employees experience a sense of dissatisfaction within their present work environment.

Table 6: Ten Top keywords by the Frequency of their Occurrence

Keywords	Frequency	Percentage (%)
Turnover Intention	1306	38.25%
Job Satisfaction	893	26.16%
Human	738	21.62%
Turnover Intentions	565	16.55%
Article	552	16.17%
Personnel Management	501	14.67%
Personnel Turnover	476	13.94%
Female	405	11.86%
Adult	397	11.63%
Questionnaires	395	11.57%

The overlay visualization of the co-occurrence of author keywords is depicted in Figure 3. In this visualization, several visual properties, such as color, square size, font size, and thickness of the connecting lines, were employed to represent the relationship between the keywords and other related terms. For example, keywords with the same color were commonly listed together. Hence, within the context of this research, turnover intention, job satisfaction, employee turnover, and retention have a similar red color. This observation implies a strong association and frequent occurrence of these keywords, usually co-occur together.

Figure 3: Network Visualization of the Co-occurrence of Keywords



Discussion and Future Research Directions: Bibliometric analysis is a research methodology that examines and evaluates patterns and trends within scholarly literature and scientific publications. Bibliometric research offers valuable insights into the progression of the turnover intention field, influential authors, prominent research subjects, and researcher collaborations. Therefore, this study would suggest recommendations for future research in bibliometric for turnover intention.

The data presented indicate a notable upward trend in the number of articles published on turnover intentions for 66 years (1957-2023). Nevertheless, a gradual upward trend was observed between 1957 and 2003, characterized by a moderate increase in the number of articles. Subsequently, there is a period of increased activity spanning from 2004 to 2023, during which there is a surge in articles and a noticeable increase in attention, aligning with the findings of Sai et al. (2023). It is recommended that future research should perform an extensive bibliometric study to represent the research setting about turnover intention visually. This inquiry aims to discern the primary key research areas, trends, and themes throughout the discipline across various temporal periods. This could perhaps facilitate the comprehension of the topic's evolution and its most noteworthy advancements for scholars and practitioners.

The authors who exhibited the highest level of activity in terms of article publications were predominantly affiliated with institutions in the United States. In ranking the top three most active authors, the United States emerges as the leading country, exhibiting more publications and citations than other nations. This finding aligns with the research by Zhang et al. (2023), which highlighted the predominant focus on turnover intention inside the United States. It is recommended that future research should be directed toward the examination of bibliometric data to assess the body of literature on turnover intention across various countries and cultural contexts. This can facilitate the acquisition of insights about examining and comprehending turnover intention within a wide range of contexts.

Furthermore, the findings of this study indicate that the institutions with the highest level of activity in publishing research on turnover intentions were Universiti Sains Malaysia and Universiti Teknologi Malaysia, both located in Malaysia. According to Ahmi (2022), there is a correlation between the number of articles generated by institutions and the presence of a central research group or team dedicated to studying turnover intention. Hence, it is suggested that future studies may investigate the co-authorship networks involving these universities to gain insights into the collaborative dynamics among researchers in the domain of turnover intention. Such investigations can potentially foster the development of research clusters and facilitate collaboration between institutions or nations, thereby offering valuable insights into global research networks.

Moreover, this study found that the ten keywords or themes the authors selected relate to turnover intention, job satisfaction, human, turnover intentions, article, humans, personnel management, personnel turnover, female, and adult. These keywords have identified additional research areas based on the findings derived from the VOSviewer map. Finally, given that this study exclusively relied on the Scopus database, it is strongly advised that future research use additional database sources, such as WOS, Google Scholar, EBSCO Host, and Science Direct, to comprehensively examine research trends about the same terms.

5. Implications and Conclusion

The researchers believe the present study benefits scholars and practitioners in human resources and organizational behavior. Firstly, this study can help to identify the most prominent and recurring themes, concepts, and methodologies within the turnover intention literature. It can be seen from this study's findings of the keywords of turnover intention publication (turnover intention, job satisfaction, human, turnover intention, article, personnel management, female and adult). This can provide a valuable resource for guiding future research and facilitating scholars' access to the most recent advancements in turnover intention publications. In addition, through recognizing the influential authors and research groups, this study highlights experts in the field whose work has had a significant impact. This information possesses significant potential in terms of fostering collaborative opportunities and facilitating mentorship. In conclusion, understanding the most influential research on turnover intention can provide significant insights for human resource professionals and organizational leaders, enabling them to develop evidence-based approaches to mitigate turnover intention and retain high-performing individuals.

Conclusion: In conclusion, this study on bibliometric analysis of turnover intention research provided a complete and systematic assessment of the discipline's progression, trends, and well-known scholars. The results highlight turnover intention's ongoing importance and relevance as a crucial subject of inquiry in organizational studies. The analysis revealed a significant increase in the study of turnover intention through

time, signifying the ongoing interest of researchers and practitioners in comprehending and addressing employee turnover within organizational contexts. The utilization of bibliometric analysis in the study of turnover intention allows researchers to enhance their comprehension of the current body of literature, discover areas that lack sufficient investigation and potential research prospects, and make valuable contributions to the progression of knowledge in this significant domain of organizational behavior. In pursuing talent retention and cultivating a productive workforce, the findings of this study can contribute to informed decision-making based on empirical evidence. Furthermore, these insights can aid in developing impactful interventions to mitigate turnover rates and bolster employee satisfaction and commitment. In the future, ongoing research on turnover intention is expected to significantly influence the field of organizational studies and enhance our comprehension of employee retention dynamics in a constantly evolving work environment.

References

Ahmi, A. (2022). Bibliometric analysis for beginners: A starter guide to begin with a bibliometric study using Scopus database and tools such as Microsoft Excel, Harzing's publish or perish and VOSviewer. UUM Press.

Alias, N. E., Rohmanan, N. H., Ismail, S., Koe, W. & Othman, R. (2018). Factors Influencing Turnover Intention in a Malaysian Manufacturing Company in International Conference on Economics, Business and Economic Education. KNE Social Sciences, pages 771-787. doi: 10.18502/kss.v3i10.3171

Allen D. G., Shore L. M. & Griffeth R. W. (2003). The role of perceived organizational support and supportive human resource practices in the turnover process. *Journal of Management*, 29, 99–118.

Alola, U. V., Olugbade, O. A., Avci, T. & Ozturen, A. (2019). Customer incivility and employees' outcomes in the hotel: Testing the mediating role of emotional exhaustion. *Tourism Management Perspectives*, 29, 9-17. https://doi.org/10.1016/j.tmp2018.10.00

Ahmad, A., Barakbah, S. M. B. S. F. & Singh, B. R. S. N. (2021). Employee stress and turnover intentions of employees in hotel organizations. *Webology*, 18(Special Issue), 23-39.

Baker, H. K., Pandey, N., Kumar, S. & Haldar, A. (2020). A bibliometric analysis of board diversity: Current status, development and future research directions. *Journal of Business Research*, 108, 232-246.

Carmeli, A. & Weisberg, J. (2006). Exploring turnover intentions among three professional groups of employees. *Human Resource Development International*, 9(2), 1910206.

Chao, M. C., Jou, R. C., Liao, C. C. & Kuo, C. W. (2015). Workplace stress, job satisfaction, job performance and turnover intention of health care workers in rural Taiwan. *Asia-Pacific Journal of Public Health*, 27(2), 27-36. https://doi.org/10.1177/1010539513506604

Clercq, D. D. (2022). Getting nowhere, going elsewhere: The impact of perceived career compromises on turnover intentions. *Personnel Review*, 51(2), 1-21.

Das, P., Byadwal, V. & Singh, T. (2017). Employee engagement, cognitive flexibility and pay satisfaction as potential determinants of employees' turnover intentions: An overview. *Indian Journal of Human Relations*, 51(1), 147-57.

Deraman, N., Nor, N. & Zainuddin, N. (2018). Transactional leadership style on turnover intention among electrical and electronic sub-sector employees in Malaysia. *Journal of Technology and Operations Management*, 13(1), 37-47.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N. & Lim, W. M. How to conduct a bibliometric analysis: An overview and guidelines. (2021). *Journal of Business Research*, 133, 285-296.

Dzikowski, P. (2018). A bibliometric analysis of born global firms. *Journal of Business Research*, 85, 281-294. https://doi.org/10.1080/14778238.163893

Egghe, L. (2006). Theory and practice of the g-index. *Scientometrics*, 69(1), 131-132. https://doi.org/10.1007%2Fs11192-006-0144-7

Gong, S., Hin Sing Cheng, V. & Ardeshiri, A. (1957). Need Satisfactions and Employee Turnover. *Personnel Psychology*, 10(3), 327-338.

Ghosh, P., Goel, G., Dutta, T. & Singh, R. (2018). Turnover intention among liquid knowledge workers: A study of Indian insurance professionals. *Journal of Global Operations and Strategic Sourcing*, 12(2), 288-309.

Hom, P. W., Griffeth, R. W. & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests and research implications for the next millennium. *Journal of Management*, 26(3), 463-488.

Guzeller, C. O. & Celiker, N. (2020). Examining the relationship between organizational commitment and turnover intention via meta-analysis. *International Journal of Culture Tourism and Hospitality Research*, 14(1), 102-120.

Haque, A., Fernando, M. & Caputi, P. (2019). The relationship between responsible leadership and organizational commitment and the mediating effect of employee turnover intentions: An empirical study with Australian employees. *Journal of Business Ethics*, 156(3), 759-774.

Karatepe, O. (2013). High-performance work practices and hotel employee performance: The mediation of work engagement. *International Journal of Hospitality Management*, 32, 132-140. https://doi.org/10.1016/j.ijhm.2012.003

Laily, N., Setyorini, N., Rahayu, R., Rochdianingrum, W. & Lestariningsih, M. (2020). Burnout Moderation: Job insecurity and turnover intention. International Journal of Innovation, Creativity and Change, 573-583. https://doi.org/10.53333/ijicc2013/12650

Lu, A. C. C. & Gursoy, D. (2016). Impact of job burnout on satisfaction and Turnover Intention: Do Generational Differences Matter? *Journal of Hospitality & Tourism Research*, 40(2), 210-235. doi:https://doi.org/10.1177/1096348013495696

Martinez-Lopez, F. J., Merigo, J. M., Vaenzuela-Fernandez, L. & Nicolas, C. (2018). Fifty years of the European Journal of Marketing: A bibliometric analysis. *European Journal of Marketing*, 52(1-2), 439-468. https://doi.org/10.1108/EJM-11-2017-0853

Mathimaran, B. K. & Kumar, A. A. (2017). Employee retention strategies and empirical research. *Global Journal of Management and Business Research: E-Marketing*, 17(1), 1-7.

Mowday, R. T., Steers, R. M. & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behaviour*, 14, 224-227.

Prentice, C. & King, B. (2013). Emotional intelligence and adaptability-service encounters between casino hosts and premium players. *International Journal of Hospitality Management*, 32287-294. https://doi.org/10.101016.j.ijhm.2012.06.004

Pritchard, A. (1969). Statistical bibliography or bibliometric. *Journal of Documentation*, 25(4), 348-349.

Rasheed, M., Okumus, F., Weng, Q., Hameed, Z. & Nawaz, M. (2020). Career adaptability and employee turnover intentions: The role of perceived career opportunities and orientation to happiness in the hospitality industry. *Journal of Hospitality and Tourism Management*, 44, 98-107. https://doi.org/10.1177/1938965509341633

Sai, V. S. & Pinapati, A. K. (2023). Insights on employee turnover: A Bibliometric Analysis. *International Journal of Professional Business Review*, 8(6), 1-37.

Takase, M. (2010). A concept analysis of turnover intention: Implications for nursing management. *Collegian*, 17(1), 3-12.

Tett, R. P. & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention and turnover: Path analyses based on meta-analytic findings. *Personnel Psychology*, 46, 259-293. https://doi.org/10.1111/j.1744-6570.1993.tb00874

Tse, H. H. M., Huang, X. & Lam, W. (2013). Why does transformational matter for employee turnover? A multi-foci social exchange perspective. *Leadership Quarterly*, 24, 763-776.

Yang, T., Jin, X., Shi, H., Liu, Y., Guo, Y., Gao, Y. & Deng, J. (2021). Occupational stress, distributive justice and turnover intention among public hospital nurses in China: A cross-sectional study. *Applied Nursing Research*, 61, 1-9.

Wickramasinghe, V. & Kumara, S. (2010). Work-related attitudes of employees in the emerging ITES-BPO sector in Sri Lanka. *Strategic Outsourcing: An International Journal*, 3(10), 20-32.

Zaheer, S., Ginsburg, L., Wong, H. J., Thomson, K., Bain, L. & Zaev, W. (2019). The turnover intention of hospital staff in Ontario Canada: Exploring the role of frontline supervisors, teamwork and mindful organizing. *Human Resource Health*, 17(1), 66.

Zahra, S. S., Khan, M. I., Imran, M., Amran, Q. & Ali, R. (2018). The relationship between job stress and turnover intentions in the pesticide sector of Pakistan: An employee behavior perspective. *Management Issues in Healthcare System*, 4(1), 1-12. https://doi.org/10.33844/mihs.2018.60369

Zhang, H., Wong, L. P. & Hoe, V. C. W. (2023). Bibliometric analyses of turnover intention among nurses: Implication for research and practice in China. *Frontiers in Psychology*, 14, 1042133.

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Personality Traits and Job Performance of Police: A Systematic Literature Review

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Abstract: This paper's primary focus lies in the examination of the correlation between personality traits and job performance within the specific realm of law enforcement, with a particular emphasis on the police force. Policing holds a crucial role within the broader criminal justice system, and it is marked by unique challenges, including the significant stress and pressures faced by police officers during their duties. Over recent years, scholarly interest in exploring various facets of policing has grown. The overarching objective of this paper is to conduct a systematic review and meta-analysis of existing literature about personality traits and their interplay with job performance within the context of police work. To achieve this, the study employs the PRISMA methodology and conducts comprehensive searches within reputable databases, namely Scopus and Web of Science, covering the period from 2000 to 2023. By undertaking this research, the aim is to furnish valuable insights into how personality traits impact the job performance of police officers. These findings have the potential to offer meaningful contributions to the enhancement of law enforcement practices and the formulation of more effective policies within the field of policing.

Keywords: *Systematic Literature Review, Personality Traits, Job Performance, Police.*

1. Introduction

Police officers are tasked with a variety of duties, including the collection of evidence, the interviewing of suspects, victims, and witnesses, the preparation of investigative reports, and the fulfillment of other legal and administrative tasks. In addition, they must combat a variety of criminal activities, including property crimes, violent offenses, organized crime, acts of terrorism, and financial wrongdoing, among others (Akca, 2017; Ono, Sachau, Deal, Englert, & Taylor, 2011). Each of these jobs may require unique skill sets, and the assignment of officers to each task is crucial to the operation of a police force. When police departments can precisely identify the employees best suited for specific tasks, they can reduce labor costs and administrative burdens while simultaneously increasing the number of candidates for promotions and the overall quality of service delivery (Masood, Rafique, Qaisar & Musarat, 2017).

Assessing the personality traits of police officers has been employed to investigate how the unique characteristics of individual officers relate to their job performance. This assessment takes various forms, including evaluations conducted during the recruitment process, 'fitness-for-duty' assessments, and providing psychological support to officers facing personal challenges (Weiss & Inwald, 2010). Research has indicated a significant correlation between the personality traits of police officers and their job performance, underscoring the idea that an officer's inherent dispositions can impact their on-the-job effectiveness (Masood et al., 2017; Forero, Gallardo-Pujol, Maydeu-Olivares, & Andrés-Pueyo, 2009; Goldberg, 1993; Tomini 1997).

Historically, in the early twentieth century, evaluation tests were used to predict police performance. Initially, the evaluation focused on evaluating the IQ and mental health of future police recruits (Weiss & Inwald, 2010). Using the Stanford-Binet scale, one of the earliest intelligence tests, Barrick & Mount (1991) predicted the performance of future police officers.

Psychopathology tests (e.g., the Minnesota Multiphasic Personality Inventory [MMPI]) and normal personality tests (e.g., the Five Factor Model [FFM]) developed as the two primary types of testing for assessing police personality during the decades (Robert et al., 2019; Bartol, 1991). In the late 20th century, specific police officer-tailored inventories were established based on these exam formats. The Inwald Personality Inventory (IPI), which consists of 25 personality scales, was developed by Robin Inwald in 1979 (Weiss & Inwald, 2010).

Notably, a significant number of IPI scales are devoted to assessing socially deviant attitudes, such as alcohol misuse and family problems. Therefore, the major purpose of this inventory is to exclude non-qualified applicants, as opposed to identifying those who are likely to excel in police (Sanders, 2008). Public safety officers' absenteeism and disciplinary problems can be accurately predicted using the IPI, according to research analyzing its predictive validity (Sanders, 2008; Cortina, Doherty, Schimitt, Kaufman and Smith, 1992).

2. Problem Statement

Despite the application of personality tools to forecast the job performance of police officers, it has often yielded less than satisfactory outcomes (Robert et al., 2019; Cortina et al., 1992). These methods have limitations when it comes to assessing police personality and its impact on job performance. Firstly, psychopathology tests like the Minnesota Multiphasic Personality Inventory (MMPI) were not initially created for selecting candidates for specific job roles; rather, they were designed to identify psychological issues that might lead to performance problems or disciplinary concerns (Sanders, 2008). Psychologists have criticized the use of psychopathology tests as tools for assessing police personality because their original purpose was to diagnose psychopathy, and there is no evidence to support the MMPI as a reliable predictor of police performance (Robert, Tarescave, Be-porath & Robers, 2019). Meta-analyses of previous research have also demonstrated that psychopathology tests are not particularly effective in predicting the job performance of police officers (Robert et al., 2019; Daniels & King, 2002).

Due to the effectiveness issue, police personality assessment tools have changed their focus from psychopathology to personality factors in recent years (Weiss & Inwald, 2010). Following trends in other professions, there has been an increased use of normal personality tests, which emphasize the personality traits of ordinary individuals in their daily lives, in police personality assessments over the past few decades (Roberto et al., 2019).

One prominent example is the Five Factor Model (created by McCrae and John in 1992), which categorizes personality traits into five major groups: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Studies conducted worldwide have found this model to be comprehensive and applicable (McCrae & John, 1992). It provides a standardized framework for researchers to examine and summarize personal characteristics in these five basic dimensions.

However, the overall effectiveness of normal personality tests in predicting job performance is similar to psychopathology tests used earlier (Murphy, Deckert & Hunter, 2013). While some scales within these tests are significantly correlated with success in specific tasks or skills, such as openness to experience predicting academic performance and emotional stability in predicting disciplinary issues, and measures of conscientiousness predicting supervisory ratings of performance, the validity and utility of current personality measures are still questioned (Murphy, Deckert & Hunter, 2013).

In the past, concerns about the limitations of personality theories, particularly in measuring traits, and the variability and strength of studies examining the relationship between personality traits and workplace behaviors led some practitioners to discourage the use of personality measures in employment decisions (Guion and Gottier, 1965). The doubt about using the measurement persisted when more research began to highlight the relevance between personality and job performance, including in the context of police personality assessments (Murphy, Deckert & Hunter, 2013).

Therefore, to provide an overview of the current trends and patterns in this area, this paper will evaluate the existing literature on police personality traits as predictors of police performance. Literature searching was undertaken according to the specific inclusion criteria to meet the research objectives and questions. Furthermore, this paper will investigate the diverse range of personality measurements employed to forecast the job performance of police officers and will consider suggestions regarding potential tools and measurements for future research endeavors focused on police personality and job performance.

Research Questions

- How many relevant literature studies on personality traits and job performance of police have been published in online databases from the years 2000-2023?
- Does the existing literature describe the measurement used of personality in the prediction of police performance?
- What is the future study direction?

3. Methodology

This study employs a systematic literature review method following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines, ensuring a structured and rigorous approach. Systematic reviews aim to comprehensively assess, identify, and analyze all relevant previous research on a specific topic or research question. They provide a balanced and comprehensive overview of existing research findings (Perry & Hammond, 2002). The systematic literature review in this study comprises the following steps: keyword identification, screening of articles, assessment of article eligibility, evaluation of article quality, data extraction and analysis and synthesis of findings**.**

Identification of keywords: The initial step of our systematic literature review involved identifying keywords pertinent to our chosen topic. To locate relevant articles, we employed the following keywords: personality, personality traits, performance, job performance, and police performance. We conducted searches using Scopus and Web of Science, as these databases boast an extensive collection of journal articles exceeding 35,000 from diverse subjects and publishers. Consequently, these databases offer a comprehensive global perspective on scientific research and are widely recognized as crucial information sources within the research community. Here are the search strings utilized in this study:

Table 1: The Search Strings

Database	Search Strings
Scopus	(TITLE-ABS-KEY (("personality" OR "personality trait*") AND (“performance” OR “job performance”) AND (“police”)
Web of Science	TI=(*personality OR personality trait* AND *performance* OR *job performance* AND *police*)

Screening: The first step in the article screening process is to identify and eliminate redundancy. Our chosen criteria align with the research goals of this study, as research objectives help shape the criteria for screening (Kitchenham & Charters, 2007). As a result, the criteria we tested effectively and consistently categorized the studies. In the initial screening phase, we found 57 papers related to the keywords, comprising 33 papers from Scopus and 24 papers from the Web of Science.

Eligibility: To align with the authors' expertise, articles were exclusively selected from related fields of criminal justice/criminal penology and psychology. In the second eligibility stage, a manual assessment encompassing abstracts, keywords, and article content was carried out, following a process employed by Shaffril et al. (2019). Following the eligibility procedure, only 15 Scopus articles and 8 WoS articles were deemed appropriate for the study. The process to identify duplicate articles and download full access to the articles has been completed, and ultimately only 16 articles are available to evaluate.

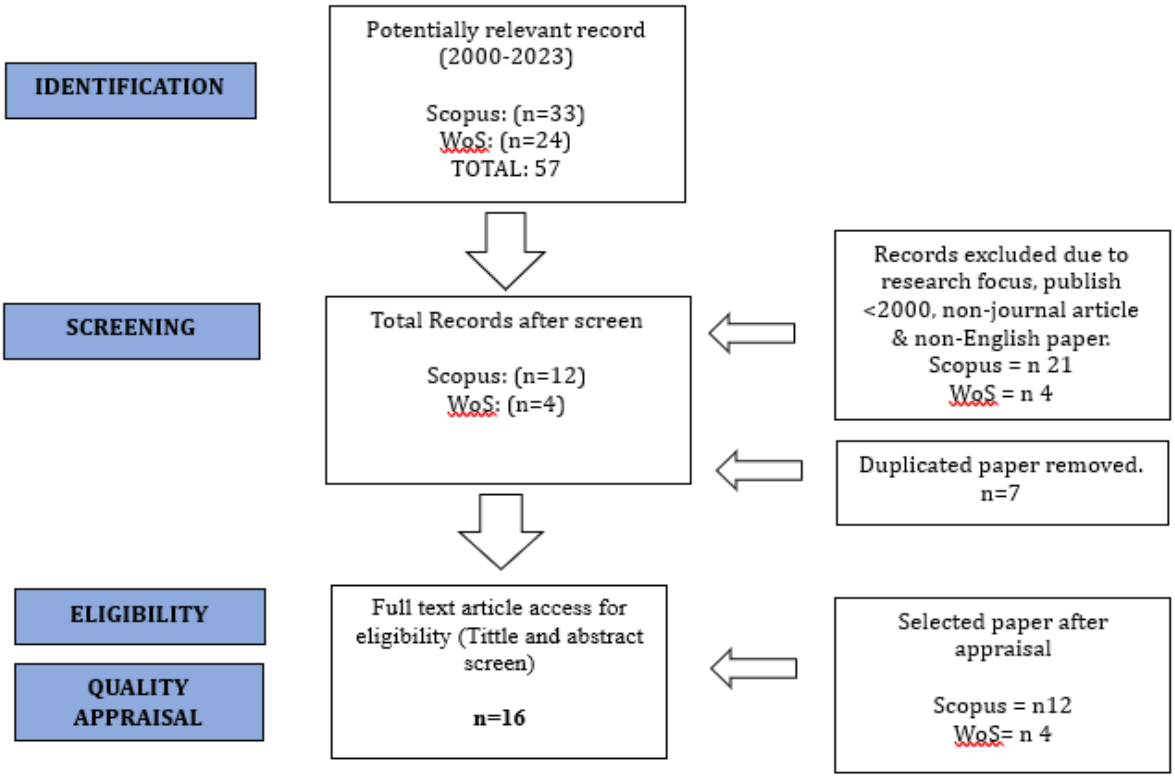
Table 2: Inclusion and Exclusion Criterion

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2000-2023	<2000
Subject Area	Criminal Justice, Psychology, (Scopus) Criminal Penology, Psychology (WOS)	Other than criminal justice, psychology.
Literature Type	Journal Article	Journals (systematic review, meta-analysis, book series, book, chapter in a book, conference proceedings

Quality Appraisal: Kitchenham and Charters (2007) highlight the need for quality assessment before preparing a Systematic Literature Review (SLR). Nonetheless, the difficulty of judging quality persists, particularly concerning research methodology and the validity of findings (Yang et al., 2021). The researchers used six quality evaluations (QA) described by Kitchenham and Charters to conduct a comprehensive evaluation:

QA1: Is the purpose of this study clearly stated?
QA2: Is the interest and usefulness of the work presented?
QA3: Is the study methodology established?
QA4: Is the concept of approach clearly defined?
QA5: Is the work compared and measured with other similar work?
QA6: Are the limitations of work mentioned?

Figure 1: Data Abstraction and Analysis



4. Findings

Table 3: Summary of Paper Review

Classification	Subcategory	N	Reference Index
Year of publication	2000-2005	2	Detrick & Chibnall, 2002; Detrick et al., 2004
	2006-2010	5	Cuttler et al., 2006; Richardson et al., 2007; Sanders, 2008; Forero et. al., 2009; Weiss et al., 2008
	2011-2015	3	Ono et al., 2011; Tarescavage et al., 2015; Chiorri et al., 2015
	2016-2020	0	None
	2021-2023	6	Melinder et al., 2020; Huhta et al., 2021; Koropanovski et al., 2022; Speer et al., 2022; Sorengaard et al., 2022; Nurrohmat, 2022

Country Conducted	Serbia	1	Koropanovski et al., 2022
	Norway	1	Melinder et al., 2020
	State of Missouri	2	Detrick & Chibnall, 2002; Detrick et al., 2004
	Italy	1	Chiorri et al., 2015
	Norway	1	Sorengaard et al., 2022
	Virginia	1	Tarescavage et al., 2015
	Finland	1	Huhta et al., 2021
	Indonesia	1	Nurrohmat, 2018
	US	6	Sanders, 2008; Weiss et al., 2008; Ono et al., 2011; Cuttler et al., 2006; Ridhardson et al., 2007; Forero et al., 2009
	Not Stated	1	Speer et al., 2022
Method	Quantitative	16	Koropanovski et al., 2022; Speer et al., 2022; Melinder et al., 2020; Detrick & Chibnall, 2002; Sorengaard et al., 2022; Huhta et al., 2021; Tarescavage et al., 2015; Nurrohmat, 2018 ; Weiss et al., 2008; Ono et al., 2011; Detrick et al., 2004; Cuttler et al., 2006; Chiorri et al., 2015; Richardson et al., 2007; Forero et. al., 2008; Sanders, 2008
	Qualitative	0	None
Personality Measurement Scale	Big Five @ Five-factor model	7	Koropanovski et al., 2022; Melinder et al., 2020; Sorengaard et al., 2022; Sanders, 2008; Chiorri et al.; 2015; Nurrohmat, 2018; Ono et al., 2011
	Inwald Personality Inventory (IPI)	1	Detrick & Chibnall, 2002
	Personality Research Form & Mindfindr Assessment Instrument	1	Huhta et al., 2021
	Minnesota Multiphasic Personality Inventory (MMPI)	1	Tarescavage et al., 2015
	Personality Assessment Inventory (PAI)	2	Weis et al., 2008; Richardson et al., 2007
	NEO PI-R	1	Detrick et al., 2004
	Wonderlic Personnel Test & California Psychological Inventory	1	Cuttler et al., 2006
	Occupational Personality Questionnaire	1	Speer et al., 2008
	Self-reported and Behavioural personality measure	1	Forero et al., 2009

Research Question 1: How many relevant literature studies on personality traits and job performance of police have been published in online data from the years 2000-2023? Table 3.0 above illustrates the trend of journal articles on police personality and job performance in two reputable online databases (Scopus and Web of Science) from 2000 to 2023. A time frame of 23 years was chosen as this review solely focused on police context and research areas were refined to psychology and the criminal justice field. An advanced search utilizing keywords filtering "personality" or "personality traits" and "performance" or "job performance" of police yielded 16 articles that matched all criteria and were downloadable for full access. Articles on this topic have greatly increased from the year 2021 to 2023. Recent interest has focused on analyzing police personality and job performance about topics such as health-related, hazardous job conditions, intellectual potential, and police professionalism (Sorengaard et al., 2022; Koropanovski, et al., 2022; Huhta et al., 2021; Melinder et al., 2020). An earlier study was undertaken in the years 2000 to 2010, with significantly more emphasis on testing personality measurement tools towards the performance of

police in job-specific tasks as well as the pre-employment performance of police recruits (Detrick & Chibnall, 2002; Detrick et al., 2002; Sanders, 2008; Cuttler et al., 2006). The differences between the latest study and the earlier study are explained by the shift of evaluating multiple measurements to assess the stability of the tools, and the recent study utilized the existing tools in various contexts of police job performance. Most articles published were dominated by studies conducted in Western countries such as in US (Detrick & Chibnall, 2022; Detrick et al., 2004; Tarescavage et al., 2015, Sanders, 2008; Weiss et al., 2008; Ono et al., 2011, Cuttler et al., 2006; Richardson et al., 2007; Forero et al., 2009) followed by other countries such as Italy, Norway, and Finland (Chorri et al., 2015; Melinder et al., 2020; Sorengaard, et al., 2022; Huhta et al., 2021). Only one article from Serbia and Indonesia was published (Koropanovski et al., 2020 & Nurrohmat, 2018). Meanwhile, one article fails to mention the country of the study (Speer et al., 2022). In terms of methodology, all the studies used quantitative research.

Research Question 2: Does the existing literature describe the measurement used of personality in the prediction of police performance? The focus of this paper is to examine the influence of personality on the job performance of police. The subject studies of the chosen article were varied as some studies conducted personality tests on police recruit performance during interviews, personality tests, and training. Basically, before discussing the measurement of personality used in all articles reviewed, the role of personality should be clarified. Traditionally, occupational psychologists viewed personality tests as contributing little to the prediction of job performance (Goldberg, 1993; Tomini 1997). Many criticisms were raised by early personality test reviews (e.g. Mischel, 1968); the result is less significant in predicting job performance and may require improvement in methodology. Later, the improvement in the development of personality inventories was designed to measure qualities among individuals. Previously, personality tests were used only to measure the psychopathological qualities of deviant or mentally disordered individuals (e.g. Minnesota Multiphasic Personality Inventory). Due to its insignificant to predict performance, personality theorists re-evaluate the model of personality tests into a structural framework that can be used in different occupations. On the improvement made, the personality test was then designed to measure "normal" behavior traits and develops the logical connection between job requirements, personality measurement, and performance.

As we can see in the summary of the review table, about seven articles and the most recent used the big five or five-factor model to measure job performance (Koropanovski et al., 2022; Sorengaard et al., 2022; Melinder et al., 2020, Nurrohmat, 2022; Chiorri et al., 2015). The five-factor model is the shifting measurement scale of personality used in the police context since it is based upon trait vocabulary (Black, 2000; Digman, 1990; Norman, 1963). These five trait dimensions (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism) have proven to be replicable over different theoretical frameworks, using different instruments, and with ratings obtained from different sources, different samples, and high on generality (Costa & McCrae, 1990; Goldberg; 1990).

In assessing fitness performance during police training, Koropanovski, (2022) utilizes the big five dimensions of personality traits as measurement. As findings indicated that, personality traits could predict fitness performance and different results show for male and female police. However, personality traits do not significantly predict academic training success regardless of sex. Physical demands in the police occupation are high, and males are ideally adapted to the demanding police duties. An interesting study was conducted by Melinder et al. (2020) that investigated the personality traits and the interview performance carried out by police in child abuse cases. The personality test is used to test the cognitive ability of police officers and is embedded in police training as one of the mechanisms for improving decision-making and enhancing police professional development. This study is associated with the ability of personality to reduce negative and biased judgment while on duty and lead to the high job performance of the police. Additionally, a similar focus of research carried out earlier by Ono et al. 2011 examines the extent to which cognitive ability, Big Five personality dimension, and emotional intelligence are related to the training and job performance of criminal investigators in the US. In this study, the result indicated that a dimension of conscientiousness was modestly related to training performance while the neuroticism dimension was negatively correlated with job performance. However, this study was conducted quite some time ago, so it is conceivable that more recent studies have produced results that are not comparable to and more applicable to the current perspective.

Sorengaard et al. (2022) in a recent study used a big five-dimension scale in a longitudinal study to predict and compare personality and psychosocial work factors associated with insomnia. As police tasks necessitate overcommitment, this results in a cause of severe stress. Findings indicated that people officer with high neuroticism traits contribute to poorer sleep meanwhile agreeableness traits contribute to better sleep and fewer sleep problems (Dekker et al., 2017; Hintsanen et al., 2014). Meanwhile, the only articles from the Eastern context conducted by Nurrohmat (2020), aim to predict the effect of personality on the performance of police in Makassar, Indonesia. The big five dimensions employed in this study and findings show that personality has a significant effect on the performance of the police. Police score high on extrovert personalities. However, the indirect relationship is mediated by the role of organizational citizenship behavior (OCB). This finding will be considered as a baseline to recruit more candidates with extrovert personalities.

Personality also may influence the behavior of the police. A study conducted by Huhta et al. (2020), explored the personality and primitive (untrained) police performance during critical incidents. The behavior dimension in assessing the performance of police has been divided into six; control of the environment, operational flexibility, initiative, critical decision-making, withdrawal, and target-oriented behavior. Each of these behaviors leads to the performance of police officers and should be tested as part of the training process while facing critical or unexpected situations. As result indicated several relationships with scores for control of the environment and operational flexibility were lower in more extrovert and flexible types of personality. Furthermore, initiative and critical decision-making errors were also related to higher extroversion.

Occupational research has often focused on the role play by personality traits for example in patterns of behaving, thinking, and emotion that tend to be relatively stable over time, and different across individual and what influence those behavior. Chorri et al. (2015) explore the relationship between personality and perceived workload in real-life tasks among flying column police officers. Workload sources are categorized into mental, temporal, and physical demands of the task, perceived effort, dissatisfaction with the performance, and frustration due to the task. The findings indicate that the perceived workload among flying column police officers is influenced by their personality traits interacting with the sources of their workload. These results could be valuable for future investigations into creating support systems to mitigate the effects of workload on police officers.

Recent studies on police personality and job performance have predominantly relied on the Big Five personality traits model. This suggests that this personality measurement scale is commonly used to assess police performance and its connection to health issues. The prevalence of research focusing on police health problems indicates that the roles and responsibilities of police officers are increasingly challenging, necessitating a stable personality to help them manage risky and unpredictable tasks effectively.

Based on the review, there are also many other measurement scales used to assess the personality traits of police officers. Among them are the Inwald Personality Inventory (IPI), Minnesota Multiphasic Personality Inventory (MMPI), Personality Research Form & Mindfindr scale, Personality Assessment Inventory (PAI), NEO PI-R scale, Wonderlic personnel test & California Psychological Inventory, Occupational Personality scale, and self-reported and behavioral personality measure. All these scales inventory was commonly used in a study conducted during the early 2000s.

The Inwald Personality Inventory (IPI) was developed by Inwald in 1988 to measure pre-employment evaluation and design specifically for the task of police officers and support for its validity has been repeatedly demonstrated (Inwald, 1988, 1922). In the study on performance prediction, Inwald and Shusman (1984) identified a correlation between “acting out” indicators on the IPI and adverse job performance indicators such as tardiness, negligence, and time spent on restricted duty. Additionally, this study observed that the IPI proved to be a more reliable predictor of overall job performance compared to the MMPI (Minnesota Multiphasic Personality Inventory). In the review, one study conducted by Detrick and Chibnall in 2002 utilized the IPI scale to predict police officer performance. The study showed that IPI scores, especially in areas like family conflict, caution, and traffic violations, could predict performance. This suggests that the IPI is good at predicting how well police officer candidates will perform and can pinpoint certain traits that affect their performance on the job.

Furthermore, another scale found in the article review is the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI scale is a widely used psychological assessment tool designed to evaluate various mental health and personality factors. Developed by Hathaway and McKinley in the late 1930s, it has undergone several revisions, with the most recent version being the MMPI-2 and MMPI-2-RF (Restructured Form). The MMPI consists of a series of questions or statements to which individuals respond, typically in a true/false or multiple-choice format. These responses are then scored and analyzed to provide insights into an individual's mental health, personality traits, and psychopathological conditions.

Tarescave et al. 2015 on their study employed the MMPI scale in the prediction of supervisor rating of post-hire performance of the police. In this study, the recent version of MMPI-2-RF ability was used to predict dichotomous problem behavior resulting in negative performance ratings during probation and post-probationary disciplinary action. The results were especially significant when looking at scales related to emotional issues and how people interact with others. For instance, scales measuring low positive emotions and avoiding social situations were linked to various factors that can be impacted by not engaging with one's surroundings and other individuals. These factors included difficulties in performing routine tasks, making decisions, expressing oneself confidently, being responsible, and having social skills.

The Personality Assessment Inventory (PAI) is a psychological assessment tool designed to assess various aspects of an individual's personality and psychological functioning. It was developed by Leslie Morey and first published in 1991. The PAI is commonly used by psychologists, psychiatrists, and other mental health professionals for clinical and research purposes. Two articles found in this review utilized this scale in their studies. Weis et al. (2007) integrated personality assessment together with drug and alcohol scales to predict the performance of police officers. This study was conducted as pre-employment screening to estimate future police performance based on personality and lifestyle patterns. However, this scale could not predict the performance of police, but drug and alcohol scales can measure the poor performance of officers. Meanwhile, Richardsons et al. (2007) with a similar focus of study employ the PAI scale in predicting and discriminating problems from non-problem police applicants. The profiles of applicants measured by the PAI scale have been integrated into a selection software program to forecast the probability of participants being suitable for a career in law enforcement.

The revised NEO personality inventory (NEO PI-R) was developed explicitly to measure the give-factor model of personality (Costa & McRae, 1992). This scale is useful in the employment selection context and in predicting future job performance in a business setting (Costa, McCrae & Kay, 1995; Pedmont & Weinsten, 1988). Recent research has also supported this scale to be used in police officers. NEO-PI-R includes specific facets of personality in each domain, and it is widely used in many settings. In this review, Detrick et al., 2004 utilize this scale to assess personality as a predictor of police academy performance. The result shows that the use of NEO PI-R as a selection instrument for police officers is promising.

Research Question 3: What is the future study direction? The limitations and suggested areas for further research are derived from the author's insights gathered from a review of sixteen selected papers. While the scope and topics of these papers vary, they all revolve around the theme of personality and police job performance. Several valuable points emerge that could guide future investigations aimed at advancing our understanding in this field. Some studies propose that personality alone may not suffice as a sole predictor of job performance among police officers. There's a growing consensus that it should be complemented with additional data sources, such as clinical psychological assessments, demographic information, and other factors, which could potentially contribute to a more comprehensive evaluation of police performance (Melinder et al., 2020; Sorengaard et al., 2022; Huhta et al., 2021). Furthermore, it has been suggested that future research should pay particular attention to gender balance among study participants. Many studies have heavily leaned towards male participants, and achieving a more equal representation of genders is essential for generating generalizable findings (Tarascavage et al., 2015). This aligns with earlier research (Ono et al., 2011) emphasizing the importance of larger sample sizes for drawing meaningful conclusions. In addition, some researchers propose exploring both mixed-model and ability models to enhance the predictive modeling process. This approach aims to ensure the robustness of the measurement scale used and to obtain the most accurate results (Ono et al., 2011; Detrick et al., 2004; Weiss et al., 2008). Lastly, future investigations could delve into identifying potential mediators and moderators that may influence the

relationship between personality and the performance of not only police officers but also other law enforcement personnel (Forero et al., 2009). In summary, the author's recommendations for future research directions are summarized in Table 4.0 below.

Table 4: Future Research Direction

Author	Future Research Direction
Koropanovski et al. 2022	Personality qualities should be further researched because they may have a moderating impact on achievement and how people perceive their workload and working conditions.
Speer et al. 2022	A variety of personality traits inventory tests should be conducted on various professions.
Melinder et al. 2020	The strategy of regulating favorable impressions should be evaluated to determine whether it is a viable solution for separating problem police officers from those without problems. Future research may seek to study the utilization of clinical interview data of police officers, particularly regarding psychological measurements and demographic characteristics.
Detrick & Chibnall, 2002	Future studies could examine the increased use of screening results as an aid to training and managing the police force. Future research may require to re-examination of the assessment instruments, with less emphasis being placed on identifying psychopathology and a greater emphasis placed on identifying more “normal” patterns of behaviour and their relationships to police officer performance.
Sorengaard et al. 2022	The relationships between job demands, job resources, and sleep should be researched further. When examining determinants of insomnia, using an integrated approach may be more advantageous and have greater explanatory power than investigating personality and psychosocial work components separately.
Huhta et al. 2021	Physiological stress responses also increase dependence on implicit skills while decreasing brain activity associated with more intentional, effortful decision-making. Hence, future research that investigates how intrinsic personality factors influence these automatic, implicit behaviors in critical police contacts is critical and informs the current study design.
Tarescavage et al. 2015	Future studies should have a larger sample. Because there were a disproportionate number of males in this study, the female sample could not be conducted. Future studies should include a large enough sample of female police officers.
Sanders, 2008	Future studies should broaden research into finding the best individual officers as it is an enormous challenge that has yet not received attention from researchers or practitioners.
Chiorri et al. 2015	Future research should include female participants as gender will contribute to moderating roles that affect operational service roles. Similar research could be extended to all police or military officer populations. Cultural and temporal issues should be considered for future research since different countries have different kinds of personality tests in assessing police performance.
Forero et al. 2009	Future studies should examine the role of training as a mediator to influence the personality and performance of police in various job tasks.

Richardson et al. 2007	Future research may wish to test the stated method of controlling for the positive impression management problem to assess whether this remedy is a viable solution for screening out problems from non-problem police officers. In addition, future studies may wish to investigate the use of clinical interview data on police officer-specific psychological measures, and demographic variables in combination with MMPI-2 scales, which have been demonstrated to be effective in predicting problematic police officer performance. Among the best-supported studies were those that used behavior-specific job performance evaluations to measure police officer performance other than suspensions and/or terminations.
Nurrohmat, 2022	The use of a pre-determined Likert scale made the information obtained considered insufficient. It is suggested that further research be developed by conducting interviews.
Weiss et al. 2008	Further research is needed to determine whether the Personal Assessment Inventory (PAI) used in this study is useful in predicting police officer performance since the result indicated that no hypotheses in this study were directly supported. The overall PAI scale should be assessed for its effectiveness in the police selection of others. Measures such as the MMPI-2, which have been more extensively validated for this purpose. Because many applicants who make it to the psychological evaluation stage are psychologically stable, personality assessment data should be considered as one of several elements in making an informed hiring choice. To avoid relying too strongly on a single factor, the personality assessment data should be triangulated with other criteria (e.g., interviews and background checks).
Ono et al. 2011	Future research should use a larger sample. A study should be conducted on other law enforcement agencies or other law enforcement jobs or other jobs that are highly emotional and have high stress. The dimension of five personality, emotional intelligence could be further explored to determine the specific aspect of each that predicts job performance. Future studies could consider using both mixed-model (e.g. Bar-on EQ-I) and ability model (e.g. MEIS (multifactor emotional intelligence scale and (MSCEIT) emotional intelligence model to further investigate the prediction model.
Detrick et al. 2004	Future research should examine the predictability of the NEO PI-R facets concerning job termination, public complaints, probations, reprimands, and citations during actual police duty.
Cuttler et al. 2006	Future studies should examine the larger social and economic context.

Limitations: This study's primary objective is to identify prior journal publications related to the correlation between personality traits and police job performance. The search was conducted using keywords like "personality," "personality traits," "performance," and "job performance." Consequently, this review delves into the current landscape of personality research within the context of policing, particularly focusing on the evolution of personality measurement scales for police officers and their effectiveness in predicting job performance. It is essential to note that this review is limited to journal articles and no other sources of information were explored. Furthermore, it is advisable to conduct further research to investigate how factors such as gender, demographics, values, and team dynamics might influence job performance among police officers. Additionally, exploring the potential variations in police performance based on age is another intriguing aspect that deserves attention in future studies.

5. Conclusion

In summary, the primary focus of research on the relationship between personality and police job performance has centered on two main areas: the performance of police recruits before they are hired and the performance of active police officers with a particular emphasis on health-related concerns. Many of these

studies have employed the Big Five personality model as a measurement tool to predict police performance. This choice is justified by the scale's versatility, as it can be applied not only to assess the personality traits and psychological well-being of police officers but also to evaluate the personality traits of the general population through standard personality tests. Additionally, this review has identified various other measurement scales that are commonly used in the field of psychology and personality assessment. These include the Minnesota Multiphasic Personality Inventory, Inwald Personality Theory, Personality Research Form, Mindfindr Assessment Instrument, Personality Assessment Inventory (PAI), NEO-PI-R, Wonderlic Personnel Test, California Psychological Inventory, Occupational Personality Questionnaire, Self-Reported and Behavioral Personality Measures. These instruments are widely recognized and utilized within the psychology field for assessing personality attributes. In the context of policing, there has been a noticeable shift over the past two decades towards adopting the Big Five personality model as the preferred measurement tool. This transition is driven by a growing consensus among personality psychologists who recognize the robustness and effectiveness of the Big Five model in categorizing personality traits (Digman, 1990).

Drawing from the literature review, as proposed by the authors, the researchers suggest the need for additional studies aimed at enhancing sample size selection to ensure the generalizability of results. Furthermore, it is essential to explore the incorporation of additional data sources, such as clinical interviews, particularly regarding psychological assessments and demographic characteristics. Additionally, there is a need to delve deeper into understanding the disparities in performance between male and female police officers and the factors contributing to these differences. Moreover, future research efforts could expand their focus to identify the most effective individual officer selection methods, as this remains a significant challenge that has yet to receive substantial attention from the research community and scholars.

References

Akca, D. (2017). The theoretical and methodological problems in the usage of police personality measurement to predict job performance. Psychreg Journal of Psychology. ISSN.

Barrick, M. R. & Mount, M. K. (1991). The Big Five personality dimensions and job performance: a meta-analysis, *Personnel Psychology,* 44, 1-26.

Bartol, C. R. (1991). Predictive validation of the MMPI for officers who fail, *Professional Psychology, Research and Practice*, 22, 127-32.

Chiorri, C., Garbarino, S., Bracco, F. & Magnavita, N. (2015). Personality traits moderate the effect of workload sources on perceived workload in flying column police officers. *Frontiers in Psychology*, 6, 1835.

Cortina, J. M., Doherty, M. L., Schmitt, N., Kaufman, G. & Smith, R. G. (1992). The 'big five' personality factors in the IPI and MMPI: *predictors of police performance, Personnel Psychology,* 45(1), 119-40.

Costa, P. T., Jr. & McRae, R. R. (1992). NEO PI-R professional manual. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., Jr., McRae, R. R. & Kay, G. G. (1995). Persons, places, and personality: Career assessment using the Revised NEO Personality Inventory. *Journal of Career Assessment*, 3, 123-139.

Daniels, S. & King, E. (2002). The predictive validity of MMPI-2 content scales for small-town police officer performance, *Journal of Police and Criminal Psychology*, 17(2), 54-62.

Dekker, K., Blanken, T. F. & Van Someren, E. J. (2017). Insomnia and personality—a network approach. *Brain Sciences*, 7(3), 28. https://doi.org/10.3390/ brainsci7030028

Detrick, P. & Chibnall, J. T. (2002). Prediction of police officer performance with the Inwald Personality Inventory. *Journal of Police and Criminal Psychology,* 17(2), 9-17.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology*, 41,417440.

Forero, C. G., Gallardo-Pujol, D., Maydeu-Olivares, A. & Andrés-Pueyo, A. (2009). A longitudinal model for predicting the performance of police officers using personality and behavioral data. *Criminal justice and behavior,* 36(6), 591-606.

Guion, R. M. & Gottier, R. F. (1965). Validity of personality measures in personnel selection. *Personnel Psychology*, 18, 135-164.

Hintsanen, M., Puttonen, S., Smith, K., Törnroos, M., Jokela, M., Pulkki-Råback, L., Hintsa, T., Merjonen, P., Dwyer, T., Raitakari, O. T., Venn, A. & KeltikangasJärvinen, L. (2014). Five-factor personality traits and sleep: Evidence from two population-based cohort studies. *Health Psychology,* 33(10), 1214.

Huhta, J. M., Nota, P. M. D., Nyman, M., Pietilä, E. & Ropo, E. (2021). Universal police behaviors during critical incidents and their connection to personality: A preliminary study. *Nordic Journal of Studies in Policing,* 8(1), 1-18.

Kitchenham, B. & Charters, S. (2007). Guidelines for performing systematic literature reviews in software engineering.

Koropanovski, N., Kukić, F., Janković, R., Kolarević, D., Subošić, D. & Orr, R. M. (2022). Intellectual potential, personality traits, and physical fitness at recruitment: Relationship with academic success in police studies. *Sage Open*, 12(1), 21582440221079932.

Masood, A., Rafique, R., Qaisar, S. & Musarat, R. (2017). Personality Traits as Predictor of Job Performance in Police Officers. *Bahria Journal of Professional Psychology*, 16(2).

McCrae, R. R. & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, 60(2), 175-215.

Melinder, A., Brennen, T., Husby, M. F. & Vassend, O. (2020). Personality, confirmation bias, and forensic interviewing performance. *Applied Cognitive Psychology*, 34(5), 961-971.

Murphy, K. R., Deckert, P. J. & Hunter, S. T. (2013). What personality does and does not predict and why: Lesson learned and future directions. Handbook of personality at work, 633-650.

Nurrohmat, N. (2022). The effects of professionalism and behavior by organizational citizenship (OCB) as mediating variables on the effect of personality on performance (a study on Makassar Police). *International Journal of Quality & Reliability Management,* 39(4), 1040-1058.

Ono, M., Sachau, D. A., Deal, W. P., Englert, D. R. & Taylor, M. D. (2011). Cognitive Ability, Emotional Intelligence, and the Big Five Personality Dimensions as Predictors of Criminal Investigator Performance. *Criminal Justice and Behavior,* 38(5), 471–491.

Perry, A. & Hammond, N. (2002). Systematic reviews: The experiences of a PhD student. *Psychology Learning & Teaching,* 2(1), 32-35.

Piedmont, R. L. & Weinstein, H. P. (1998). Predicting supervisor ratings of job performance using the NEO Personality Inventory. *Journal of Psychology,* 128, 255-265.

Richardson, D. W., Cave, S. B. & La Grange, L. (2007). Prediction of police officer performance among New Mexico State Police as assessed by the Personality Assessment Inventory. *Journal of Police and Criminal Psychology*, 22, 84-90.

Roberts, R. M., Tarescavage, A. M., Ben-Porath, Y. S. & Roberts, M. D. (2019). Predicting post probationary job performance of police officers using CPI and MMPI–2–RF test data obtained during preemployment psychological screening. *Journal of Personality Assessment*, 101(5), 544-555.

Sanders, B. A. (2008). Using personality traits to predict police officer performance. Policing: An *International Journal of Police Strategies & Management,* 31(1), 129-147.

Shaffril, H. A. M., Samah, A. A., Samsuddin, S. F. & Ali, Z. (2019). Mirror-mirror on the wall, what climate change adaptation strategies are practiced by the Asian fishermen of all? *Journal of Cleaner Production*, 232, 104-117.

Sørengaard, T. A., Langvik, E., Olsen, A. & Saksvik-Lehouillier, I. (2022). Predictors of insomnia symptoms in police employees: a longitudinal investigation and comparison of personality and psychosocial work factors. *Cogent Psychology,* 9(1), 2137246.

Speer, A. B., Christiansen, N. D., Robie, C. & Jacobs, R. R. (2022). Measurement specificity with modern methods: Using dimensions, facets, and items from personality assessments to predict performance. *Journal of Applied Psychology*, 107(8), 1428–1439. https://doi.org/10.1037/apl0000618

Tarescavage, A. M., Brewster, J., Corey, D. M. & Ben-Porath, Y. S. (2015). Use of prehire Minnesota Multiphasic Personality Inventory-2–Restructured Form (MMPI-2-RF) police candidate scores to predict supervisor ratings of posthire performance. *Assessment*, 22(4), 411-428.

Tomini, B. A. (1997). The person-job fit: implications of selecting police personnel based on job dimensions, aptitudes and personality traits (Unpublished doctoral dissertation). University of Windsor, Ontario.

Yang, L., Zhang, H., Shen, H., Huang, X., Zhou, X., Rong, G. & Shao, D. (2021). Quality assessment in systematic literature reviews: A software engineering perspective. *Information and Software Technology*, 130, 106397.

Weiss, P. A. & Inwald, R. (2010). A brief history of personality assessment in police psychology. In P.A. Weiss (Ed.), Personality assessment in police psychology: A 21st-century perspective (5–28). Springfield, Ill.: Charles C Thomas Pub Ltd.

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Determining the Influential Factors Motivating Undergraduate Students to Initiate Entrepreneurial Ventures

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Abstract: Every day, new startups emerge, and a significant portion of them will experience failure just as quickly. The global rise in population has led to a growing concern about unemployment. However, job opportunities are not expanding at a comparable rate to the overall population increase. Consequently, many unemployed individuals are turning to self-employment as a means to regain their dignity and livelihood. The Theory of Planned Behavior (TPB) Model serves as the underlying theoretical framework, given recent research indicating that intentions can effectively forecast future entrepreneurial activities. This research aims to investigate the intentions related to becoming an entrepreneur in terms of personal attitudes, perceived behavioral control, and subjective norms. The study primarily targets undergraduate students who face the choice of either entering the workforce or pursuing entrepreneurship upon graduation. Employing a descriptive research approach, this study seeks to provide valuable insights and elucidate the connections among attitudes toward behavior, subjective norms and perceived behavioral control that impact entrepreneurial intentions among Malaysian undergraduate students. To assess their entrepreneurial intentions, respondents will complete a structured questionnaire. The study's findings underscore the significance of social entrepreneurship intentions in cultivating students' interest in becoming future entrepreneurs. Insights from this study could provide valuable guidance to educational institutions, policymakers, and entrepreneurship support organizations in designing effective interventions and initiatives aimed at nurturing the entrepreneurial spirit among undergraduate students.

Keywords: *Theory of Planned Behavior, Entrepreneurial Intention, Attitude towards Behavior, Subjective Norms, Perceived Behavioral Control.*

1. Introduction

In today's dynamic and ever-evolving global landscape, entrepreneurship has emerged as a pivotal force driving innovation, economic growth, and job creation. As the world witnesses the emergence of countless startups and entrepreneurial success stories, the role of undergraduate students in shaping the future of entrepreneurship cannot be understated. This conceptual paper delves into the intricate fabric of factors that motivate undergraduate students to embark on entrepreneurial ventures, utilizing the Theory of Planned Behavior (TPB) as a guiding framework.

The Theory of Planned Behavior, developed by Ajzen in 1991, posits that individuals' intentions are significant predictors of their future behavior. In the context of entrepreneurship, understanding the determinants of intention among undergraduate students becomes paramount, as their choices today may well define the entrepreneurial landscape of tomorrow.

The motivation behind this study arises from the recognition that while entrepreneurship is garnering increasing attention in academic and policy circles, a comprehensive understanding of the underlying factors that ignite the entrepreneurial spark in undergraduate students remains somewhat elusive. Unearthing these influential factors is not only academically intriguing but also holds substantial practical implications for educational institutions, policymakers, and society at large.

Moreover, the backdrop of this research is the Malaysian higher education system, a dynamic environment where undergraduate students face critical decisions about their future careers. The choices they make are whether to pursue conventional employment or entrepreneurial ventures that have ripple effects on economic development, job creation and the overall socioeconomic landscape of the country.

This paper adopts a conceptual approach to explore the determinants of entrepreneurial intention among undergraduate students in Malaysia. It seeks to provide a theoretical foundation and framework for future empirical research in this area. Through an in-depth analysis of personal attitudes, perceived behavior control, and subjective norms as proposed by the TPB, this study aims to shed light on the factors that inspire and propel undergraduate students toward entrepreneurship.

Ultimately, this exploration into the motivational factors guiding undergraduate students on their entrepreneurial journeys not only enriches the academic discourse on entrepreneurship but also paves the way for informed educational strategies and policy initiatives that nurture and empower the next generation of entrepreneurs in Malaysia and beyond.

2. Literature Review

Entrepreneurship: Entrepreneurship is defined, as a dynamic mindset for navigating the global economy's challenges and opportunities. It involves proactive identification of market gaps and the transformation of these openings into viable businesses. Central to this approach is a willingness to embrace calculated risks and perceive failure as a valuable learning experience. Entrepreneurs excel at resource management, efficiently allocating financial, human, and temporal resources to foster growth and sustainability. They distinguish themselves through their enduring persistence, adapting and innovating to surmount obstacles on their path to success. This autonomy and creative freedom are powerful motivators for entrepreneurs, allowing them to align their work with their passion and vision.

In the broader economic landscape, entrepreneurship emerges as a cornerstone of sustainable growth and progress. New businesses, ignited by entrepreneurial spirit, act as powerful engines driving job creation in communities and regions. These enterprises provide employment opportunities, not only bolstering livelihoods but also strengthening the social fabric of society. Job growth is not limited to the immediate workforce; it ripples through supply chains and ancillary services, amplifying its impact. Entrepreneurs drive innovation, challenging norms and fostering creative industries. This competitive spirit encourages businesses to adapt and enhance their offerings, benefiting consumers with improved products and services. Moreover, entrepreneurship's impact extends beyond individual ventures, transforming industries and economic landscapes. Innovations create ripple effects, elevating overall well-being and fostering collaboration, making entrepreneurship a catalyst for societal progress and economic transformation.

Entrepreneurship Intention (EI): Entrepreneurship intention (EI) is a multifaceted concept deeply rooted in academic research and theory, reflecting an individual's inner drive and aspiration to embark on a transformative journey of entrepreneurial discovery and innovation. It has been scrutinized and defined from various perspectives, each shedding light on its pivotal role in the entrepreneurial landscape.

As articulated by Westhead and Solesvik (2016), EI represents the very seed of a person's desire, a fervent ambition to nurture and cultivate their entrepreneurial vision. It embodies an unwavering self-conviction, as highlighted by Passaro et al. (2018), serving as a testament to an individual's belief in themselves. It's not merely a fleeting notion but an active commitment, a forward-looking resolve to breathe life into a novel business concept in the foreseeable future.

Beyond being a mental inclination, EI is a dynamic process of exploration, as emphasized by Mohamad et al. (2021) and Badri & Hachicha (2019). It entails the relentless pursuit of knowledge, skills, and resources, akin to a prospector seeking precious gems in uncharted terrain. This phase of knowledge acquisition serves as a critical preparatory step in the entrepreneurial journey, empowering individuals with the tools required to manifest their visions into reality.

Furthermore, as Doğan (2015) underscores, EI serves as a reliable compass, guiding individuals through the intricate maze of entrepreneurial endeavors, and directing them toward the path of potential business development. It bridges the gap between aspiration and action, often motivating individuals to translate their innovative ideas into thriving startups. In the grand tapestry of entrepreneurship, EI represents the first brushstroke on a canvas, the initial blueprint in a grand architectural design, signifying the commencement of

a transformative odyssey where ideas evolve into enterprises, and dreams materialize as real-world innovations. As Tsai et al. (2016) propose, EI is the foundational stepping-stone upon which entrepreneurial actions are constructed, igniting the spark of innovation and propelling individuals into the exhilarating world of entrepreneurship, where opportunities abound, risks are embraced, and the potential for personal and societal growth is limitless.

Theory of Planned Behavior (TPB): The Theory of Planned Behavior (TPB) is a widely recognized psychological theory that can be applied to understand and explain the factors related to student entrepreneurship. The theory of planned behavior (TPB) is the foundation of this research. The theory outlined by Icek Ajzen (Ajzen, 1991) is used to analyze the three elements of TPB as determinants of entrepreneurship intention among undergraduate students. This is a theory that has been used in the social and behavioral sciences to explain a variety of phenomena, and also it explains people's deliberate actions, especially in the context of entrepreneurship (George & Ernest, 2017).

The TPB is an extension of the Theory of Reasoned Action which is outlined by Fishbein and Ajzen (1975). The TPB establishes a connection between intention and behavior (Santoso, 2021). Although the TPB does not predict or forecast actual behavior it predicts intention and has a clear correlation between intention and behavior (George and Ernest, 2017).

Various empirical research was conducted and has been shown to predict entrepreneurship intention most accurately (Al Ghani, A et al., 2022; Soomro et al., 2022; Mahmoud et al., 2020, Santoso, 2021). TPB suggests that individuals' intentions to engage in a particular behavior (Ajzen, 1991) such as starting a business (entrepreneurship), are influenced by three main factors: Personal Attitude toward behavior, Subjective norms, and Perceived behavioral control (Mustafa et al., 2016).

Attitude toward Behavior: Attitude, according to Ajzen's (1991) definition, is a fundamental element of human conduct, encompassing an individual's propensity toward either favorable or unfavorable inclinations in their actions and decisions. This predisposition is intricately entwined with their expectations and beliefs concerning the repercussions of their actions, which can be categorized as either positive or negative, thus molding their overall attitude. In the realm of entrepreneurship, the connection between personal attitudes and entrepreneurial aspirations becomes evident, as observed by Phuong et al. (2021). Those who nurture positive attitudes toward entrepreneurial endeavors are more likely to cultivate ambitions of venturing into entrepreneurship, illustrating a direct and affirmative correlation between one's attitude and subsequent conduct or intentions in the entrepreneurial sphere.

The evolution of positive or negative attitudes is a multifaceted process influenced by a myriad of factors, as underscored by Krueger et al. (2000). These factors encompass individual traits, competencies, demographics, and the broader social and external milieu, collectively contributing to the formation of these attitudes. This intricate interplay highlights the necessity of comprehensively understanding the genesis of attitudes and their impact on entrepreneurial undertakings.

Furthermore, as emphasized by Phuong et al. (2021), students often perceive entrepreneurship as an enticing and coveted career path. This perception is rooted in the conviction that entrepreneurship offers a route to financial autonomy and the potential for considerably higher earnings than traditional employment. The appeal of entrepreneurship lies in the promise of financial self-sufficiency, where income is directly linked to one's exertions and the success of their entrepreneurial endeavors. In an era marked by apprehensions about job security, students are increasingly inclined toward entrepreneurship as a more stable and autonomous professional journey. This outlook is based on the recognition that, as entrepreneurs, they have greater influence over their destinies and can navigate economic uncertainties with flexibility. As a result, the motivation to explore entrepreneurship as a career choice is propelled by the desire for both financial independence and a sense of self-reliance, rendering it an attractive option in the ever-evolving landscape of modern professions.

H1: There is a relationship between attitude toward behavior and entrepreneurship intention among undergraduate students.

Subjective Norms: The second component within the Theory of Planned Behavior (TPB) is the subjective norm, a personal concept rooted in the social context that underscores the decision-making processes inherent in behavioral principles (Ajzen & Kruglanski, 2019). This element places a spotlight on the beliefs and viewpoints of influential individuals within one's social circles, encompassing family, friends, and mentors, about an individual's involvement in entrepreneurial pursuits (Kautonen et al., 2015). Students often experience a sense of either pressure or encouragement from their social network when contemplating entrepreneurship (Ajzen, 2002). They may take into account the level of support they anticipate receiving from their social connections as they embark on their entrepreneurial journey. Having supportive friends and family can significantly bolster their confidence in pursuing entrepreneurial ventures.

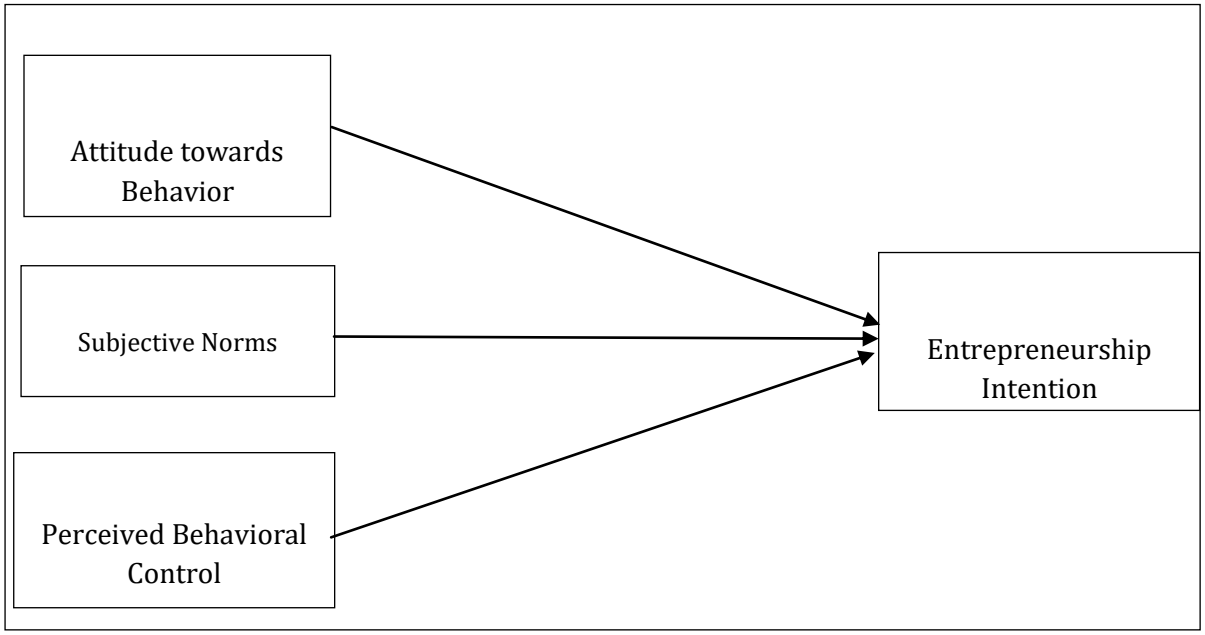
Moreover, students may find themselves benefiting from access to resources and guidance within a nurturing entrepreneurial ecosystem, which includes mentors, incubators, and networking events, all of which contribute to enhancing their confidence in pursuing entrepreneurship. Establishing a network of contacts, mentors, and advisors within this entrepreneurial ecosystem can serve as a gateway to future opportunities, collaborations, and potential investors and partners. Additionally, numerous universities offer a wealth of resources and support tailored to student entrepreneurs, encompassing incubation programs, accelerators, and avenues for securing funding, rendering the academic phase an opportune moment to initiate entrepreneurial endeavors. Notably, even the Malaysian government actively promotes entrepreneurship among its citizens by offering a plethora of subsidies and grants, further incentivizing entrepreneurial pursuits.
H2: There is a relationship between subjective norms and entrepreneurship intention among undergraduate students.

Perceived Behavior Control: Perceived behavior control is a personal belief system that underscores one's perception of the ease or difficulty associated with engaging in entrepreneurial activities, as described by Ajzen (2002). This factor revolves around a student's assessment of their capability to effectively partake in entrepreneurship. Those students with higher levels of self-efficacy possess a strong belief in their ability to adeptly handle the challenges and responsibilities that come with entrepreneurship, including tasks like business planning, marketing, and financial management, especially during the initial stages of a business venture. In this context, individuals with a heightened sense of perceived behavioral control tend to prioritize the ease with which they can navigate these situations, ultimately leading to a greater intention to pursue entrepreneurship, as noted by Maheshwari (2021).

Furthermore, the perception of one's skill set plays a pivotal role in their confidence regarding the intention to initiate a new business, as highlighted by Hsieh et al. (2017). Recognizing and assessing one's abilities and competencies becomes a prerequisite before embarking on the entrepreneurial journey. This introspective assessment not only influences their entrepreneurial intentions but also lays the foundation for their overall approach to entrepreneurship, shaping their readiness and determination to navigate the complexities of business ownership.
H3: There is a relationship between perceived behavioral control and entrepreneurship intention among undergraduate students.

Theoretical Framework: Figure 1 represents the proposed theoretical framework for this study. It will focus on the influence of personal attitudes, perceived behavioral control, and subjective norms that impact entrepreneurial intentions among undergraduate students.

Figure 1: Proposed Conceptual Framework



3. Methodology

The paper attempts to study the factors motivating undergraduate students to initiate entrepreneurial ventures. The proposed independent variables are personal attitude, perceived behavior control and subjective norms while entrepreneurship intention is the dependent variable for this study. The study will use a descriptive research approach to gain fruitful insights as well as to explain the relationship between personal attitude, perceived behavior control and subjective norms that influence entrepreneurship intention among undergraduate students in Malaysia. A structured questionnaire will be distributed to the respondents to assess their entrepreneurship intention. The answered questionnaires will be analyzed using the Statistical Package for Social Science (SPSS) and Structural Equation Model (SEM).

4. Conclusion

In conclusion, as the world witnesses a continuous influx of new startups and grapples with the challenges of unemployment in the face of a growing population, the Theory of Planned Behavior (TPB) Model serves as a valuable lens through which to understand the dynamics of entrepreneurial intentions. This research, focused on Malaysian undergraduate students, sheds light on the critical factors influencing individuals' decisions to embark on the entrepreneurial path. By examining personal attitudes, perceived behavioral control, and subjective norms, we gain insight into the motivations and barriers that shape the entrepreneurial intentions of these students.

The findings of this study emphasize the importance of fostering social entrepreneurship intentions among undergraduate students, recognizing that entrepreneurship can provide a meaningful avenue for addressing unemployment and empowering individuals to regain their livelihoods with dignity. This research not only contributes to our understanding of the factors influencing entrepreneurial intentions but also highlights the potential for educational institutions, policymakers, and entrepreneurship support organizations to play a pivotal role in nurturing and promoting entrepreneurship among the youth. It also offers an opportunity to develop strategies for effectively conveying the benefits of entrepreneurship to students and encouraging their interest in this path.

In a world where innovation and entrepreneurship are increasingly vital for economic growth and job creation, the insights gained from this study offer a promising path forward. By leveraging the knowledge gained here, stakeholders can develop targeted interventions and initiatives that inspire and equip the next

generation of entrepreneurs, ultimately contributing to the sustainable economic development of Malaysia and beyond.

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References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior Human Decision Processes,* 50, 179-21

Ajzen, I. & Kruglanski, A. W. (2019). Reasoned action in the service of goal pursuit. *In Psychol Rev,* 126(5), 774–786.

Al Ghani, A., Al Qaisi, B. & Gaadan, W. (2022). A Study on Entrepreneurship Intention Based on the Theory of Planned Behavior (TPB). International Journal of Formal Science: *Current and Future Research Trends*, 13(1), 12-21.

Badri, R. & Hachicha, N. (2019). Entrepreneurship education and its impact on student's intention to start up: A sample case study of students from two Tunisian universities. *The International Journal of Management Education*, 17(2), 182-190

Doğan, E. (2015). The effect of entrepreneurship education on entrepreneurial intentions of university students in Turkey. *Ekonometri ve istatistik e-Dergisi,* (23), 79-93.

George, A. & Ernest, Y. T. (2017). Does past failure inhibit future entrepreneurial intent? Evidence from Ghana. *Journal of Small Business and Enterprise Development,* 25(5), 849-863.

Hsieh, C., Parker, S. C. & van Praag, C. M. (2017). Risk, balanced skills and entrepreneurship. *Small Business Economics*, 48, 287–302.

Kautonen, T., Van Gelderen, M. & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrep Theory Pract,* 39(3), 655–674.

Krueger, J. R. N. F., Reilly, M. D. & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal Business Vent,* 15(5–6), 411–432.

Maheshwari, G. (2021). Factors influencing entrepreneurial intentions the most for university students in Vietnam: educational support, personality traits or TPB components? *Journal of Education and Training*, 63(7/8), 1138–1153.

Mohamad, N. H., Ibrahim, B., Selamat, A., Ismail, A. & Kadir, Z. A. (2021). A Protocol for Development of Holistic-Entrepreneur Graduates: Emotional Intelligence Perspectives. *Journal of Technical Education and Training,* 13(1), 35-43.

Mohammed Sani, AbdullahiNadeemKhalid, Umair Ahmed, ElsadigMusaAhmed, Alhassan Musa Gumawa. (2021). Effect of Entrepreneurship Education on Entrepreneurial Intention among University Students. *Journal of Technical Education and Training*, 13(3), 40-53.

Mustafa, M. J., Hernandez, E., Mahon, C. & Chee, L. K. (2016). Entrepreneurial intentions of university students in an emerging economy: the influence of university support and proactive personality on students' entrepreneurial intention. *Journal Entrepreneurship Emerge Economic,* 8(2), 162–179.

Passaro, R., Quinto, I. & Thomas, A. (2018). The impact of higher education on entrepreneurial intention and human capital. *Journal of Intellectual Capital,* 19(1), 135-156.

Phuong, N., Quoc, T., Cup, L. & Lien, L. (2021). The students' attitudes and entrepreneurial intention: evidence from Vietnam universities. *Manag Sci Lett,* 11(3), 783–794.

Soomro, B. A., Shah, N. & Abdelwahed, N. A. A. (2022). Intention and its Influencing Factors: A survey of University Students in Xian's China. *Creative Education,* 3(08), 95-100.

Tsai, K. H., Chang, H. C. & Peng, C. Y. (2016). Extending the link between entrepreneurial self-efficacy and intention: a moderated mediation model. *International Entrepreneurship and Management Journal,* 12(2), 445-463.

Westhead, P. & Solesvik, M. Z. (2016). Entrepreneurship education and entrepreneurial intention: Do female students benefit? *International Small Business Journal*, 34(8), 979-1003.

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Public Safety: Escalator Safety Awareness through Game-Based Learning

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Abstract: An escalator is a passenger transportation system in which passengers has direct contact with the machine's moving powered sections and travel by standing on the moving steps. They are known to be in shopping malls, office buildings, and public transport hubs. The news of the escalator mishap has been reported in the news every year. Human behavior is the leading cause of escalator accidents, with 90% of the victims being young children. This project aims to raise awareness among the public, especially children, regarding escalator safety awareness. This project creates a 2D game that implements a Game-Based Learning (GBL) model for the framework. This project also uses a System Usability Scale (SUS) questionnaire to check the game's usability. Based on the evaluation, the game got a high SUS score of 85.3. According to the SUS score, the score is classified as grade A with an excellent adjective rating. Thus, the game-based learning approach to safety education has great potential for escalator safety.

Keywords: *Escalator Safety, Game-based learning, public safety, 2D game, GBL.*

1. Introduction

An escalator is a passenger transportation system in which passengers have direct contact with the machine's moving powered sections and travel by standing on the moving steps (Chew et al., 2021). In Malaysia, there were 12,923 escalators as of 2018 (New Straits Times, 2018), and they are known to be in shopping malls, office buildings, and public transport hubs. However, due to construction or maintenance work, it is conceivable that this number has changed since then. Nevertheless, the news of the escalator mishap has been reported in the news (Amran, 2016; New Straits Times, 2018; The Star, 2016; The Sun Daily, 2016). For example, the Consumer Product Safety Commission (CPSC) reported that an average of 6,000 people per year are injured on escalators. Still, elevator injuries are more common, with approximately 10,200 elevator accidents involving injuries occurring each year in the United States (Penney and Associates, 2021). These accidents occur in many countries due to the development of skyscrapers that must have escalators and elevators as transport mediums.

Even though every escalator includes safety signage, users rarely read it because the journey is so short; the average estimated escalator travel time is between 20 and 35 seconds (Ibrahim et al., 2021). On the other hand, children are still too young to understand the rules thoroughly. To solve the raised issue, the purpose of this project is to design and construct a game that demonstrates suitable methods to ride the escalator safely. The game is designed specifically for children, making it easier to understand and remember important safety tips while using escalators. As a result, this technology can assist users in quickly comprehending escalator safety because this game aims to bring awareness to society and minimize accidents in this area.

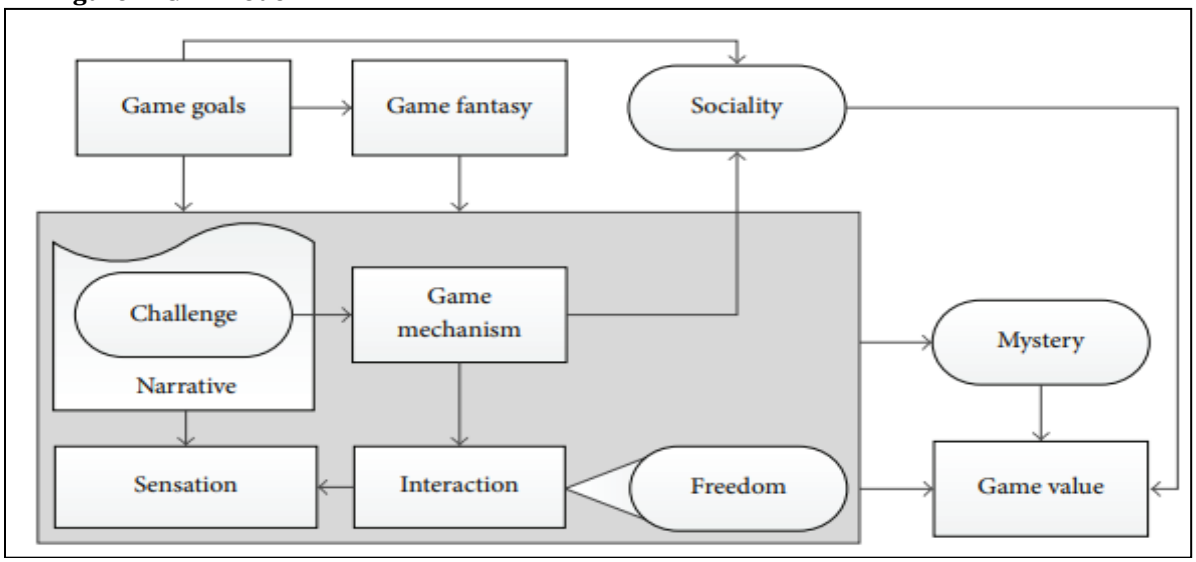
2. Methodology

Each learning approach has different criteria and has its pros and cons. Thus, game-based learning is preferable to serious games or gamification in the context of escalator safety awareness. Game-based learning (GBL) allows users to interact with the material in a fun and interactive way, improving retention and understanding. This can be especially effective for topics such as safety awareness that can be dry or monotonous when presented in a traditional training format. GBL is suitable for children. According to (Behnamnia et al., 2020), GBL can stimulate children's curiosity to find new ways to solve problems by making the visual space appealing, which in turn increases children's satisfaction. While serious games and gamification can be effective in some situations, they may not be the best fit for all. Serious games require

specialized development and resources, and gamification may lack the same level of engagement and immersion as game-based learning.

The Game-Based Learning (Figure 1) model begins by considering the game's goals, which involve teaching objectives and the experience players should have. The experience and the game's fantasy aspect are connected because they shape the virtual world and immerse players. However, in this project, the fantasy element is omitted because the focus is on creating a lifelike learning environment for understanding escalator safety. The goal is to enhance the game's educational value by emphasizing realism and enabling players to apply what they learn to real-life escalator safety situations.

Figure 1: GBL Model



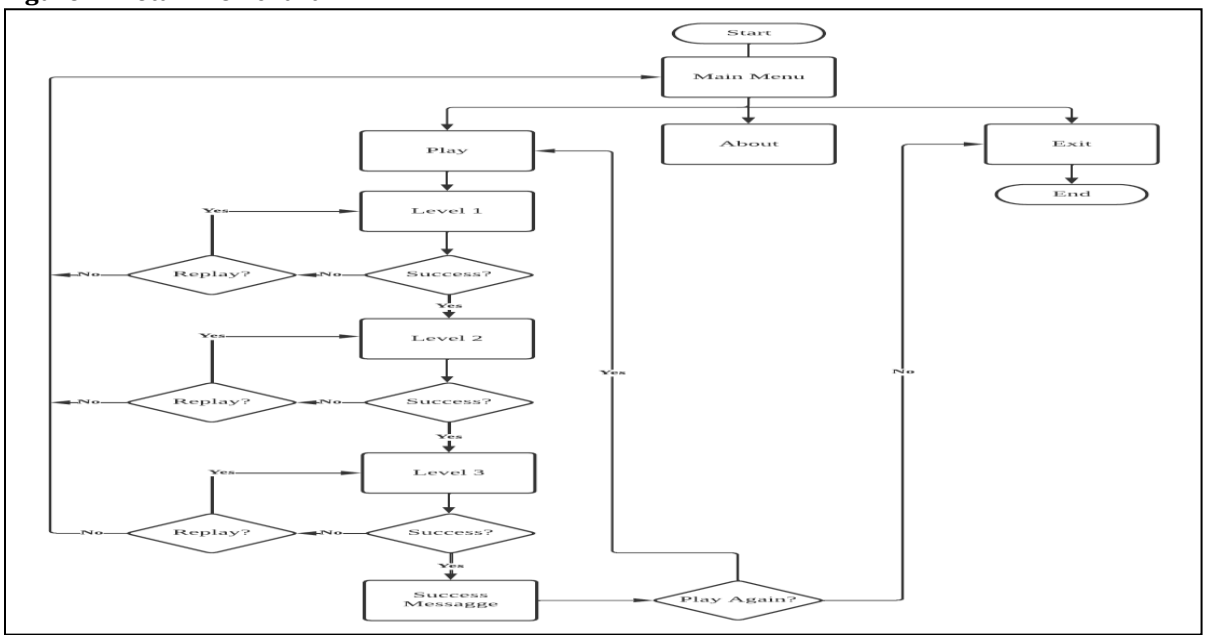
(**Source:** Shi & Shih, 2015)

3. Results and Discussion

This section discussed the system's design, development, and testing in designing and developing "the escalator safety awareness game."

a) System Design: A good game design system reflects how the system will deliver the overall content of the system without letting the user interfere with any of the technical defects. This subsection will further explain the details of the game design starting with the game flow. Figure 2 shows the overall flow chart of the game flow of the game. The flowchart also tells how the gameplay starts from the beginning until the game is ended.

Figure 2: Detail Flowchart



A high-fidelity storyboard, shown in Figure 3, is a detailed visual representation of a game's key moments and scenes, consisting of high-quality graphics and illustrations that closely resemble the appearance and feel of the final game. It provides a detailed and refined visual representation of the game's flow and user experience, serving as an important guide during the development process.

Figure 3: High-Fidelity Storyboard

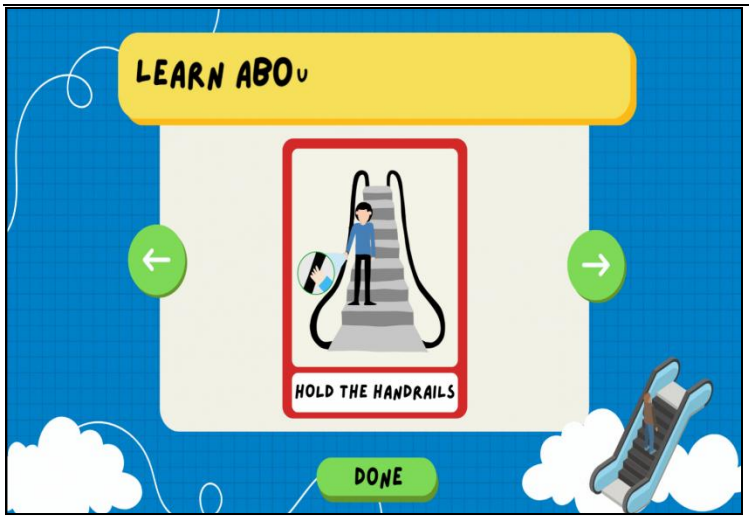
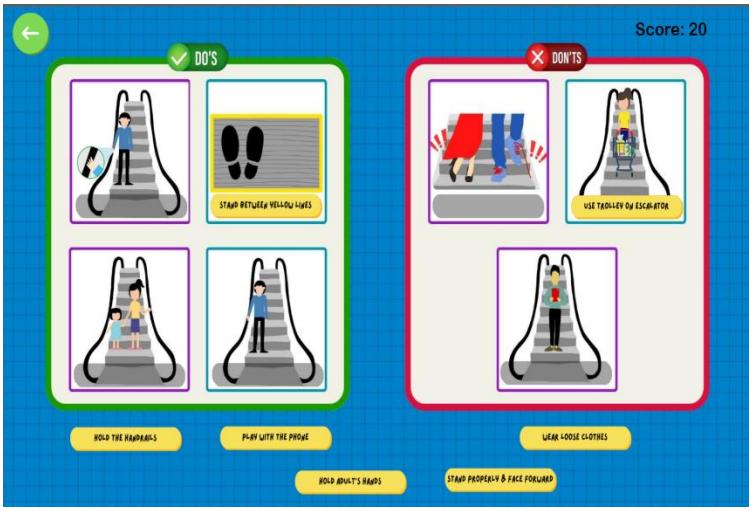
Scene 1: Main Menu

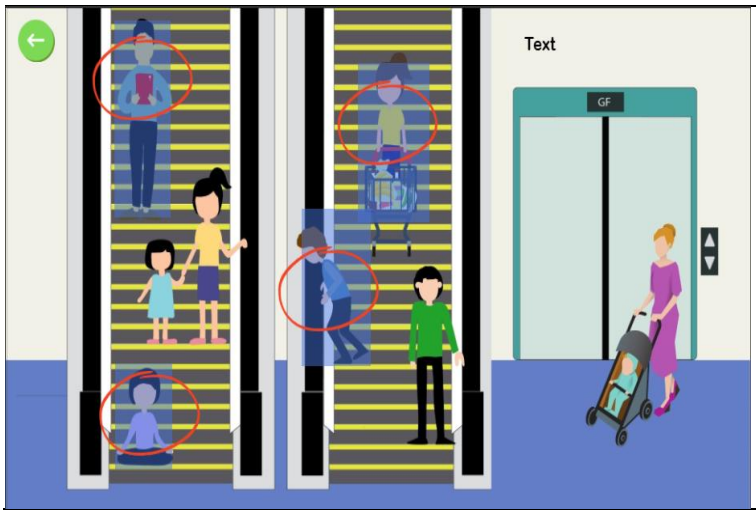
Description
The main menu has three buttons. Firstly, the PLAY button will bring the user to the gameplay mode, and the ABOUT button will display the information about the game. If the user clicks the EXIT button, the user will exit the game.
Multimedia Elements: T (Text), B (Button), G (Graphic), A (Animation), S (Sound)

T1: Game title
B1: Sound button
B2: Game button
G1: Background image
S1: Background music

b) System Development: The system development can only be started after the design works were completed. During this phase, a step-by-step development and implementation would be performed on the system. The activities involved are developing an application system. Table 1 shows the description of the user interface design of the proposed game. The development process involves using MediBang Paint for illustrations, Canva for graphics, Audacity for audio, and Construct 3 game engine for interactive games. These tools enable the efficient creation of visually appealing and engaging games. The powerful combination of this software can create an exciting and useful game.

Table 1: Final Version of the User Interface Description

Interface	Description
	**Level 1: Learn the Basics** The primary goal is to introduce players to the fundamental safety guidelines associated with escalators. The level is designed as an informative slideshow, with players clicking on arrows to navigate various safety behaviors
	**Level 2: Match the Behaviors** The players are presented with a drag-and-drop interaction-based matching game. By dragging and dropping the words into the appropriate boxes, they must connect the proper dos and don'ts of escalator behaviors.



Level 3: Identify the Unsafe Behaviors
The objective here is to identify unsafe behaviors on the escalator. The environment offers a variety of scenarios, and players must actively seek out and call attention to unsafe behaviors. They will circle the correct response to indicate their selection. This level encourages critical thinking and situational awareness by requiring players to assess escalator usage in a realistic setting.

c) Usability Testing: The usability testing evaluates the effectiveness and user-friendliness of the escalator safety awareness game using the System Usability Scale (SUS). Participants interact with the game while performing tasks to identify usability issues and gather feedback. The SUS questionnaire quantifies user satisfaction and perceptions of the game's usability, enhancing its design and functionality. This approach ensures the game effectively promotes escalator safety awareness among users.

i. Demographic of Participants: The evaluation's demographics reveal that the largest age groups were 11 and 12-year-olds (38.9% and 36.1%, respectively), followed by 10-year-olds and 9-year-olds (8.3%), 8-year-olds (5.6%), and 7-year-olds (2.8%). Table 2 shows the demographic information of the participants.

Table 2: Participants Demographic

		Frequency (n=36)	Percentage (%)
Gender	Male	19	52.8
	Female	17	47.2
Age	7 years old	1	2.8
	8 years old	2	5.6
	9 years old	3	8.3
	10 years old	3	8.3
	11 years old	14	38.9
	12 years old	13	36.1

ii. Usability Testing: A questionnaire on the game's usability in the escalator safety awareness game will be collected. The test will be conducted once the game session finishes. The System Usability Scale (SUS) will be used for the game evaluation test. There will be ten questions, five positive and five negative. The positive and negative questions will be asked one after the other. Table 3 describes the questions about game usability (Mohamad Marzuki et al., 2018).

Table 3: System Usability Scale (SUS) Questionnaire in Malay

No.	Questions
1	Saya rasa saya ingin kerap menggunakan permainan ini.
2	Saya rasa permainan ini sesuatu yang rumit.
3	Saya rasa permainan ini mudah untuk digunakan.
4	Saya memerlukan bantuan daripada orang lain untuk menggunakan permainan ini.
5	Saya mendapati fungsi-fungsi dalam permainan ini saling bersepadu (berhubungkait) dengan baik.
6	Saya rasa terdapat banyak kandungan di dalam permainan ini yang tidak konsisten antara satu sama lain.
7	Saya membayangkan bahawa kebanyakan orang akan cepat belajar menggunakan permainan ini.

8	Saya mendapati permainan ini leceh untuk digunakan.
9	Saya berasa yakin menggunakan permainan ini.
10	Saya perlu belajar terlalu banyak perkara sebelum boleh menggunakan permainan ini.

Table 4 shows the overall findings for each participant. From these scores, the calculation was made using the SUS score and as a result, the average SUS score for the escalator safety awareness game is 85.3. Based on the final SUS score, this score is classified as grade A with an excellent adjective rating.

Table 4: The Overall Findings for Each Participant

	Question											
Participants	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Raw Score**	**Final Score**
P1	4	3	4	2	2	3	4	2	4	1	27	67.5
P2	5	1	5	2	5	2	5	1	5	2	37	92.5
P3	5	3	5	3	5	1	5	1	5	3	34	85
P4	5	2	5	2	5	2	5	1	4	3	34	85
P5	5	2	5	1	5	2	5	1	5	4	35	87.5
P6	5	1	5	2	5	1	5	1	5	2	38	95
P7	3	1	5	1	5	2	5	1	5	1	37	92.5
P8	4	1	3	1	5	2	4	1	3	2	32	80
P9	5	4	5	4	5	3	5	2	3	2	28	70
P10	4	1	5	2	5	2	5	1	5	1	37	92.5
P11	4	2	5	4	5	2	5	2	5	4	30	75
P12	5	1	5	5	2	2	4	3	5	3	27	67.5
P13	5	2	5	2	5	1	5	1	5	3	36	90
P14	4	1	5	1	5	1	5	1	5	5	35	87.5
P15	4	2	5	2	5	1	5	1	5	2	36	90
P16	4	2	5	1	5	1	4	1	5	3	35	87.5
P17	4	3	5	2	5	2	5	1	5	2	34	85
P18	4	1	5	1	5	1	4	1	5	5	34	85
P19	5	2	4	2	4	1	5	1	4	3	33	82.5
P20	4	1	4	1	4	1	5	1	5	3	35	87.5
P21	4	2	5	3	5	1	5	1	5	3	34	85
P22	4	2	5	2	5	2	5	1	5	3	34	85
P23	5	1	5	2	5	1	5	1	4	2	37	92.5
P24	4	1	5	1	5	1	5	1	5	2	38	95
P25	5	2	4	2	5	1	5	1	5	2	36	90
P26	4	1	5	2	5	1	4	1	5	2	36	90
P27	4	2	5	2	5	1	4	1	5	1	36	90
P28	4	2	5	1	5	1	5	1	5	1	38	95
P29	4	2	5	3	5	1	5	1	5	2	35	87.5
P30	5	2	5	5	4	2	5	2	5	2	31	77.5
P31	4	1	5	1	5	1	5	1	5	2	38	95
P32	4	1	5	1	5	1	5	2	5	1	38	95

P33	5	2	5	1	4	1	5	1	5	1	38	95
P34	4	2	5	3	4	1	5	2	5	2	33	82.5
P35	2	2	4	2	3	1	5	2	4	4	27	67.5
P36	2	1	5	3	3	2	4	3	4	3	26	65
										Average SUS Score:		85.3

Based on the average SUS score of 85.3 from the System Usability Scale assessment, the escalator safety awareness game exhibits a favorable level of usability and user satisfaction. The SUS score, which ranges from 0 to 100, indicates that the game performed well in terms of usability and user experience. A SUS score of 85.3 is considered quite high. It indicates that the participants found the game user-friendly, easy to use, and effective in promoting escalator safety awareness. This score suggests that users were generally satisfied with the game's interface, interactions, and overall usability

4. Conclusion

Escalator safety awareness is a critical aspect of promoting public safety and preventing accidents in busy public spaces. The development of the 2D escalator safety awareness game has emerged as an effective solution to overcome the limitations of traditional educational methods in conveying essential safety information. By implementing an age-specific approach, guided by the GDLC model, the game successfully engages users of different age groups, ensuring that the safety message is tailored to their specific needs and learning capabilities. Its interactive and informative gameplay has demonstrated the potential to enhance knowledge retention and user satisfaction, as evidenced by positive results from the SUS questionnaire. This GBL approach to safety education holds great promise for future initiatives, not only in escalator safety but also in other areas, making significant contributions to creating a safer and more informed society overall.

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References

Amran, M. A. F. (2016). Patuhi arahan keselamatan eskalator. Utusan Online. https://www.dosh.gov.my/index.php/ms/osh-column/osh-articles/1808-patuhi-arahan-keselamatan-eskalator

Behnamnia, N., Kamsin, A., Ismail, M. A. B. & Hayati, A. (2020). The effective components of creativity in digital game-based learning among young children: A case study. *Children and Youth Services Review*, 116, 105227. https://doi.org/https://doi.org/10.1016/j.childyouth.2020.105227

Chew, C. C., Chang, C. T., Lim, X. J., Ibrahim, H. A., Azmi, H., Wahabi, N. I., Hamdan, N. S., Nazan, N. A., Karim, N. H., Malawi, N. A., Oon, Y. L., Ms, N. J. & Hss, A. S. (2021). The quality of escalator signage for public safety in Malaysia: an observational study. *Global Health Journal*, 5(4), 198-203. https://doi.org/10.1016/j.glohj.2021.10.002

Ibrahim, H. A., Chew, C. C., Dahian, K., Mazlan, N. N., Jasper, J. J., Aznan, N., Said, N., Tangavelu, V., Musani, U. K. & HSS, A. S. (2021). Is Our Child Safe on the Escalator? *Malaysian Journal of Medicine and Health Sciences*, 17(4), 102-108.

Mohamad Marzuki, M. F., Yaacob, N. A. & Yaacob, N. M. (2018). Translation, Cross-Cultural Adaptation, and Validation of the Malay Version of the System Usability Scale Questionnaire for the Assessment of Mobile Apps [Original Paper]. *JMIR Hum Factors*, 5(2), e10308. https://doi.org/10.2196/10308

New Straits Times. (2018). Study shows lift, and escalator accidents due to poor maintenance, wrongful use and vandalism. New Straits Times. https://www.nst.com.my/news/nation/2018/10/425633/study-shows-lift-escalator-accidents-due-poor-maintenance-wrongful-use

Penney and Associates. (2021). How Common Are Elevator & Escalator Injuries? *PR Newswire*. https://www.prnewswire.com/news-releases/how-common-are-elevator--escalator-injuries-301407062.html#:~:text=The%20Consumer%20Product%20Safety%20Commission,involving%20injuries%20occurring%20each%20year

Shi, Y. R. & Shih, J. L. (2015). Game Factors and Game-Based Learning Design Model. International Journal of Computer Games Technology, 2015, 549684. https://doi.org/10.1155/2015/549684

The Star. (2016). Niosh: Risky to wear soft rubber shoes on escalators. The Star. https://www.thestar.com.my/news/nation/2016/07/09/niosh-risky-to-wear-soft-rubber-shoes-on-escalators/

The Sun Daily. (2016). DOSH: 97% of escalator accidents reported from 2011-2015 involved young children. The Sun Daily. https://www.thesundaily.my/archive/1690538-FSARCH349813

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The Preparedness of Undergraduate Students to Take on the Gig Economy

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Abstract: The goal of this research is to examine the level of preparation of undergraduate students at a Malaysian public university to enter the gig economy. One of the platforms that have evolved with the Industrial Revolution 4.0 is the gig economy, or sharing economy, which students have mostly exploited to fund their study expenses. Characteristics like perceived usefulness, social influence, and perceived risk were used to identify students' willingness to participate in the gig economy. The researchers used Google Forms to administer surveys to our respondents to investigate which traits have the most impact on students' readiness to participate in the gig economy. Non-probability sampling, also known as purposive sampling, was used by the researchers. The sample frame for this study is made up of undergraduate students enrolled in business and management courses. Multiple regression was used to examine the responses of 106 undergraduate students. According to the findings of this study, two hypotheses, perceived utility and social influence, have been supported, whereas one, perceived risk, was rejected. This investigation led to the conclusion that there may be additional factors influencing students' willingness to engage in the gig economy that were not discovered in this study.

Keywords: *Gig economy, perceived usefulness, social Influence and perceived risks, undergraduate students.*

1. Introduction

The gig economy is seeing significant expansion and increasing significance within the realm of online platforms, constituting a notable segment of the labor market. The intrinsic properties of technology facilitate seamless international connectivity and communication. The utilization of online platforms in the gig economy is essential due to the prevalent requirement for freelancers to establish an online presence. Many students opt to engage in part-time employment or freelance work as a means of augmenting their financial resources. Examples of popular gig marketplaces include Upwork, Fiverr, and Airbnb.

The emergence of the gig economy in Malaysia has been observed as a trend due to the employment prospects and benefits it offers within this subsector. According to Jaafar (2020), it is projected that gig workers will comprise 40% of the Malaysian workforce and make a contribution of 26% to the country's economic growth within the next five years. According to a study conducted by Harun et al. (2020) in Malaysia, it was found that the age group with the greatest percentage of gig employment was individuals between 25 and 34 years old, accounting for 37.6% of the total. Furthermore, it was observed that 40.8% of gig workers in Malaysia possess a tertiary education. Additionally, gig workers were categorized into three primary areas, including agriculture, industry, and services. The services sector exhibited the largest proportion of gig employees, comprising 97.0 percent of the total. Within this sector, the majority of gig workers were engaged in wholesale and retail trade activities, accounting for 36.8 percent, followed by transportation and storage activities, which accounted for 16.2 percent of the total number of gig workers.

The gig or sharing economy is a platform frequently utilized by students to generate supplementary income for their educational expenses. Recognizing the foundational role of abilities and latent aptitude, skills play a crucial and indispensable role in the gig economy. Students' increasing participation in the freelance economy can be attributed to a mix of factors. In the first place, technology has played a crucial role. Mobile apps and online platforms have made it exceedingly simple for students to gain access to a vast array of gig opportunities, including ridesharing, food delivery, freelance writing, and graphic design. These online platforms have simplified work, enabling students to become their bosses, establish their schedules, and select gigs that match their skills and interests.

The gig economy is currently subjecting individuals to increased pressure in terms of their capacity to acquire knowledge about the jobs they undertake as well as their respective areas of specialization, hence challenging their competitiveness. In light of the persistent expansion of the gig economy, Ungureanu (2019) asserts that the hiring and recruitment sectors are compelled to devise innovative approaches aimed at dismantling traditional employment frameworks. The adaptation process to the gig economy may pose challenges for students in particular. The gig economy may provide students with financial relief and greater freedom, but it also presents them with a new set of obstacles, particularly in terms of balancing their academic responsibilities. Keeping up with classes, examinations, and projects while also doing gigs can be challenging and exhausting, which may have an impact on both academic achievement and general well-being. As a consequence of this, students are required to have the ability to strike a careful balance between the various jobs they hold and their academic interests.

The research aims of this study are to identify the attributes that contribute to students' preparedness for engaging in the gig economy, as outlined below:
RO1: To determine a relationship between social influence, perceived usefulness perceived risks, and preparedness of students in the gig economy.

2. Literature Review

Perceived Usefulness: The definition of perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance." A person's perception of their usefulness is based on the actions they take to achieve a specific goal, claim Lu and Su (2009). A person frequently feels pleased or joyful when engaging in the behavior, in addition to benefiting from output rewards or engaging in the behavior under specific circumstances. Perceived usefulness has a big impact on students' interest in the gig economy (Asih et al., 2019). Students' motivation to participate in the gig economy is likely to grow when they view gig labor to be advantageous and related to their needs and objectives. For instance, students are drawn to the so-called "gig economy" because they see it as earning money quickly and with some degree of flexibility. Students are more likely to regard the gig economy as valuable and, as a result, be more interested in participating in it if they believe that it can assist them in covering tuition fees, living expenses, or payments on student loans. In addition, the enhancement of skills is another crucial element that influences students' decisions to embark on the gig economy. Students can typically find a wide variety of career options in the gig economy, which allows them to develop new skills and experiences. Students have a greater propensity to regard side gig employment as valuable and engaging if they are under the impression that it can contribute to their overall personal and professional growth. Apart from this, the perceived usefulness of the gig economy is enhanced when students acknowledge its seamless integration into their academic timetable. Individuals who hold the belief that gig opportunities can effectively match their class schedules, study sessions, and examination periods are more inclined to perceive gig work as a convenient means of balancing academic pursuits and generating revenue.
H1: Perceived usefulness has a significant relationship to the preparation of students to take on the gig economy.

Social Influence: Social influence is the process by which people modify their behavior to fit social norms. As stated by French et al. (1959), social influence is all about how people might influence another either by another person, a role, a norm, a group, or a part of a group. Conformity, socialization, peer pressure, obedience, leadership, persuasion, sales, and marketing are just a few of their numerous manifestations. The phenomenon of social influence exerts a significant influence on the level of interest exhibited by students towards the gig economy. The influence of peer attitudes, family opinions, and social perceptions is significant in shaping students' perspectives about gig work and their decision to engage in it, Auditianto et al. (2019). For instance, peer pressure may have an impact on students' decisions to participate in the gig economy. By observing their peers participating in the gig economy and experiencing favorable outcomes, such as financial gains, valuable experiences, and flexible schedules, students may be more inclined to develop an interest and emulate their peers' actions. In addition, educational institutions might also contribute to this factor. If higher education institutions actively incorporate entrepreneurship, freelancing, or gig work into their career development programs, it is plausible that students might have a higher inclination toward exploring gig options. On the other hand, establishments that predominantly prioritize

traditional paths to employment may discourage engagement in the gig economy. This statement is also supported by Caza (2020), who highlights some significant contributions of this institutional influence. Since numerous sessional educators are gig workers, they will have current, close experience with gig employment. One could argue that higher education has led the organizational shift toward the gig economy. Institutions and tenure-track faculty can learn from lecturers and temporary university workers. Gig work may also affect lecturers' prestige and worth. Most colleges have employees who know a lot about gig work, but it's unclear if they use that information in the classroom.
H2: Social influence has a significant relationship to the preparation of students to take on the gig economy.

Perceived Risks: Financial and professional hazards are increasing for gig workers. This happens when a worker's ability to maintain ownership of the tools of his or her trade depends on several external factors. Students' interest in working in the gig economy might be strongly impacted by their perceptions of the risks involved. Students may be less likely to participate in gig work if they have a perception that it is risky. Usually, there are several perceived risks in the gig economy such as inadequate income, personal safety, and deactivation from the platform (Mpofu et al. 2020). As a matter of financial instability, some students perceived that this risk might hinder their venture on this platform. Students may be concerned about the unpredictable income that can accompany gig work. The absence of a consistent salary or benefits such as health insurance and retirement plans can discourage students who seek financial security, particularly if they have substantial financial obligations such as student loans. In addition, job security is another determinant that can be related to perceived risks in the gig economy. The gig economy frequently exhibits a deficiency in job security that is typically offered by traditional types of work. Many students may experience concern regarding possible unexpected discontinuation of employment or encounter challenges in securing alternative opportunities. The presence of insecurity may act as a disincentive, particularly when students place a higher emphasis on long-term stability. Moreover, concerns about the lack of worker rights in the gig economy, such as unemployment and workers' compensation, among students is understandable. Students may be cautious about taking on gig labor due to the lack of these safety nets if they are concerned about their health or future employment.
H3: Perceived risks have a significant relationship to the preparation of students to take on the gig economy.

3. Methodology

The target population is undergraduate students located at public universities in Malaysia. Based on purposive sampling, 106 respondents were obtained, and these respondents represent all-level business and management students at their universities. The current study comprises four main variables: perceived usefulness, social influence, perceived risks, and the preparation of students to take on the gig economy. The items were adopted from the previous studies, especially those closely related to organizations' contexts, and all the variables were measured using the five-point Likert scale.

4. Findings

Cronbach's alpha was carried out, and as shown in Table 1, the alpha value (α) for all items was above 0.6. Therefore, it can be concluded that the items applied in this study were valid and reliable. Due to the α value being close to 1, it can be considered that the variables used have a high level of reliability. Next, Table 2 shows the breakdown of the respondents by gender, age group, semester and types of jobs currently ventured by the students. The majority of respondents were female and mostly they are at age of 22-25 years old with 77.4%. As for the types of jobs in the gig economy, dropship indicated a high percentage at 36.8% followed by personal shopper with 24.5%. In addition, students are also involved in e-hailing and p-hailing services with 20.8% combined value.

Table 1: Reliability Analysis

Variable	Number of Items	Cronbach's Alpha
Perceived usefulness	6	0.867
Social influence	5	0.699
Perceived risks	5	0.732
Preparation of students to take the gig economy	5	0.656

Table 2: Respondents Profile

Criteria	Category	Number	Percentage
Gender	Male	23	21.7
	Female	83	78.3
Age Group	18-21	21	19.8
	22-25	82	77.4
	26-29	3	2.8
Semester	Semester 1	8	7.5
	Semester 2	22	20.8
	Semester 3	12	11.3
	Semester 4	32	30.2
	Final Semester	32	30.2
Types of jobs	E-hailing	9	8.5
	Dropships	39	36.8
	P-hailing	13	12.3
	Coaching	4	3.8
	Tutoring	12	11.3
	Personal Shopper	26	24.5
	Others	3	2.8

Table 3: Result of Multiple Regression

Dependent variable: Preparation of students to take the gig economy		
Independent variables	**Standardized Coefficient (BETA)**	**Sig.**
(Constant)		
Perceived usefulness	0.317	0.001
Social influence	0.223	0.017
Perceived risks	0.144	0.114
F value	11.953	
R square	0.260	

5. Conclusion and Discussion

Based on Table 3 above, the only variable with an insignificant relationship is perceived risks, whose significant value is 0.114 as it is greater than 0.05. This finding is consistent with Asih et al. (2019), whose findings found that perceived risks are among the insignificant determinants that influence people's interest in the online gig economy. Moreover, the result specifies the positive relationship between the perceived usefulness, social influence, and preparation of students to take on the gig economy, with significant values of 0.001 and 0.017, respectively. In addition, comparing the two significant predictors, perceived usefulness is the main dominating factor that influences the preparation of students to take on the gig economy, as this predictor has a higher beta value (0.317) compared to other predictors.

Students may be motivated to actively participate in the gig economy, seek out opportunities that are in line with their goals, and develop relevant skills because of the perception that the gig economy is useful. In addition to this, it can give them the ability to successfully juggle their academic and professional duties while also encouraging an entrepreneurial spirit and increasing their level of financial independence. In the end, a student's overall experiences and outcomes in the realm of gig employment can be significantly influenced by how valuable they believe the gig economy to be. Students are more inclined to engage in the gig economy if

they have a positive impression of it and see its potential for financial gain. They might be driven to look for possibilities, sign up for platforms that host gigs, and actively pursue gigs to make money and develop experience. Another implication might be seen in skill development among students resulting from the gig economy. Students may deliberately seek out gigs that offer the opportunity to acquire and perfect valuable abilities since they are aware of the benefits that students can derive from working gigs for skill development. They may see the gig economy as a viable option to improve their employability and obtain experience in the real world. Last but not least, the implications from the perspective of networking opportunities Students may interact actively with clients, customers, and fellow gig employees in recognition of the networking and relationship-building benefits of gig work. This can lead to beneficial connections for future careers. Despite the increasing popularity of gig-based work, the majority of universities have not yet made substantial adjustments to their curricula to accommodate this new trend. This means that many students will graduate without the skills necessary for advancement, as their future careers will entail a greater variety of jobs, especially in the gig economy sector (Radic et al., 2022). Therefore, it is imperative to urge all institutions of higher education to undertake curriculum reviews to address these changes and trends, mirroring the proactive approach taken by universities in implementing entrepreneurship programs that enable students to generate income while pursuing their studies and enhance their prospects for employment (Ghazali, 2021).

Future studies would want to think about including questions about potential changes for the gig economy to support long-term development to strengthen the specificity of their conclusions and the relevance of their findings about students' preparedness for the gig economy. This would help to enhance the specificity of the conclusions and increase their relevance. In addition, individuals who plan to carry out studies on the degree to which students are prepared for the gig economy will find that various sectors have room for additional development. Increased respondent numbers, a wider range of demographics, and other factors could broaden the study's scope. For instance, future researchers might consider how the gig economy might impact students' mental health, worker protection, technological competence, and socioeconomic background and influence their participation in the gig economy.

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References

Asih, S. N., Sucahyo, Y. G., Gandhi, A. & Ruldeviyani, Y. (2019, October). Inhibiting motivating factors on online gig economy clients in Indonesia. In 2019 International Conference on Advanced Computer Science and Information Systems (ICACSIS) (pp. 349-356). IEEE.

Auditianto, A., Sucahyo, Y. G., Gandhi, A. & Ruldeviyani, Y. (2019, October). Discovering the influencing factors of physical gig economy usage: Quantitative approach on clients9 perception. In 2019 International Conference on Advanced Computer Science and Information Systems (ICACSIS) (pp. 357-362). IEEE.

Caza, A. (2020). The gig economy's implications for management education. *Journal of Management Education,* 44(5), 594-604.

French, J. R., Raven, B. & Cartwright, D. (1959). The bases of social power. *Classics of organization theory,* 7(311-320), 1.

Ghazali, A. J. B. & Muhammad, N. M. B. N. (2021). An Overview of Gigs Economy in Malaysia. Nasrul Aiman Bin Abd Aziz Web designer, 162.

Harun, N., Ali, N. M. & Khan, N. L. M. A. (2020). An experimental measure of Malaysia's gig workers using labor force survey. *Statistical Journal of the IAOS*, 36(4), 969-977.

Jaafar, N. I. (2020). Embracing online platform in the gig economy: are we ready? Retrieved from: https://bernama.com/en/thoughts/news.php?id=1855862, 02/07/2020.

Lu, H. P. & Su, P. Y. J. (2009). Factors affecting purchase intention on mobile shopping websites. *Internet research*, 19(4), 442-458.

Mpofu, T., Tsibolane, P., Heeks, R. & Van Belle, J. P. (2020, June). Risks and risk-mitigation strategies of gig economy workers in the global South: The case of ride-hailing in Cape Town. In International Conference on Social Implications of Computers in Developing Countries (pp. 26-38). Cham: Springer International Publishing.

Radic, V., Markovic-Blagojevic, M., Radović-Markovic, M., Stevanovic, M., Radic, N. & Nikitovic, Z. (2022). Challenges and limitations of the gig economy and possible implications for education. *Journal of Entrepreneurship,* 26(2), 1-8.

Ungureanu, A. (2019, May). (PDF) Industry 4.0. The Role of Gig Economy in the Industrial Revolution of the 21st Century. ResearchGate. Retrieved May 25, 2023, from https://www.researchgate.net/publication/344548427_Industry_40_The_Role_of_Gig_Economy_in_the_Industrial_Revolution_of_the_21st_Century.

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Enhancing Small and Medium Enterprise Performance through Supply Chain Integration: A Case Study of Malaysia

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Abstract: This conceptual paper aims to explore the significant impact of Supply Chain Integration (SCI) on the performance of Small and Medium Enterprises (SMEs) in Malaysia. The paper outlines the key elements of SCI, its importance in today's globalized business environment, and how it can be tailored to meet the unique challenges faced by SMEs in the Malaysian context. By analyzing existing literature and incorporating case studies, this paper provides insights into the potential benefits and challenges of implementing SCI strategies for SMEs in Malaysia. Additionally, it suggests recommendations for policymakers, industry practitioners, and academics to further promote SCI adoption among SMEs in Malaysia.

Keywords: *Supply Chain Integration, Supply Chain Management, Supply chain disruption, Small Medium Enterprise (SME), SME performance.*

1. Introduction

Small Medium Enterprise (SME): In an era marked by unprecedented interconnectivity and economic integration, Small and Medium Enterprises (SMEs) play a pivotal role in driving innovation, employment, job creation, reducing inequalities, and economic growth. These dynamic entities, often characterized by their flexibility and adaptability, form the backbone of many economies worldwide. However, the contemporary business landscape is not devoid of challenges, and SMEs are particularly vulnerable to the far-reaching effects of global issues. The intricate network of global markets and the intricacies of international trade mean that SMEs are intricately linked to countless global challenges, ranging from economic downturns and geopolitical tensions to health crises to war crises (Jagtap et al., 2022), lack of technology, and environmental disruptions. These challenges have evolved and continue to persist, affecting SMEs worldwide.

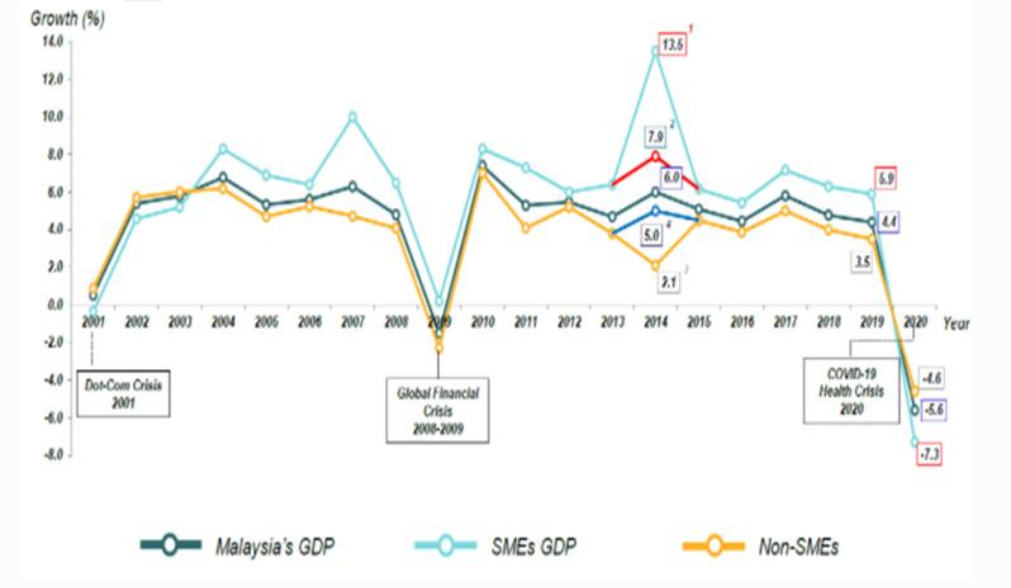
In the context of the global landscape, small and medium-sized enterprises (SMEs) constitute nearly 99% of the companies in Europe. These SMEs together employ an estimated 95 million individuals, spread throughout a network of over 25 million enterprises inside the European Union during the year 2018. Small and medium-sized enterprises (SMEs) are widely acknowledged as highly vulnerable actors within the value chains of the European Union (EU), primarily because of their significant involvement in sectors that have been severely impacted by the ongoing epidemic. The industries most significantly affected by the lockdown measures implemented by the authorities include tourism, transportation, food, and fashion (SME Corporation Malaysia, 2020). Approximately 58% of small and medium-sized enterprises (SMEs) in Germany saw a decrease in their turnover. Similarly, in the Netherlands, 58% of SMEs had financial challenges as a consequence of the COVID-19 pandemic. In Belgium, 40% of SMEs reported a substantial dip of 75% or more in their revenue. Furthermore, in Portugal, 37% of SMEs suffered a reduction of over 50% in their industrial output.

The conflict in Ukraine is expected to impede global economic development and exacerbate inflationary pressures, introducing a fresh adverse supply shock to the international economy. This comes at a time when certain supply-chain difficulties observed since the onset of the epidemic seemed to be diminishing. The ramifications of the war will manifest via several avenues and are expected to change should the conflict escalate. In the foreseeable future, several governments will be required to mitigate the impact of elevated energy costs, enhance energy source variety, and maximize efficiency to the greatest extent feasible. Consequently, this phenomenon gives rise to suboptimal operational outcomes for organizations, particularly those classified as small and medium-sized (Jagtap et al., 2022; Ngoc et al., 2022).

Small Medium Enterprise (SME) in Malaysian Context: Malaysia, like many other nations globally, has had significant repercussions in both its economic and health sectors as a result of the widespread impact. During

the initial quarter of 2020, there has been a noticeable downward slope in Malaysia's economic activity. This can be attributed to the stringent measures implemented by the Malaysian government, which entailed a comprehensive lockdown strategy commencing on March 18, 2020. The government has implemented a variety of steps to prevent the transmission of the Covid-19 virus (National Entrepreneur and SME Development Council, 2020b). As a consequence, numerous sectors, such as manufacturing and services, have experienced a decline in their operations.

Figure 1: Performance of SMEs GDP, 2020



Sources: Department of Statistics, (2021)

According to the Department of Statistics, (2021), there was a notable decrease of 7.3% in the Gross Domestic Product (GDP) of Small and Medium Enterprises (SMEs) in the year 2020 as compared to the preceding year, 2019. Despite the implementation of several governmental strategies to address the health issue, the prolonged duration of the COVID-19 pandemic has significantly undermined Malaysia's economic sectors, particularly the business and operations of small and medium-sized enterprises (SMEs). In 2020, the small and medium-sized enterprise (SME) sector had a decline in nominal GDP, amounting to RM512.8 billion. This is a decrease of 38.2% compared to the previous year's figure of RM533.5 billion, which accounted for a 38.9% share of the GDP. This occurrence is the initial instance on record in which the performance of small and medium enterprises (SMEs) has fallen below both Malaysia's gross domestic product (GDP) and the GDP of non-SMEs since the year 2004. In 2020, there was a contraction in the Gross Domestic Product (GDP) of Small and Medium Enterprises (SMEs) across all sectors. Specifically, the value of SMEs in the services sector experienced a decline of around 9.2% in 2020, following a growth rate of 7.5% in 2019 (Department of Statistics, 2021).

Based on a survey conducted by Maybank between September and December 2021, it was found that respondents encountered various business challenges as a consequence of economic disruption. The most prevalent factors affecting businesses were a decline in demand, delays in receivables, and difficulties in obtaining supplies, as reported by The Star, (2021). The primary sectors surveyed, including wholesale and retail trade, real estate, manufacturing, and construction, reported varying impacts on their sales. Specifically, 61% of respondents experienced a decline in sales, 25% observed no change in sales, and 14% reported an increase in sales. The survey was undertaken to comprehensively comprehend the effects of MCO3.0 on small and medium-sized enterprise (SME) clients and their business operations, encompassing their supply chain activities.

The Malaysian government has recognized the importance of sustainable development and has taken a proactive approach towards achieving the Sustainable Development Goals (SDGs) outlined by the United

Nations. In 2015, Malaysia adopted the 2030 Agenda for Sustainable Development, which includes 17 SDGs and 169 targets (Official Portal of Ministry of Economy, 2021). SDGs comprise a set of goals aimed at achieving a better and sustainable future for all. They address global challenges we face, including poverty, inequality, climate change, environmental degradation, security, and justice. SDGs consist of 17 interrelated goals that are crucial to be achieved by the year 2030 (Jabatan Perangkaan Malaysia, 2019; Shayan et al., 2022). Various initiatives have been pointed out to achieve the SDGs, including the development of SDG indicators, providing a framework for monitoring and evaluating progress towards achieving the SDGs (Yahya, 2021). As an effort to achieve sustainable development, the Malaysian government has committed to the 2030 Agenda for Sustainable Development known as DKN2030.

DKN2030 and SDGs are two important initiatives that are interlinked in the effort to achieve sustainable development. DKN 2030 represents the first policy document released by the recently established Ministry of Entrepreneur Development (MED). This initiative aligns with the Ministry's core responsibilities of crafting policies that foster the growth of an all-encompassing and competitive entrepreneurial community, with a specific focus on the small and medium-sized enterprise (SME) sector. Following the Government's shared prosperity concept, DKN 2030 seeks to expand the number of qualified, viable, and resilient entrepreneurs and to strengthen the capacities of local entrepreneurs, particularly in the SME sector. This initiative is particularly crucial in light of the escalating rivalry and challenges arising from Industry 4.0 (SME Corporation Malaysia, 2023). While larger corporations possess significant capital and financial resources that enable them to achieve strategic competitiveness and dominance within the market, small and medium-sized enterprises (SMEs) have greater constraints and are more vulnerable in their struggle for survival (Jaharuddin et al., 2016). Therefore, all Small and medium-sized enterprises (SMEs) in Malaysia must implement differentiated strategies to navigate the challenges posed by the "new normal." This involves embracing digitalization to enhance their business operations, formulating business continuity plans, and establishing close collaborations with financial institutions to effectively manage their cash positions amidst the ongoing COVID-19 pandemic. Furthermore, SMEs must also address globally related issues such as conflicts, diminishing food supplies, geopolitical tensions, and other pertinent factors that significantly impact their operations, particularly in the area of supply chain management.

Ou et al. (2010) claimed that supply chain management (SCM) has been recognized to be positively associated with enhanced competitiveness and improved firm performance, and has a huge impact on firm performance in manufacturing industries. The field of supply chain management has been evolving fast. Currently, it focuses on internal integration, as both supplier and client seek to reach high levels of performance (Kauppi et al., 2016). The competition has forced organizations to enhance their capabilities for delivery, reliability, and product flexibility in response to customer needs. Thus, SCM provides benefits to suppliers and customers by enhancing upstream and downstream linkages. SCM system facilitates inter-enterprise cooperation and collaboration with suppliers, customers, and business partners. Although this system can bring benefits and competitive advantages to organizations, the management and implementation of this system pose significant challenges to organizations. Process integration and redesign are important components of SCM implementations, (Awad & Nassar, 2010).

Although there is a prevalent consensus that supply chain integration (SCI) contributes to enhanced performance, numerous studies have extensively investigated the correlation between SCI and performance. These studies contend that SCI has a positive influence on performance, as evidenced by the works of Mostaghel et al., (2015); Tsanos, Zografos and Harrison, (2014); Mellat-Parast and Spillan, (2014); Parast and Subramanian, (2020) and Danese and Romano, (2011, 2013). Several studies have yielded inconclusive results regarding the aforementioned relationship (Flynn, Huo and Zhao, (2010); Schoenherr and Swink, (2012). Additionally, a recent study conducted by Som, Cobblah and Anyigba, (2019) discovered that the integration of information and operations positively influenced supply chain performance, whereas relational integration had a detrimental impact on supply chain performance. In the rapidly evolving global business landscape, Malaysian SMEs find themselves navigating a complex supply chain ecosystem characterized by heightened competition, technological advancements, and shifting consumer demands. As a response, the concept of Supply Chain Integration (SCI) has gained paramount importance, as it offers a holistic approach to streamlining operations, enhancing customer satisfaction, and driving sustainable growth.

Hence, the primary objective of this study is to investigate the impact of Supply Chain Integration (SCI) on the performance of Small and Medium Enterprises (SMEs). This study aims to investigate the supply chain integration variables of customer integration, internal integration, and supplier integration, and determine if there exists a positive relationship between supply chain integration (SCI) and small and medium enterprise (SME) performance in the context of Malaysia.

2. Supply Chain Integration Concept and Definition Literature

Supply chain management focuses on integration, cooperation, and coordination throughout the value chain" (Stank, Keller, & Closs, 2001; Stank, Keller, & Daugherty, 2001). Supply chain integration (SCI) can be defined as the extent to which a company strategically interconnects and aligns its supply chain with its partners, upstream and downstream (Jayaram et al., 2010; Schoenherr & Swink, 2012). The integration of supply chains operates based on principles such as collaboration, shared decision-making, open communication, shared vision, shared technology, and a high level of trust between producers and their customers (Flynn et al., 2010). The level of strategic collaboration between a manufacturer and its supply chain partners is a determinant of the effectiveness and efficiency of product and service flows, ultimately aiming to deliver optimal value to the customer.

Supply chain integration (SCI) is now one of the most difficult tasks for contemporary management in the global market. Cooperation among supply chain partners can take many forms, ranging from framework contracts for supplies to joint forecasting and planning, reserve concentration, and collaboration in the design and launch of new products or essential components. The success of these processes provides clear financial advantages to each of the partners, resulting in powerful supply chains capable of competing worldwide (Cyplik & Adamczak, 2015). The study conducted by Alfalla-Luque et al., (2013) focused on the development of a framework for supply chain integration through a comprehensive evaluation of existing literature. The researchers identified information integration, coordination, resource sharing, and organizational relationship linking as the fundamental components that underlie effective supply chain integration. The adoption of this procedure or technique into the organizational culture is essential.

Kim (2009) investigated the relationship between a firm's supply chain integration approach and its competitive strategy. Supply chain integration was discovered to mediate the association between supply chain management practices and company performance. Furthermore, supply chain management practices and supply chain integration influence each other and ultimately mediate the relationship with firm performance. Internal and external integration were found to have positive effects on performance in the Chinese manufacturing sector, according to Flynn et al. (2010) who examined the effects of supply chain integration on the flow of materials and goods among supply chain partners and the accuracy of demand forecasting. Antecedents of supply chain integration are the extent to which all organizational activities, activities of suppliers, customers, and other supply chain partner members are integrated with achieving the objectives of each company. Customer and supplier integration is often referred to as external integration, which is the level at which companies work together with external partners to develop strategies between organizations, practices, and collaborative processes achieving synchronization (Stank, Keller, & Closs, 2001). Customer integration involves core competencies derived from the results of coordination with customers, while supplier integration involves core competencies related to coordination with major suppliers (Kim, 2006).

Customer Integration: The integration of customers allows organizations to effectively utilize knowledge derived from inter-organizational activities, hence facilitating the development of an in-depth understanding of market opportunities. The implementation of customer integration strategies facilitates prompt responsiveness to client demands, leading to enhanced levels of customer service, reduced inventory holding costs, and ultimately, heightened profitability for enterprises (Aslam et al., 2023). The activities of customers inevitably involve the sharing of information about products and services, receiving customer orders, engaging with consumers to handle requests, communicating order status with customers during the scheduling process, and providing information throughout the product delivery phase (Belvedere & Grando, 2017). Customer integration is crucial for SMEs to improve their performance and profitability. By engaging with key customers and understanding their needs, SMEs can become more responsive to customer

requirements, improve customer service levels, and increase overall profitability. Customer integration also helps SMEs develop an accurate understanding of market prospects, leading to superior performance outcomes.

The study conducted by Ataseven & Nair, (2017) revealed a positive association between customer integration and financial performance, whereas no significant correlation was observed with operational performance. Agyei-owusu et al. (2022) discovered empirically that customer integration has a favorable and significant effect on operational and financial performance. Prior empirical studies have also demonstrated a positive correlation between increased degrees of customer integration and enhanced firm performance (Flynn et al., 2010; Hendijani & Saeidi Saei, 2020). However, a contrasting outcome is shown in the study conducted by Hamilton-Ibama et al., (2021), wherein it is suggested that there is a lack of association between customer integration and organizational success. This finding suggests that the influence of customer integration on firm performance may not be significant. Therefore, the formulation of the hypotheses is as follows:
H1: There is a positive relationship between Customer Integration and SME performance

Internal Integration: Internal integration pertains to the various activities that occur within a manufacturing organization. The level to which a manufacturer organizes its organizational strategies, practices, and processes into collaborative and synchronized processes, to meet the needs of its customers (Cespedes, 1996; (Kahn & Mentzer, 1996; Kingman-brundage et al., 2010) and effectively engage with its suppliers. The functions of internal integration and external integration within the framework of supply chain integration are distinct from one another. Internal integration refers to the dynamic process through which different functional departments within an organization interact, collaborate, coordinate, communicate, and cooperate, ultimately leading to the establishment of a unified and coherent organizational structure (Flynn et al., 2010; Zhao et al., 2011). According to Lee et al., (2007) and Belvedere & Grando, (2017), internal integration is related to the establishment of information linkages among various departments within an organization. This facilitates the accessibility of information about the management of service products, the development of easily accessible integrated data sources encompassing crucial operational data, the integration of operational processes through information systems, and the connection between production and marketing departments through digital planning systems.

In previous research conducted by Ataseven & Nair, (2017), an examination was undertaken to explore the fundamental elements of integration concerning various aspects of performance. The findings of this study revealed a favorable correlation between internal integration and both financial performance and operational performance. According to the findings of (Sabet et al., 2017; Chen et al., 2023), there exists a direct and positive correlation between internal integration and performance.

This finding suggests that the internal integration of a corporation has a beneficial impact on several performance indicators, including financial performance, productivity, and customer satisfaction (Han et al., 2013; Munir et al., 2020). Numerous studies also have demonstrated that the implementation of internal integration strategies fosters enhanced coordination and collaboration within an organization, particularly among disparate jobs. This, in turn, leads to improved performance outcomes for the firm. According to Pakurár et al. (2019), Song & Song (2020), and Agyei-owusu et al. (2022) conducted a study that yielded comparable findings, demonstrating a substantial positive relationship between internal integration and both supplier integration and customer integration.

The impact of internal integration on the performance of small and medium-sized enterprises (SMEs) is favorable and significant. Internal integration acts as the fundamental basis for external integration, which in turn influences performance (Amoako et al., 2022). Furthermore, it can be argued that the attainment of optimal firm performance by internally integrated enterprises requires the use of external integration strategies. Therefore, the establishment of the hypotheses is as follows:
H2: There is a positive relationship between Internal Integration and SME performance.

Supplier Integration: The concept of supplier integration is centered around the imperative of acquiring materials necessary for efficient operations promptly, ensuring that the resources are of appropriate amount

and quality and that they are delivered to the correct location, all while maintaining affordable costs (He et al., 2014; Vanpoucke et al., 2017). Zimmermann & Foerstl (2014) conducted a thorough meta-analytic investigation to examine the associations between supplier integration, a constituent of purchasing-supply management (PSM) practices, and firm performance. Their findings revealed that supplier integration displays the most substantial influence on the operational performance of the focal firm, surpassing the effects on market and financial performance.

The contemporary business landscape is characterized by heightened levels of difficulty and competition, prompting organizations to engage in strategic efforts to gain a competitive edge across several industry sectors (Zhao et al., 2011). Nevertheless, numerous organizations continue to encounter challenges while attempting to compete in the market solely through internal resources and their core capabilities. Hence, enterprises must engage in collaborative efforts with both suppliers and customers to get supplementary knowledge and resources that may be effectively utilized to establish a competitive edge. Supplier integration is an important component of supply chain integration (SCI), which is recognized as an avenue through which firms achieve sustainable competitive advantage (Amoako-gyampah et al., 2019).

According to Van Echtelt et al. (2008), supplier integration encompasses a range of elements and practices. These include the sharing of information, coordination between parties, fostering trust, utilization of shared technology, implementation of integrated processes, establishment of long-term contracts, support for supplier improvement in production processes, driving quality improvement, investment in supplier assets, such as the development of new service products, enhancing the overall capabilities of partner suppliers, sharing risks and rewards, and deriving mutual benefits from collaborative efforts within the integrated supply chain. In recent research that re-evaluated the performance implications of Supply chain integration with firm performance, Wiengarten et al., (2019) found that supplier and customer integration have generally positive impacts on operational performance. These findings were revealed as a result of re-evaluating the performance implications of Supply chain integration with firm performance.

Several academic studies have demonstrated that supplier integration has a positive impact on both operational performance (Frohlich & Westbrook, 2001; Gimenez & Ventura, 2003; Flynn et al., 2010; Liu et al., (2013) and company performance (Taouab & Issor, 2019; Zhang & Huo, 2013; Schoenherr & Swink, 2012). However, (Schoenherr & Swink, 2012) presented a contrasting finding, stating that the integration of suppliers did not yield improvements in operational performance or financial performance. Therefore, the formulation of the hypotheses is as follows:
H3: There is a positive relationship between Supplier Integration and SMEs performance

SME Performance: The contribution of small and medium-sized enterprises (SMEs) to the Malaysian economy may be observed by their impact on output and value-added, as noted by Aris (2007)). According to the most recent data available in the Malaysia Statistical Business Register (MSBR) as of September 2023, the total count of small and medium enterprises (SMEs) registered in Malaysia in the year 2021 amounted to 1,173,601 which accounted for approximately 97.4 percent of the overall number of business establishments. This figure represents a notable increase of over 87,068 enterprises in comparison to the total count of 1,086,533 MSMEs recorded in 2016. Consequently, this growth signifies an annual growth rate of 5.2 percent over the span of six years (SME Corporation Malaysia, 2022).

Table 1: SME Performance in Malaysia

	SMEs GDP	SMEs Export	SMEs Employment
SME Performance in 2020	RM512.8 bil. (38.2% share)	RM 117.8 bil (13.5% share)	7.25 mil workers (48.0% share)
SME Performance in 2019	RM553.5 bil. (38.9% share)	RM176.3 bil (17.9% share)	7.3 mil workers (48.4% share)

Source: (National Entrepreneur and SME Development Council, 2020a)

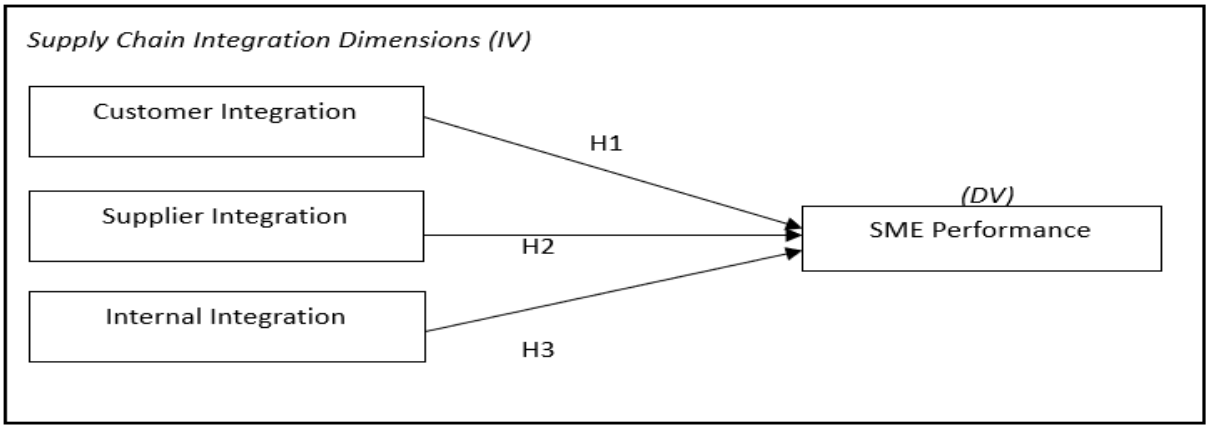
The percentage of Small and Medium Enterprises (SMEs) in the overall Gross Domestic Product (GDP) decreased from 38.9% in 2019 to 38.2% in 2020. The reduction in contribution amounted to RM512.8 billion in 2020, as reported by the Department of Statistics, (2021). Concerning employment, there has been a decrease in the proportion of employment, with a reduction from 48.4 percent in 2019 to 48 percent in 2020. Despite the challenges posed by the COVID-19 epidemic, small and medium enterprises (SMEs) continue to make significant contributions to Malaysia's gross domestic product (GDP). The impact of SMEs extends beyond mere insignificance, as they have emerged as crucial catalysts for both employment generation and economic expansion.

3. The Research Gaps

Although previous studies have examined the relationship between supply chain integration (SCI) and its effects on small and medium-sized firms (SMEs), there is a lack of research specifically investigating the role of SCI in improving SME performance within emerging markets (Dhillon et al., 2023; Chen et al., 2023), such as the case of Malaysia. The influence of governmental assistance in mitigating the effects of structural change-induced shocks on small and medium-sized enterprise (SME) performance within developing economies: Previous research has examined the effects of SCI on the performance of small and medium-sized enterprises (SMEs), but there is a lack of studies exploring the influence of government support in mitigating the impact of SCI on SME performance in emerging economies (Chen et al., 2023). Several scholarly investigations have been conducted to examine the influence of supply chain integration (SCI) on the performance of small and medium-sized enterprises (SMEs). However, there exists a study gap about the effects of SCI on the sustainability performance of SMEs operating in developing markets (Despoudi et al., 2023). The failure rate of small and medium enterprises (SMEs) in Malaysia is an issue of concern since research indicates that around 60% of newly established SMEs experience failure within five years. Research findings reveal that around 60% of newly founded SMEs encounter failure within five years. Furthermore, it is worth mentioning that only 40% of small and medium-sized firms (SMEs) possess the capability to adequately overcome the challenges that emerge throughout the process of expansion. The challenges encountered by small and medium companies (SMEs) in attaining growth have consistently presented obstacles within the framework of this country (Ambad et al., 2020)

Conceptual Framework

Figure 2: Conceptual Framework



Sources: (Flynn et al., 2010; Alfalla-Luque et al., 2013)

Based on the arguments undertaken in the literature, this study underlines a conceptual research framework as shown in Figure 1 which contains paths from supply chain integration to SME performance, and finally, the research hypotheses are developed.

4. Proposed Methodology

The study intends to employ a quantitative research technique to collect complete data that meets the goals of the study. This method is often considered the best for conducting large-scale research since the results of a thoroughly completed statistical analysis are more dependable for establishing generalizations. However, the methodologies that most successfully handle the practical requirements of a certain inquiry are used to decide the research design and execution tactics.

The conceptualization of Small and Medium Enterprises (SMEs) exhibits variation across different nations. In the Malaysian context, the classification of small and medium companies (SMEs) is established based on two primary criteria: the yearly sales turnover and the number of full-time workers. According to the rules outlined by SME Corporation Malaysia (2020), the classification of a business as a small and medium-sized firm (SME) within its specific industry is determined by either its yearly sales turnover or the number of full-time workers it has. Small and medium-sized enterprises (SMEs) have been seen as a catalyst for prospective economic expansion. The National Entrepreneur and SME Development Council (2020) highlights the various benefits that small and medium-sized firms (SMEs) provide to the country. These advantages encompass the generation of employment opportunities, the enhancement of income levels, and the facilitation of economic growth.

Table 2: Definition of Small Medium Enterprise (SME)

Sectors	Small	Medium
Manufacturing	Sales turnover from **RM300,000 to less than RM15 million** OR full-time employees from **5 to less than 75**	Sales turnover from **RM15 million to not exceeding RM50 million** OR full-time employees from **75 to not exceeding 200**
Services & other sectors	Sales turnover from **RM300,000 to less than RM3 million** OR full-time employees from **5 to less than 30**	Sales turnover from **RM3 million to not exceeding RM20 million** OR full-time employees from **30 to not exceeding 75**

Source: (National Entrepreneur and SME Development Council, 2020).

A directory of small and medium enterprises (SMEs) would be acquired from the directories issued by (*SME Corporation Malaysia*, 2023). The data collecting sample consists of several small and medium-sized companies (SMEs) situated throughout Malaysia. Moschella et al. (2019) argue that within academic discourse, there exists a tendency to neglect the significance of small and medium-sized firms (SMEs). The present body of research has mostly concentrated on investigating the effects of blockchain technology on the valuation and performance of publicly listed organizations (PLCs) (Abd Razak et al., 2016) as well as larger corporations. Furthermore, a significant portion of previous scholarly investigations has mostly focused on the Manufacturing Sector (Yaakub & Mustafa, 2015; Abdul Rauf et al., 2019) and the Construction Industries (Yusuwan et al., 2008; Siang & Ali, 2012) hence underscoring the significance of this study. This sampling technique involves the deliberate selection of individuals who possess strategic positions that enable them to provide the required information most efficiently and effectively. The researchers will establish communication with the selected participants through telephone and email, presenting a concise summary of the study that outlines the need for their participation.

Questionnaire distribution is facilitated by the utilization of self-administration methods. The SME firm under consideration must have a minimum operational history of five years. Individuals who do not meet the above criteria will be unable to participate in the data-gathering procedure. Anderson and Gerbing (1988) argue that the main objective of Partial Least Squares Structural Equation Modelling (PLS-SEM) is to do causal-predictive analysis. In this investigation, the investigator utilizes SmartPLS 4 as the selected software application. Furthermore, the conceptual frameworks about company performance are formulated through

the adaptation and expansion of pre-existing scholarly works in the field of supply chain management. Reviewing the literature will be done to help the researcher develop the conceptual framework and establish the hypotheses. Considering the importance of the growth and sustainability of small companies for the overall economic welfare of Malaysia and other nations, it is expected that the results of this research endeavor could potentially improve the competitiveness and operational efficiency of small and medium enterprises (SMEs), thereby benefiting the local, regional, and national economies.

5. Conclusion and Recommendations

Supply chain integration stands as a pivotal mechanism in today's dynamic business environment. Its significance lies in its ability to streamline operations, enhance visibility, and foster collaboration among various stakeholders. For SMEs, particularly, the integration of supply chains holds immense potential to bolster performance and competitiveness (Council, 2000). By seamlessly connecting processes, sharing information, and leveraging technology, SMEs can not only achieve cost efficiencies but also respond adeptly to market fluctuations and customer demands. Furthermore, a well-integrated supply chain empowers SMEs to tap into new markets, forge stronger relationships with suppliers and customers, and ultimately drive sustainable growth. Supply chain integration is not merely a concept, but a strategic imperative for SMEs aspiring to thrive in the ever-evolving global marketplace. Embracing this approach is not only beneficial for individual businesses, but it also contributes significantly to the overall resilience and vibrancy of the broader economic ecosystem.

This conceptual paper will offer valuable insights into the crucial role of Supply Chain Integration in enhancing the performance of Small and Medium Enterprises (SMEs) in the Malaysian environment. This article provides a comprehensive analysis of the distinct obstacles encountered by small and medium-sized enterprises (SMEs) and presents practical suggestions. As a result, it acts as a valuable guide for policymakers, industry participants, and SMEs in navigating these issues. If the recommended methods are successfully implemented, they might potentially bring about a significant transformation in the business environment for small and medium enterprises (SMEs) in Malaysia. This transformation would not only result in improved competitiveness for these enterprises but also ensure their long-term viability in an increasingly linked global context. It is anticipated that the outcomes of this research endeavor may contribute to enhancing the competitiveness and operational effectiveness of small and medium-sized enterprises (SMEs). Furthermore, it is expected that these improvements will have positive implications for the local, regional, and national economies. As a result, organizations may get current and readily accessible comprehensive industry data, enabling them to develop a more lucid comprehension of their position within the industry and make informed projections on prospects.

Contribution: This study will further contribute to the literature on supply chain integration by providing empirical validation of the performance effects of customer integration, a relationship previously receiving mixed results in the literature (Ataseven & Nair, 2017; Aslam *et al.*, 2023). This study will also help to expand the existing body of information in the field of small and medium-sized enterprise (SME) studies. Finally, we also methodologically contribute to the supply chain integration literature by adding the time data dimension in the study, one of the significant weaknesses identified in the previous studies (Qi et al., 2017).

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References

Abd Razak, N., Ab Rahman, Z. & Borhan, H. (2016). Modeling firm resources – enterprise risk management relationships : An empirical finding using PLS-SEM. *World Journal of Entrepreneurship, Management and Sustainable Development*, 12(1), 35–49. http://dx.doi.org/10.1%5Cn108/WJEMSD-1%5Cn1-2013-005%5Cn

Abdul Rauf, U., Jabar, J. & Mansor, N. (2019). Effects of Enterprise Risk Management (ERM) and Economic Issues on the Performance of Manufacturing Sector-SMEs in Malaysia – A Conceptual Framework.

International Journal of Innovative Technology and Exploring Engineering, 8(12S2), 593–597. https://doi.org/10.35940/ijitee.l1107.10812s219

Agyei-owusu, B., Asamoah, D., Nuertey, D. & Acquah, I. N. (2022). Examining the relationship between dimensions of supply chain integration, operational performance and fi rm performance : evidence from Ghana. Management Research Review. https://doi.org/10.1108/MRR-06-2021-0464

Alfalla-Luque, R., Medina-Lopez, C. & Dey, P. K. (2013). Supply chain integration framework using a literature review. *Production Planning and Control,* 24(8–9), 800–817. https://doi.org/10.1080/09537287.2012.666870

Ambad, S. N. A., Andrew, J. V. & Awang Amit, D. H. D. (2020). Growth challenges of SMEs: Empirical evidence in Sabah, Malaysia. *ASEAN Entrepreneurship Journal* (AEJ), 6(1), 8–14.

Amoako-gyampah, K., Boakye, K. G., Famiyeh, S. & Adaku, E. (2019). Supplier integration, operational capability and firm performance: an investigation in an emerging economy environment. *Production Planning & Control*, 0(0), 1–21. https://doi.org/10.1080/09537287.2019.1700570

Amoako, T., Huai Sheng, Z., Dogbe, C. S. K. & Pomegbe, W. W. K. (2022). Effect of internal integration on SMEs' performance: the role of external integration and ICT. *International Journal of Productivity and Performance Management,* 71(2), 643–665. https://doi.org/10.1108/IJPPM-03-2020-0120

Aris, N. M. (2007). SMEs : Building Blocks for Economic Growth 1. National Statistics Conference, September 2006, 4–5. http://www.statistics.gov.my/portal/images/stories/files/journal/smes.pdf

Aslam, H., Waseen, M., Muneeb, D., Ali, Z., Roubaud, D. & Grebynevich, O. (2023). Correction to: Customer integration in the supply chain: the role of market orientation and supply chain strategy in the age of digital revolution (Annals of Operations Research, (2023), 10.1007/s10479-023-05191-y). Annals of Operations Research. https://doi.org/10.1007/s10479-023-05332-3

Ataseven, C. & Nair, A. (2017). Assessment of Supply Chain Integration and Performance Relationships: A Meta-Analytic Investigation of the Literature. Intern. Journal of Production Economics. https://doi.org/10.1016/j.ijpe.2017.01.007

Awad, H. a H. & Nassar, M. O. (2010). A Broader View of the Supply Chain Integration Challenges. *International Journal of Innovation, Management and Technology*, 1(1), 51. http://search.proquest.com/docview/1441274421?accountid=14484%5Cnhttp://www.tdnet.com/bgu/resolver/default.asp??genre=article&issn=20100248&volume=1&issue=1&title=International+Journal+of+Innovation,+Management+and+Technology&spage=51&date=2010-04-01&atit

Belvedere, V. & Grando, A. (2017). Sustainable Operations and Supply Chain Management. , (Wiley seri). John Wiley 7 Sons Ltd.

Cespedes, F. V. (1996). Beyond Teamwork: How the Wise Can Synchronize. *Marketing Management*, 5(1), 25–37.

Chen, H., Amoako, T., Quansah, C. E., Danso, S. A. & Jidda, D. J. (2023). Assessment of the impact of management commitment and supply chain integration on SMEs' innovation performance: Moderation role of government support. *Heliyon, 9(5), e15914. https://do*i.org/10.1016/j.heliyon.2023.e15914

Council, N. R. (2000). Surviving Supply Chain Integration: Strategies for Small Manufacturers. In Surviving Supply Chain Integration. The National Academies Press. https://doi.org/10.17226/6369

Cyplik, P. & Adamczak, M. (2015). Dimensions for Developing Supply Chain Integration Scenarios. *Business Logistics in Modern Management*, 0(0), 225–239.

Danese, P. & Romano, P. (2011). Supply chain integration and efficiency performance: A study on the interactions between customer and supplier integration. *Supply Chain Management*, 16(4), 220–230. https://doi.org/10.1108/13598541111139044

Danese, P. & Romano, P. (2013). Article information : *International Journal of Operations & Production Management*, 33(4), 372–393.

Department of Statistics, M. P. (2021). PRESS RELEASE : Revenue for the Services sector in the third quarter 2021 (Issue November, pp. 8–11).

Despoudi, S., Sivarajah, U., Spanaki, K., Charles, V. & Durai, V. K. (2023). Industry 4.0 and circular economy for emerging markets: evidence from small and medium-sized enterprises (SMEs) in the Indian food sector. Annals of Operations Research. https://doi.org/10.1007/s10479-023-05404-4

Dhillon, M. K., Rafi-Ul-Shan, P. M., Amar, H., Sher, F. & Ahmed, S. (2023). Flexible Green Supply Chain Management in Emerging Economies: *A Systematic Literature Review. Global Journal of Flexible Systems Management*, 24(1), 1–28. https://doi.org/10.1007/s40171-022-00321-0

Flynn, B. B., Huo, B. & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management,* 28(1), 58–71. https://doi.org/10.1016/j.jom.2009.06.001

Frohlich, M. T. & Westbrook, R. (2001). Arcs of integration : an international study of supply chain strategies. *Journal of Operations Management*, 19, 185–200.

Gimenez, C. & Ventura, E. (2003). Logistics-Production, Logistics-Marketing And External Integration : Their Impact on Performance. *International Journal of Operations & Production Management,* 25(1), 20–38.

Hamilton-Ibama, Lolia, E. O. & Ogonu, C. G. (2021). Customer Integration and Organizational Success of Multinational Firms in Rivers State. *International Journal of Economics and Business Management,* 7(3), 42–55.

Han, J., Lu, H., Trienekens, J. H. & Omta, S. W. F. (Onno. (2013). The impact of supply chain integration on firm performance in the pork processing industry in China. *Chinese Management Studies*, 7(2), 230–252. https://doi.org/10.1108/CMS-Jun-2011-0034

He, Y., Lai, K. K., Sun, H. & Chen, Y. (2014). The impact of supplier integration on customer integration and new product performance : The mediating role of manufacturing flexibility under trust theory. Intern. *Journal of Production Economics,* 147, 260–270. https://doi.org/10.1016/j.ijpe.2013.04.044

Hendijani, R. & Saeidi Saei, R. (2020). Supply chain integration and firm performance: the moderating role of demand uncertainty. *Cogent Business and Management*, 7(1). https://doi.org/10.1080/23311975.2020.1760477

Jabatan Perangkaan Malaysia. (2019). Sustainable Development Goals (Sdg) Indicators Department of Statistics Malaysia. 1–492.

Jagtap, S., Trollman, H., Trollman, F., Garcia-garcia, G., Parra-l, C., Duong, L., Martindale, W., Munekata, P. E. S., Lorenzo, J. M., Hdaifeh, A., Hassoun, A., Salonitis, K. & Afy-Shararah, M. (2022). The Russia-Ukraine Conflict : Its Implications for the Global Food Supply Chains. Foods, February, 1–23.

Jaharuddin, N. S., Mansor, Z. D. & Yaakob, S. (2016). Assessing the Supply Chain Intelligence Practices of Small Medium Enterprises in Malaysia. *Procedia Economics and Finance,* 35(October 2015), 515–521. https://doi.org/10.1016/s2212-5671(16)00064-2

Jayaram, J., Tan, K. & Nachiappan, S. P. (2010). Examining the interrelationships between supply chain integration scope and supply chain management efforts. International Journal of Production Research, December 2014, 37–41. https://doi.org/10.1080/00207540903358329

Kahn, K. B. & Mentzer, J. T. (1996). Logistics and interdepartmental integration. *International Journal of Physical Distribution & Logistics*, 26(8), 6–14.

Kauppi, K., Longoni, A., Caniato, F. & Kuula, M. (2016). Managing country disruption risks and improving operational performance: risk management along integrated supply chains. *International Journal of Production Economics,* 182, 484–495. https://doi.org/10.1016/j.ijpe.2016.10.006

Kim, S. W. (2006). The effect of supply chain integration on the alignment between corporate competitive capability and supply chain operational capability. *International Journal of Operations & Production Management*, 26(10), 1084–1107.

Kim, S. W. (2009). Int. J . Production Economics An investigation on the direct and indirect effect of supply chain integration on firm performance. Intern. *Journal of Production Economics*, 119(2), 328–346. https://doi.org/10.1016/j.ijpe.2009.03.007

Kingman-brundage, J., George, W. R. & Bowen, D. E. (2010). Service logic: achieving service system integration. *International Journal of Service Industry Management,* 6(4), 20–39.

Lee, C. W., Kwon, I. W. G. & Severance, D. (2007). Relationship between supply chain performance and degree of linkage among supplier, internal integration, and customer. *Supply Chain Management: An International Journal*, 12(6), 444–452. https://doi.org/10.1108/13598540710826371

Liu, H., Ke, W., Wei, K. K. & Hua, Z. (2013). Effects of supply chain integration and market orientation on firm performance: Evidence from China. *In International Journal of Operations and Production Management*, 33(3). https://doi.org/10.1108/01443571311300809

Mellat-Parast, M. & Spillan, J. E. (2014). Logistics and supply chain process integration as a source of competitive advantage An empirical analysis. *The International Journal of Logistics Management*, 25(2), 289–314. https://doi.org/10.1108/IJLM-07-2012-0066

Moschella, J., Boulianne, E. & Magnan, M. (2019). The Art, Craft, and Science of Risk Management in Small-and Medium-Sized Family Businesses. In SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3379010

Mostaghel, R., Oghazi, P., Beheshti, H. M. & Hultman, M. (2015). Strategic use of enterprise systems among service firms : Antecedents and consequences ☆. Journal of Business Research. https://doi.org/10.1016/j.jusres.2015.01.049

Munir, M., Shakeel, M., Jajja, S., Chatha, K. A. & Farooq, S. (2020). Supply Chain Risk Management and Operational Performance: The Enabling Role of Supply Chain Integration. International Journal of Production Economics. https://doi.org/10.1016/j.ijpe.2020.107667

National Entrepreneur and SME Development Council. (2020a). Economic performance and outlook 2019/20.

National Entrepreneur and SME Development Council. (2020b). PKS dalam Normal Baharu: Membangun Semula ekonomi. In LAPORAN TINJAUAN PKS 2019/20.

Ngoc, N. M., Viet, D. T., Tien, N. H., Hiep, P. M., Anh, N. T., Anh, L. D. H., Truong, N. T., Anh, N. S. T., Trung, L. Q., Dung, V. T. P. & Thao, L. T. H. (2022). Russia-Ukraine war and risks to global supply chains. *International Journal of Mechanical Engineering,* 7(6), 633–640.

Official Portal of Ministry of Economy. (2021). https://www.ekonomi.gov.my/en/sustainable-development-goals

Ou, C. S., Liu, F. C., Hung, Y. C. & Yen, D. C. (2010). A structural model of supply chain management on firm performance. *International Journal of Operations and Production Management,* 30(5), 526–545. https://doi.org/10.1108/01443571011039614

Pakurár, M., Haddad, H., Nagy, J., Popp, J. & Oláh, J. (2019). The impact of supply chain integration and internal control on financial performance in the Jordanian Banking Sector. *Sustainability (Switzerland),* 11(5). https://doi.org/10.3390/su11051248

Parast, M. M. & Subramanian, N. (2020). An examination of the effect of supply chain disruption risk drivers on organizational performance: evidence from Chinese supply chains. *Supply Chain Management*, 26(4), 548–562. https://doi.org/10.1108/SCM-07-2020-0313

Qi, Y., Huo, B., Wang, Z. & Yeung, H. Y. J. (2017). The impact of operations and supply chain strategies on integration and performance. *International Journal of Production Economics*, 185(July 2015), 162–174. https://doi.org/10.1016/j.ijpe.2016.12.028

Sabet, E., Yazdani, N. & De Leeuw, S. (2017). Supply chain integration strategies in fast-evolving industries. *International Journal of Logistics Management,* 28(1), 29–46. https://doi.org/10.1108/IJLM-01-2015-0013

Schoenherr, T. & Swink, M. (2012). Revisiting the arcs of integration : Cross-validations and extensions. *Journal of Operations Management,* 30(1–2), 99–115. https://doi.org/10.1016/j.jom.2011.09.001

Shayan, N. F., Mohabbati-Kalejahi, N., Alavi, S. & Zahed, M. A. (2022). Sustainable Development Goals (SDGs) as a Framework for Corporate Social Responsibility (CSR). *Sustainability (Switzerland),* 14(3), 1–27. https://doi.org/10.3390/su14031222

Siang, L. C. & Ali, A. S. (2012). Implementation of Risk Management in the Malaysian Construction Industry. *Journal of Surveying, Construction & Property*, 3(1), 1–15. https://doi.org/10.22452/jscp.vol3no1.2

SME Corporation Malaysia. (2020). COVID-19: Impact on Businesses and SMEs — Global, Regional & National Perspectives. *Onkologie*, 32(4), 1–254.

SME Corporation Malaysia. (2022). Profile of MSMEs in 2021. https://www.smecorp.gov.my/index.php/en/policies/2020-02-11-08-01-24/sme-statistics

SME Corporation Malaysia. (2023).

Som, J. O., Cobblah, C. & Anyigba, H. (2019). The Effect of Supply Chain Integration on Supply Chain Performance. *Nobel International Business School*, 5 (293).

Song, G. & Song, S. (2020). Fostering supply chain integration in omnichannel retailing through human resource factors: an empirical study in China's market. *International Journal of Logistics Research and Applications*, 24(1), 1–22. https://doi.org/DOI: 10.1080/13675567.2020.1713305

Stank, T. P., Keller, S. B. & Closs, D. J. (2001). Performance Benefits of Supply Chain Logistical Integration. *Transportation Journal*, 41(2), 32–46.

Stank, T. P., Keller, S. B. & Daugherty, P. J. (2001). Supply chain collaboration and logistical service performance. *Journal of Business Logistics*, 22(1), 29–48.

Taouab, O. & Issor, Z. (2019). Firm Performance: Definition and Measurement Models. *European Scientific Journal ESJ,* 15(1), 93–106. https://doi.org/10.19044/esj.2019.v15n1p93

The Star. (2021). THE STAR.

Tsanos, C. S., Zografos, K. G. & Harrison, A. (2014). Developing a conceptual model for examining the supply chain relationships between behavioral antecedents of collaboration, integration and performance.

The International Journal of Logistics Management, 25(3), 418–462. https://doi.org/10.1108/IJLM-02-2012-0005

Van Echtelt, F. E. A., Wynstra, F., Van Weele, A. J. & Duysters, G. (2008). Managing Supplier Involvement in New Product Development: A Multiple-Case Study. *The Journal of Product Innovation Management*, 25, 180–201.

Vanpoucke, E., Vereecke, A. & Muylle, S. (2017). Leveraging the impact of supply chain integration through information technology. *International Journal of Operations and Production Management*, 37(4), 510–530. https://doi.org/10.1108/IJOPM-07-2015-0441

Wiengarten, F., Li, H., Singh, P. J. & Fynes, B. (2019). Re-evaluating supply chain integration and firm performance: linking operations strategy to supply chain strategy. *Supply Chain Management*, 24(4), 540–559. https://doi.org/10.1108/SCM-05-2018-0189

Yaakub, S. & Mustafa, H. K. (2015). Supply Chain Risk Management for the SME's. *Academic Journal of Interdisciplinary Studies*, 4(1), 151–158. https://doi.org/10.5901/ajis.2015.v4n1s2p151

Yahya, R. (2021). SDG Indicators 2019 report: Statistical Communication and Engagement.

Yusuwan, N. M., Adnan, H., Omar, A. F. & Jusoff, H. K. (2008). Clients' Perspectives of Risk Management Practice in Malaysian Construction Industry. *Journal of Politics and Law,* 1(3). https://doi.org/10.5539/jpl.v1n3p121

Zhang, M. & Huo, B. (2013). The impact of dependence and trust on supply chain integration. *International Journal of Physical Distribution and Logistics Management*, 43(7), 544–563. https://doi.org/10.1108/IJPDLM-10-2011-0171

Zhao, X., Huo, B., Selen, W. & Yeung, J. H. Y. (2011). The impact of internal integration and relationship commitment on external integration. *Journal of Operations Management*, 29(1–2), 17–32. https://doi.org/10.1016/j.jom.2010.04.004

Zimmermann, F. & Foerstl, K. A. I. (2014). A Meta-Analysis of the Purchasing and Supply Management Practice – Performance Link . *Journal of Supply Chain Management*, 37–54.

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Abstract: The financial well-being of micro-entrepreneurs is a multifaceted concept that encompasses both financial stability and personal satisfaction with one's financial situation. The pandemic experienced by the country has affected people from all walks of life, including micro-entrepreneurs. These self-employed people not only scored the lowest when it comes to financial behaviors but they are also the most vulnerable in terms of financial well-being. This study intends to fill a gap in the literature by looking at the factors that influence micro-entrepreneurs' financial well-being in Malaysia. A systematic review of reviews was conducted through electronic databases between January 2018 and December 2022 using refined search methods, such as the Boolean operator, phrase searching, truncation, wild card, and field code functions, based on enriched keywords: ("FINANCIAL WELL-BEING*" OR "FINANCIAL WELLBEING) AND ("MICRO-ENTREPRENEUR* OR "MICRO-ENTERPRISE*"). Scopus and Web of Science were selected as the two primary databases to search for relevant articles and materials for the review. The results demonstrate the incorporation of several variables into the proposed framework of financial well-being of micro-entrepreneurs, namely social trust, social networks, financial self-efficacy, and financial innovation as a mediator. The proposed framework is derived from the Social Capital Theory and the Social Cognitive Theory, as well as reviews of past empirical studies.

Keywords: *Financial well-being, micro-entrepreneurs, micro-enterprise, Malaysia.*

1. Introduction

Micro-enterprise is defined as an enterprise with a sales turnover of less than RM300,000 or having employees of less than five (SME Corp., 2023). It can be said that micro-entrepreneurs are individuals who manage micro-enterprises. The term micro-enterprise and micro-entrepreneurs has been widely used with other term as well. For instance, informal employment has been interchangeably used with micro enterprises (Edusah, 2013; Lewis, 2020), while Lubell (1991) identified micro-enterprise with the modern informal sector. Apart from that, Edusah (2013) also relates the concept of micro-enterprise to small-scale industries.

The financial well-being of micro-entrepreneurs may include having access to financial resources such as loans, grants, and other forms of financing, as well as being able to manage their finances efficiently. This includes keeping accurate financial records, understanding their cash flow, managing their expenses, and investing in their business growth (Ramli & Yekini, 2022). In addition to these financial factors, financial well-being for micro-entrepreneurs also includes aspects of personal satisfaction, such as feeling confident about their financial situation, having a positive outlook towards their financial future, and feeling fulfilled by their work (Sabri, Wahab, Mahdzan, Magli, & Rahim, 2022). Overall, financial well-being for micro-entrepreneurs is a multifaceted concept that encompasses both financial stability and personal satisfaction with one's financial situation.

However, there are several issues pertinent to the financial well-being of micro-entrepreneurs. The pandemic covid-19 experienced by the country has affected people from all walks of life, including micro-entrepreneurs. Despite recent global health improvements, people around the world continue to face complicated, interrelated threats to their health and well-being that are embedded in social, economic, political, and environmental (World Health Organization, 2021). A report by AKPK in 2018 revealed that self-employed people scored the lowest when it comes to financial behaviors and they are the most vulnerable in terms of financial well-being. People may have trouble saving because they have to make do with less money than they would like because of the high cost of living. This, in turn, means that they don't have enough extra money to put towards savings. Moreover, the fact that more than 90 percent of micro-enterprise and informal businesses have no insurance coverage and 70 percent have no safety nets to fall back on if they lose their jobs (MEDAC, 2021) further increases the concern about the sustainability of micro-enterprises.

Achieving financial well-being requires effective financial management, access to financial resources, and a positive mindset toward one's financial future (Bank Negara Malaysia, 2022). This is a challenge for most because micro-entrepreneurs are struggling to generate enough revenue to cover their expenses, leading to a situation where they are unable to pay their debts and bills (The Star, 2021). The financial well-being of a micro-entrepreneur also can influence the likelihood of successfully managing bankruptcy (Khan, Dankiewicz, Kliuchnikava, & Oláh, 2020). If an entrepreneur has a good understanding of their financial situation and has taken steps to manage their debts before declaring bankruptcy, they may be able to recover and start anew. Therefore, having a healthy financial well-being is important for micro-entrepreneurs.

As a result, several studies have focused on certain aspects of financial well-being, such as social trust (Baktir & Watson, 2021; Tupminen & Haanpää, 2022), social networks (Tupminen & Haanpää, 2022; Li, 2016), and financial self-efficacy (Nguyen, 2022; Naveed, Farah, & Hasni, 2021). Therefore, the objective of this study is to propose a framework of social trust, social networks, financial knowledge, and financial self-efficacy on the financial well-being of micro-entrepreneurs in Malaysia, as well as financial innovation as the mediating variable.

2. Literature Review

Theoretical Foundation: In determining the conceptual framework, Social Capital Theory and Social Cognitive Theory are used as the underpinning theories. Social Capital Theory underpins the current study with its notion that social relationships are resources that may be used to facilitate the growth and accumulation of human capital through time (Machalek & Martin, 2015). The term "social capital" refers to the relationships that exist between people who live in a certain society. Social capital facilitates the flow of resources and the introduction of new ideas into an organization (Thomas & Gupta, 2021).

The concept of social capital has a long history, but it was Bourdieu (1986), Coleman (1988) and Putnam (1993), who laid the groundwork for its inclusion in academic and policy discussions. Bourdieu considered social capital as a characteristic of an individual rather than a society. He also pointed out that a person's ability to exercise power over the group or individual who is responsible for the mobilization of resources is facilitated by their level of social capital (Claridge, 2018). The concept of social capital by Coleman laid the foundation for Robert Putnam's theory. As opposed to Bourdieu and Coleman, Putnam defined social capital as the amount of participation, civic engagement, and trust, which makes it a public good (Tzanakis, 2013). His theory also claimed that social capital shifts from being something held individually to being something owned collectively.

Moreover, Putnam (1993) mentioned that sources of social capital (i.e., trust, norms, networks) are inclined to build on themselves and get stronger over time, as people make connections and build trust when working together. Therefore, social capital is found in one's network and more specifically, in one's connections with others. Additionally, in outlining the elements of social capital, Putnam specifically identified norms, participation, and trust, whereas Bourdieu and Coleman's operationalizations were quite vague. However, when seen from a Bourdieusian viewpoint, social capital may be defined as being tied to one's social network's power and prestige, but when viewed from a Colemanian perspective, it might include reciprocal norms, network size, and social support (Michalos, 2022). Hence, this study intends to incorporate the features of social networks and social trust derived from the theory in assessing micro-entrepreneurs financial well-being.

Social cognitive theory by Bandura (1991) asserts that people's beliefs of their abilities have an impact on every aspect of their lives, including their goals, their choices, and their resolve to complete tasks, positive or negative patterns of thinking, and the degree to which they persevere in the face of difficulties (Bandura, 1991). The theory also emphasizes external and internal social reinforcement while considering the specific ways in which individuals earn and sustain behavior (LaMorte, 2019). Therefore, it is seen as a way to improve well-being by aiming at improved emotion, cognitive processes, behavioral abilities, or the modification of the social settings in which they live and work (Pajares, 2002). Thus, this current study proposes the variable of financial self-efficacy derived from social cognitive theory and its relationship to the financial well-being of micro-entrepreneurs.

Financial Well-being of Micro-Entrepreneurs: Financial well-being can be referred to as a person's financial situation in which they have enough resources to live comfortably, content, and worry-free (Iramani & Lutfi, 2021). Consumer Financial Protection Bureau also described it as having financial stability as well as financial freedom of choice, both in the now and in the future. Studies on the financial well-being of micro-entrepreneurs yield very limited results. For instance, Eid et al. (2023) aimed to assess the economic health of SME proprietors in the governorate of Damietta. The data for this study was gathered from 384 SMEs by administering a questionnaire and then analyzed using structural equation modeling (SEM). A strong correlation between financial literacy levels and well-being was found in the research. Furthermore, Azman et al. (2021) explored the effects of Islamic microfinance on the financial well-being of micro-entrepreneurs and found a significant relationship between investment, and expansion towards financial well-being. War & Wadk (2016) studied the financial literacy of Sri Lankan micro-entrepreneurs towards financial well-being and discovered that investment and retirement strategies have the most central impact on financial well-being, while money, credit, debt, and risk management showed insignificant impact.

In another context of the study, García-Mata et al. (2022) analyzed the effects of sociodemographic characteristics, family characteristics, and economic characteristics on financial well-being in Mexico and found that contributing factors that improve one's financial well-being are the level and consistency of one's income, level of education, marital status, age, and employment status. Nguyen (2022) carried out an analysis of financial well-being and found that there is a strong relationship between financial well-being and financial problems, financial literacy, financial knowledge, and financial self-efficacy. The researcher also noted that prior studies measure financial well-being by using a variety of objective characteristics such as income, socio-demographic characteristics, and investment performance of their debt level. Furthermore, according to She et al. (2022), financial well-being is affected by subjective financial knowledge, financial attitude, and locus of control, while financial behavior mediates relationships. The findings also demonstrate that an individual's psychological beliefs give rise to their acts and are the primary motivating factor behind a person's behavior, which in turn affects their financial well-being.

Previous studies on financial well-being can be clustered into three approaches: objective measurement (such as income and wealth), subjective measurement (such as personality, attitudes, and knowledge) and a combination of objective and subjective measurements. (Brüggen, Hogrev, Holmlund, Kabadayi, & Löfgren, 2017). According to Ismail, Kumaran, Munawwarah, Muhammad & Sarifuddin (2021) because only an individual can accurately assess the level of his or her financial well-being, the subjective method may be the most appropriate measurement tool. Nevertheless, there are still other aspects to consider, such as the number of people living in the home, the monthly household budget, the amount of debt owed, and the number of stressors in one's life.

However, the determinants of financial well-being specifically in the context of micro-entrepreneurs in Malaysia are yet to be fully discovered. There is room for the development of research studies that differ from those covered by previous researchers in terms of level of income, demography, consumption pattern, employment, and lifestyle. The current study, therefore, proposed the factors of social trust, social networks, financial self-efficacy, and financial innovation toward micro-entrepreneurs' financial well-being.

Antecedents of Financial Well-Being of Micro-Entrepreneurs

Social Trust: Social trust can be defined as putting one's faith in strangers in the community, and demonstrating dependence on humanity's goodwill (Bai, Gong, & Feng, 2019). It is also a fundamental foundation for relationships between individuals and society (Kwon, 2019). Social trust has been used in previous literature in a variety of contexts and has been found to contribute to economic growth (Beugelsdijk, Groot, & Schaik, 2004), financial development (Guiso, Sapienza, & Zingales, 2004), government efficiency (Knack, 2022), and the use of open business-to-business e-commerce (Qu, Pinsonneault, Tomiuk, Wang, & Liu, 2015).
Furthermore, social trust is an indicator that indicates social progress and contributes to personal life satisfaction, and it has also been proven to be substantially related to people's subjective well-being (Li & He, 2022). Aside from that, as a study by Barrafrem, Tinghög, & Västfjäl (2021) reveals, during the pandemic

Covid-19, faith in the government in managing the crisis had a significant influence on the general population's well-being. Moreover, the research emphasized the need for people's faith in government organizations that are functioning well to aid in dealing with not just the issues linked with healthcare but also the financial concerns caused by the epidemic.

Social Networks: Economists have recently examined a third factor in the relationship between income and well-being: social networks, also referred to as social connections or relationships with friends, coworkers, and even community, can all be regarded as forms of social capital (Yeo & Lee, 2019). When it comes to getting financial advice, social networks and close personal ties are the most cost-effective routes to pursue, particularly when trust is a significant factor in the choice to seek financial guidance (Lachance & Tang, 2012). Another study by Ladha et al. (2017) outlined social networks as one of the four key elements in understanding financial health in developing countries. It was further stated that individuals who use formal financial goods as well as those who do not utilise official financial products often turn to social networks for assistance in coping with difficulties.

Conducted research on the effect that social networks have on one's well-being involving the adult population of Australia. It was found that life satisfaction and well-being is strongly influenced by one's structure of social networks, social bond, and social support, while also discovering relational social restrictions and limitation in their networks. It was further implied that social networks have both good and bad effects on well-being. Likewise, Thomas and Gupta (2021) stressed how employees' financial well-being may be affected by their social networks, and the impact of strong ties in a network is often associated with social capital.

Financial Self-Efficacy: Financial self-efficacy is defined as the amount of confidence that a person has in their capacity to access, utilize, and make financial decisions, as well as cope with a difficult financial circumstance (Ghosh & Vinod, 2017). According to Stajkovic and Luthans (1998), those with strong self-efficacy may be able to expend sufficient effort that, if properly applied, may result in beneficial outcomes, while people with low self-efficacy will almost certainly give up too soon and will be unsuccessful. Higher financial self-efficacy is associated with more productive financial behaviors and a sense of well-being (Farrell, Fry, & Risse, 2016). Moreover, conducted a study on financial well-being and the factors affecting them, involving students in Ho Chi Minh City, Vietnam. The students' financial well-being depends heavily on their level of financial self-efficacy, which is one of the crucial factors. Moreover, according to the findings of the study, having faith in one's ability to make and carry out sound financial decisions is a key factor in achieving financial well-being. This is in line with the findings by Renaldo et al. (2020) where financial self-efficacy was found to be a strong predictor of a person's ability to fulfill their personal goals, and they are more likely to improve their financial well-being. The study also asserted that having financial self-efficacy is a person's confidence that they are capable of taking the necessary steps to accomplish a goal and their ability to carry out their duties.

Financial Innovation as a Mediator: Financial innovation is expected to be a mediator between social trust, social networks, and financial self-efficacy. Financial innovation can be described as any new products, platforms, and processes that introduce or improve new ways a financial activity is carried out (Khraisha & Arthur, 2018). After the outbreak of the pandemic covid-19, many businesses are unable to operate as effectively as they once did. As business models adapt to new market conditions, competitive advantages change dynamically, and the qualities that once distinguished a company may become less significant (Am, Furstenthal, Jorge, & Roth, 2020). Many financial innovations have undoubtedly benefited economic development, and the link between financial and economic advancement is well established (Levine, 2005; Nguena, 2019). Studied mediating effects of financial innovations between behavioral factors and financial inclusion of micro-enterprises in Kenya by using a positivist approach and explanatory research design. The findings showed that financial innovations mediated the relationship between each of the behavioral factors (self-control, confidence, social proof) and financial inclusion. It was also determined that the introduction of financial innovations including mobile payments, agency banking, and developing financial products has not only increased the number of new markets, but also the availability of innovative financial services products, which all contribute to optimal financial decisions, growth opportunities, and economic growth for micro-entrepreneurs.

3. Methodology

The proposed conceptual framework for determinants of financial well-being among micro-entrepreneurs in Malaysia is based on the underpinning theories of the Social Capital Theory and Social Cognitive Theory, as well as past literature. Using systematic search methods, past literature was evaluated. This technique was constructed with three sub-processes—identification, screening, and eligibility—to ensure exhaustive and methodical searching. This procedure can be accurately described in the review to the extent that all database searches can be repeated. The current study follows a methodical examination of literature published on micro-entrepreneurs. This study examines the literature published using keywords such as "micro-entrepreneurs", "financial well-being", "small business", and "micro-enterprise" using the Boolean operator "AND" and "OR". Specifically, the combination of keywords has primarily centered on micro-entrepreneurs and financial well-being.

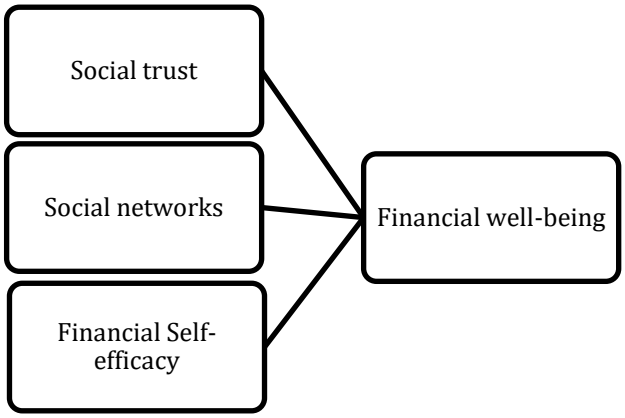
The first step is identification, during which time the researcher seeks out alternate forms of keywords such as synonyms, antonyms, and related terms. From the beginning of 2018 until the end of 2022, all databases were searched using Boolean operators, phrase searches, truncation, wild card, and field code functions, either individually or in combination, based on the primary and enhanced keywords: ("FINANCIAL WELL-BEING*" OR "FWB" OR "FINANCIAL WELLBEING) AND ("MICRO-ENTREPRENEUR* OR "MICRO-ENTERPRISE*").

Scopus and Web of Science were selected as the two primary databases to search for relevant articles and materials for the review. Four (4) different databases were accessed to provide more context. It was decided to use Google Scholar, Research Gate, Mendeley, and university libraries. 782 articles have been found as results of the identification process in the primary and secondary databases, and around 352 articles did not make it beyond the screening phase because they did not satisfy the inclusion criteria, which left 457 papers to be evaluated for eligibility. Eligibility assessment is the third step, and it involves a manual check of the remaining articles from the retrieval phase to make sure they all fit the study's criteria. Only 43 of the articles were selected and the rest of the duplicate records were from multiple databases.

4. A Proposed Conceptual Framework

Current research proposes a conceptual framework based on both the Social Capital Theory and the Social Cognitive Theory, as well as prior literature. In the context of this study, the Social Capital Theory proposes that social trust and social networks provide an underlying motivation for the financial well-being of microentrepreneurs. Comparatively, Social Cognitive Theory in the context of this study proposed that an individual's self-efficacy is influenced by attitudes and subjective norms. In addition, numerous studies have demonstrated the importance of financial innovation as a mediator between all independent variables and the financial well-being of microentrepreneurs. Combining the underlying theories with a literature review, this study aims to investigate the relationship between social trust, social networks, financial self-efficacy and the financial well-being of microentrepreneurs. This study will also investigate the function of financial innovation as a mediator between the two variables. The proposed framework is depicted in Figure 1 below.

Figure 1: Conceptual Framework of Financial Well-Being for Micro-Entrepreneurs



5. Conclusion and Recommendations

In summary, the current study posits that financial innovation may act as a mediator between social trust, social networks, and financial self-efficacy to improve micro-entrepreneurs' financial well-being. The results of this investigation point to a conceptual framework, depicted in Figure 1, that can guide and further the research. This research will contribute to the body of knowledge and understanding of how social trust, social networks, and financial self-efficacy interact with financial innovation to affect micro-entrepreneurs' financial well-being. To the best of the researcher's knowledge, studies based on empirical evidence are uncommon in this field, particularly from a Malaysian viewpoint, and therefore, this contribution will include a deeper understanding of the factors that affect micro-entrepreneurs financial well-being. In addition, the results are anticipated to provide useful insights that the government might use to develop a more protective policy for micro-entrepreneurs well-being and quality of life. Furthermore, the findings of this research could help policymakers develop programs and incentives that would help microbusinesses maintain stable financial stability. Micro-entrepreneurs and members of Malaysia's informal economy present an interesting study population because there is room to inquire into other potential factors influencing financial success. The authors of this study believe that the clarity presented by the proposed framework will encourage further study of this crucial concept among academics.

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References

Adenle, A. A., Wedig, K. & Azadi, H. (2019). Sustainable agriculture and food security in Africa: The role of innovative technologies and international organizations. Technology in Society, 58.

Adu-Baffour, F., Daum, T. & Birner, R. (2021). Governance challenges of small-scale gold mining in Ghana: Insights from a process net-map study. Land Use Policy, 102.

Agostoni, C., Baglioni, M., La Vecchia, A., Molari, G. & Berti, C. (2023). Interlinkages between Climate Change and Food Systems: The Impact on Child Malnutrition-Narrative Review. *Nutrients*, 15(2), 416.

Alexander, P., Brown, C., Arneth, A., Finnigan, J. & Rounsevell, M. (2019). Human appropriation of land for food: The role of diet. Global Environmental Change, 58.

Am, y. J., Furstenthal, L., Jorge, F. & Roth, E. (2020). Innovation in a crisis: San Francisco: Mckinsey & Company.

Anderson, E., Wei, R., Liu, B., Plummer, R., Kelahan, H., Tamez, M. & Mattei, J. (2021). Improving healthy food choices in low-income settings in the United States using behavioral economic-based adaptations to choice architecture. Frontiers in Nutrition, 8.

Asiedu, B., Adetola, J. & Odame Kissi, I. (2017). Aquaculture in troubled climate: Farmers' perception of climate change and their adaptation. *Cogent Food and Agriculture*, 3(1).

Bai, C., Gong, Y. & Feng, C. (2019). Social Trust, Pattern of Difference, and Subjective Well-Being. Sage, 1-17. doi:10.1177/2158244019865765

Baktir, Z. & Watson, F. (2021). Trust-Driven Entrepreneurship for Community Well-Being of Refugees and Their Local Hosts. Journal of Macromarketing, 251-266. doi:10.1177/0276146720935157

Balehegn, M., Duncan, A., Tolera, A., Ayantunde, A., Issa, S., Karimou, M. & Adesogan, A. (2020). Improving adoption of technologies and interventions for increasing the supply of quality livestock feed in low- and middle-income countries. Global food security, 26.

Bandura, A. (1991). Social Cognitive Theory of Self-Regulation. Organizational Behaviour and Human Decision Processes, 248-287.

Bank Negara Malaysia. (2022, January 24). Financial Sector Blueprint 2022-2026. Retrieved from Elevate the financial well-being of households and business: https://www.bnm.gov.my/publications/fsb3

Belton, B., Johnson, D., Thrift, E., Olsen, J., Hossain, M. & Thilsted, S. (2022). Dried fish at the intersection of food science, economy, and culture: A global survey. *Fish and Fisheries*, 23(4), 941-962.

Ben Ayed, R. & Hanana, M. (2021). Artificial intelligence to improve the food and agriculture sector. Journal of Food Quality, 1-7.

Beugelsdijk, S., Groot, H. d. & Schaik, T. (2004). Trust and economic growth: a robustness analysis. Oxford Economic Papers (pp. 118-134). United Kingdom: Oxford University Press.

Bezner Kerr, R., Hickey, C., Lupafya, E. & Dakishoni, L. (2019). Repairing rifts or reproducing inequalities? Agroecology, food sovereignty, and gender justice in Malawi. *The Journal of Peasant Studies*, 46(7), 1499-1518.

Bindi, M., Palosuo, T., Trnka, M. & Semenov, M. (2015). Modeling climate change impacts on crop production for food security. *Climate Research*, 65, 3–5.

Bjornlund, V., Bjornlund, H. & van Rooyen, A. (2022). Why food insecurity persists in sub-Saharan Africa: A review of existing evidence. *Food Security*, 14(4), 845-864.

Brüggen, E. C., Hogrev, J., Holmlund, M., Kabadayi, S. & Löfgren, M. (2017). Financial well-being: A conceptualization and research agenda. Journal of Business Research, 228–237.

Clapp, J. (2021). *Nature Food*, 2(6), 404-408.

Clapp, J. & Moseley, W. (2020). This food crisis is different: COVID-19 and the fragility of the neoliberal food security order. *The Journal of Peasant Studies*, 47(7), 1393-1417.

Clapp, J., Moseley, W., Burlingame, B. & Termine, P. (2022). The case for a six-dimensional food security framework. Food Policy, 106.

Claridge, T. (2018). Introduction to Social Capital Theory. Social Capital Research, 1-658.

Coates, J. (2013). Build it back better: Deconstructing food security for improved measurement and action. *Global Food Security,* 2(3), 188-194.

Desmarais, A. A. (2017). Food sovereignty and the challenge of democracy: A public policy perspective. Routledge.

Di Prima, S., Wright, E. P., Sharma, I. K., Syurina, E. & Broerse, J. (2022). Implementation and scale-up of nutrition-sensitive agriculture in low and middle-income countries: a systematic review of what works, what doesn't work and why. Global Food Security, 32.

Diekmann, L. O., Gray, L. & Thai, C. (2020). More than food: The social benefits of localized urban food systems. Frontiers in Sustainable Food Systems, 4.

Djankov, S. & Panizza, U. (2020). COVID-19 in developing economies. Örebro: EconPapers.

Edusah. (2013). The Informal Sector, Micro-Enterprises and Small-Scale Industries: The Conceptual Quandary. Journal of Economics and Sustainable Development, 117-185.

Fanzo, J. (2014). Strengthening the engagement of food and health systems to improve nutrition security: Synthesis and overview of approaches to address malnutrition. *Global food security*, 3(3-4), 183-192.

FAO. (2019). The State of Food and Agriculture 2019: Moving Forward on Food Loss and Waste Reduction. Rome. Retrieved from World Food and Agriculture – Statistical Pocketbook 2019.: https:www.fao.org

Farrell, L., Fry, T. R. & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behavior. *Journal of Economic Psychology,* 54, 85-99. doi:https://doi.org/10.1016/j.joep.2015.07.001

Filippini, R., Mazzocchi, C. & Corsi, S. (2019). The contribution of Urban Food Policies toward food security in developing and developed countries: A network analysis approach. Sustainable Cities and Society, 47.

Fitzpatrick, K., Greenhalgh-Stanley, N. & Ver Ploeg, M. (2019). Food deserts and diet-related health outcomes of the elderly. Food Policy, 87.

Galli, F. & Watters, R. (2019). Food systems and the SDGs: Bridging the policy gap. Rome: FAO.

Garnett, T., Appleby, M., Balmford, A., Bateman, I., Benton, T., Bloomer, P. & Godfray, H. (2013). Sustainable intensification in agriculture: premises and policies. *Science*, 341(6141), 33-34.

Gava, O., Bartolini, F., Venturi, F., Brunori, G. & Pardossi, A. (2020). Improving policy evidence base for agricultural sustainability and food security: A content analysis of life cycle assessment research. *Sustainability*, 12(3), 1033.

Geekiyanage, D., Fernando, T. & Keraminiyage, K. (2020). Assessing the state of the art in community engagement for participatory decision-making in disaster risk-sensitive urban development. International journal of disaster risk reduction, 51.

Ghosh, S. & Vinod, D. (2017). What Constrains Financial Inclusion for Women? Evidence from Indian Microdata. *World Development,* 92(C), 60-81.

Godde, C. M., Mason-D'Croz, D., Mayberry, D. & Thornton, P. (2021). Impacts of climate change on the livestock food supply chain; a review of the evidence. Global food security, 28.

Guiso, L., Sapienza, P. & Zingales, L. (2004). The Role of Social Capital in Financial Development. American Economic Review, 526-556.

Heidkamp, R. A., Piwoz, E., Gillespie, S., Keats, E., D'Alimonte, M., Menon, P. & Bhutta, Z. (2021). Mobilizing evidence, data, and resources to achieve global maternal and child undernutrition targets and the Sustainable Development Goals: An agenda for action. *The Lancet*, 397(10282), 1400-1418.

Ignowski, L., Belton, B., Tran, N. & Ameye, H. (2023). Dietary inadequacy in Tanzania is linked to the rising cost of nutritious foods and consumption of food away from home. Global Food Security, 37.

Ingram, J. (2020). Nutrition security is more than food security. *Nature food*, 1(1), 2-2.

IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Bonn: IPBES Secretariat.

IPCC. (2019). Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems. Geneva: IPCC.

Iramani, R. & Lutfi, L. (2021). An integrated model of financial well-being: The role of financial behavior. Accounting, 691-700.

Khan, K. A., Dankiewicz, R., Kliuchnikava, Y. & Oláh, J. (2020). How do entrepreneurs feel about bankruptcy? *International Journal of Entrepreneurial Knowledge,* 8(1), 89-101.

Khraisha, T. & Arthur, K. (2018). Can we have a general theory of financial innovation processes? A conceptual review. Financial Innovation, 1-27. doi:https://doi.org/10.1186/s40854-018-0088-y

Knack, S. (2022). Social Capital and the Quality of Government: Evidence from the States. *American Journal of Political Science,* 46(4), 772-785.

Kwon, O. Y. (2019). Social Trust and Economic Development: The Case of South Korea. Canada: Edward Elgar. doi:10.4337/9781784719609.00008

Lachance, M. E. & Tang, N. (2012). Financial Advice and Trust. Economics.

LaMorte, W. W. (2019). The Social Cognitive Theory. Boston University School of Public Health.

Leip, A., Caldeira, C., Corrado, S., Hutchings, N., Schaap, M. & van Grinsven, H. (2022). Halving nitrogen waste in the European Union food systems requires both dietary shifts and farm-level actions. Global Food Security, 35.

Levine, R. (2005). Finance and Growth: Theory and Evidence. In P. Aghion, & S. Durlauf, Handbook of Economic Growth (pp. 1-40). Amsterdam: Elsevier Science.

Lewis, M. (2020). Informal Enterprises in the East Cape. East Cape: Eastern Cape Socio-Economic Consultative Council.

Li, N. & He, M. (2022). Social Security Satisfaction and People's Subjective Wellbeing in China: The Serial Mediation Effect of Social Fairness and Social Trust. Frontiers in Psychology, 1-16. doi:10.3389/fps.2022.855530

Li, Y. (2016). Social mobility, social network and subjective well-being in the UK. *Contemporary Social Science,* 11(2-3), 222-237.

Liguori, J., Trübswasser, U., Pradeilles, R., Le Port, A., Landais, E., Talsma, E. & Holdsworth, M. (2022). How do food safety concerns affect consumer behaviors and diets in low-and middle-income countries? A systematic review. Global Food Security, 35.

Machalek, R. & Martin, M. W. (2015). Sociobiology and Sociology: A New Synthesis. In J. D. Wright, & J. D. Wright (Ed.), International Encyclopedia of the Social & Behavioral Sciences (Second Edition) (pp. 892-898). Elsevier.

Mardones, F. O., Rich , K., Boden, L., Moreno-Switt, A., Caipo, M., Zimin-Veselkoff, N. & Baltenweck, I. (2020). The COVID-19 pandemic and global food security. Frontiers in Veterinary Science, 7.

Máté, D., Novotny, A. & Meyer, D. (2021). The impact of sustainability goals on productivity growth: The moderating role of global warming. *International Journal of Environmental Research and Public Health*, 18(21).

Mattas, K., Tsakiridou, E., Karelakis, C., Lazaridou, D., Gorton, M., Filipović, J. & Veneziani, M. (2021). Strengthening the sustainability of European food chains through quality and procurement policies. *Trends in Food Science & Technology*, 120, 248-253.

MEDAC. (2021, July 1). MEDAC Plans to Introduce Protection Plans for Micro and Informal Enterprises. Retrieved from Kementerian Pembangunan Usahawan dan Koperasi: https://kuskop.gov.my/admin/files/med/image/portal/PDF/Kenyataan%20media/PRESS%20RELEASE%20%20@%20MEDAC%20PLANS%20TO%20INTRODUCE%20PROTECTION%20PLANS%20FOR%20MICRO%20AND%20INFORMAL%20ENTERPRISEs.pdf

Michalos, A. C. (2022). The Pope of Happiness A Festschrift for Ruut Veenhoven. Canada: Springer.

Misra, N. N., Dixit, Y., Al-Mallahi, A., Bhullar, M., Upadhyay, R. & Martynenko, A. (2022). IoT, Big Data, and Artificial Intelligence in Agriculture and Food Industry. *IEEE Internet of Things Journal*, 9(9), 6305–6324.

Morales, D. X., Morales, S. & Beltran, T. (2021). Racial/ethnic disparities in household food insecurity during the COVID-19 pandemic: a nationally representative study. *Journal of racial and ethnic health disparities*, 8, 1300-1314.

Murrell, A. & Jones, R. (2020). Measuring Food insecurity using the food abundance index: implications for economic, health and social well-being. *International journal of environmental research and public health*, 17(7), 2434.

Nabuuma, D., Reimers, C., Hoang, K., Stomph, T. & Swaans, K. (2022). Impact of seed system interventions on food and nutrition security in low and middle-income countries: A scoping review. Global Food Security, 33.

Nakawuka, P., Langan, S., Schmitter, P. & Barron, J. (2018). A review of trends, constraints and opportunities of smallholder irrigation in East Africa. *Global food security*, 17, 196-212.

Namany, S., Govindan, R., Alfagih, L., McKay, G. & Al-Ansari, T. (2020). Sustainable food security decision-making: an agent-based modeling approach. Journal of Cleaner Production, 255.

Naveed, M., Farah, M. F. & Hasni, M. J. (2021). The transformative role of firm information transparency in triggering retail investor's perceived financial well-being. *International Journal of Bank Marketing,* 39(7), 1091-1113.

Nguena, C. L. (2019). On financial innovation in developing countries: The determinants of mobile banking and financial development in Africa. Journal of Innovation Economics & Management, 69-94.

Nguyen, S. M. (2022). Visualization and bibliometric analysis on the research of financial well-being. international Journal of Advanced and Applied Sciences, 10-18.

Nisbett, N., Harris, J., Backholer, K., Baker, P., Jernigan, V. & Friel, S. (2022). Holding no-one back: the nutrition equity framework in theory and practice. Global Food Security, 32.

Nunn, P. & Kumar, R. (2018). Understanding climate-human interactions in Small Island Developing States (SIDS): Implications for future livelihood sustainability. *International Journal of Climate Change Strategies and Management*, 10(2), 245–271.

Odeku, K. O. (2013). Global climate change, threat to food safety and poverty. *Mediterranean Journal of Social Sciences*, 4(14), 827–834.

O'Hara, S. & Toussaint, E. (2021). Food access in crisis: Food security and COVID-19. *Ecological Economics*, 180.

Pajares, F. (2002). Overview of Social Cognitive Theory and Self-Efficacy. Emory University, 1-5.

Panchasara, H., Samrat, N. & Islam, N. (2021). Greenhouse gas emissions trends and mitigation measures in Australian agriculture sector—a review. *Agriculture*, 11(2), 85.

Penne, T. & Goedemé, T. (2021). Can low-income households afford a healthy diet? Insufficient income as a driver of food insecurity in Europe. Food Policy, 99.

Pérez-Escamilla, R. & Segall-Corrêa, A. (2008). *Revista de Nutrição*, 21, 15-26.

Pérez-Escamilla, R., Shamah-Levy, T. & Candel, J. (2017). *Global Food Security*, 14, 68-72.

Philippidis, G., Sartori, M., Ferrari, E. & M'Barek, R. (2019). Waste not, want not: A bio-economic impact assessment of household food waste reductions in the EU. *Resources, Conservation and Recycling*, 146, 514-522.

Poirier, B. & Neufeld, H. (2023). We Need to Live off the Land": An Exploration and Conceptualization of Community-Based Indigenous Food Sovereignty Experiences and Practices. *International Journal of Environmental Research and Public Health*, 20(5), 4627.

Pörtner, L. M., Lambrecht, N., Springmann, M., Bodirsky, B., Gaupp, F., Freund, F. & Gabrysch, S. (2022). We need a food system transformation—In the face of the Russia-Ukraine war, now more than ever. *One Earth*, 5(5), 470-472.

Qu, W. G., Pinsonneault, A., Tomiuk, D., Wang, S. & Liu, Y. (2015). The impacts of social trust on open and closed B2B e-commerce: A Europe-based study. *Information & Management,* 52, 151-159.

Ramli, A. & Yekini, L. S. (2022). Cash Flow Management among Micro-Traders: Responses to the COVID-19 Pandemic. *Sustainability,* 14(7), 1-21.

Rejeb, A., Rejeb, K. & Zailani, S. (2021). Big data for sustainable agri-food supply chains: a review and future research perspectives. *Journal of Data, Information and Management*, 3, 167-182.

Ripkey, C., Little, P., Dominguez-Salas, P., Kinabo, J., Mwanri, A. & Girard, A. (2021). Increased climate variability and sedentarization in Tanzania: Health and nutrition implications on pastoral communities of Mvomero and Handeni districts, Tanzania. Global Food Security, 29.

Rosenthal, J. P., Quinn, M., Hatt, E. & Wallinga, D. (2021). Food systems and public health: Linkages to achieve healthier diets and healthier communities. *Annual Review of Public Health*, 42, 183-198.

Sabri, M. F., Wahab, R., Mahdzan, N. S., Magli, A. S. & Rahim, H. A. (2022). Mediating Effect of Financial Behaviour on the Relationship Between Perceived Financial Wellbeing and Its Factors Among Low-income Young Adults in Malaysia. Frontiers in Psychology, 1-16.

Santeramo, F. G. & Lamonaca, E. (2021). Food loss–food waste–food security: a new research agenda. *Sustainability*, 13(9), 4642.

Sapienza, S. & Vedder, A. (2021). Principle-based recommendations for big data and machine learning in food safety: the P-SAFETY model. *AI and Society*, 38(1), 5–20.

Savari, M. & Amghani, M. (2022). SWOT-FAHP-TOWS analysis for adaptation strategies development among small-scale farmers in drought conditions. International Journal of Disaster Risk Reduction, 67.

Scholtz, M. M., Schönfeldt, H., Neser, F. & Schutte, G. (2014). Research and development on climate change and greenhouse gases in support of climate-smart livestock production and a vibrant industry. *South African Journal of Animal Sciences*, 44(5), 1–7.

Scoones, I., Stirling, A., Abrol, D., Atela, J., Charli-Joseph, L., Eakin, H. & Yang, L. (2020). Transformations to sustainability: combining structural, systemic and enabling approaches. *Current Opinion in Environmental Sustainability*, 42, 65-75.

Sharifi, A. (2020). Trade-offs and conflicts between urban climate change mitigation and adaptation measures: A literature review. Journal of Cleaner Production, 276.

Sinclair, K., Thompson-Colón, T., Bastidas-Granja, A., Matamoros, S., Olaya, E. & Melgar-Quiñonez, H. (2022). Women's autonomy and food security: connecting the dots from the perspective of Indigenous women in rural Colombia. SSM-Qualitative Research in Health, 2.

SME Corp. (2023, 3 9). Micro Enterprises. Retrieved from SME Corporation Malaysia: https://www.smecorp.gov.my/index.php/en/micro-enterprises

Smith, L. P., Ng, S. & Popkin, B. (2017). Trends in US home food preparation and consumption: analysis of national nutrition surveys and time use studies from 1965-1966 to 2007-2008. *Nutrition Journal*, 16(1), 1-16.

Spanaki, K., Karafili, E., Sivarajah, U., Despoudi, S. & Irani, Z. (2022). Artificial intelligence and food security: swarm intelligence of AgriTech drones for smart AgriFood operations. *Production Planning & Control*, 33(16), 1498-1516.

Speich, C., Barth-Jaeggi, T., Musard, C., Havugimana, C., Gakuba, E. & Prytherch, H. (2023). Nutrition in City Ecosystems (NICE): Protocol of a multi-sectoral development project to improve food and nutrition security of secondary city populations in Bangladesh, Kenya and Rwanda. *Frontiers in Public Health*, 11, 211.

Talari, G., Cummins, E., McNamara, C. & O'Brien, J. (2022). State-of-the-art review of Big Data and web-based Decision Support Systems (DSS) for food safety risk assessment concerning climate change. *Trends in Food Science & Technology*, 126, 192–204.

The Star. (2021, September 28). Over 37,000 businesses folded in pandemic times, says minister. Retrieved from TheStar: https://www.thestar.com.my/news/nation/2021/09/28/over-37000-businesses-folded-in-pandemic-times-says-minister

Thomas, A. & Gupta, V. (2021). Social Capital Theory, Social Exchange Theory, Social Cognitive Theory, Financial Literacy, and the Role of Knowledge Sharing as a Moderator in Enhancing Financial Well-Being: From Bibliometric Analysis to a Conceptual Framework Model. Frontiers in Psychology, 1-16.

Tupminen, M. & Haanpää, L. (2022). Young People's Well-BeingSS and the Association with Social Capital, i.e. Social Networks, Trust and Reciprocity. *Social Indicators Research,* 159, 617-647.

Tzanakis, M. (2013). Social capital in Bourdieu's, Coleman's and Putnam's theory: empirical evidence and emergent measurement issues. *Educate,* 13(2), 2-23.

Vågsholm, I., Arzoomand, N. & Boqvist, S. (2020). Food Security, Safety, and Sustainability—Getting the Trade-Offs Right. *Frontiers in Sustainable Food Systems*, 4, 16.

Wang, H. L. & Wang, D. (2022). Agricultural Insurance, Climate Change, and Food Security: Evidence from Chinese Farmers. *Sustainability (Switzerland)*, 14(15).

World Health Organization. (2021, May 20). The impact of COVID-19 on global health goals. Retrieved from COVID-19 responsible for at least 3 million excess deaths in 2020: https://www.who.int/news-room/spotlight/the-impact-of-covid-19-on-global-health-goals

Wudil, A., Usman, M., Rosak-Szyrocka, J., Pilař, L. & Boye, M. (2022). Reversing Years for Global Food Security: A Review of the Food Security Situation in Sub-Saharan Africa (SSA). *International Journal of Environmental Research and Public Health*, 19(22).

Yeo, J. & Lee, Y. G. (2019). Understanding the Association Between Perceived Financial Well-Being and Life Satisfaction Among Older Adults: Does Social Capital Play a Role? Journal of Family and Economic Issues, 592-608.

Zhang, Q., Dhir, A. & Kaur, P. (2022). Circular economy and the food sector: A systematic literature review. *Sustainable Production and Consumption*, 32, 655-668.

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WAQF and Tourism Industry Sustainability: Post-Pandemic COVID-19

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Abstract: This study attempts to address whether waqf fund, social-cultural, or transversal pillars can contribute to tourism industry sustainability after the COVID-19 pandemic for both Malaysia and Indonesia. Questionnaires were distributed online to the employees who work in the tourism industry. The result indicates that the social-cultural pillar should be the focus of Malaysia and Indonesia for the tourism industry's sustainability after the COVID-19 pandemic. The responses obtained reveal that the respondents believed that better local facilities and infrastructure could improve the social-cultural pillar; therefore, it can pull tourists to travel again. This study contributes to the body of knowledge by conforming that the social-cultural pillar is essential for the tourism sector's Sustainability in both countries. This idea benefits the policymakers, the tourism industry itself, and other stakeholders because it provides an improved understanding of the importance of the social-cultural pillar for the Sustainability of the tourism industry. This study offers useful insight into waqf and tourism industry sustainability in the post-pandemic COVID-19 in Malaysia and Indonesia.

Keywords: *COVID-19; waqf; tourism; social-cultural pillar; survey.*

1. Introduction

Travel and tourism play a crucial role in the economy by making substantial direct and indirect financial contributions. Their contribution to the Gross Domestic Product (GDP) of numerous countries globally is significant. In the case of Malaysia and Indonesia, the economies are mostly reliant on the tourism sector. Nevertheless, the COVID-19 pandemic has had a significant adverse effect on the tourism industry. As a consequence of the implementation of travel restrictions and the closing of tourist borders, Malaysia's tourism sector had a significant decline in tourist expenditure amounting to around RM45 billion during the initial six months of 2020 (Perimbanayagam, 2020). Furthermore, this downturn resulted in the loss of 12,000 jobs, which accounts for approximately 6% of the industry's total workforce (Ganesan, 2021). The worldwide quarantine measures implemented in response to the COVID-19 pandemic have had significant repercussions on individuals' means of livelihood and the global economic landscape (Ocheni, Agba, Agba & Eteng, 2020).

The COVID-19 pandemic has led to restrictions on travel as a consequence. The increasing prevalence of newly identified cases of COVID-19 has led to constant changes in policies and shifts in individual behavior (Hao, Bai, & Sun, 2021). Furthermore, the COVID-19 pandemic has brought about a health and economic catastrophe that poses numerous unforeseen challenges for the tourism sector, encompassing the management of operations and the sustainability of the enterprise in the long run. The tourism industry has always been impacted by natural disasters and health emergencies, but these effects have usually been minor and controllable. However, the global scale of the COVID-19 pandemic has initiated a chain reaction that has had a profound and widespread influence on the whole industry. Fighting against these effects is no longer an option (Ocheni, Agba, Agba & Eteng, 2020).

The post-COVID-19 pandemic necessitates the implementation of proactive measures by both Malaysia and Indonesia to revive their respective tourism sectors and regain their positions as industry leaders. Nevertheless, this demands a rise in governmental expenditures. Hence, a potential approach to mitigate the challenges related to expenditure is to incorporate effective waqf frameworks that could offer support to this sector. This is because the funds of the governments might be allocated towards essential public projects. Waqf, or "religious endowment," is recognized by Islamic law. Cizacka's (2000) analysis emphasizes the potential of the waqf model to effectively mitigate government expenditures, thereby minimizing the need for borrowing to finance various projects. The efficacy of Waqf has been substantiated across various industries,

yielding various benefits. The primary objective is to enhance the well-being of individuals through the enhancement of the economy (Htay, Rashid, Adnan & Kameel, 2012).

Despite the numerous steps undertaken to bolster the tourist sectors of Malaysia and Indonesia, there remains ample potential to further boost their contributions. For instance, industries such as food service and hospitality establishments. Therefore, the government must maintain the many tourist attractions, facilities, and services provided to both domestic and international visitors to ensure the long-term viability of the tourism industry, which may result in an escalation of government spending. While tourism contributes to economic revenue, it is important to note that government spending on this sector tends to rise. Hence, to alleviate the financial strain on the government and promote the long-term viability of the tourism sector, the implementation of Waqf should be considered. Malaysia and Indonesia have significant potential for the application of waqf, as highlighted by Megat Abd. Rahman and Othman (2006). However, it is worth noting that waqf remains largely underutilized, particularly in the context of managing the tourism industry. Presently, waqf has been employed in various sectors, including agriculture, education, and the health business (Othman, 2017). The study conducted by Yakubu and Aziz (2019) demonstrates the apparent and expansive role of waqf in providing support to financial institutions, facilities, and various other sectors.

The study of tourism sustainability encompasses an examination of the social-cultural pillar (Boksberger & Laesser, 2007) as well as the transversal pillars (Nunkoo, 2017). Buonincontri et al. (2017) analyzed the co-creation process experience in tourism destinations, specifically focusing on the social-cultural pillars. Balbi et al. (2013) have investigated major techniques to adjust to the changing demands in the tourism business. Furthermore, the study conducted by Lee and Hsieh (2016) examined sustainable tourism indicators through a social-cultural lens, specifically focusing on the aspects of the environment and stakeholder relationships. The primary objective of any sustainable community is to advance the overall welfare of individuals within their surrounding environment. Lastly, in the context of the tourism business, it is imperative to direct attention towards the significant concern of disasters. Khazai et al. (2017) have presented a framework for disaster recovery, where the prioritization of the social-cultural pillar is evident.

The transversal pillars of governance, safety and security, destination planning, infrastructure services, and user intensity are crucial components for the development of tourism. To ensure the sustainable development of the sector, it is necessary to properly integrate the management process and planning, as highlighted by Riensche et al. (2019). Tourism, in particular, has been shown to attract rapid media attention. Consequently, any negative impact on the security reputation of a tourist-generating location is likely to have subsequent repercussions on tourism activity. In the event that media coverage of civil disturbance leads to violence in a particular location, there would likely be a decline in both tourist arrivals and revenue generated. Nevertheless, both factors play a crucial role in enhancing the tourism business, ensuring safety, and maintaining security.

Hence, the present study endeavors to investigate the potential contribution of waqf funds, social-cultural factors, and transversal pillars to the viability of the tourism business in Malaysia and Indonesia in the aftermath of the COVID-19 epidemic. This study aims to provide valuable insights by examining the essential components of the waqf fund and assessing the perceptions of stakeholders in the Tourism industry regarding its potential. The aforementioned findings have the potential to provide valuable insights for future study endeavors related to the intersection of waqf and tourism. Such investigations hold promise for the advancement of both the countries under consideration as well as their neighboring counterparts. Assume that the waqf fund can be used; the government's expenditure structure stands to benefit from the generation of sustainable long-term income through tourism services and infrastructures. This would enable the government to allocate more resources towards other crucial sectors.

The structure of the paper is organized into five distinct sections. The research commences with an introductory section followed by a comprehensive examination of the existing literature. Subsequently, the subsequent parts will present the technique employed in the study as well as the research findings obtained. The last part provides recommendations.

2. Literature Review

Sustainability of the Tourism Industry: The significance of tourism in Malaysia and Indonesia is undeniable, as it has been recognized as a crucial catalyst for growth in the service sectors (Adinugraha et al., 2021; Chin-Hong et al., 2018). The sectors are recognised as significant drivers of economic expansion. It also serves as a stimulus for economic growth and makes a significant financial contribution to the nation. Tourism functions grow for environmental restoration, urban growth, and biodiversity conservation (Parlindungan, Sukwika, & Manurung, 2021; Elliott & Mann, 2005). In addition, it is also for the development of rural areas and infrastructure (Parlindungan, Sukwika, & Manurung, 2021; Elliott & Mann, 2005). Bhatia (2004) emphasized the importance of efficient tourism management skills in achieving maximum economic impacts on the tourism industry.

Tourism is widely seen as a significant global priority, as it contributes significantly to the economic prosperity of various countries. Tourism is intrinsically connected to the concept of long-term sustainability. The COVID-19 pandemic, as documented by Niewiadomski (2020), brought an abrupt halt to activity within the tourism sector for a prolonged period of time. The post-pandemic era will witness a notable divergence from the pre-outbreak period. The concept of sustainable development has been emphasized by many experts for a long time. In 1987, the World Commission on Environment and Development raised the issue when it proposed the idea of the economy's development and its relationship to the environment in the long run. Sustainable growth entails a process of transitioning that involves implementing structural enhancements, harnessing resources through exploration, advancing technological capabilities, and making investments in alignment with societal demands. The creation of sustainable tourism aims to enhance the value of all facets of the tourism business.

Moreover, sustainable tourism can be defined as a framework for the growth of tourism that guarantees the long-term availability of economic resources, natural resources, and social-cultural aspects for the benefit of future generations. Sustainable tourism, in turn, has the ability to provide long-term support for both the local social culture and economy, encompassing both present and future advantages. This can be achieved while simultaneously addressing the essential needs of the communities and the tourism industry. The concept of sustainable tourism encompasses several essential aspects, including social culture, economy, transversality, and climate, which must be harmoniously aligned with one another.

Waqf Fund: The term "waqf" refers to the act of halting, containing, or safeguarding something, and its etymology may be traced back to the Arabic root verb (Çizakça, 1998). The considerable endowment resources of waqf led to the establishment of several programs that were financed through waqf, encompassing infrastructure projects such as highways, residential developments, and numerous other initiatives. It has been proven that in many Middle East cities, their services were established using waqf. It can be viewed that it has generated economic activity while, at the same time, the communities will benefit from it (Alhabshi, 1991).

The components of waqf consist of The Donor or Endower (Waqif), the Beneficiaries (Mawquf Alayh), the Waqf institution or Trustee (Mutawalli), and the Corpus/endowed property (Mawquf). A contributor, who decides to give his wealth as Waqf for a specific purpose is called 'Waqif'. The original capital (property or cash Waqf) given by the Waqif is called 'Mawquf' (corpus/endowed property). Waqif strictly specifies how the corpus should be used or spent. The amount of the principal capital, corpus, and the reason for which it is endowed and the wide range of various states of the board are enrolled in a deed of endowment submitted to the authorities. Thus, the privately gathered wealth of a devout Muslim turns into God's property. The Waqif carefully specifies how the yearly income of the Waqf should be spent. This income (usufruct) might be dispensed totally for a devout reason, or to a group of recipients (beneficiaries). The administration of the Waqf is endowed to Waqf institutions or trustees, 'Mutawalli' who oversee the Waqf property to the wellbeing of the 'Mawquf Alayh' (recipients). The main duty of Mutawalli is to preserve the property and maximize the revenues of the beneficiaries.

The economic significance of travel and tourism is substantial, as it exerts a notable direct impact on the economies of numerous countries globally. The combined effects of indirect and induced impacts resulting

from travel and tourism have made a significant contribution to the overall Gross Domestic Product (GDP). According to Obaidullah and Khan (2008), the waqf model has been identified as a potential novel approach for financing the tourism industry, offering an alternative to reliance on government finances. The utilization of waqf has demonstrated its significance as a crucial approach for ensuring the long-term viability of constructed projects. In Malaysia, a total value of US$58 million has been directly contributed by 24 waqf projects implemented by JAWHAR and the Yayasan Wakaf Malaysia. Among the total of 24 projects, the majority, specifically 19 projects, related to physical development initiatives, while the remaining 5 projects were categorized as non-physical endeavors. The establishment of the JAWHAR project has demonstrated its efficacy in supporting the government's efforts to enhance the nation's economy through targeted interventions in five key domains: education, economy, healthcare, faith, and shelter (hospitality).

The Waqf institution assumes a significant role in facilitating an equitable distribution of wealth and income within the economy. According to Nik Hassan (2008), the Waqf fund has the potential to facilitate the equitable allocation of income by means of voluntary contributions from the affluent towards public objectives. The efficacy of voluntary solutions surpasses that of tax allocation and government transfer spending due to the higher costs associated with implementing tax instruments. The government will face undue burdens as a result of inadequate tax formulation, leading to increased costs associated with tax collection. Moreover, the transfer of government funding incurs significant costs. Conversely, the costs associated with collecting in the form of waqf are expected to be minimal, often requiring no expenditure at all. According to Baskan (2002), the Economic Theories of Redistribution distinguish redistributive agents within the community into two distinct kinds. Numerous economic theories align with the aforementioned category, although with a scarcity of theories that explicitly acknowledge individuals and private entities as agents involved in the process of redistribution.

Furthermore, the vitality of the waqf system and its mechanism is likely to make significant contributions to economic development in the near future, while also helping to limit government participation in the economy during the COVID-19 recovery period. The more waqf monies gathered for community development projects, the less government engagement will be required for those projects (Mohammad Arif, 2014). Therefore, the following hypothesis is developed:
H1: There is a significant relationship between the waqf fund and the Sustainability of the tourism industry in the post-pandemic COVID-19.

Social-Cultural Pillar: In a social-cultural pillar, Lee and Hsieh (2016) focus on stakeholder-environment relationships. The fundamental goal of any sustainable community is to improve human well-being by enhancing both the standard of living and the environment. That is the priority of the cultural pillar as art, culture, and heritage are significantly important in infusing beauty into daily lives. In addition, they also help to foster individual and community identity, social cohesion, and the creation of "social capital." A community is who shares a similar culture, principles, ethnicity, or socioeconomic status and lives in the same geographical area (Pacione, 2009). Community participation in heritage conservation can help communities resolve issues between their needs and interests, resulting in improved economic expansion and quality of life (Sirisrisak, 2009). Furthermore, participation by communities enhances their feeling of belonging, fosters social networks, and teaches a greater knowledge and community value appreciation (Jaafar et al., 2015; Nicholas et al., 2009).

Tourism provides both direct and indirect job opportunities, such as accommodations, food outlets, airline companies, and cruise ships, which employ people directly by interacting with tourists and providing services to them. It is unique among major industries in terms of job creation, and resistance to downturns in the economy, and offers a significant source of employment for youth, females, and minorities. This situation happened because it employs people of all skill levels, and the travel and tourism industry has been established to be a reputable potential job source for anyone in the community (Page, 2005; Harsel, 1994). Tourism can generate three types of jobs (Harsel, 1994). For starters, direct employment is formed as a result of visitor spending, and tourism activity is directly supported. Employments are created in hotels as travellers and tourists stay there and need to be served. Second, indirect employment refers to jobs that are created within the tourism source segment but are not directly related to the tourist industry. These could be service providers who offer a service or suppliers delivering goods to a tourist destination.

Induced employment refers to the generation of employment opportunities that arise from the expenditure associated with tourism, wherein communities allocate the funds gained from tourism-related activities. This relates to the practice wherein a resident of the immediate vicinity engages in the sale of mementos to visiting travelers, subsequently diverting the proceeds into alternative expenditures. The travel and tourism industry is predominantly comprised of small firms, a fact that holds significant importance for local communities. Van Harsel (1994) asserts that a significant proportion of the 14 million travel and tourism-related businesses, specifically 98 percent, are comprised of small enterprises. The COVID-19 pandemic has had a profound impact on individuals, significantly changing their everyday routines and causing considerable exhaustion. Firms cannot continue with their regular operations as a viable choice. One potential approach is to initiate the formulation and execution of a comprehensive strategy aimed at helping personnel, which aligns with the most stringent regulations and has predefined benchmarks for policy modifications. Certain businesses are actively engaging in the practice of comparing their endeavors with those of their competitors, to ascertain optimal policies and levels of support for their personnel. The hypothesis is as follows:
H2: The social-cultural pillar has a significant relationship with the Sustainability of the tourism industry in the post-pandemic COVID-19.

Transversal Pillar: The Transversal Pillar plays a crucial role in bolstering the economic, social-cultural, and environmental pillars through governance, security and safety measures, destination planning, and infrastructure development. Governance must be understood as a system involving collaboration, teamwork, and stakeholder collaboration to make sure that tourism's social and environmental development has multiplier effects on the local economy (Pulido-Fernández, & Merinero-Rodrguez, 2018). Tourism governance is a multi-faceted concept (Chaperon, 2017) that explains the different techniques used to consider the essence of tourism governance and, secondly, how to effectively manage the tourism industry.

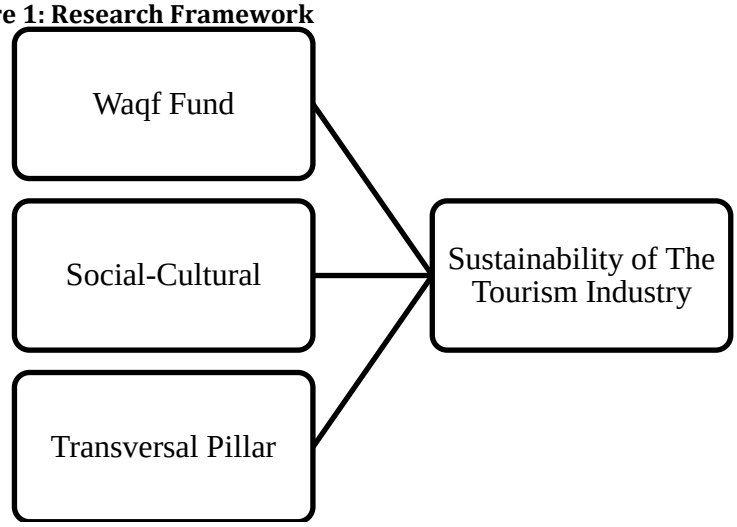
The concept of governance encompasses a broader scope than the mere execution of legislative activities or the establishment of governing entities, such as destination management agencies, national tourism offices, and national and municipal governments (Castelnovo et al., 2016). In recent years, the field of tourism governance has experienced increasing complexity due to the intricate relationships among various stakeholders, including community members, corporate entities, and other relevant parties (Hall, 2011). To ensure the sustainable management of tourism across different destinations, it is imperative to foster collaboration among travellers, local communities, corporations, and traditional state organizations with vested interests in the tourism sector. Over tourism, portfolio management, tourism regulation, capability research, service quality, traveller satisfaction, performance, environmental effects, digital transformation, the smart economy, and related topics can be discussed in this context. Effective governance is a prerequisite for long-term tourist destination development.

Tourism security is a convergence of safety, security, reputation, and economic viability. Furthermore, security is meant to reduce the chances of a negative event happening. Protection and security, according to Zainal et al. (2012), were identified as critical factors in improving tourism activities in the new century. As tourism has become one of the world economy's primary sources, such factors indicate that safety and security concerns must be prioritized. In this new era, the following five factors have been recognized as having a major effect on the tourism industry: crime, violence, food security, well-being, and natural disasters (Breda & Costa, 2005; Haralambopoulos & Pizam, 1996).

The tourism business has faced many limitations during the COVID-19 pandemic. In addition, the outbreak has had a significant influence on other aspects of the tourism business, including transportation, service quality, facilities safety, and health conditions. For example, according to de Bruin et al. (2020), there are limitations on the utilization of both public and private vehicles, closures of several public spaces, and the requirement for individuals to adhere to a prescribed distance from one another in public settings. Hence, the hypothesis is being proposed:
H3: There is a significant relationship between the transversal pillar and Sustainability of the tourism industry in the post-pandemic COVID-19.

Research Framework: This study derives the framework from the past literature review. Figure 1 shows a framework of the hypothesized relationships investigated in this study.

Figure 1: Research Framework



3. Methodology

The present study utilized a quantitative strategy, employing a survey questionnaire as the method for data collection.

The sampling methodology employed in this study is purposive, as it was chosen to specifically target particular groups and individuals possessing specific attributes (Etikan, 2016). Within the framework of this research, the participants consist of individuals employed within the Tourism Industries of Malaysia and Indonesia. According to Zikmund (2003), it is necessary to have a sample size greater than 30. However, Sekaran (2003) suggests that the sample size should fall within the range of 30 to 500. Hence, a cumulative of 84 samples were gathered and thereafter employed for subsequent analysis.

The study utilized online survey questions, specifically delivered through Google Forms, as the chosen method for data collection. The survey questionnaire was structured into five primary components, commencing with the demographic characteristics of the participants. The subsequent parts consist of inquiries pertaining to the elements that exert influence on the sustainability of the tourism business in the aftermath of the COVID-19 epidemic. These aspects include the waqf fund, the social-cultural pillar, and the transversal pillar. Following Kasri & Chaerunnisa (2021) and Shukor, Anwar, Aziz, & Sabri (2017), the questionnaire employs a 5-point Likert scale, where 1 represents strongly disagree, 2 concurs, 3 is neutral, 4 represents agree and 5 concurs strongly agree.

The data collected from personnel in the Tourism Industries of Malaysia and Indonesia were subjected to analysis using SPSS 27. To simplify the abundance of data and facilitate the presentation of quantitative descriptions reasonably, the researchers conducted both frequency and descriptive analyses (Sharma, 2019). The researchers employed frequency analysis to obtain percentage-based data regarding the respondents' country, age, gender, employment experience, and involvement in the tourism business. Additionally, descriptive analysis was conducted to calculate the mean and standard deviation for each variable. In addition to this, a reliability test and regression analysis were performed to examine the internal consistency of the items and to assess the hypotheses that were stated previously in this study.

4. Results and Discussion

Table 1 highlights the profile of respondents. 63.1% are from Indonesia, while 36.9% are from Malaysia. 50.0% of the respondents are female, and 50.0% are male. Twenty-six employees are aged between 34 and

41 and 9 are between 18 and 25. They have working experience between 11 and 15 years (26.2 percent), while the least working experience is between 6 to 10 years (11.9 percent). Out of 84 respondents for tourism industry involvement: 20 respondents are from recreation and entertainment, 23 respondents are from accommodation, 19 respondents are from travel services, 18 respondents are from food and beverages services and four respondents are from transportation.

Table 1: Profile of Respondents

		Frequency	%
Nationality	Malaysia	31	36.9
	Indonesia	53	63.1
Gender	Male	42	50.0
	Female	42	50.0
Age	18 to 25	9	10.7
	26 to 33	14	16.7
	34 to 41	26	31.0
	42 to 49	21	25.0
	50 years and above	14	16.7
Working experience	Less than 1 year	4	4.8
	1 to 5	20	23.8
	6 to 10	10	11.9
	11 to 15	22	26.2
	16 to 20	14	16.7
	21 years and above	14	16.7
Tourism industry involvement	Accommodation Industry	23	27.4
	Food and beverage service industry	18	21.4
	Recreation and Entertainment Industry	20	23.8
	Transportation Industry	4	4.8
	Travel services Industry	19	22.6

Next, for the descriptive results (Table 2), firstly, regarding "sustainability," the item "better infrastructure could improve the tourism industry" obtains the highest mean of 4.4643, and "the tourism industry can protect the environment" has a mean of 3.8214. It shows that "better infrastructure could improve the tourism industry" has the strongest influence on the Sustainability of the tourism industry.

For the "waqf fund," "waqf enhances the activities for the tourism industry" obtains the highest mean of 3.7857. It specifies that "waqf enhances the activities for the tourism industry" and has the most substantial influence on the Sustainability of the tourism industry. The mean of 3.7857 on a 5-point scale for the "waqf fund" toward the Sustainability of the tourism industry indicates that employees agree on the waqf fund for the Sustainability of the tourism industry.

Thirdly, the variable of "social-cultural" indicates that "preservation of cultural heritage is a need in tourism" obtains the highest mean of 4.3929, whilst "cross-cultural exchange should be practiced in the tourism industry and able to diversify the foreign language in communication" has the lowest mean of 4.2500. This

explains that the "preservation of cultural heritage is a need in tourism" has the strongest influence on social culture for the Sustainability of the tourism industry. The mean of 4.3929 for "social-cultural" shows that employees at least have the social-cultural toward Sustainability of the tourism industry.
Furthermore, the variable of "transversal" shows that "better infrastructure services will increase the number of tourists" has the highest mean of 4.4048 and "effective management can boost the tourism industry" has 4.3095. It postulates that "better infrastructure services will increase the number of tourists" has the strongest influence on the Sustainability of the tourism industry. The mean of 4.4048 on a 5-point scale for "transversal" indicates that most of the respondents are positive about the Sustainability of the tourism industry.

Table 2: Descriptive Results

Variables	Items (Summary)	Mean	SD
Sustainability of the tourism industry	The tourism industry can benefit the economy of a country.	4.4286	0.89558
	Cultural exchange experience happens in the tourism industry.	4.2976	0.88875
	The tourism industry can protect the environment.	3.8214	1.05466
	Security and safety can help to enhance the tourism industry.	4.2500	0.98023
	Better infrastructure could improve the tourism industry.	4.4643	0.91106
Waqf fund	Can be used to develop the tourism industry.	3.5595	1.23553
	Can help in reducing government expenditure.	3.7381	1.21357
	Future investments could utilize the Waqf fund.	3.5595	1.19589
	Provide facilitates to reduce financial dependence on the government.	3.7381	1.15246
	Prevents the deficit in the tourism industry development.	3.5595	1.11237
	Enhances the activities of the tourism industry	3.7857	1.00686
Social-cultural pillar	Preservation of cultural heritage is a need in tourism	4.3929	0.95713
	The tourism industry also provides opportunities for education	4.3095	0.91804
	The tourism industry helps to increase the quality of people's lives.	4.3095	0.93107
	Cross-cultural exchange should be practiced in the tourism industry.	4.2500	0.94263
	Able to diversify the foreign language in communication.	4.2500	0.98023
	The tourism industry helps to promote social interaction	4.3452	0.95051
	The tourism industry - local communities - strengthens cultural identity.	4.3690	0.88875
Transversal pillar	Effective management can boost the tourism industry.	4.3095	0.89141
	Tourists prefer safety and security	4.3452	0.88487
	Planning the destinations is essential for tourists.	4.3571	0.84515

	Better infrastructure services will increase the number of tourists.	4.4048	0.89334
	Innovation helps to improve the tourism industry.	4.3571	0.90037
	Good business ethics is vital for tourists	4.3571	0.90037
	Successful management - advanced planning strategy	4.3452	0.91169
	Good quality tourism experiences	4.3333	0.89622

The results of reliability tests are presented in Table 3. It highlights Cronbach's alpha reliability coefficients such as the Sustainability of the tourism industry, waqf fund, social-cultural pillar, and transversal pillar. The results show that all variables are above 0.90. The result concerning the measurement of Sustainability is 0.915 and is considered excellent according to Sekaran and Bougie (2010). Next, the result concerning the measurement of the waqf fund is 0.939 social, cultural pillar is 0.966, and the transversal pillar is 0.974, which are all also considered excellent.

Table 3: Reliability Results

	α	**Items**
Sustainability of the tourism industry	0.915	5
***Waqf* Fund**	0.939	6
Social-Cultural pillar	0.966	7
Transversal pillar	0.974	8

Table 4 demonstrates the regression results. The Waqf fund does not have a significant relationship with the Sustainability of the tourism industry (t = 1.579, p = 0.118). This indicates that according to respondents, the waqf fund is not a predictor in explaining the Sustainability of the tourism industry. Hence, H1 is not supported. However, the social-cultural pillar is found to have a significant relationship with the Sustainability of the tourism industry (t = 3.856, p = 0.00). The finding suggests that social-cultural is an important factor for the Sustainability of the tourism industry. Hence, H2 is supported. Furthermore, transversal is found to have an insignificant relationship with the Sustainability of the tourism industry (t = 1.331, p = 0.187). It specifies that transversal is not a predictor in clarifying the Sustainability of the tourism industry.

Table 4: Multiple Regression Result

		B	**t-test**	**p-value**	**Decision**
H_1	Waqf fund and sustainability of the tourism industry.	0.151	1.579	0.118	No
H_2	Social-cultural pillar and sustainability of the tourism industry.	0.518	3.856	0.000	Yes
H_3	Transversal pillar and sustainability of the tourism industry.	0.175	1.331	0.187	No

Discussion of Results

The findings of the current study have substantiated a noteworthy correlation between the social-cultural pillars and the sustainability of the tourism sector in the aftermath of the COVID-19 epidemic. The findings of the analysis align with the results reported in prior scholarly works, including the investigations conducted by Lee and Hsieh (2016) in Taiwan and the USA, as well as the research conducted by Gursoy et al. (2002). The present study has shown significant dimensions pertaining to the sustainability of the tourism business, specifically highlighting that enhanced local facilities and infrastructure have the potential to positively

impact the social-cultural pillar. Therefore, an enhancement in the social-cultural aspect can potentially lead to improved career prospects, more income, enhanced education, and greater access to healthcare. Therefore, when social and cultural conditions improve, they will increasingly contribute to the sustainability of the tourism business. Hence, both Malaysia and Indonesia must strategize and implement an increased number of cultural and social events as a means to stimulate their respective businesses in the aftermath of the COVID-19 pandemic. Through engaging with tourists from other backgrounds and lifestyles, local communities have the opportunity to acquire knowledge and insights that can contribute to the enhancement of their lifestyles and practices.

Both governments must also prioritize the establishment of the tourism sector as a primary source of income and employment prospects in the aftermath of the COVID-19 pandemic. Furthermore, it is plausible that this phenomenon could potentially assist in the long-term alleviation of poverty if increased involvement of local people in economic endeavors becomes more prevalent. Moreover, with regard to the socio-cultural relevance, the sustainability of the tourism business must uphold the social authenticity of local communities, which includes the preservation of historical landmarks and buildings. In addition, it is possible to integrate further value-added activities, such as the inclusion of agrotourism and homestay programs.

Therefore, as a result of the ongoing COVID-19 epidemic, Malaysia and Indonesia must prioritize and effectively leverage domestic tourism as a means to mitigate the adverse effects of travel limitations. Domestic tourism can serve as a supplementary means to bolster international tourism, thereby fostering the expansion of the tourism economy and facilitating development. Additionally, this document could serve as a valuable resource for the Ministry in overseeing stimulus packages, incentives, and tourism policies, to strengthen and encourage participation from local industry stakeholders and other relevant parties. As a result, it will contribute to the improvement of both the economy and the industry.

Both Tourism Malaysia and Indonesia should prioritize the cultivation of an environmentally conscious mindset within the tourism industry to ensure long-term viability. This measure will contribute to the preservation of natural resources and the sustenance of vital ecological processes. In addition, the local authorities and communities should also demonstrate a strong commitment to implementing recycling programs, engaging in beach care activities, promoting zero litter practices and cultivating other positive attributes that are essential for the sustainable development of tourism.

5. Conclusion

This research investigates the potential contribution of waqf funds, social-cultural factors, and transversal pillars to the viability of the tourism business in Malaysia and Indonesia in the aftermath of the COVID-19 pandemic. A substantial correlation was observed between the social-cultural pillar and the sustainability of the tourism business in the aftermath of the COVID-19 epidemic. This study adds to the existing body of information by affirming the significance of the social-cultural aspect in ensuring the sustainability of the tourism sector in both countries. This concept offers advantages to policymakers, the tourist industry, and many stakeholders by enhancing comprehension of the significance of the social-cultural pillar in ensuring the sustainability of the tourism sector. The findings of the current study further validate the notion that there is an insignificant relationship between waqf funds and the sustainability of the tourism sector. The present outcome appears to contradict the conclusions of a previous study that suggested the potential of utilizing waqf as a means to finance the tourism sector independently from government resources (Ismail, 2021; Obaidullah and Khan, 2008; Budiman, 2014). Similarly, the present study's findings also confirmed that transversal pillars have an insignificant relationship with the tourism sector's sustainability. This result seems opposed to Pulido-Fernández and Merinero-Rodríguez's (2018) findings that the more effective the transversal applied, the more sustainable the tourism industry. Future studies are suggested to tackle these and further investigate factors contributing to its findings. Several constraints can guide future researchers in this particular field. Firstly, it is important to note that the sample size utilized in this study is relatively small. Subsequent investigations could explore supplementary variables that exert an impact on the long-term viability of the tourism sector, encompassing elements related to economic and environmental aspects. Despite its limitations, this study highlights the significance of the social-cultural pillar in ensuring the sustainability of the tourism business in the aftermath of the COVID-19 epidemic.

References

Adinugraha, H. H., Nasution, I. F. A., Faisal, F., Daulay, M., Harahap, I., Wildan, T., Takhim, M., Riyadi, A. & Purwanto, A. (2021). Halal Tourism in Indonesia: An Indonesian Council of Ulama National Sharia Board Fatwa Perspective. *The Journal of Asian Finance, Economics and Business*, 8(3), 665-673.

Alhabshi, S. O. (1991). *Waqf management in Malaysia*.

Balbi, S., Giupponi, C., Perez, P. & Alberti, M. (2013). A spatial agent-based model for assessing strategies of adaptation to climate and tourism demand changes in an alpine tourism destination. *Environmental Modelling & Software*, 45, 29-51.

Baskan, B. (2002). Waqf system as a redistribution mechanism in the Ottoman Empire. Northwestern University, Department of Political Science.

Bhatia, A. K. (2004). International tourism management, revised edition. New Delhi: Sterling Publishers P. Ltd.

Boksberger, P. & Laesser, C. (2007). A socio-cultural perspective of sustainable tourism development.

Breda, Z. & Costa, C. (2005). Safety and Safety Issues Affecting Inbound Tourism in the People's Republic of China in Mansfield, Y. & Pizza, A.(Eds.), Tourism, Safety, and Safety: From Theory to Practice.

Budiman, M. A. (2014). The significance of waqf for economic development. *Journal Equilibrium*, 2(1), 19-34.

Buonincontri, P., Morvillo, A., Okumus, F. & van Niekerk, M. (2017). Managing the experience co-creation process in tourism destinations: *Empirical findings from Naples. Tourism Management*, 62, 264-277.

Castelnovo, W., Misuraca, G. & Savoldelli, A. (2016). Smart cities governance: The need for a holistic approach to assessing urban participatory policy making. *Social Science Computer Review*, 34(6), 724-739.

Chaperon, S. (2017). Tourism industry responses to public-private partnership arrangements for destination management organizations in small island economies: A case study of Jersey, Channel Islands. *International Journal of Tourism Policy*, 7(1), 23-41.

Cizacka, M. (2000). A History of Philanthropic Foundations: The Islamic World from the Seventh Century to the Present (1st Ed.) Istanbul: Bogazici University Press.

Çizakça, M. (1998). Awqaf in History and Its Implications for Modern Islamic Economies. Islamic Economic Studies, 1-28.

de Bruin, Y. B., Lequarre, A. S., McCourt, J., Clevestig, P., Pigazzani, F., Jeddi, M. Z., Colosio, C. & Goulart, M. (2020). Initial impacts of global risk mitigation measures taken during the combating of the COVID-19 pandemic, Safety Science. Safety Science, 128.

Elliott, S. M. & Mann, S. (2005). Development, poverty, and tourism: perspectives and influences in Sub-Saharan Africa. Occasional Paper Series, 1-11.

Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. American Journal of Theoretical and Applied Statistics, 1-4.

Ganesan, V. (2021). Surviving the impact of Covid-19: The tourism industry waits to cruise out of the doldrums. The Edge Markets. Retrieved from https://www.theedgemarkets.com/article/surviving-impact-covid19-tourismindustrywaits-cruise-out-doldrums.

Gursoy, D., Jurowski, C., & Uysal, M. (2002). Resident Attitudes—A Structural Modelling Approach. Annals of Tourism Research, 79-105.

Hall, C. M. (2011). A Typology of governance and its implements for tourism policy analysis. Journal of Sustainable Tourism, 4.

Hao, Y., Bai, H. & Sun, S. (2021). How does COVID-19 affect tourism in terms of people's willingness to travel? Empirical evidence from China, *Tourism Review*, 76(4), 892-909. https://doi.org/10.1108/TR-09-2020-0424

Haralambopoulos, N. & Pizam, A. (1996). Perceived impacts of tourism: The case of Samos. *Annals of Tourism Research*, 23(3), 503-526.

Harsel, V. (1994). Tourism: An explanation. Englewood Cliffs: Prentice Hall.

Htay, S. N., Rashid, H. M., Adnan, M. A., & Kameel, A. (2012). Impact of Corporate Governance on Social and Environmental Information Disclosure of Malaysian Listed Banks: Panel Data Analysis. *Asian Journal of Finance & Accounting*.

Ismail, M. I., Ismail, S., Zahari, M. S. & Pauzi, N. F. M. (2021). Sustainability of tourism industry in Malaysia: An application of waqf model. *International Journal of Business and Economy*, 3(1), 127-138.

Jaafar, M., Noor, S. M. & Rasoolimanesh, S. M. (2015). Perception of young local residents toward sustainable conservation programs: A case study of the Lenggong World Cultural Heritage Site. *Tourism Management*, 48, 154-163.

Kasri, R. A., & Chaerunnisa, S. R. (2021). The role of knowledge, trust, and religiosity in explaining the online cash waqf amongst Muslim millennials. Journal of Islamic Marketing, 1334-1350.

Khazai, B., Mahdavian, F. & Platt, S. (2018). Tourism Recovery Scorecard (TOURS)–Benchmarking and monitoring progress on disaster recovery in tourism destinations. *International Journal of Disaster Risk Reduction*, 27, 75-84.

Lee, T. H. & Hsieh, H. P. (2016). Indicators of sustainable tourism: A case study from a Taiwan's wetland. *Ecological Indicators*, 67, 779-787.

Megat Abd Rahman, M. M. R., Othman, A., Salamon, H., Nor Muhamad, N. H., Muhtar, A. & Abdullah, A. (2006). Pembangunan tanah waqf: Isu, prospek dan strategi. Konvensyen Wakaf Kebangsaan.

Merinero-Rodríguez, R. & Pulido-Fernández, J. I. (2016). Analyzing relationships in tourism: A review. *Tourism Management*, 54, 122-135.

Mohammad Arif, B. (2014). The Significance of Waqf for Economic Development. Munich Personal RePec Archive, 1-13.

Nicholas, L. N., Thapa, B. & Ko, Y. J. (2009). Residents' perspectives of a world heritage site: The Pitons management area, st. Lucia. *Annals of tourism research*, 36(3), 390-412.

Niewiadomski, P. (2020), COVID-19: From temporary de-globalization to a re-discovery of tourism? *Tour. Geogr*. 22, 651–656.

Nik Hassan, N. M. (2008). The economics of Awqaf institution. In International Seminar on Waqf. Johor Bahru, August, 11-12).

Nunkoo, R. (2017). Governance and sustainable tourism: What is the role of trust, power, and social capital? *Journal of Destination Marketing & Management*, 6(4), 277-285.

Obaidullah, M. & Khan, T. (2008). Islamic microfinance development: Challenges and initiatives. Islamic Research & Training Institute Policy Dialogue Paper, (2).

Ocheni, S. I., Agba, A. O., Agba, M. S. & Eteng, F. O. (2020). COVID-19 and the tourism industry: Critical overview, lessons, and policy options.

Othman, R. (2017). Menelusuri jejak kegemilangan wakaf: di mana peranan pentadbir? Seminar Pragmatis 2.0: Perkongsian Amalan Terbaik Dalam Pengurusan Universiti 2017. Universiti Sains Islam Malaysia.

Page, S. J. (2005). Tourism Management: Managing for Change. New York: Elsevier Butterworth Heinemann.

Pacione, M. (2009). Urban Geography: A Global Perspective. Routledge.

Parlindungan, H. H., Sukwika, T. & Manurung, H. (2021). Prambanan Temple Tourist Destination Development in Indonesia as World Cultural Heritage. *European Journal of Science, Innovation and Technology*, 1(3), 39-56.

Perimbanayagam, K. (2020). Ministry has strategies for tourism recovery. *New Straits Times*. Retrieved from https://www.nst.com.my/news/government-publicpolicy/2020/09/624300/ministry-has-strategies-tourism-recovery.

Pulido-Fernández, J. I. & Merinero-Rodríguez, R. (2018). Destinations' relational dynamic and tourism development. *Journal of destination marketing & management*, 7, 140-152.

Riensche, M., Castillo, A., García-Frapolli, E., Moreno-Casasola, P. & Tello-Díaz, C. (2019). Private over public interests in regional tourism governance: a case study in Costalegre, Mexico. *Sustainability*, 11(6), 1760.

Sekaran, U. (2003). Research methods for business: A skill approach. New Jersey: John Willey and Sons, Inc.

Sekaran, U. & Bougie, R. (2010). Research methods for business: A skill-building approach (5th ed.). Haddington: John Wiley & Sons.

Sharma, E. (2019). A review of corporate social responsibility in developed and developing nations. Corporate Social Responsibility and Environmental Management, 712-720.

Shukor, S. A., Anwar, I. F., Aziz, S. A., & Sabri, H. (2017). Muslim attitude towards participation in cash waqf: Antecedents and consequences. International Journal of Business and Society, 193-204.

Sirisrisak, T. (2009). Conservation of Bangkok old town. *Habitat International*, 33(4), 405-411.

Yakubu, A., Hamiza, A. & Aziz, A. (2019). The Role of Waqf in Economic Sustainability and Poverty Reduction. *International Journal of Academic Research in Business and Social Sciences*, 9(12), 708-714.

Zainal, A., Radzi, S. M., Hashim, R., Chik, C. T. & Abu, R. (Eds.). (2012). Current issues in hospitality and tourism: Research and innovations. CRC Press.

Zikmund, W. G. & Babin, B. J. (2003). Business research methodology. Southwestern, Thomson.

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Examining Demographic Differences in Online Learning Self-Efficacy and Online Self-Regulated Learning

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Abstract: Online learning and blended learning have become a practice in many universities for modes of learning during the Covid-19 pandemic. Therefore, students' online learning self-efficacy and online self-regulated learning are necessary to be explored. This quantitative study included a sample of 442 university students enrolled in management science, social sciences and humanities, and science and technology disciplines of study. Six online learning self-efficacy (self-efficacy in computer/internet, self-efficacy in online learning environment, self-efficacy in time management, self-efficacy in interacting with lecturers in online courses, self-efficacy to interact socially with classmates, and self-efficacy to interact academically with classmates) and six online self-regulated learning (goal setting, environment structuring, task strategies, time management, help-seeking, and self-evaluation) dimensions were studied. The study found students exhibit high levels of online learning self-efficacy and online self-regulated learning. No gender differences were found in both online learning self-efficacy and online self-regulated learning. Younger students (20 years old and below), students in lower semesters (semester 1 or 2), and students with good to very good internet connectivity in their places of stay for online learning exhibited higher in both online learning self-efficacy and online self-regulated learning. Non-graduating students had higher self-efficacy to interact with lecturers and to interact socially and academically with classmates than graduating students. Students in management science social science and humanities courses exhibited higher online self-regulated learning but not online learning self-efficacy.

Keywords: *Online learning self-efficacy, online self-regulated learning, online learning environment, online learning satisfaction, academic performance.*

1. Introduction

The topics of self-efficacy and self-regulated learning have received considerable attention in numerous researches. A considerable amount of literature has been published regarding these topics. (Bandura & Ramachaudran, 1994) defined perceived self-efficacy as people's beliefs of their capabilities for the achievement of designated levels of performance that have influences on events that impact their lives. According to (Bandura & Ramachaudran, 1994), self-efficacy beliefs determine how people feel, think, behave, and motivate themselves. Teachers must have creativities to create learning environments, conducive to cognitive skills development which in turn can motivate their students and enhance their cognitive development in self-efficacy (Bandura, 1994). Zimmerman (2000) found that self-efficacy beliefs are sensitive to subtle changes in students' performance context, interacting with self-regulated learning processes, and mediating students' academic achievement. A person is said to have a high level of self-efficacy toward a task and will be more likely to achieve a goal if he or she puts more effort towards it. According to Hodges (2008), learner self-efficacy beliefs may be affected if the mode of learning changes, for example from face-to-face to online sessions. Self-efficacy can be a key component of academic success in online learning with the self-directed nature of online learning as argued by many researchers (Hodges, 2008). Therefore, it is critical to study whether online learning self-efficacy plays an important role in online learning satisfaction as well as students' academic performance.

Self-regulated learning strategies refer to actions and processes directed at the acquisition of information or skills that involve agency, purpose, and instrumentality perceptions by learners (Zimmerman, 1990). He also added that self-regulated learners are distinguished from other regulated learners by their awareness of strategic relations between regulatory processes or responses and learning outcomes and their use of these strategies to achieve their academic goals. (Chumbley et al., 2018) determined the self-regulated learning

level of students in an online agriculture course and found that the highest self-regulation was within environmental structuring and goal setting while the lowest online self-regulated learning was in the area of task strategies. The study also showed that females had a higher level of self-regulated online learning compared to males and students' experiences with online courses had low correlations with their perceived online self-regulated learning level. (Stephen & Rockinson-Szapkiw, 2021) revealed positive and significant associations between online learning self-efficacy, self-regulation, and self-direction. In an online learning setting, self-efficacy along with self-regulated learning can lead to online learning satisfaction that may result in successful online learning. To be successful in online learning, students must also be ready and willing to accept and learn in online learning environments if needed. A recent study by (Abdul Halim et al., 2022) reported that students were ready for computer/internet self-efficacy, self-directed learning, motivation for learning, and online communication self-efficacy but moderately ready for learner control.

Edisherashvili et al. (2022) highlighted that education level was an important factor in self-regulated learning research as learners of different ages differed considerably in the way they learn. According to (Oates, 2019), methods to approach learners in self-regulated learning were different across age groups. Another study by (Kellenberg et al., 2019) concluded that teachers played important roles for children to be successful in self-regulated learning in the school contexts while in the case of adult learners; the instructional design was a driving factor for successful self-regulated learning. At the higher education level, learners are expected to be more autonomous, and in need of taking control of their learning process as academic demands and expectations also differ across age groups (Zimmerman, 2000). Therefore, it is also important to study how online learning self-efficacy and online self-regulated learning differ across other demographic variables such as semester of study, discipline of study, student status, and internet connectivity.

Most of the previous studies were focused on the technology factor of self-efficacy in online learning as mentioned by Alqurashi (2016) & Shen et al., (2013) and limited studies were done on multi-dimension of self-efficacy in online learning settings. There have also been limited studies on the relationship between self-efficacy and self-regulated learning in online learning contexts among university students, especially after the COVID-19 pandemic. Therefore, this study addresses the gap in the literature by accounting for the three aspects of online learning self-efficacy (technology, learning, and interaction) and online self-regulated learning influencing online learning satisfaction and academic performance. In addition, the study investigates the effects of demographic variables (gender, age group, semester of study, students' status, discipline of study, and internet connectivity) on students' online learning self-efficacy and online self-regulated learning. Furthermore, the study explores the relationships between online learning experiences (number of semesters using online learning, number of courses taken, number of online learning platforms used, and quality of online learning) on each online learning self-efficacy and online self-regulated learning. The findings of this study are hoped to contribute to the continuing growth of online learning research especially in self-efficacy and self-regulated learning in online learning settings. For continuous improvement in online learning and blended learning activities, issues on online learning self-efficacy and online self-regulated learning can be emphasized by lecturers when conducting online learning or blended learning activities.

Background of Study: The roles of self-efficacy and self-regulated learning are important in online learning environments. These issues are becoming more important to tackle especially during this post-COVID-19 pandemic period as many universities have encouraged lecturers to conduct classes using either online or blended modes of learning.

Significance of Study: The findings of this study are hoped to provide insights into the future directions in areas related to the development of students' self-efficacy and students' self-regulated learning abilities in virtual learning environments. The study is also expected to provide insights into the continuous improvement of Malaysian universities' facilities and infrastructure in both face-to-face and online learning environments, which will subsequently improve the quality of online and blended learning deliveries.

Research Questions: The accompanying research questions were designed to investigate the importance of self-efficacy and self-regulated learning in online learning environments.

How do each online learning self-efficacy dimension and online self-regulated learning dimension differ demographically (gender, age group, semester of study, students' status, discipline of study, and internet connectivity)?

2. Literature Review

Self-Efficacy and Self-Regulated Learning in Online Learning Settings: There are numerous previous studies on online learning self-efficacy. However, many of these studies mainly only consider the technological aspect of online learning as reported by Shen et al. (2013), Alqurashi (2016) & Ithriah et al., (2020). According to Shen et al., (2013), at least three aspects of online learning should be considered; technology, learning, and social interaction. Alqurashi (2016) in his reviewed studies on online self-efficacy emphasized that learning, interaction, and collaborative skills should also be considered, even though computer skills, internet skills and information-seeking skills were needed for online learning. He added that these four aspects together are important to study when measuring online learning self-efficacy. For this current study, only three aspects of online learning self-efficacy were considered.

Shen et al. (2013) described online learning self-efficacy in five dimensions; self-efficacy to complete an online course, self-efficacy to interact socially with classmates, self-efficacy to handle tools in a Course Management System, self-efficacy to interact with instructors in an online course, and self-efficacy to interact with classmates for academic purposes representing the three aspects of online learning; technology, learning, and interaction. Ithriah et al. (2020) studied on a sample of 101 university students in Surabaya, Indonesia regarding the role of online learning self-efficacy on e-learning success. The findings in this study revealed that online learning self-efficacy has a positive and significant relationship with the use of e-learning, indicating that the use of e-learning sites would increase if the value of online learning self-efficacy was high. A systematic review by Peechapol et al. (2018) of 25 studies between 2005 and 2017, found various factors such as online learning experience and knowledge, feedback and reward, online communication and interactions, social influence, and learner motivation and attitude, affecting online learning self-efficacy. Jan (2015) who measured academic self-efficacy, computer self-efficacy, prior experience with online learning, and student satisfaction, found three important results; positive and significant relationships between computer self-efficacy and prior experience with online learning, between academic self-efficacy and prior experience with online learning, and between academic self-efficacy and computer self-efficacy. This means, that prior experience with online learning (Jan, 2015) influenced both computer and academic self-efficacies. Apart from that, academic self-efficacy was also associated with computer self-efficacy.

Ulfatun et al. (2021) & Santoso et al. (2022) found students' ages 18 – 23 years exhibited high levels of online learning self-efficacy and online learning self-regulated learning and there was a strong positive relationship between online learning self-efficacy and online self-regulated learning. (Cho & Kim, 2013) showed that mastery goal orientation as well as instructor scaffolding for interaction were significantly related to students' self-regulation, suggesting that self-regulation between the student and others should be understood as an important aspect of online self-regulation. Santoso et al. (2022) highlighted that although students' online learning self-efficacy and online self-regulated learning were at above-average levels, their confidence and abilities to seek help, develop task strategies, and allocate time for online learning were still at low levels. These would be the insights that the lecturers could tackle when conducting their online learning classes and in such a way, online self-regulated learning could be enhanced.

Variables Determining Online Learning Self-Efficacy and Online Self-Regulated Learning: The ten variables relating to students' self-efficacy and self-regulated learning in online learning environments are gender, age group, semester of study, students' status, discipline of study, internet connectivity, number of semesters using online learning, number of online courses taken, number of online learning platforms used, and quality of online learning were considered in this current study. Shen et al. (2013) found that gender was a significant predictor of self-efficacy to complete online courses, self-efficacy to handle tools in a Course Management System, self-efficacy to interact with instructors for an online course, and self-efficacy to interact with classmates for academic purposes except self-efficacy to interact socially with classmates. In general, the results by Shen et al. (2013) demonstrated that female students were likely to have higher online learning self-efficacy than male students. Limiansi & Hadi (2022) reported there were variations in student self-

efficacy profiles based on gender, year of entry, and discipline of study. On the contrary, (Yavuzalp & Bahcivan, n.d.), found no statistically significant difference in online learning self-efficacy between groups regarding either gender or type of school. Shen et al., (2013) also showed that students who took more online courses were more likely to have higher online learning self-efficacy to complete an online course and they were more likely to communicate and collaborate with other students on academic tasks.

Regarding students' online self-regulated learning, (Liu et al., 2021) divided mood management, environment structuring, task strategies, adapting strategies, time management, self-evaluation, and seekhelp-seekingearning processes into three phases; preparatory, performance, and appraisal, and they found that females performed better than males in all of the three phases. Similarly, Hakan Mayda et al., (n.d.) found there was a gender difference in overall online self-regulated learning strategies but no significant difference across education departments. A study by Nivenitha (2017) among adolescents ages 15 – 17 years found that there was no significant difference between gender and self-regulated learning but there was a significant difference between age and self-regulated learning. Another study (Kamali & Bagheri-Nesami, 2022) using multiple linear regression analysis showed that age, gender, marital status, being a medical student, having another job, and online learning acceptance were significant predictors of online self-regulated learning. Zhao et al., (2014) studied on four dimensions of online self-regulated learning; planning, control, regulating, and evaluating among Chinese distance learners found that all the participants had above-average levels of self-regulated learning in all four dimensions. Male distance learners were better in self-regulated learning than female distance learners, especially in control (i.e., content and resources) and all the evaluation dimensions but no age difference was found. (Yot-Domínguez & Marcelo, 2017) revealed that internet information search and instant communication tools are used continually by students to expand and delve into the information they receive in the classroom. The results of the study (Yot-Domínguez & Marcelo, 2017) also evidenced that different technological tools (e.g., collaborative and communication tools, content creation and delivery tools) supported different self-regulated learning strategies. The current study contributes to filling the gap in existing literature on differences and relationships between demographic variables, self-efficacy, and self-regulated learning in online learning environments as these differences and relationships show different findings in previous literature.

3. Method

Participants: A total of 442 students enrolled in eight faculties at a public university in Melaka, Malaysia, participated in the study. Data were collected from participants representing 8 faculties (see Table 1). For further analysis, these eight faculties were divided into three disciplines of study; management sciences, social sciences and humanities, and science and technology.

Learning Contexts: All courses in the university were conducted via online mode of learning. The location for the online classes was either in residential colleges, rented houses, or family houses in urban or rural areas. Interactions among students and between students and lecturers occurred either through asynchronous communication tools (e.g., discussion boards, emails or social media; WhatsApp or Telegram) or face-to-face meetings for students who were staying in the residential colleges or rented houses. Students were engaged in a diverse range of learning tasks such as students' self-reports, group projects, individual projects with peer feedback, individual projects, final projects, final exams, quizzes, and discussions.

Demographic Variables: Demographic information including gender, age group, location of online learning, household monthly income, faculty, semester of study, and internet connectivity were asked from the participants.

Measures: Three instruments were used for this study. First, is in measuring dimensions of online learning self-efficacy and second, is in measuring online self-regulated learning dimensions.

Online Learning Self-Efficacy: Online learning self-efficacy scales used for this study were adapted from Shen et al., (2013) and Zimmerman & Kulikowich, (2016). Self-efficacy in computer/internet (9 items), self-efficacy in an online environment (7 items), and self-efficacy in time management (6 items) were adapted from Zimmerman & Kulikowich (2016) while self-efficacy to interact with lecturers for online courses (6

items), self-efficacy to interact socially with classmates (4 items), and self-efficacy to interact academically with classmates (6 items) were adapted from (Shen et al., 2013). These items were measured using a 5-point Likert scale (1 – no confidence, 2 – low confidence, 3 – neutral, 4 – confidence, 5 – high confidence). The scales allowed the participants to report how confident they were when engaging in various actions in an online course. High scores showed higher levels of online learning self-efficacy. Online learning self-efficacy dimensions showed good to very good internal consistencies with Cronbach's alpha values ranging from 0.870 to 0.917 and the overall consistency of these 38 items was 0.972.

Online Self-Regulated Learning: Online self-regulated learning scales used for this study were adapted from (Barnard et al., 2009). It comprised 22 items constituting six dimensions; goal setting (4 items), environment structuring (3 items), task strategies (4 items), time management (3 items), help-seeking (4 items), and self-evaluation (4 items). These items were measured using a 5-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree). The scales allowed the participants to report their level of agreement when they self-regulated their online learning behaviors. High scores showed higher levels of online self-regulated learning. Online self-regulated learning dimensions showed acceptable to very good internal consistencies with Cronbach's alpha values ranging from 0.725 to 0.842 and the overall consistency of these 22 items was 0.948.

Procedure: Lecturers teaching online courses were first selected purposively based on researchers' judgments. These selected lecturers were contacted via email asking permission to survey their online courses. A brief description of the purpose of the research and an online survey link was posted via WhatsApp of the selected online lecturers once they gave permission. The selected online lecturers then posted the survey link to the WhatsApp groups of their online classes. Students then voluntarily participated in the study. The survey was conducted from 12th September 2022 until 8th October 2022.

Data Analysis: Independent samples t-test, one-way analysis of variance (ANOVA), simple linear regression analysis, and multiple regression analysis were performed in this study using IBM SPSS Version 26.0.

4. Results and Discussion

Demographic Characteristics of Participants: The demographic profiles of the 442 participants are presented in Table 1. Most of the participants are female (72.6%), age group is below 20 years old (63.8%), 74.3% is staying at home, either in cities/towns or rural areas for their online learning, 62.7% from household income group less or equal to RM4850 (B40), 52.3% from Business and Management faculty (FPP), 92.1% diploma students, 38.7% in semester 2, and 48% with good to very good internet connectivity in their places of stay.

Regarding students' academic performance, a majority (67.4%) obtained a grade point average (GPA) of 3.00 – 3.74, indicating good results, 15.4% obtained a GPA of 3.75 – 4.00, which indicates very good to excellent results, 14.7% obtained GPA of 2.00 – 2.99 average results. Only 1.6% obtained poor results. Results are shown in Table 1.

Table 1: Demographic Characteristics and Online Learning Experiences of Participants

Demographic characteristics	Category	Frequency	Percent
Gender	Male	121	27.4
	Female	321	72.6
Age group	Below 20 years	282	63.8
	20 years less than 22 years	138	31.2
	22 years or more	22	5.0
Online learning location	Residential college inside the campus	92	20.8
	Rented house outside campus	22	5.0
	Home in city/town areas	265	60.0
	Home in rural areas	63	14.3
Household income	Less or equal to RM4,850 (B40)	277	62.7

Demographic characteristics	Category	Frequency	Percent
group	RM4,851 or equal to RM10,970 (M40)	141	31.9
	RM10,971 or above (T20)	24	5.4
Faculty	Academy of Contemporary Islamic Studies (ACIS)	30	6.8
	Academy of Language Studies (APB)	30	6.8
	Communication and Media Studies (FKPM)	9	2.0
	Hotel and Tourism Management (FPHP)	2	0.5
	Accountancy (FPN)	41	9.3
	Business and Management (FPP)	231	52.3
	Computer Science and Mathematics (FSKM)	77	17.4
	Arts and Design (FSSR)	22	5.0
Discipline of study	Management science (FPP/FPN/FPHP)	274	62.0
	Social science and humanities (ACIS/APB/FKPM/FSSR)	91	20.6
	Science and technology (FSKM)	77	17.4
Semester of study	1	85	19.2
	2	171	38.7
	3	73	16.5
	4	41	9.3
	5	38	8.6
	6 or higher	34	7.5
Students' status	Non-graduating	356	80.5
	Graduating	86	19.5
Internet connectivity at the place of online learning	Poor/very poor	31	7.0
	Average	199	45.0
	Good/very good	212	48.0
Academic performance measured by grade point average (GPA)	0.00 – 1.99 (Poor)	7	1.6
	2.00 – 2.99 (Average)	64	14.7
	3.00 – 3.74 (Good)	298	67.4
	3.75 – 4.00 (Very good/Excellent)	67	15.4

Information on Online Learning: Most of the students (60%) had undergone their online learning classes at their family homes in city/town areas, 20.8% were at the residential colleges on campus, 14.3% were at their family homes in rural areas, and 5% were at their rented houses outside campus (Table 1). The majority of them took online learning for two semesters (45.5%), 6 or more online courses (71.3%), and used three online learning platforms (74.2%). The most preferable online learning platform used for "live" online learning was Google Meet (78.1%), and Google Classroom for notes/tutorial/discussion (76.9%) and students prefer to use Google Classroom and Google Form for assessment with 45.2% and 45.2% respectively. The majority of these students (65.4%) stated that online learning quality was good, 32.1% said it was average, and 2.5% reported was at a poor level. The results of online learning experiences are presented in Table 2.

Table 2: Online Learning Experiences of Participants

Online learning experience	Category	Frequency	Percent
Number of semesters (including the current semester) taking online learning	1	87	19.7
	2	201	45.5
	3	64	14.5
	4	58	13.1
	5	32	7.2
Number of online courses taken in the current semester	1	38	8.6
	2	14	3.2
	3	23	5.2
	4	20	4.5
	5	31	7.0
	6	59	13.3

Number of online learning platforms used	7	115	26.0
	8	131	29.6
	9	9	2.0
	1	25	5.7
	2	89	20.1
	3	177	40.0
	4	98	22.2
	5	51	11.5
	6	2	0.5

Research Question 1: How do each online learning self-efficacy dimension and online self-regulated learning dimension differ demographically (gender, age group, semester of study, students' status, discipline of study, and internet connectivity)?

The levels of online learning self-efficacy and online self-regulated learning were first examined before investigating the relationships between them. Participants' online learning self-efficacy was measured by six dimensions; self-efficacy in computer/internet, self-efficacy in online environment, self-efficacy in time management, self-efficacy to interact with lecturers for online courses, self-efficacy to interact socially with classmates, and self-efficacy to interact academically with classmates. These six dimensions were measured on a 5-point Likert scale (1 = no confidence to 5 = high confidence). Scores based on participants' responses to items in the sub dimension were averaged to measure each online learning self-efficacy dimension. The results indicated that participants' online learning self-efficacy for the six dimensions differed very slightly, with a mean score of 4.11 (SD = 0.611) for self-efficacy in computer/internet, 3.81 (SD = 0.659) for self-efficacy in the online learning environment, 3.97 (SD = 0.675) for self-efficacy in time management, 3.86 (SD = 0.733) for self-efficacy to interact with lecturers for online courses, 4.01 (SD = 0.724) for self-efficacy to interact socially with classmates, and 4.01 (SD = 0.666) for self-efficacy to interact academically with classmates. The mean scores for participants' online learning self-efficacy dimensions ranged from 3.81 to 5.00 and the mean score for the overall online learning self-efficacy was 3.96 (SD = 0.591) which reflects students' high online learning self-efficacy.

Online self-regulated learning was measured by six dimensions; goal setting, environmental structuring, time management, task strategies, help-seeking, and self-evaluation. The results indicated that participants' online self-regulated learning for the six strategies differed very slightly, with a mean score of 4.00 (SD = 0.679) for goal setting, 4.02 (SD = 0.747) for environment structuring, 3.74 (SD = 0.719) for task strategies, 3.83 (SD = 0.728) for time management, 3.93 (SD = 0.712) for help-seeking, and 3.92 (SD = 0.696) for self-evaluation. The scale ranged from 3.74 to 4.02 and the mean score for the overall online self-regulated learning was 3.91 (SD = 0.606), indicating the high level of online self-regulated learning.

Online learning satisfaction was measured with seven items on a 5-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree). By computing the average of participants' scores for the seven items, reflecting each participant's score for his or her online learning satisfaction. The online learning satisfaction mean score was 4.13 (SD = 0.579), suggesting a high level of online learning satisfaction among students.

Independent samples t-test and one-way analysis of variance (ANOVA) were conducted to answer research question 1. Independent samples t-test analysis was applied to analyze whether there were any significant differences in the dimensions of online learning self-efficacy (Table 3) and online self-regulated learning (Table 4) according to gender (1 – male, 2 – female), age group (1 – below 20 years old, 2 – 20 years old or above), current semester (1 – semester 1 or 2, 2 – semester 3 or higher), and students' status (1 – non-graduating, 2 – graduating). Meanwhile, one-way ANOVA was applied to examine for any differences in online learning self-efficacy and online self-regulated learning across the disciplines of study (1 – management sciences, 2 – social sciences and humanities, 3 – science and technology) and internet connectivity (1 – poor, 2 – average, 3 – good).

Table 3: Independent Samples T-Test and One-Way ANOVA Results of Demographic Characteristics on Online Learning Self-Efficacy Dimensions

Online learning self-efficacy dimension	Gender						Age group					
	Male (n = 121)		Female (n = 321)		t	Sig	Below 20 years (n = 282)		20 years or above (n = 160)		t	Sig
	Mean	SD	Mean	SD			Mean	SD	Mean	SD		
Self-efficacy in computer and internet	4.09	0.628	4.12	0.605	-0.502	0.616	4.16	0.575	4.03	0.662	**2.161***	**0.031**
Self-efficacy in an online learning environment	3.84	0.682	3.81	0.652	0.471	0.638	3.83	0.626	3.78	0.715	0.845	0.399
Self-efficacy in time management	3.87	0.695	4.00	0.666	-1.744	0.082	4.05	0.635	3.81	0.728	**3.222*****	**0.001**
Self-efficacy to interact with lecturers for online courses	3.89	0.768	3.85	0.721	0.498	0.619	3.90	0.736	3.84	0.719	1.254	0.211
Self-efficacy to interact socially with classmates	3.95	0.789	4.03	0.698	-1.113	0.266	4.07	0.696	3.77	0.794	**2.840****	**0.005**
Self-efficacy to interact academically with classmates	3.96	0.697	4.03	0.653	-1.077	0.282	4.08	0.646	3.90	0.686	**2.729****	**0.007**
Online learning self-efficacy dimension	Semester of study						Students' status					
	1 or 2 (n = 256)		3 or higher (n = 186)		t	Sig	Non-graduating (n = 356)		Graduating (n = 86)		t	Sig
	Mean	SD	Mean	SD			Mean	SD	Mean	SD		
Self-efficacy in computer and internet	4.17	0.591	4.04	0.631	**2.199***	**0.028**	4.13	0.599	4.04	0.654	1.211	0.227
Self-efficacy in an online learning environment	3.85	0.629	3.76	0.697	1.443	0.150	3.82	0.644	3.81	0.724	0.107	0.915
Self-efficacy in time management	4.05	0.642	3.84	0.702	**3.262*****	**0.001**	3.99	0.661	3.85	0.726	1.703	0.089
Self-efficacy to interact with lecturers for online courses	3.94	0.696	3.76	0.772	**2.523***	**0.012**	3.90	0.713	3.70	0.795	**2.276***	**0.023**
Self-efficacy to interact socially with classmates	4.11	0.671	3.88	0.773	**3.293*****	**0.001**	4.07	0.699	3.78	0.783	**3.346*****	**0.001**
Self-efficacy to interact academically with classmates	4.10	0.642	3.90	0.681	**3.176****	**0.002**	4.06	0.658	3.82	0.666	**2.994****	**0.003**
Online learning self-efficacy dimension	Discipline of study								Post Hoc Test			
	MS (n = 274)		SSH (n = 91)		S&T (n = 77)		F (2, 439)	p-value	Multiple comparisons (Tukey HSD)			
	Mean	SD	Mean	SD	Mean	SD						
Self-efficacy in computer and internet	4.13	0.584	4.12	0.628	4.03	0.682	0.866	0.421	NS			
Self-efficacy in an online learning environment	3.81	0.637	3.89	0.683	3.73	0.704	1.299	0.274	NS			

Self-efficacy in time management	4.01	0.665	3.90	0.691	3.89	0.691	1.339	0.263	NS
Self-efficacy to interact with lecturers for online courses	3.87	0.718	3.93	0.705	3.79	0.817	0.791	0.454	NS
Self-efficacy to interact socially with classmates	4.04	0.668	4.08	0.775	3.83	0.825	**3.092***	**0.046**	NS
Self-efficacy to interact academically with classmates	4.04	0.649	4.08	0.687	3.83	0.676	**3.524***	**0.030**	**MS > S&T* SSH > S&T***
Online learning self-efficacy dimension	Internet connectivity Poor (n = 31) Mean	SD	Average (n = 199) Mean	SD	Good (n = 212) Mean	SD	F (2, 439)	p-value	Post Hoc Test Multiple comparisons (Tukey HSD)
Self-efficacy in computer and internet	3.77	0.602	4.03	0.610	4.24	0.581	**12.307****	**0.000**	**Good > Poor**** and Good > Average***
Self-efficacy in an online learning environment	3.73	0.583	3.69	0.667	3.95	0.639	**8.672****	**0.000**	**Good > Average****
Self-efficacy in time management	3.76	0.635	3.80	0.699	4.15	0.610	**16.006****	**0.000**	**Good > Poor*** and Good > Average****
Self-efficacy to interact with lecturers for online courses	3.73	0.645	3.72	0.759	4.02	0.692	**9.407****	**0.000**	**Good > Average****
Self-efficacy to interact socially with classmates	3.85	0.644	3.90	0.779	4.14	0.660	**6.292****	**0.002**	**Good > Average****
Self-efficacy to interact academically with classmates	3.81	0.596	3.93	0.703	4.12	0.621	**6.288****	**0.002**	**Good > Poor* and Good > Average****

**p < 0.05 **p < 0.01 ***p < 0.001 NS – not significant*
MS – Management Science
SSH – Social science & humanities
S&T – Science & technology

Table 4: Independent Samples T-Test and One-Way Anova Results of Demographic Characteristics on Online Self-Regulated Learning Dimensions

Online self-regulated learning dimension	**Gender** **Male (n = 121)** **Mean**	**SD**	**Female (n = 321)** **Mean**	**SD**	**t**	**Sig**	**Age group** **Below 20 years (n = 282)** **Mean**	**SD**	**20 years or above (n = 160)** **Mean**	**SD**	**t**	**Sig**
Goal setting	3.90	0.739	4.04	0.653	-1.897	0.059	4.08	0.620	3.84	0.762	**3.276*****	**0.001**
Environment structuring	3.93	0.770	4.05	0.737	-1.518	0.130	4.10	0.686	3.85	0.844	**3.028****	**0.003**
Task strategies	3.60	0.823	3.80	0.669	**-2.338***	**0.020**	3.82	0.662	3.60	0.813	**2.765****	**0.006**
Time management	3.80	0.761	3.84	0.716	-0.539	0.590	3.89	0.686	3.69	0.797	**2.576***	**0.011**
Help-seeking	3.85	0.783	3.95	0.682	-1.362	0.174	3.99	0.664	3.83	0.785	**2.046***	**0.042**
Self-evaluation	3.87	0.690	3.94	0.698	-0.918	0.359	4.02	0.614	3.75	0.801	**3.404*****	**0.001**
Online self-regulated learning dimension	Semester of study 1 or 2 (n = 256) Mean	SD	3 or higher (n = 186) Mean	SD	t	Sig	Students' status Non-graduating (n = 356) Mean	SD	Graduating (n = 86) Mean	SD	t	Sig
Goal setting	4.07	0.641	3.91	0.721	**2.406***	**0.017**	4.02	0.658	3.90	0.758	1.398	0.165
Environment	4.10	0.692	3.91	0.806	**2.515***	**0.012**	4.03	0.736	3.98	0.794	0.529	0.597

structuring												
Task strategies	3.81	0.686	3.65	0.755	**2.220***	**0.027**	3.77	0.684	3.62	0.840	1.578	0.117
Time management	3.88	0.688	3.75	0.775	1.920	0.056	3.85	0.703	3.72	0.819	1.367	0.174
Help-to seek	3.96	0.682	3.88	0.750	1.285	0.200	3.95	0.697	3.84	0.767	1.260	0.208
Self-evaluation	4.01	0.629	3.80	0.764	**2.967****	**0.003**	3.95	0.646	3.80	0.867	1.485	0.140
Online self-regulated learning dimension	Discipline of study								Post Hoc Test			
	MS (n = 274)		SSH (n = 91)		S&T (n = 77)		F (2, 439)	Sig	Multiple comparisons (Tukey HSD)			
	Mean	SD	Mean	SD	Mean	SD						
Goal setting	4.02	0.643	4.04	0.711	3.86	0.754	2.036	0.132	NS			
Environment structuring	4.02	0.728	4.10	0.737	3.90	0.818	1.478	0.229	NS			
Task strategies	3.77	0.696	3.80	0.704	3.56	0.794	2.949	0.053	NS			
Time management	3.84	0.718	3.87	0.686	3.73	0.809	0.865	0.422	NS			
Help-seeking	3.95	0.699	4.01	0.682	3.74	0.765	**3.533***	**0.030**	**SSH > S&T***			
Self-evaluation	3.97	0.654	3.99	0.648	3.68	0.835	**6.011****	**0.003**	**MS > S&T** and SSH > S&T****			
Online self-regulated learning dimension	Internet connectivity								Post Hoc Test			
	Poor (n = 31)		Average (n = 199)		Good (n = 212)		F (2, 439)	Sig	Multiple comparisons (Tukey HSD)			
	Mean	SD	Mean	SD	Mean	SD						
Goal setting	3.73	0.695	3.92	0.713	4.11	0.624	**6.987*****	**0.001**	**Good > Poor** and Good > Average****			
Environment structuring	3.71	0.708	3.92	0.785	4.16	0.688	**8.474******	**0.000**	**Good > Poor** and Good > Average****			
Task strategies	3.63	0.674	3.64	0.719	3.86	0.710	**5.237****	**0.006**	**Good > Average****			
Time management	3.72	0.700	3.71	0.727	3.95	0.714	**6.441****	**0.002**	**Good > Average****			
Help-seeking	3.72	0.657	3.86	0.717	4.02	0.704	**4.065***	**0.018**	NS			
Self-evaluation	3.71	0.609	3.83	0.713	4.04	0.673	**6.364****	**0.002**	**Good > Poor* and Good > Average****			

**p < 0.05 **p < 0.01 ***p < 0.001 NS – Not significant*
MS – Management Science
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There were no significant gender differences in online learning self-efficacy scores for all six dimensions. However, there was a significant gender difference for task strategies (t = -2.338, p < 0.05) of online self-regulated learning but no significant gender differences for other online self-regulated learning dimensions. Female students (mean = 3.80, SD = 0.669) exhibited higher scores in task strategies than males (mean = 3.60, SD = 0.823) as shown in Table 3. Age group showed significant differences in four online learning self-efficacy dimensions; self-efficacy in computer and internet, self-efficacy in time management, self-efficacy to interact socially with classmates, and self-efficacy to interact academically with classmates. Younger students of age below 20 years old showed significantly higher scores in computer and internet self-efficacy (t = 2.161, p < 0.05), self-efficacy in time management (t = 3.222, p < 0.001), self-efficacy to interact socially with classmates (t = 2.840, p < 0.01), self-efficacy to interact academically with classmates (t = 2.729, p < 0.01) than older age students. Students of age below 20 years also showed significantly high scores in all online self-regulated learning dimensions compared to older age students.

Semester of study showed significant differences in five of online learning self-efficacy dimensions; self-efficacy in computer/internet (t = 2.199, p < 0.05), self-efficacy in time management (t = 3.262, p < 0.001), self-efficacy to interact with lecturers for online courses (t = 2.523, p < 0.05), self-efficacy to interact socially with classmates (t = 3.293, p < 0.001), and self-efficacy to interact academically with classmates (t = 3.176, p < 0.01) and four of online self-regulated learning dimensions; goal setting (t = 2.406, p < 0.05), environment structuring (t = 2.515, p < 0.01), task strategies (t = 2.220, p < 0.05), and self-evaluation (t = 2.967, p < 0.01). Students in lower semesters; 1 or 2, showed higher scores in the five online learning self-efficacy dimensions and the four online self-regulated learning dimensions than their counterparts in higher semesters (3 or higher). Non-graduating students had significantly higher scores in self-efficacy to interact with lecturers on online courses (t = 2.276, p < 0.05), self-efficacy to interact socially with classmates (t = 3.346, p < 0.001), and self-efficacy to interact academically with classmates (t = 2.994, p < 0.01) than graduating students. With regards to online self-regulated learning, none of the dimensions differed significantly across students' status. Tables 3 and 4 present the results. The discipline of the study showed significant differences in two online learning self-efficacy dimensions; self-efficacy to interact with classmates (F(2, 439) = 3.092, p < 0.05), and self-efficacy to interact academically with classmates (F(2, 439) = 3.524, p < 0.05) and two online self-

regulated learning; help-seeking ($F(2, 439) = 3.533$, $p < 0.05$) and self-evaluation ($F(2, 439) = 6.011$, $p < 0.01$) as shown in Table 3 and 4.

Students with good internet connectivity exhibited significantly higher self-efficacy in computer/internet ($F(2, 439) = 12.307$, $p < 0.0005$), self-efficacy in time management ($F(2, 439) = 16.006$, $p < 0.0005$), self-efficacy to interact academically with classmates ($F(2, 439) = 6.288$, $p < 0.01$), goal setting ($F(2, 439) = 6.987$, $p < 0.0005$), environment structuring ($F(2, 439) = 8.474$, $p < 0.0005$), and self-evaluation ($F(2, 439) = 6.364$, $p < 0.01$) were shown to have significant differences among students with good internet connectivity compared to average and poor internet connectivity. Meanwhile, self-efficacy in the online learning environment ($F(2, 439) = 8.672$, $p < 0.0005$), self-efficacy to interact with lecturers for online courses ($F(2, 439) = 9.407$, $p < 0.0005$), self-efficacy to interact socially with classmates ($F(2, 439) = 6.292$, $p < 0.01$), task strategies ($F(2, 439) = 5.237$, $p < 0.01$), and time management were revealed to have significant differences among students with good internet connectivity compared to average internet connectivity. Results are shown in Table 3 and Table 4.

Help-seeking for online self-regulated learning was significantly ($F(2, 439) = 3.533$, $p < 0.05$) higher among social science and humanities (mean = 4.08, SD = 0.775) students than science and technology students (mean = 3.74, SD = 0.765). Management science (mean = 4.04, SD = 0.649) as well as social science and humanities (mean = 4.08, SD = 0.687) students exhibited significantly higher self-efficacy in interacting with classmates academically than science and technology (mean = 3.83, SD = 0.676) students. Self-evaluation for online self-regulated learning was significantly higher ($F = 6.011$, $p < 0.01$) among both management science (mean = 3.97, SD = 0.654) as well as social science and humanities (mean = 3.99, SD = 0.648) compared to students in science and technology (mean = 3.68, SD = 0.835) discipline of study as shown in Table 4. The study also examined the effect of internet connectivity on online learning self-efficacy and online self-regulated learning. All online learning self-efficacy and online self-regulated learning dimensions had significant differences across good, average, and poor internet connectivity.

When examining overall online learning self-efficacy and overall self-regulated learning, it was found that younger students of ages below 20 years old, students from lower semesters of 1 or 2, and students with average to good internet connectivity exhibited significant higher in both online learning self-efficacy and online self-regulated learning. Students from management sciences social sciences and humanities showed higher online self-regulated learning in comparison to science and technology students. Non-graduating students tended to have higher online self-efficacy scores compared to graduating students. However, online self-regulated learning did not show significant differences across students' statuses. Gender is the only element that did not show significant differences both in overall online learning self-efficacy and overall self-regulated learning. All results are presented in Table 5.

Table 5: Descriptive Statistics and One-Way Anova of Demographic Characteristics on Overall Online Learning Self-Efficacy and Online Self-Regulated Learning

Variable	Sub-variable	n	Overall online learning self-efficacy				Overall online self-regulated learning			
			Mean	SD	t/F values	Sig	Mean	SD	t/F	Sig
Gender	Male	121	3.93	0.630	-0.656	0.512	3.90	0.739	-1.897	0.059
	Female	321	3.98	0.576			4.04	0.653		
Age group	Below 20 years	282	4.02	0.568	**2.537***	**0.012**	3.98	0.541	**3.311*****	**0.001**
	20 years or above	160	3.87	0.621			3.76	0.697		
Semester of study	1 or 2	256	4.04	0.567	**3.077****	**0.002**	3.97	0.563	**2.597****	**0.010**
	3 or higher	186	3.86	0.610			3.82	0.652		
Students' status	Non-graduating	356	3.99	0.576	**2.263***	**0.024**	3.93	0.576	1.434	0.154
	Graduating	86	3.83	0.637			3.81	0.713		
Discipline of study	Management Science	274	3.98	0.569	1.753	0.174	3.93	0.583	**3.455***	**0.032**
	Social science and humanities	91	4.00	0.607			3.97	0.598		
	Science and technology	77	3.85	0.643			3.75	0.674		
	Post hoc test (Multiple comparison)				NS				**MS > S&T*** **SSH > S&T***	
Internet connectivity	Poor	31	3.77	0.533	**12.146******	**0.000**	3.70	0.608	**8.418******	**0.000**
	Average	199	3.84	0.596			3.81	0.610		
	Good	212	4.10	0.564			4.02	0.581		
	Post hoc test (Multiple comparison)				**Good > Poor**** **Good > Average******				**Good > Poor**** **Good > Average******	

**p < 0.05 **p < 0.01 ***p < 0.001 ***p < 0.0005 NS – Not significant*

Discussion: One of the aims of this current study was to investigate dimensions of self-efficacy and self-regulated learning in the online learning environment. The study adapted (Shen et al., 2013), (Zimmerman & Kulikowich, 2016) for online learning self-efficacy and (Barnard et al., 2009) for online self-regulated learning dimensions. The present study focused on six dimensions of online learning self-efficacy and six dimensions of online self-regulated learning. The six dimensions of online learning self-efficacy cover the three main aspects; technology, learning, and social interaction as emphasized by Shen et al. (2013) and Ithriah et al., 2020). The study concluded that students exhibited high levels of online learning self-efficacy, online self-regulated learning as well and online learning satisfaction. The result was consistent with (Shen et al., 2013) who studied online learning self-efficacy and online learning satisfaction and in line with (Ulfatun et al., 2021) who studied online learning self-efficacy and online self-regulated learning.

Demographic variables including gender, age group, semester of study, students' status, discipline of study, and internet connectivity showed significant differences in online learning self-efficacy and online self-regulated learning to some extent. First, gender did not show a significant difference in any of the online learning self-efficacy dimensions which was consistent with studies by (Samruayruen et al., 2013), (Yavuzalp & Bahcivan, n.d.), (Y.-C. Kuo & Tseng, n.d.), and (Kurniawan et al., 2022) that found no significant difference in the students' self-efficacy across gender but inconsistent with the studies by (Shen et al., 2013), (Jan, 2015), and (Julaihi et al., 2022) that showed females exhibited higher self-efficacy than their male counterparts. The current study only found that there was gender significant difference in task strategies of online self-regulated learning. The result demonstrated that female students had higher scores in task strategies than male students which were approximately consistent with the study by (Altun & Erden, 2013) who found that effort regulation was a significant predictor for online self-regulated learning among female students. However, the result was inconsistent with the study by (Appiah-Kubi et al., 2022) for which they found that male students had more self-regulated learning capacities than their female counterparts while Liu et al., 2021) found that females performed better than males in all three constructs (preparatory, performance, and appraisal) of learners' online self-regulated learning. Overall, the current study revealed no gender differences for both online learning self-efficacy and online self-regulated learning. The possible explanation is that both male and female students have good online learning readiness factors which makes them accept online learning as the mode of learning.

Second, younger students of ages below 20 years old showed significantly higher self-efficacy in computer and internet, self-efficacy in time management, self-efficacy to interact socially with classmates, and self-efficacy to interact academically with classmates than older age (20 years or above) students. The result was inconsistent with the study by (Samruayruen et al., 2013) who found no age difference in self-efficacy. Students of ages below 20 years old also showed significantly high scores in all online self-regulated learning dimensions compared to older age students. This finding indicated that younger age students had higher extrinsic motivation levels which may be because they just entered and experienced studying in university and they have high motivation to work hard and self-regulate learning for success, but as the age increases, they may steer away from this motivational level because of several different reasons such as experiences and expectations that had fall behind (Keskin & Korkutata, 2018).

Third, students in lower semesters; 1 or 2, showed to have higher scores in the five online learning self-efficacy dimensions; self-efficacy in computer/internet, self-efficacy in time management, self-efficacy to interact with lecturers for online courses, self-efficacy to interact socially with classmates, and self-efficacy to interact academically with classmates. Students in these semesters also showed higher scores in four online self-regulated learning dimensions; goal setting, environment structuring, task strategies, and self-evaluation. Overall, students in lower semesters; 1 or 2, were likely to exhibit higher online learning self-efficacy which was inconsistent with studies by (Limiansi & Hadi, 2022), (Yavuzalp & Bahcivan, n.d.), and online self-regulated learning. The possible reason is, that students in lower semesters; 1 or 2, were those students who just entered the university with high levels of excitement and motivation to learn for success (Keskin & Korkutata, 2018).

Fourth, non-graduating students had significantly higher scores in self-efficacy to interact with lecturers on online courses, self-efficacy to interact socially with classmates, and self-efficacy to interact academically with classmates than graduating students. The possible reason for this was that 356 non-graduating (80.5%)

students and 256 students (71.9%) were semester 1 or 2 students and these lower semester students were likely to have higher active social interactions among students and lecturers. The nature of online learning requires students to interact actively with both lecturers and classmates (Shen et al., 2013). Fifth, discipline of study was a significant factor in self-efficacy to interact socially with classmates and self-efficacy to interact academically with classmates. Overall, the discipline of the study had no significant difference with online learning self-efficacy, which was consistent with the studies (Limiansi & Hadi, 2022) and (Yavuzalp & Bahcivan, n.d.) who found no significant difference in self-efficacy between the disciplines of study. In the current study, the discipline of the study had significant differences in self-efficacy to interact socially and academically with classmates.

In other words, management science social science and humanities students tended to have higher levels of self-efficacy to interact socially and academically with classmates than their science and technology counterparts. The possible explanation for this situation is, that management science social science and humanities students are likely to interact more with peers compared to science and technology students. This was verified when online learning enhanced interaction with peers more among management science social science and humanities students. An independent sample t-test of mean score on online learning had enhanced interaction with peers by the discipline of study was significantly ($t = 2.222$, $p < 0.05$) higher among management science and social science and humanities (mean = 3.83, SD = 0.931) than science and technology (mean = 3.53, SD = 1.095) students. Last, average to good internet connectivity was a significant factor for all online learning self-efficacy and online self-regulated learning dimensions. Overall, students with good internet connectivity were likely to have high online learning self-efficacy beliefs and high online self-regulated learning strategies. In the current study, by follow-up analysis, good internet connectivity showed significance in students' online learning satisfaction ($F(2, 439) = 11.806$, $p < 0.0005$) but not significant ($F(2, 432) = 0.084$, $p > 0.05$) in academic performance. Having good internet connectivity motivates students to use online learning. Online learning self-efficacy has a positive and significant relationship with the use of online learning (Ithriah et al., 2020).

5. Conclusion

Many studies have focused on self-efficacy in technology but little research has been done on self-efficacy other than technology factors (Alqurashi, 2016) and he recommended developing research not only on technology but also on other dimensions such as learning, interaction and collaborative skills as these aspects together are important to be considered when measuring self-efficacy in online learning settings. However, the current study only explored the dimensions of online learning self-efficacy in three aspects of online learning settings; technology, learning, and interaction.

The study found age and internet connectivity differences in online learning self-efficacy as well as online self-regulated learning. This finding will contribute to the existing online learning study involving age and internet connectivity differences in self-efficacy and self-regulated learning. The current study demonstrates that self-efficacy in time management and environment structuring most significantly explain variances in online learning satisfaction. Follow-up analysis showed that self-efficacy in time management was significant and strongly positively correlated with the environment structuring (Pearson's correlation coefficient, $r = 0.612$, $p < 0.0005$). These findings signal students' self-judgment about their capabilities to complete an online course and environment structuring is critical for their satisfaction with an online course. In addition, lecturers' proactive approaches are important in monitoring and encouraging social interactions either with classmates or lecturers, developing task strategies, and establishing self-evaluation to help students in the development of online learning self-efficacy as well as online self-regulated learning.

The findings in this study provide evidence to improve students' online learning self-efficacy and students' online self-regulated learning and ultimately their academic success. As the finding showed the significance of digital technologies in self-regulated learning, university lecturers should incorporate digital technologies into the learning process such that self-efficacy and self-regulated learning among students. For subsequent enhancement in the quality of online learning, this study provides insights for future research, especially in all areas related to the developments of students' online learning self-efficacy and students' online self-regulated

learning abilities as well as the improvement of facilities and infrastructure in both face-to-face and online learning environments.

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References

Abdul Halim, B., Zainudin, S. N., Fuzi, S. F., Jama, S. R., Zahidi, N. E. & Wan Hassan, W. H. (2022). Online distance learning readiness among students: a comparative study between mathematics and statistics courses. *Jurnal Intelek*, 17(1), 63-71.

Alqurashi, E. (2016). Self-efficacy in online learning environments: A literature review. *Contemporary Issues in Education Research (CIER)*, 9(1), 45-52.

Altun, S. & Erden, M. (2013). Self-regulation-based learning strategies and self-efficacy perceptions as predictors of male and female students' mathematics achievement. *Procedia-Social and Behavioral Sciences*, 106, 2354-2364.

Appiah-Kubi, E., Amponsah, M. O., Nti-Adarkwah, S. & Collins, A. (2022). Assessing the Influence of Gender on Self-Regulated Learning and Academic Engagement among Senior High School Students in Ghana. *European Journal of Educational and Development Psychology*, 10(2), 28-41.

Bandura, A. & Ramachaudran, V. S. (1994). Encyclopedia of human behavior. *New York: Academic Press,* 4, 71-81.

Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O. & Lai, S. L. (2009). Measuring self-regulation in online and blended learning environments. *The internet and higher education,* 12(1), 1-6.

Cho, M. H. & Kim, B. J. (2013). Students' self-regulation for interaction with others in online learning environments. *The Internet and Higher Education*, 17, 69-75.

Haynes, J. C., Hainline, M. S. & Sorensen, T. (2018). A measure of self-regulated learning in online agriculture courses. *Journal of Agricultural Education*, 59(1), 153-170.

Edisherashvili, N., Saks, K., Pedaste, M. & Leijen, Ä. (2022). Supporting self-regulated learning in distance learning contexts at higher education level: systematic literature review. *Frontiers in Psychology*, 12, 792422.

Mayda, M. H., Erail, S. & Karaduman, E. (2020). Examination of self-regulated online learning skills in faculty of sports sciences students. *European Journal of Education Studies,* 7(11).

Hodges, C. B. (2008). Self-efficacy in the context of online learning environments: A review of the literature and directions for research. *Performance Improvement Quarterly,* 20(3-4), 7-25.

Ithriah, S. A., Ridwandono, D. & Suryanto, T. L. M. (2020, July). Online learning self-efficacy: The role in e-learning success. *In Journal of Physics: Conference Series,* 1569(2), 022053). IOP Publishing.

Jan, S. K. (2015). The relationships between academic self-efficacy, computer self-efficacy, prior experience, and satisfaction with online learning. *American Journal of Distance Education*, 29(1), 30-40.

Julaihi, N. H., Zainuddin, P. F. A., Nor, R. C. M., Bakri, S. R. A., Hamdan, A., Salleh, J. & Bujang, N. (2022). Self-Efficacy in Learning Mathematics Online. *Journal of Cognitive Sciences and Human Development*, 8(1), 139-156.

Kamali, M. & Bagheri-Nesami, M. (2022). The association between online self-regulated learning and E-learning acceptance among medical sciences students during the COVID-19 pandemic. *Journal of Nursing and Midwifery Sciences,* 9(3), 219.

Kellenberg, F., Schmidt, J. & Werner, C. (2017). The adult learner: Self-determined, self-regulated, and reflective. *Signum Temporis*, 9(1), 23.

Keskin, Ö. & Korkutata, A. (2018). Reviewing Academic Motivation Levels of Students Study in Different Faculties in Terms of Certain Variables (Sakarya University Case). *Journal of Education and e-Learning Research,* 5(2), 208-216.

Kuo, Y. C., Tseng, H. & Kuo, Y. T. (2020, April). Internet self-efficacy, self-regulation, and student performance: African-American adult students in online learning. In International Journal on E-Learning (pp. 161-180). Association for the Advancement of Computing in Education (AACE).

Kurniawan, C., Soepriyanto, Y., Zakaria, Z. & Aulia, F. (2022, March). Gender Differences in E-Learning Self-Efficacy during Pandemic Covid-19. In 2nd World Conference on Gender Studies (WCGS 2021) (pp. 79-83). Atlantis Press.

Limiansi, K. & Hadi, S. (2022, January). Students Self-Efficacy Profile in Online Learning. In 5th International Conference on Current Issues in Education (ICCIE 2021) (pp. 85-90). Atlantis Press.

Liu, X., He, W., Zhao, L. & Hong, J. C. (2021). Gender differences in self-regulated online learning during the COVID-19 lockdown. *Frontiers in Psychology*, 12, 752131.

Oates, S. (2019, September). The importance of autonomous, self-regulated learning in primary initial teacher training. *In Frontiers in Education,* 4, 102). Frontiers Media SA.

Peechapol, C., Na-Songkhla, J., Sujiva, S. & Luangsodsai, A. (2018). An exploration of factors influencing self-efficacy in online learning: A systematic review. *International Journal of Emerging Technologies in Learning (Online)*, 13(9), 64.

Samruayruen, B., Enriquez, J., Natakuatoong, O. & Samruayruen, K. (2013). Self-regulated learning: A key of a successful learner in online learning environments in Thailand. *Journal of Educational Computing Research*, 48(1), 45-69.

Santoso, H. B., Riyanti, R. D., Prastati, T., Susanty, A. & Yang, M. (2022). Learners' online self-regulated learning skills in Indonesia Open University: *Implications for policies and practice. Education Sciences,* 12(7), 469.

Shen, D., Cho, M. H., Tsai, C. L. & Marra, R. (2013). Unpacking online learning experiences: Online learning self-efficacy and learning satisfaction. *The Internet and Higher Education*, 19, 10-17.

Stephen, J. S. & Rockinson-Szapkiw, A. J. (2021). A high-impact practice for online students: the use of a first-semester seminar course to promote self-regulation, self-direction, online learning self-efficacy. *Smart Learning Environments,* 8(1), 6.

Ulfatun, T., Septiyanti, F. & Lesmana, A. G. (2021). University students' online learning self-efficacy and self-regulated learning during the COVID-19 pandemic. *International Journal of Information and Education Technology*, 11(12), 597-602.

Yavuzalp, N. & Bahcivan, E. (2020). The online learning self-efficacy scale: Its adaptation into Turkish and interpretation according to various variables. *Turkish Online Journal of Distance Education,* 21(1), 31-44.

Yot-Domínguez, C. & Marcelo, C. (2017). University students' self-regulated learning using digital technologies. *International Journal of Educational Technology in Higher Education,* 14(1), 1-18.

Zhao, H., Chen, L. & Panda, S. (2014). Self-regulated learning ability of C Chinese distance learners. *British Journal of Educational Technology,* 45(5), 941-958.

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational psychologist*, 25(1), 3-17.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary educational psychology,* 25(1), 82-91.

Zimmerman, W. A. & Kulikowich, J. M. (2016). Online learning self-efficacy in students with and without online learning experience. *American Journal of Distance Education,* 30(3), 180-191.

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Enhancing Workplace Well-Being: A Multidimensional Approach to Person-Environment Fit

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Abstract: This review paper covers important gaps in the knowledge of Person-Environment Fit. PE fit is widely described as the compatibility between an individual and their work environment and more specifically the individual level criteria. However, there are several recurring issues in the P-E fit approach to stress, including a theoretical problem of inadequate distinction between different versions of fit; confusion between different functional forms of fit; and methodological problems relating to poor measurement of fit components and inappropriate analysis of the impact of fit on strain. Various studies and reviews have still fallen short of providing a comprehensive measure of PE fit, with most of the previous studies focusing exclusively on single fits of either person-job fit or person-organisation fit. Therefore, the current study aims to review the multidimensional measures of the PE fit study to gain a comprehensive view of the PE fit approach in enhancing workplace well-being. This study contributes to the occupational stress literature by delineating how the multidimensional measures of PE fit are associated with work-related stress and the possible outcomes related to both employees and organizational aspects indirectly. Future research may fill in these gaps and broaden the scope of the person-environment fit study.

Keywords: *Person-Environment Fit, Multidimensional Measures, Strain Work-related Stress.*

1. Introduction

The concept of Person-Environment (PE) fit is broadly agreed upon as the interaction between individual employees and their working environments, which could be a good match or an unfortunate mismatch. PE fit is widely described as the compatibility between an individual and their work environment and more specifically the individual level criteria (Kristof-Brown et al., 2005). The original work of the PE fit theory was developed by French and Kahn, (1962), and French et al. (1974) – cited in Edwards, Caplan, & Harrison, (1998). The research conducted in the early 1960s focused on the impact of environmental factors on the mental health of employees, with a particular emphasis on social psychological factors in large-scale organizations. According to French and Kahn (1962), understanding the effects of the environment requires considering the person-environment field as a whole. French and Kahn (1962) in their study proposed a framework with emphasis on two elements of environmental factors, which are the objective social environment and the psychological environment. They asserted that both the objective and psychological environments become relevant in studying mental health. The objective social environment focuses on the industrial organization, which consists of a group of people, relations or organizational structures, and a group of processes, whereas the psychological environment consists of a "life space organization", which is an organization as perceived by the individual.

The PE fit framework stands as a highly utilized theory in the context of organizational stress (Cooper et al., 2001). Scholars have extensively defined PE fit as the congruence between an individual and their work environment, with a stronger focus on individual-level factors (Kristof-Brown et al., 2005). The lack of such congruities can result in adverse effects, as pointed out by Chunghun et al. (2016), where stress emerges due to an incongruity between the individual and environmental factors. In short, stress and strain in the workplace are triggered by the interaction of an individual with their environment, and this is particularly true when job challenges present a threat to the individual, resulting in an incompatible PE fit, which in turn leads to physical and psychological strains (Edwards & Cooper, 1990; French et al., 1982). A structure for assessing and forecasting how characteristics of the individual and the work environment jointly influence a worker's well-being is presented by the PE fit theory, which can further be used to develop a model for

preventive interventions (Abbas et al., 2013). Specifically, following Edwards et al.'s (1998) notion that stress arises from the mismatch between the individual and the environment, this study proposes that the impact of employees' health critically depends on the perceived fit between person and environmental factors.

Yet, several recurring issues in the P-E fit approach to stress were identified by Edwards and Cooper (1990), including a theoretical problem of inadequate distinction between different versions of fit; confusion between different functional forms of fit; and methodological problems relating to poor measurement of fit components and inappropriate analysis of the impact of fit on strain. Following that, Edwards (1996) in his next research highlighted the two types of PE fit, the first of which is the fit between environmental supplies and employee values (S-V fit), and the second of which is the fit between environmental demands and employee abilities (D-A fit), along with determining which types are more strongly associated with strain. Nevertheless, multiple investigations and reviews have yet to deliver a thorough measurement of PE fit, primarily centering on singular fits, such as either person-job fit or person-organization fit. This trend is evident in earlier studies by Edwards (1991), Witt and Nye (1992), Chunghun et al. (2016), and Herkes et al. (2019). Due to this limitation, studies by Kristof-Brown et al. (2005), Vogel and Feldman (2009), and Chuang et al., (2016) have expanded the PE fit measures into wider distinct types of fit which cover person-job fit (PJF), person-organisation fit (POF), person–group fit (PGF) and person–supervisor fit (PSF). While Vogel and Feldman (2009) have added the other types of person-vocation fit (PVF). Therefore, to have a comprehensive view of the PE fit approach, the current study reviews the multidimensional measures of PE fit supported by Chuang et al. (2016) study in measuring four different types of fit, which are PJF, POF, PGF, and PSF. In short, the current study reviews the PE fit theory grounded by Caplan et al. (1980), which posits that the stresses in the environment have resulted in strains on the person and, consequently, affect employees' health. Additionally, it incorporates a comprehensive view of PE fit measures developed by Chuang et al. (2016).

The literature suggests that employees' well-being and work outcomes are issues that must be addressed jointly rather than merely focusing on traditional notions of job satisfaction and work stress (Genaidy et al., 2007). Conventional occupational risks like being exposed to harmful chemicals, extreme temperatures, or excessive noise are no longer the primary health challenges in modernized societies. While they remain significant concerns, especially for manual workers and certain non-professional occupational sectors, a majority of the workforce increasingly faces mental and emotional stressors in the workplace (Siegrist, 2015). Therefore, there is a clear need to address psychosocial work stress to minimize the burden of work-related disease as well as organizational losses (Siegrist, 2015; Yao et al., 2015). The objective of this research is to critically examine a theoretical framework that elucidates work-related stress and its repercussions by leveraging stress theories, notably through the lens of Person-Environment (PE) fit. This study provides a valuable addition to the existing occupational stress literature by illustrating the intricate connection between PE fit, work-induced stress, and the subsequent outcomes impacting both employees and the organization indirectly. The PE fit framework serves as a foundation to comprehend how organizations strategically optimize their human resources. This involves aligning the personal skills, capabilities, and preferences of employees with the expectations of their work environment, encompassing aspects such as the specific job role, the organizational structure, team dynamics, and supervisory relationships. The ultimate aim is to achieve heightened productivity and contribute to the overall success of the organization.

2. Type of Person-Environment (PE) Fits

Kristof-Brown and colleagues (2005) have formulated a conceptualization of fit, categorizing it into two main types: supplementary fit, which measures the degree of similarity between the individual and the environment, and complementary fit, which gauges how well the individual's characteristics fill a gap in the current environment or vice versa. Moreover, complementary fit can be broken down into i) demand-abilities fit, examining the alignment between the individual's skills and environmental demands, and ii) need-supplies fit, assessing the extent to which the individual's needs align with the resources provided by the

environment. The absence of these compatibilities can result in adverse outcomes, as noted by Chunghun et al. (2016), where stress manifests due to an imbalance between the individual and environmental factors. This is in line with the PE fit theory that alludes to the mismatch between the individual and the environment that can result in psychological strain (dissatisfaction, boredom, anxiety, and depression), physical, and behavioral strains (Caplan et al., 1980; Edwards & Harrison, 1993; Harrison, 1978). In addition, earlier PE fit theory by French et al. (1982) suggests that job-related stress is the result of a misfit between the characteristics of the person (e.g., values and abilities) and the work environment (e.g., workload and support). Subsequent studies by Kristof-Brown et al. (2005), Vogel and Feldman (2009), and Chuang et al. (2016) further divided PE fit into four multidimensional measures. This covers person-job fit (PJF), person-organization fit (POF), person–group fit (PGF), and person–supervisor fit (PSF). While Vogel and Feldman (2009) have added the other types of person-vocation fit (PVF). A summary of the four types of fit is presented in Table 1.

Table 1: Types of PE Fit

Type of Fit	Concept	Source
i) Person–Job Fit	Demands-abilities fit and needs–supplies fit	Chuang et al. (2016), Edwards (1991), Beasley et al. (2012)
ii)Person-Organization Fit	The match between organizational demands and individual abilities	Chunghun et al. (2016)
	Value congruence	Chuang et al. (2016), Chatman (1989)
	Goal congruence	Chuang et al. (2016), Vancouver & Schmitt (1991); Witt & Nye (1992).
iii)Person–Group Fit	Interpersonal compatibility between individuals and their work groups	Kristof-Brown (1996)
	Goals match	Chuang et al. (2016), Kristof-Brown & Stevens (2001)
	Values match	Chuang et al. (2016)
	Personality traits	Chuang et al. (2016)
iv)Person–Supervisor Fit	Value congruence	Chuang et al. (2016)

Person-Job Fit (PJF): PJF was further classified based on two basic conceptualizations, which are widely followed by other PE fit scholars. As outlined by Edwards (1991), the first concept is the demands-abilities fit, where the employees' knowledge, skills, and abilities are equivalent to the job requirements. The second concept of PJF is described as the match between employees' needs, desires, or preferences and the supplied attributes of a job that they perform at work. Most scholars have categorized these two basic concepts as the needs–supplies or supplies–values fit, which has been applied by other theories of adjustment, well-being, and satisfaction (French et al., 1974; Harrison, 1978; Locke, 1969). Beasley et al. (2012) used a similar term in their study, labelling these two concepts as Needs-Supplies and Demands-Abilities. To achieve a PJF, the demand or requirements of the job should be well matched with the abilities of employees or vice versa, and also the environmental supply must fulfil the individual needs. The incongruence of employees' abilities and work demands and also the needs and supply will lead to lower satisfaction (Beasley et al., 2012) and higher psychological strain.

Person-Group Fit (PGF): The next type of fit is based on interpersonal compatibility. PGF, which considers "the interpersonal compatibility between individuals and their work groups" (Kristof-Brown et al., 2005), where the group may be defined in many different ways, including as the immediate co-workers or simply as colleagues within any sub-unit of the organization (Kristof, 1996). PGF, also known as "person-team fit" by some scholars, investigates the compatibility between employees and their work groups or team members (Judge & Ferris, 1992; Kristof, 1996; Werbel & Gilliland, 1999). In their study, Kristof-Brown et al. (2005) highlighted the psychological compatibility between co-workers and their influence on employee outcomes. A few scholars have also classified PGF into goals (Kristof-Brown & Stevens, 2000; Witt, 1998) and values characteristics (Adkins et al., 1996; Becker, 1992; Good & Nelson, 1971). Others (Barsade et al., 2000; Hobman et al., 2003; Strauss et al., 2001) measured PGF as personality traits. Past findings have found that similarity in personality leads to better communication among employees and improves their social integration (Schaubroeck & Lam, 2002). The congruence between a person and their group members is substantial since past research evidence has shown that PGF is significantly related to an employee's performance (Kristof-Brown & Stevens, 2001).

Person-Supervisor Fit (PSF): Meanwhile, the last type of fit, which is PSF, focuses on the dyadic relationship between employees and their supervisors (Adkins et al., 1994; Van Vianen, 2000) and its effect on work outcomes (Griffeth et al., 2001). The sub-dimensions measured under this type of fit include the leader and follower value congruence (Colbert, 2004; Krishnan, 2002), manager and employee goal congruence (Witt, 1998) and the similarity in terms of personality between supervisor and subordinate (Schaubroeck & Lam, 2002). This is consistent with Kristof-Brown et al. (2005), which described PSF as the match between an employee and a supervisor in terms of value congruence, personality similarity, goal congruence, etc. Past findings on PSF show its relationship with in-role performance (Huang & Iun, 2006) and job satisfaction (Ostroff et al., 2005). The person and supervisor match is also significant since some of the employees left the organization due to superior conflicts, as the common adage that "employees do not leave places, they leave managers", which is often associated with turnover. Leaders or supervisors can also negatively impact the well-being of their employees (Gordon et al., 2019), as interpersonal conflicts within the workplace can exacerbate the strain of stressful work conditions, particularly regarding inadequate support, lack of respect, and unjust treatment by supervisors or colleagues (Siegrist, 2015). Contrary, employees who perceive substantial support from their supervisors tend to display elevated levels of subjective well-being. This heightened sense of well-being can contribute to reinforcing employees' perceived Person-Environment (PE) fit (Gordon et al., 2019)

3. Person-Environment Fit and Work-related Stress

The concept of work-related stress has received considerable attention in the literature. Various perspectives have been described to reflect the concept, but the majority of them relate to the mismatch between individual capabilities and job demands, workload, and other environmental factors. The latest study described work-related stress as a reaction to job-related demands in the absence of sufficient knowledge, abilities, or skills to cope with workloads (Thielmann et al., 2022). By definition, the early study by Caplan et al. (1980) defined stress as any aspect of the workplace that poses a threat to the individual. He distinguished

two types of job stress that could endanger the individual: unreasonable demands or insufficient supplies to meet his needs. In the context of organizational stress, a recent study defined it as a scenario where factors within the work environment interact with an employee, resulting in alterations to the employee's psychological and physiological state (Sharma & Srivastava, 2020). Likewise, occupational stress is the perception of a mismatch between external demands (stressors) and individual capacities to meet them (French et al., 1982- cited in Caplan, 1987; Topper, 2007; Vermunt & Steensma, 2005).

Simultaneously, scholars in the field of work stress define stressors as environmental demands that surpass an individual's capacity or skill to effectively address the challenge (Siegrist, 2015). This definition is in accordance with the definition by the World Health Organization (WHO), which describes occupational or job stress as "the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities, and that challenge their ability to cope" (WHO, 2020). This definition underscores that stress arises when an individual's abilities fall short of meeting the ultimate expectations placed upon them (Mahipalan & Sheena, 2019). Regardless of the various conceptions of work stress, the fundamental concept is that the mismatch between the workplace environment, in general, is the most significant contributor to work stress.

According to French and Kahn (1962), Lazarus and Folkman (1984), and Topper (2007), an individual's perceptions play the most important role in the stress process, and if he or she perceives the stressor as a threat, it will further trigger negative emotional responses. In the workplace, employees often face a multifactorial stressor, experiencing multiple stressors simultaneously (Cooper, 1983; Sharma & Srivastava, 2020). Sharma and Srivastava (2020) highlighted that these multiple stressors can be categorized into various factors, and their combination distinctly elucidates the root causes of workplace stress. Broadly, these stressors can be classified into two main aspects: work-related stressors and interpersonal conflicts within the workplace. Work-related stressors concern work overload with high demands, work pressure, frequent disruptions, and higher responsibility (Siegrist, 2015).

While other factors, such as workload and relationships at work, are key determinants of burnout (O'Connor et al., 2018). Furthermore, in contemporary work environments, technological advancements and automated systems represent additional work-related factors that significantly contribute to employees' stress (Siegrist, 2015). Besides, Siegrist also highlighted other stressful organizational features that concern overload at work, including high demands and work pressure, frequent interruptions, or a high level of responsibility. In addition, interpersonal workplace conflicts like lack of respect, supervisor support, and unfair supervisor treatment may exacerbate the stressful work and its burden (Siegrist, 2015). In the study by Bauer and Herbig (2019), work stressors encompass emotional demands, work pace, expectations to conceal emotions, role conflicts, effort-reward imbalance, job insecurity, extended work hours, night shift obligations, and conflicts between work and family responsibilities. Overall, the multifactorial workplace stressor has been extensively researched, but the central point is primarily related to the mismatch between the individual and their environment.

It is widely acknowledged that this workplace stressor has been proven to have adverse effects on the health and overall well-being of employees (Sharma & Srivastava, 2020). This aligns with findings from earlier studies by Siegrist (2015) and Cooper (1983), both of which highlighted the increased risk of health-damaging psychosocial work environments contributing to a rising incidence of work-related diseases and chronic illnesses. This is attributed to the prolonged exposure to work stress, often characterized as a chronic stressor, where an overwhelming and sustained level of stress builds up over time, resulting in burnout. This, in turn, significantly impacts blood pressure and the overall cardiovascular system (Sharma & Srivastava, 2020). There is a widespread consensus that an unhealthy workplace imposes significant economic costs by compromising employees' health, well-being, and work performance. These economic repercussions manifest through heightened absenteeism, decreased productivity, an increased risk of disability pensions, and direct medical expenses stemming from work-related stress (Sharma & Srivastava, 2020; Siegrist, 2015). Nevertheless, it remains disheartening to observe that investments in fostering high-quality work environments and employment opportunities persist at a relatively inadequate level (Siegrist, 2015).

4. Past Studies on Person-Environment Fit

In reviewing past studies on PE fit, a literature search was conducted based on the keywords ("person-environment fit" and "work stress" and "outcome") from three databases named Scopus, Science Direct, and Emerald Insight with a time frame from 2018 until 2021. The total number of articles found was 88 (two from Scopus, 19 from Science Direct, and 67 from Emerald Insight). After screening, considering meeting the inclusion criteria and objective of the study as well as removing the redundant articles, 13 relevant articles are reviewed. Of all 13 relevant studies, nine were grounded in the person-environment fit theory, while the remaining were supported by other stress theories such as the Strain Theory of Suicide, the Conservation of Resources Theory, and the Job-Demand-Control Model. Two studies were carried out with a time-lagged or longitudinal design; the rest were cross-sectional studies in nature. The majority of studies in this domain were conducted in South Asian countries, with four studies in India and one in Pakistan. This was followed by studies from European countries, totaling three. Additionally, there were two studies from East Asia (China) and one study each from Australia, North America (USA), and Africa (Nigeria). Unfortunately, the research in this area did not encompass studies from Southeast Asia, underscoring the necessity for conducting relevant studies in this region, particularly in Malaysia. Table 2 provides a summary of literature searches pertaining to PE fit studies.

Table 2: Summary of Literature Search

Authors	Stressor	Theory	Study population	Study Design	Country	Outcome
Herkes et al. (2019)	P-O and P-G fit	Person-Environment Fit	Staff and volunteers at 31 primary mental health facilities	Cross-sectional	Australia	Burnout (depersonalization and emotional exhaustion), job satisfaction and work stress
Bauer & Herbig (2019)	Demographics (pilot age and region), work stressors and resources	Person-Environment Fit and Work Engagement Theory	Active Helicopter Emergency Medical Services (HEMS) pilots	Cross-sectional	2 based in Germany and 1 each in Austria, Poland, and the Czech Republic	Work engagement, subjective well-being, and energy levels/ fatigue
Liu et al. (2019)	Perceived Social Support and Psychological strains	Strain Theory of Suicide	Medical employees of a large hospital and heterogeneous office employees	Cross-sectional	China	Depressive symptoms, and Suicidal behaviors
Barthauer et al. (2020)	Burnout	Conservation of resources theory	Academic scientists (PhD candidates and postdocs)	Time-lagged online survey at three points in time	German	Turnover intentions
Tiwari (2021)	Technostress	Person-Environment Fit	Employees in the private sector	Cross-sectional	India	Individual productivity
Lahlouh (2019)	Person–vocation fit (value	Person–environme	Executives aged 50 and	Cross-sectional	France	Full retirement intentions and

	congruence), person-organization fit (needs–supplies and value congruence), person–group (value congruence) fit, person-job fit (demands–abilities/needs–supplies)	nt fit, Theory of planned behavior, Role theory and continuity theory	over from private sector companies			bridge employment intention
Um-e-Rubbab et al. (2021)	Thriving at work	Person environment fit	Frontline employees of the hospitality sector	Time-lagged	Pakistan	Eustress and Distress
Sharma & Srivastava, (2020)	Job-related factors, Organizational factors, Personal factors, Social factors	Person environment fit, Job demand-control model, effort-reward imbalance	Women workers in the garment manufacturing industry	Cross-sectional	India	Organizational stress
Gordon et al. (2019)	Perceived supervisor support	Person environment fit	Hourly employees in select-service hotels	Cross-sectional	USA	Turnover intention
Mahipalan & Sheena, (2019)	Spirituality	Person environment fit, Self-determination theory,	Secondary school teachers	Cross-sectional	India	Psychological well-being
Dhiman (2021)	Appraisee's Perception of appraisal politics (Cultural context, Performance Appraisal justice elements, Performance Appraisal Context)	Job-Demand-Control Model	Indian family-owned organizations	Cross-sectional	India	Individual performance appraisal strain
Song et al. (2020)	Work values: "Good time", Intrinsic, Work-team-related, Extrinsic, Altruistic/prestigious	Person-environment fit, work value theory	Chinese new-generation onsite construction professionals (OCPs)	Cross-sectional	China	Supplies–values (S-V) fit
Abubakar (2020)	Boreout (Boredom)	Conservation of resources theory	Generation X and Y in the service industry	Cross-sectional	Nigeria	Job outcomes (i.e. career, life and job satisfaction)

Based on recent literature, the foremost predictors in the realm of work stress revolve around two key themes: individual factors and working environment factors. This aligns with the fundamental principle of the PE fit theory, which asserts that stress emerges due to a discord between the individual and the environment (Edwards et al., 1998). Individual factors can be subdivided into two distinct subthemes: i) the individual's perceptions of potential stressors and ii) the individual's needs and abilities. On the other hand, environmental factors can be broadly categorized into three subthemes: i) the nature of the job (whether it is demanding, challenging, or unexciting), ii) the people surrounding the workstation (including supervisors and the team), and iii) organizational-related factors (encompassing policies, supplies, motivation, rewards, and adequate training). In summary, the focus of recent studies concerning outcomes can be categorized into two main areas: i) outcomes related to employees, encompassing performance, individual productivity, turnover intention, and well-being; and ii) outcomes associated with the job or work itself, including satisfaction, work engagement, and work stress.

5. Conclusion and Recommendations

In conclusion, the person-environment fit literature has critical gaps that limit our understanding of the multidimensional measures of fit toward workplace context. These gaps need some exploration that best suits the context of the study which might differ by the workplace setting and demands. Addressing these gaps is crucial for employees' well-being and organizational success, as the good welfare of employees will guarantee their productivity, physical and mental health. To address these gaps, researchers may consider including other measures of person-environment fit, such as family fit, disabled workers fit, elderly workers fit and prioritize research on understudied issues or groups of samples. By addressing these critical gaps, we can gain a more comprehensive understanding of person-environment fit and develop more effective policies and practices that promote a healthy workplace environment for all. It is essential to recognize that person-environment fit measures are complex and multifaceted factors involved that require intensive studies from a different context to best suit the working environment. This study contributes to the occupational stress literature by delineating how the multidimensional measures of PE fit are associated with work-related stress and the possible outcomes related to both employees and organizational aspects indirectly. Future research may fill in these gaps and broaden the scope of the person-environment fit study.

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References

Abbas, S. G., Farah, A. & Apkinar-Sposito, C. (2013). Measuring the Immeasurable! An Overview of Stress & Strain Measuring Instruments. *Mediterranean Journal of Social Sciences*, 4(10), 480-489.

Adkins, C. L., Ravlin, E. C., & Meglino, B. M. (1996). Value congruence between co-workers and its relationship to work outcomes. Group & Organization Management, 21, 439-460. http://dx.doi .org/10.1177/1059601196214005

Barsade, S. G., Ward, A. J., Turner, J. D., & Sonnenfeld, J. A. (2000). To your heart's content: A model of affective diversity in top management teams. Administrative Science Quarterly, 45(4), 802-836.

Barthauer, L., Kaucher, P., Spurk, D. & Kauffel, S. (2020). Burnout and career (un)sustainability: Looking into the Blackbox of burnout triggered career turnover intentions. *Journal of Vocational Behavior*. 117, 103334

Bauer, H. & Herbig, B. (2019). Occupational Stress in Helicopter Emergency Service Pilots From 4 European Countries. *Air Medical Journal,* 38, 82–94.

Beasley, C. R., Jason, L. A., & Miller, S. A. (2012). The general environment fit scale: A factor analysis and test of convergent construct validity. American journal of community psychology, 50, 64-76.

Becker, T. E. (1992). Foci and bases of commitment: Are they distinctions worth making? Academy of Management Journal, 35, 232-244. doi:10.2307/256481

Caplan, R. D., Cobb, S., French, J. R. P., Harrison, R. Y. & Pinneau, S. R. (1980). Job demands and worker health: Main effects and occupational differences. Ann Arbor, MI: Institute for Social Research.

Caplan, R. D. (1987). Person-Environment Fit Theory and Organizations: Commensurate Dimensions, Time Perspectives, and Mechanisms. *Journal of Vocational Behavior,* 31, 248-267.

Chuang, A., Shen, C. & Judge, T. A. (2016). Development of a Multidimensional Instrument of Person–Environment Fit: The Perceived Person–Environment Fit Scale (PPEFS). *Applied Psychology: An International Review*, 65(1), 66–98.

Chunghun L., Choong C. L. & Suhyun K. (2016) Understanding information security stress: focusing on the type of information security compliance activity. Computers & Security. 1-25. http://dx.doi.org/doi: 10.1016/j.cose.2016.02.004.

Colbert, A. E. (2004). Understanding the effects of transformational leadership: The mediating role of leader-follower value congruence. The University of Iowa.

Cooper, C. L. (1983). Identifying Stressors at Work: Recent Research Developments. *Journal of Psychosomatic Research*, 27(5), 369-376.

Edwards, J. R., Caplan, R. D. & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), Theories of organizational stress (pp. 28-67). Oxford: Oxford University Press.

Edwards, J. R. & Cooper, C. L. (1990). The person-environment fit approach to stress: Recurring problems and some suggested solutions. *Journal of Organizational Behavior,* 11, 293-307.

French, J. R. P., Caplan, R. D. & Harrison, R. V. (1982). The mechanisms of job stress and strain. Chichester: Wiley.

French, J. R. P. & Kahn, R. L. (1962). A Programmatic Approach to Studying the Industrial Environment and Mental Health. *Journal of Social Issues*, 18(3), 1-47.

French, J. R. P., Jr., Rodgers, W. L. & Cobb, S. (1974). Adjustment as person-environment fit. In G. Coelho, D. Hamburg, & J. Adams (Eds.), Coping and adaptation (pp. 316-333). New York: Basic Books.

Genaidy, A., Salem, S., Karwowski, W., Paez, O. & Tuncel, S. (2007). The work compatibility improvement framework: an integrated perspective of the human at-work system, *Ergonomics*, 50, 1, 3-25, DOI: 10.1080/00140130600900431

Good, L. R., & Nelson, D. A. 1971. Effects of person-group and intragroup attitude similarity on perceived group attractiveness and cohesiveness. Psychonomic Science, 25: 215-217.

Gordon, S. Chun-Hung, T., 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

Griffith, T. L., & Neale, M. A. (2001). 8. Information processing in traditional, hybrid, and virtual teams: From nascent knowledge to transactive memory. Research in organizational behavior, 23, 379-421.

Harrison, R. V. (1978). Person–environment fit and job stress. In C.L. Cooper & R. Payne (Eds.), Stress at work (pp. 175–205). New York: Wiley.

Herkes, J., Ellis, L. A. &Curruca, K. et al. ***(***2019***).*** A cross-sectional study investigating the associations of person organization and person-group fit with staff outcomes in mental healthcare. *BMJ Open* 9, e030669. doi:10.1136/bmjopen-2019-

Hobman, E. V., Bordia, P., & Gallois, C. (2003). Consequences of feeling dissimilar from others in a work team. Journal of Business and Psychology, 17, 301-325.

Huang, X., & Iun, J. (2006). The impact of subordinate–supervisor similarity in growth-need strength on work outcomes: the mediating role of perceived similarity. Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 27(8), 1121-1148.

Krishnan, V. R. (2002). Transformational leadership and value system congruence. International Journal of Value-Based Management, 15(1), 19-33.

Kristof-Brown, A. L. (1996). Person–organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49(1), 1– 49.

Kristof-Brown, A. L. (2000). Perceived applicant fit: Distinguishing between recruiters' perceptions of person–job and person–organization fit. *Personnel Psychology*, 53, 643–671.

Kristof-Brown, Amy L., Zimmerman, Ryan D. & Johnson, Erin C. (2005). Consequences of Individuals' Fit at Work: A Meta-Analysis of Person–Job, Person–Organization, Person–Group, and Person–Supervisor Fit. *Personnel Psychology*, 58, 281–342.

Lahlouh, K., Lacaze, D. & Huaman-Ramirez, R. (2019). Bridge employment and full retirement intentions: the role of person-environment fit. *Personnel Review*, 48 (6), 1469-1490.

Lazarus, R. S. & Folkman, S. (1984). Stress, appraisal and coping. New York: Springer.

Lazarus, R. S. & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, 1, 141–169.

Lazarus, R. S. (1966). Psychological stress and the coping process. New York: McGraw Hill.

Lazarus, R.S. (2000). Toward better research on stress and coping. *American Psychologist*, 55(6), 665-73.

Liu, Y., Zhang, J., Hennessy, D. A., Zhao, S. & Ji, H. (2019). Psychological strains, depressive symptoms, and suicidal ideation among medical and non-medical staff in urban China. *Journal of Affective Disorders*, 245, 22–27.

Locke, E. A. (1969). What is job satisfaction? *Organizational Behavior and Human Performance*, 4, 309-336.

Mahipalan, M. & Sheena, S. (2019). Workplace spirituality, psychological wellbeing and mediating role of subjective stress: A case of secondary school teachers in India. *International Journal of Ethics and Systems*, 35(4), 725-739.

O'Connor, K., Neff, D. M. & Pitman, S. (2018). Burnout in mental health professionals: A systematic review and meta-analysis of prevalence and determinants. *European Psychiatry*, 53, 74–99.

Ostroff, C., Shin, Y., & Kinicki, A. J. (2005). Multiple perspectives of congruence: Relationships between value congruence and employee attitudes. Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 26(6), 591-623.

Schaubroeck, J. & Lam, S. S. K. (2002). How similarity to peers and supervisor influences organizational advancement in different cultures. *Academy of Management Journal*, 45, 1120–1136.

Sharma, L. & Srivastava, M. (2020). A scale to measure organizational stress among women workers in the garment industry. European Journal of Training and Development. DOI 10.1108/EJTD-04-2019-0060

Siegrist, J. (1996). Adverse health effects of high effort–low reward conditions, *Journal of Occupational Health Psychology*, 1(1), 27–41.

Siegrist, J. (2015). Stress at Work. International Encyclopaedia of the Social & Behavioral Sciences, 2nd edition, 23, 546-550.

Strauss, J. P., Barrick, M. R., & Connerley, M. L. (2001). An investigation of personality similarity effects (relational and perceived) on peer and supervisor ratings and the role of familiarity and liking. Journal of Occupational and Organizational Psychology, 74(5), 637-657.

Thielmann, B., Zavgorodni, I., Zub, K. & Böckelmann, I. (2022). The Perception of Stress, Behavior in Stressful Situations and Mental Health of Bank Employees within a German-Ukrainian Comparative Study. *International Journal of Occupational Medicine and Environmental Health*, 35(1), 81 – 94.

Tiwari, V. (2021). Countering effects of technostress on productivity: moderating role of proactive personality. Benchmarking: *An International Journal*, 28(2), 636-651

Topper, E. F. (2007). Stress in the library workplace. *New Library World*, 108, 11-12.

Vancouver, J. B. & Schmitt, N. W. (1991). An exploratory examination of person–organization fit: Organizational goal congruence. *PERSONNEL PSYCHOLOGY*, 44(2), 333–352.

Van Vianen, A. E. (2000). Person-Organization Fit: The Match Between Newcomers' and Recruiters' Preferences For Organizational Cultures. Personnel Psychology, 53(1), 113-149.

Vermunt, R. & Steensma, H. (2005). How can justice be used to manage stress in organizations? Handbook of organizational justice, 383-410.

Vogel, R. M. & Feldman, D. C. (2009). Integrating the levels of person-environment fit: The roles of vocational fit and group fit. *Journal of Vocational Behavior,* (75), 68–81.

Witt, L. A. & Nye, L. G. (1998). Organizational goal congruence and job attitudes revisited. Oklahoma City, OK: FAA Civil Aeromedical Inst.

World Health Organization. (2020). The top 10 causes of death. WHO's Global Health Estimates. Retrieved from https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death

Yao, C., Thorn, K., Duan, Z. & Taskin, N. (2015). Workplace stress in a foreign environment: Chinese migrants in New Zealand. *Equality, Diversity and Inclusion: An International Journal*, 34(7), 608-621.

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The Relationships between Emotional Intelligence and Leadership Effectiveness in Selected Malaysian Public Sectors

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Abstract: Emotional intelligence (EI) refers to an individual's capacity to effectively manage and regulate their emotions, enabling them to recognize and understand the potentially beneficial influence their emotions can have on others. The present study was conducted based on the assumption that emotional intelligence plays an important part in determining the effectiveness of administrative leaders within an organizational context. This is because leadership serves as the important driving force within an organization, guiding employees in their tasks and ensuring the overall success and prosperity of the organization. The main objective of the study was to find out the relationship between emotional intelligence and leadership effectiveness. 50 questionnaires were distributed to all administrative leaders who have a minimum of five years of working experience in any position, and a total of 50 questionnaires were returned. Hence, the data collected was analyzed using Statistical Package for Social Science (SPSS). The result indicated that there is a significant correlation between emotional intelligence and leadership effectiveness among administrative leaders, and strongly supports the previous research finding. It is anticipated that leaders are going to demonstrate an impressive level of emotional intelligence to effectively guide and influence people. Consequently, emotional intelligence empowers leaders to exert a positive influence on the work environment within which they function, since it enhances their self-awareness and their ability to perceive and understand the emotions of others.

Keywords: *Emotional intelligence, Emotional quotient, Leadership, Leadership effectiveness.*

1. Introduction

In today's world, emotional intelligence is necessary for individuals to have in their day-to-day lives to be able to handle difficult situations or conditions effectively. The topic of performance and leadership within the Malaysian public sector has garnered more attention (Ramadass et al., 2017). The political transition and the global COVID-19 pandemic have necessitated a need for effective leadership within Malaysia's public services. This is crucial to deal with the various obstacles and fulfill the public's expectations for service delivery in the realms of politics, economics, and health. Public sector managers will experience significant challenges in managing frequent policy and management changes (Rahman, 2021). Therefore, public service organizations must possess strong leadership characterized by strong principles and high emotional intelligence to effectively manage both personnel and stakeholders.

Based on the findings of the Public Complaints Bureau in 2019, there has been an important rise in the number of complaints lodged by the general public. Specifically, the Malaysian public service received a total of 8,992 complaints in 2019, representing a significant increase when compared to the 6,387 complaints recorded in the preceding year of 2018. The aforementioned grievances highlighted the lack of efficiency and efficacy within the public delivery system. Malaysia continues to have challenges in establishing an effective delivery system, which can be attributed to various factors including unethical practices such as corruption (Rahman, 2021). Government personnel need to enhance their accountability and efficacy in the administration of their delivery system.

The importance and indispensability of leadership in the public sector have been emphasized (Mau, 2019) due to the dynamic nature of societal changes and reforms. In this context, government employees must remain aware and well-informed regarding contemporary challenges. The management of the ongoing crisis and global pandemic of COVID-19 has posed challenges for leaders, as they are required to concurrently control the emotions of others as well as their own (Rahman, 2021). To effectively navigate crises and regulate both personal and collective emotions, both public and commercial entities need to have leaders who possess an exceptionally high level of emotional intelligence.

Leadership effectiveness was widely studied in management whereby the productive leader can lead to organizational success. Lacerda (2015) stated that leaders who are goal-oriented, self-confident, good interpersonal communicators and demonstrate certain behaviors are more likely to be effective and to have a better impact on organizational effectiveness. Emotional intelligence will help the leaders in managing stress and emotions to overcome the problems that require effective solutions and face the challenges in today's situation. According to Salim and Nasir (2010) when a person is facing any condition or situation, emotional intelligence would be perceived based on the ability or capability that is shown and owned by the person. Kerr, Garvin, Heaton and Boyle (2005) claimed that leadership is an emotional process where leaders identify follower's emotional areas, try to increase emotion in followers and finally attempt to manage the emotions of followers appropriately. Furthermore, emotional skills are also strongly related to dynamic leadership; fulfilling personal life experience, and success in the work field (Abraham, 2006). Therefore, to be a great leader, emotions must be handled wisely.

The function of effective leadership is crucial in assessing leaders' skills to respond to their subordinates and navigate challenges within the work environment. According to Ghani et al. (2016), leaders who possess an understanding of the personalities and emotions of others can effectively use this knowledge to enhance the motivation of their subordinates and successfully achieve the desired outcomes within the organizational context. In the context of management, it is essential to consider emotional intelligence, as it plays a crucial role in enhancing employees' interpersonal skills, and promoting effective teamwork when confronted with complex and dynamic circumstances (Rahman, 2021).

2. Literature Review

Emotional Intelligence: The impact of leadership on organizational change and performance has been the subject of extensive research, and research studies have focused on the connection between leadership and organizational success (Kotter, 1990). One variable that has recently gained much popularity as a potential underlying attribute of work performance is the construct of Emotional Intelligence (Rohana Ngah et al. (2009). Emotion is critical in motivating, persuading, communicating, leading, and controlling individuals and groups (Rohana Ngah et al., 2009). Emotional intelligence is described as a set of abilities that refer in part to how effectively one deals with emotions both within oneself and others (Salovey & Mayer, 1990). It has been proposed that in leadership, dealing effectively with emotions may contribute to how one handles the needs of individuals, and how one effectively motivates employees and makes them "feel" at work (Goleman, 1998b).

The term "emotional intelligence" refers to both the mind and the heart, both of which lead into the sphere of emotions and intelligence by taking emotions as sources of information that assist individuals in making sense of their social surroundings and indicate what those surroundings are (Salovey & Grewal, 2013). Meanwhile, Salovey and Mayer (1990) define emotional intelligence as the ability to identify emotions, manage them, and use them to guide decision-making. Other than that, emotional intelligence is defined as the ability to manage and use emotions to guide decision-making. According to Dulewicz and Higgs (2000), the literature in this field contains a range of terminologies which includes the terms emotional intelligence such as emotional literacy, emotional quotient, personal intelligence, social intelligence, and interpersonal intelligence. However, the most used terminology is emotional intelligence (EI).

Emotional intelligence also refers to the capability to identify emotions in ourselves and to be concerned about what is perceived by our surroundings and the group of people who communicate with us. In addition, emotional intelligence is very useful as emotional knowledge when dealing with the condition, and building plans or decisions based on the emotion they feel (Khokhar & Kush, 2009). This enables leaders to understand the needs of others and develop strategies to meet those needs to influence their behavior. This is crucial since leadership is about persuading others to understand and agree on what needs to be done and how it should be done, as well as facilitating efforts to achieve goals (Chepng'eno & Ngui, 2017).

Besides that, emotional intelligence assists individuals in building stronger relationships, succeeding in academics and achieving career and personal goals. In an organization, leaders set the nature of their organization. They must not only focus on the task at hand, but also build a relationship with their

subordinates so that, although holding a position of authority, they are still seen as kind, understanding, and thoughtful. If they lack emotional intelligence, it could have more far-reaching consequences, resulting in lower employee commitment and a high turnover rate.

The History of Emotional Intelligence: The most widely accepted models of emotional intelligence have been influenced by several famous scientists and researchers. Emotional intelligence is from the concept of social intelligence which was first identified by Thorndike in 1920. Thorndike (1920) defined social intelligence as the ability to understand and manage men and women, boys and girls and to act wisely in human relations. Gardner (1983) incorporated intrapersonal intelligence and interpersonal intelligence into his multiple intelligence hypotheses, and both were linked to emotions. The ability to cope with oneself and symbolize complicated and highly distinct sets of feelings is referred to as intrapersonal intelligence. Interpersonal intelligence, on the other hand, is associated with the capacity to deal with others and distinguish between individuals.

Although social intelligence, intrapersonal intelligence and interpersonal intelligence are not named as emotional intelligence, they belong to the scope of emotional intelligence. Salovey and Mayer (1990) are given credit for introducing the term "emotional intelligence" in the early 1990s. Salovey and Mayer (1990) first used the name "emotional intelligence" to describe the ability of people to deal with emotions. They defined the subset of social intelligence that involves the ability to monitor one's own and other's feelings and emotions, to discriminate among them as to guide one's thinking and actions.

Goleman (1995) was credited with the initial study of emotional intelligence that was conducted by Edward Thorndike. The term had not yet been coined, but Thorndike researched dimensions of emotional intelligence as a form of "social intelligence". Goleman (1995) published two very successful books in which he described emotional intelligence and how emotional intelligence was used in the workplace. Later, Mayer and Salovey (1997) modified the definition of emotional intelligence and they proposed that emotional intelligence involves the ability to perceive accurately, appraise and express emotion; the ability to generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. Based on this definition, they further suggested that emotional intelligence can be divided into four branches, which include perceiving emotions, using emotions to facilitate thought, understanding emotions, and managing emotions.

Leadership Effectiveness: The concept of leadership effectiveness encompasses a broad spectrum of factors, including the traits and abilities possessed by leaders, as well as their behavior, the processes they employ, and the environment in which they work (Barrow, 1977). According to Northouse (2016), leadership effectiveness can be defined as the evaluation of leaders based on their ability to successfully attain goals and objectives within the specific context of leadership. Leadership effectiveness is a concept that is related to the level of success a leader achieves in influencing subordinates toward the attainment of shared objectives. This effectiveness depends upon the leader's attributes as well as the situational factors (Rahman, 2021).

Argue that the effectiveness of leaders is based upon their ability to engage in complicated decision-making processes, which involve comprehending the needs and capacities of their subordinates. This understanding enables leaders to provide suitable direction and encouragement. According to Rahman (2021), effective leaders should possess the ability to identify and respond to the complexities of the social context. Additionally, they should possess various social performance skills, such as communication, persuasion, negotiation, and coaching.

According to Kim (2018), having leaders with an adequate level of emotional intelligence is crucial for achieving success in organizations. To be effective, leaders must demonstrate empathy towards their employees, and show an understanding of their emotional experiences inside the workplace. Additionally, leaders should offer help when challenges arise while maintaining emotional self-regulation. Furthermore, leaders must possess a comprehensive understanding of the socio-political dynamics that exist within the organization. Moreover, proficient leaders can impact organizational performance by establishing a specific work environment that aligns with the requirements of a certain profession, employing dimensions of emotional and social intelligence.

Subsequently, leadership is the ability to inspire trust and support every person who needs to achieve organizational objectives (Dubrin, 2010). According to Goleman, Boyatzis and McKee (2002), leadership is the quality of effective leaders being attuned to other people's feelings and moving them in a positive emotional direction. In addition, leadership is more about a leader's values, direction, and priorities and resonates with the emotions of surrounding people. Leaders will achieve success only when they learn how to deal with people. Under the control and responsibility of an effective leader, people will come to experience a mutual understanding between them and the leader and resonance comes naturally to people with emotional intelligence.

The Importance of Emotional Intelligence among Leaders: Emotional intelligence is important for employees who call themselves leaders in their organization. However, the function of emotional intelligence in leadership among leaders in selected public sectors is blurred, owing in part to a lack of consideration for emotional elements in decision-making when the focus is on tasks and fulfilling targets. William (2007) stated that a business leader always misunderstands the roles of emotional intelligence to lead an organization successfully. If the leaders do not acquire emotional intelligence skills, they will face many problems in the organization.

A leader who possesses a high level of emotional intelligence is capable of effectively perceiving, assessing, understanding, and managing the emotions of subordinates to achieve the desired objectives for the organization (Rahman, 2021). In addition, a leader who effectively uses leadership abilities to manage emotions and respond to changes demonstrates a well-developed emotional intelligence (Jiménez, 2018). Therefore, leaders who possess the ability to effectively position themselves both emotionally and mentally have the potential to motivate people to adjust to the progressively challenging and demanding work environment.

One aspect of effective leadership involves the dynamic exchange between leaders and various entities, such as subordinates and stakeholders. Moreover, within the realm of public service, a leader carries the responsibility of managing their subordinates, top-level management, and stakeholders, all while maneuvering the pressures of meeting several deadlines. Greater emphasis should be placed on the preparation and execution of governmental policy, rather than engaging in office politics and excessively supervising individual subordinates.

According to Wong and Law (2002), emotional awareness plays a crucial role in determining the quality of social interactions. It means that a leader with a high level of emotional intelligence possesses the ability to effectively manage and oversee organizational changes, all the while demonstrating attentiveness towards the behavior and reactions of their subordinates. Thus, organizations can improve their effectiveness as well as a competitive advantage, and can eventually be more successful in the future.

Emotional Intelligence and Leadership Effectiveness among Leaders in Organisations: The ability-based model of emotional intelligence encompasses the processes of recognizing, evaluating, and communicating one's own and other's emotions, and utilizing this information to inform one's cognitive processes and behaviors. According to Mayer and Salovey (1997), it is stated that emotional intelligence is associated with the ability to make reasoned decisions. The process of social interaction plays a vital role in the realm of leadership since it directly impacts an organization's performance by the leader's capacity to exert influence over the behavior of subordinates (Yukl, 2012). The relationship between emotional intelligence and leadership effectiveness has been reviewed in a few of the studies (George, 2000). Existing studies provide information on the components of emotional intelligence that affect the process of improving leadership effectiveness.

According to Edelman and van Knippenberg (2018), the emotional state of subordinates is considered an important aspect of leadership problems, and the expression of emotions by leaders has a critical role in influencing their subordinates. The body of literature examining the relationships between emotional intelligence and effective leadership has been experiencing consistent growth. The existing body of leadership literature has established a connection between emotional intelligence and positive outcomes.

Specifically, emotional intelligence has been associated with transformative leadership (Baba et al., 2019; Görgens-Ekermans & Roux, 2021; Rahman, 2021) as well as servant leadership (Lee, 2019).

Several studies have demonstrated a strong correlation between emotional intelligence and leadership effectiveness (Dabke, 2016; Edelman & van Knippenberg, 2018; Kotzé & Venter, 2011). Contrary to this perspective, Weinberger (2009) conducted a study on private manufacturing organizations and discovered that there is no significant relationship between a manager's emotional intelligence and their leadership style. A study conducted by Chatterjee and Kulakli (2015) discovered that an analysis of data collected from public sector banks revealed no significant correlation between the construct of ability emotional intelligence and individuals' perception of leadership style.

The effectiveness and efficiency of the delivery system play a crucial role in determining the competitive advantage of the public sector (Ahmad & Saad, 2019). Organizations, including government ministries and agencies, exhibit dynamism and possess distinctive working cultures that have gone through several reforms and transformations. The need for strong leadership and a high-performing workforce becomes more apparent in the face of rapid changes. According to Kotzé and Venter (2011), it is insufficient for leaders to merely possess functional skills to be effective. Instead, leaders must also possess social and emotional competencies, enabling them to effectively manage and adapt their behavior, as well as that of others, in response to situational dynamics. In light of the various criticisms, public officials need to uphold their professionalism and integrity while fulfilling their duties to the government and the public. According to Abdullah et al. (2018), the enhancement of good governance and the establishment of stronger public partnerships have the potential to improve the effectiveness of public service and reduce cases of corruption.

Objectives of the Study

The study was designed to achieve the following objectives:

- To identify the level of five components of emotional intelligence among administrative leaders in selected Malaysian public sectors.
- To identify the level of leadership effectiveness among administrative leaders in selected Malaysian public sectors.
- To examine the relationship between emotional intelligence and leadership effectiveness among administrative leaders in selected Malaysian public sectors.

3. Methodology

This study utilized a survey research design using quantitative methods. Survey questionnaires were used as a research instrument to collect data from the respondents composed of administrative leaders in selected Malaysian public sectors. There were 60 questions (including demographic items) in this questionnaire. A 55-item survey was designed to obtain information about the emotional intelligence and leadership effectiveness of administrative leaders in selected Malaysian public sectors. Meanwhile, the 5-item question was designed to obtain information about the demographics (gender, age, level of education, length of service and department) of the sample. Respondents were asked to provide demographic information as well as their professional information.

To assess the emotional intelligence of the administrative leaders, the Bar-On Emotional Quotient Inventory (EQ-i), developed by Dr. Reuven Bar-On was used. Five components (intrapersonal, interpersonal, adaptability, stress management, and general mood) of emotional intelligence were used in assessing the level of emotional intelligence among administrative leaders. According to Dulewicz and Higgs (2000), in 1998, Reuven Bar-On developed his concept of emotional intelligence in the context of personality, health and well-being. He coined the term “EQ” (Emotional Quotient) to describe his approach to assessing emotional and social competence. He explained emotional intelligence by saying that it reflects our ability to deal successfully with other people and with our feelings. He developed the Bar-On Emotional Intelligence Inventory (EQ-i) after 17 years of research, and this inventory is the first scientifically developed and validated measure of emotional intelligence that reflects one’s ability to deal with daily environmental challenges.

In addition, leadership effectiveness was measured using the Leadership Practices Inventory (LPI) developed by Barry Z. Posner and James M. Kouzes. A total of 50 questionnaires were self-administered to all administrative leaders and one week was given to return the completed questionnaire. The main advantage of this procedure was the respondents could complete the questionnaire whenever they were free without much interference with the performance of their daily duties. It also has the advantage of guaranteeing confidentiality or anonymity (Leary, 2001). Therefore, respondents could express their answers freely, thus permitting more truthful responses than would be obtained by other means. 50 questionnaires were distributed and 50 were returned. The survey return rate was 100%.

4. Results and Discussion

Sample Description: The data of the completed questionnaire were analyzed using SPSS version 26. Respondents of this study consisted of administrative leaders from selected Malaysian public sectors. The study included 24 (48%) male respondents and 26 (52%) female respondents. Therefore, the female was considered as the majority respondent in this study. The most frequently reported age was 20-29 years old with 40% of the respondents and most of the respondents had served in their organisation less than 10 years with 78%. The respondents who hold a Sijil Pelajaran Malaysia (SPM) with 52% were frequently reported in this study and the administration department with 40% contributed the highest number of respondents for this study.

Emotional Intelligence and Leadership Effectiveness Description: Descriptive statistics were used to analyze the data by calculating the mean scores and standard deviations of Emotional Intelligence and Leadership Effectiveness. The level of each five components of emotional intelligence which include intrapersonal, interpersonal, adaptability, stress management and general mood were measured in the form of average scores based on Best's principles (Thaoprom, 2004). Meanwhile, the level of each five components of leadership effectiveness which include encouraging the heart, enabling others to act, inspiring a shared vision, modeling the way and challenging the process were also measured using the same approach. To measure the level of emotional intelligence and leadership effectiveness, the items that fall into specific variables were summed up to form a composite score. The composite score was used to compute the average or mean score for variables by dividing the composite score by the number of items. Subsequently, the resulting average scores of all the respondents were divided by three ranges of scores such as high, medium, and low (5-1 / 3 = 1.33). Three categories and their range values are range in Table 1.

Table 1: Arbitrary Level

Level	Value		
Low	1.00	-	2.33
Medium	2.34	-	3.67
High	3.68	-	5.00

Level of Agreement of the Five Components of Emotional Intelligence: As depicted in Table 2, it revealed that the administrative leaders were in the highest level of agreement in *general mood* and *interpersonal*, while *intrapersonal, adaptability* and *stress management* were reported to be in the moderate level of agreement of emotional intelligence components. The mean scores in Table 1 show that the highest level of agreement was *general mood* (M = 3.90, SD = 0.49) followed by i*nterpersonal* (M = 3.81, SD = 0.58). The lowest mean was *intrapersonal* (M = 3.44, SD = 0.52).

Table 2: Mean Scores and Standard Deviations of the Five Components of Emotional Intelligence

Variables	M	SD
Intrapersonal	3.44	0.52
Interpersonal	3.81	0.58
Adaptability	3.62	0.49
Stress Management	3.54	0.48
General Mood	3.90	0.49

Level of Agreement of the Components of Leadership Effectiveness: As depicted in Table 3, the mean scores show that the highest level of agreement encouraged *the heart* (M = 3.67, SD = 0.49) followed by *enabling others to act* (M = 3.65, SD = 0.57). The lowest mean was challenged *by the process* (M = 3.55, SD = 0.47). This indicated that administrative leaders from Malaysian public sectors were in a moderate level of agreement on leadership effectiveness components.

Table 3: Mean Scores and Standard Deviations of the Five Components of Leadership Effectiveness

Variables	M	SD
Model the Way	3.58	0.58
Enable Others to Act	3.65	0.57
Encourage the Heart	3.67	0.49
Inspire a Shared Vision	3.61	0.40
Challenge the Process	3.55	0.47

Correlation between Variables: This section discussed the findings on the correlation between each component of emotional intelligence and leadership effectiveness. Table 4 shows the interpretation of the correlation coefficients according to Pallant (2009).

Table 4: Designation of Strength of Association Based on Size of Correlation Coefficients

Strength of Association	Negative	Positive
Weak	-0.29 till -0.10	0.10 till 0.29
Moderate	-0.49 till -0.30	0.30 till 0.49
Strong	-1.00 till -0.50	0.50 till 1.00

Correlation between Each Component of Emotional Intelligence and Leadership Effectiveness: Pearson-Moment correlation was used to determine the relationship among variables in this study. Results displayed in Table 4 show that the correlation between all the components of emotional intelligence and leadership effectiveness was significant ($p< 0.01$), moderate to strong and positive relationship. The data in Table 5 shows that the leadership effectiveness was significant, and positive and has a moderate correlation with *intrapersonal* ($r = .485$; $p< 0.01$) and *stress management* ($r = .413$; $p< 0.01$). Meanwhile, leadership effectiveness had a strong correlation with *interpersonal* ($r = .608$; $p< 0.01$); *adaptability* ($r = .546$; $p< 0.01$) and *general mood* ($r = .637$; $p< 0.01$). In addition, leadership effectiveness has a strong correlation with overall emotional intelligence ($r = .685$; $p< 0.01$).

This explains that to a moderate extent, an improvement in intrapersonal and stress management to a strong extent and an increase in interpersonal, adaptability and general mood are associated with an improvement in leadership effectiveness. In summary, interpersonal, adaptability and general mood are the strongest associations with leadership effectiveness while intrapersonal and stress management are the moderate associations.

Table 5: Correlation Coefficients between the Components of Emotional Intelligence and Leadership Effectiveness

Components of Emotional Intelligence	Pearson Correlation Coefficient (*r*)
Intrapersonal	.485**
Interpersonal	.608**
Adaptability	.546**
Stress Management	.413**
General Mood	.637**
Overall Emotional Intelligence	.685**

** Significant at 0.01

Discussion: The finding of this study shows that the respondents' perceptions were mostly in the range of 3.68 – 5.00. The interpretation of emotional intelligence stated that high scores indicate administrative leaders have developed emotional intelligence capacity and improvement (Bar-On, 2004). Compared with

other studies, the emotional intelligence of sponsored research administration scores mostly ranges from 90 – 109. Bar-On (2004) explained that scores that ranged from 90 – 109 are average-adequate emotional capacity. Therefore, the total emotional intelligence score was (M=3.66, SD=0.40889) while another study, by Jones (2012) shows the total emotional intelligence mean score was 103.47 with a standard deviation of 14.97.

From the analysis of the scores of five components (intrapersonal, interpersonal, adaptability, stress management, and general mood) of emotional intelligence in this study, it was determined that *general mood* (M=3.90, SD=0.49855) and *interpersonal* (M=3.81, SD=0.58688) yielded the two highest mean scores of five components. However, Jones (2012) reported that *intrapersonal* (M=105.73, SD=13.595) and *adaptability* (M=103.83, SD=14.643) are the two highest mean scores of the five composite scales. Furthermore, the score decreased on *adaptability* (M=3.62, SD=0.49461) and *stress management* (M=3.54, SD=0.48529), with the *intrapersonal* showing the lowest mean score (M=3.44, SD=0.52728). Otherwise, the score decreased on the *general mood* (M=102.34, SD=12.574) and *stress management* (M=102.13, SD=13.930) and the lowest mean was *interpersonal* (M=99.17, SD=17.009) (Jones, 2012).

Subsequently, the finding of this study revealed that the total for all components of the leadership effectiveness for this study was 3.61. Analysis revealed, in ranking order from highest to lowest, *encourage the heart* had the highest score mean component score (M=3.67, SD=0.49368). According to Kouzes and Posner (2012), *the heart* is concerned with recognizing contributions by showing appreciation for individual excellence; and celebrating the values and victories by creating a spirit of community.

The second highest was *enabling others to act* (M=3.65, SD=0.57661). Enabling *others to act* means fostering collaboration by building trust and facilitating relationships; strengthening others by increasing self-determination and developing competence (Kouzes & Posner, 2012). After that, followed by *Inspire a Shared Vision* (M=3.61, SD=0.40187), *model the Way* (M=3.58, SD=0.58732), and the lowest score was *Challenge the Process* (M=3.55, SD=0.47790). Compared with other studies, the analysis revealed, in the ranking order from highest to lowest, that the five practices that *enable others to act* had the highest mean component score, followed by *encouraging the heart, model the way, challenge the process,* and the lowest score, *inspire a shared vision* (Jones, 2012).

The finding reported by the Pearson Product-Moment Correlation Coefficient there is a positive correlation between the five components of emotional intelligence and leadership effectiveness. The results can be seen through Pearson's Correlation between the scores of emotional intelligence components (intrapersonal, interpersonal, adaptability, stress management, general mood) and overall emotional intelligence. Therefore, leadership effectiveness and overall components of emotional intelligence score are r=0.685.

Based on this result, it revealed a relationship exists between emotional intelligence and leadership effectiveness because according to Cohen (1988) as cited from Pallant (2009) the range of strong relationships is between 0.50 and 1.00. Similar results have been shown in previous studies where the null hypothesis stated there is no significant statistical relationship existed between emotional intelligence and leadership effectiveness among administrative leaders was rejected because regression analysis data indicated that the total of five components of emotional intelligence are significantly correlated with leadership effectiveness and emotional intelligence is positively related to leadership effectiveness (Jones, 2012).

This study has proven that there is a relationship between emotional intelligence and leadership effectiveness. The results of this study are consistent with the research conducted by Baesu (2019) and Ismail et al. (2020), which suggests that the emotional intelligence demonstrated by leaders has the potential to enhance employee productivity. Edelman and van Knippenberg (2018) revealed that there is a relationship between emotional intelligence and leadership effectiveness. Thus, leaders who possess emotional intelligence are capable of recognizing, comprehending, and effectively addressing emotions. Hence, it is rational to anticipate that they will demonstrate a higher tendency towards effectively controlling their subordinates. Similarly, those in positions of leadership who possess elevated levels of emotional intelligence

exhibit distinct cognitive processes in seeing and comprehending inputs in an organization, leading to the manifestation of diverse behavioral patterns compared to those with lower emotional intelligence.

5. Conclusion

In this study, researchers used Kouzes and Posner (2003) Leadership Practices Inventory (LPI) as a dependent variable comprising the five practices of leadership. Meanwhile, the independent variable used in this study was collected using the Bar-On (1997) Bar-On Emotional Quotient Inventory (EQ-i). The EQ-i included overall five components of emotional intelligence and their subscale scores. The first phase of the data analysis examined demographic background. The second phase, examined five components of emotional intelligence and leadership effectiveness using Pearson's Product-Moment Correlation Coefficient.

The research questions presented at the start of this study as whether there is any relationship between emotional intelligence and leadership effectiveness. Pearson's Product-Moment Correlation Coefficient supports the reason that there is a strong relationship between overall components of emotional intelligence and leadership effectiveness among administrative leaders in selected Malaysian public sectors. Emotional intelligence is essential to ensure that administrative leaders can lead effectively. Therefore, the five components of emotional intelligence play an important role in improving the level of emotional intelligence and indirectly affect the ways administrative leaders lead others.

This study revealed that the relationship between emotional intelligence and leadership effectiveness is significant to the employees whereby the researchers specifically focus on the administrative leaders in the selected Malaysian public sectors to improve their leadership effectiveness. On the other hand, this study is important to the administrative leaders in an organization because the level of their emotions can influence the way they lead their subordinates and contribute to the success of their organization. Furthermore, the current work environment in most of the public sectors emphasizes the importance of leaders who are aware of their employees' sentiments and emotions and who can successfully manage these emotions to reduce their negative influence.

The concept of emotional intelligence has been widely recognized as a significant determinant in improving an individual's performance, effectiveness, mental health, and psychological well-being (Jani et al., 2022). According to Hwang (2011), the acquisition and application of emotional intelligence can facilitate the transformation of adolescents into accomplished and intellectually astute individuals. This transformation is characterized by the development of skills such as emotional regulation, self-motivation, accountability, problem-solving abilities, self-assurance, and autonomy (Ismail et al., 2020).

A limitation of self-report measures is the potential lack of honesty shown by individuals when reporting their feelings and preferences (O'Connor et al., 2019). Nevertheless, this phenomenon occurs exclusively in situations when there is a designated score assigned to accurate responses. Fortunately, within the framework of the ability model measurement, there is no specific target to achieve, so minimizing the tendency to hide any emotional states. Hence, future research endeavors may involve incorporating more variables that accurately capture the impact of leader effectiveness. The study's scope has the potential for expansion to encompass additional specific categories of corporations or organizations.

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References

Abdullah, W. M. T. W., Ahmad, N. N. & Ariff, A. M. (2018). Combating corruption for sustainable public services in Malaysia : Smart governance matrix and corruption risk assessment. *Journal of Sustainability Science and Management*, 4, 1–14.

Abraham, A. (2006). The need for the integration of emotional intelligence skills in business education. *The Business Renaissance Quarterly*, 1(3), 65-80.

Ahmad, R. & Saad, M. (2019). The impact of the Malaysian public sector on the relationship between transformational leadership styles and career development. *International Journal of Public Administration,* 43(3), 203–212.

Baba, M. M., Makhdoomi, U. M. & Siddiqi, M. A. (2019). Emotional intelligence and transformational leadership among academic leaders in institutions of higher learning. Global Business Review.

Baesu, C. (2019). Leadership based on emotional intelligence in modern organizations. *The USV annals of economics and public administration*, 18(2 (28)), 73-78.

Barrow, J. C. (1977). The variables of leadership: A review and conceptual framework. *Academy of Management Review*, 2(2), 231–251.

Bar-On, R. (2004). Bar-On Emotional Question Inventory: Technical Manual. New York, NY: Multi-Health Systems.

Chepng'eno, S. M. & Ngui, T. (2017). Relationship between emotional intelligence and leadership styles: A case study of leaders in selected banking institutions in Kenya. International Journal of Research, 1.

Dabke, D. (2016). Impact of leader's emotional intelligence and transformational behavior on perceived leadership effectiveness: A multiple source view. *Business Perspectives and Research*, 4(1), 27–40.

Dulewicz, V. & Higgs, M. (2000). Emotional intelligence: A review and evaluation study. *Journal of Managerial Psychology,* 15(4), 341-372.

Dubrin, A. J. (2010). Leadership: Research findings, practice, and skills (6th ed.). Boston: South-Western Cengage Learning.

Edelman, P. & van Knippenberg, D. (2018). Emotional intelligence, management of subordinate's emotions, and leadership effectiveness. Leadership and Organization Development Journal.

Gardner, H. (1983). Frames of Mind – The Theory of Multiple Intelligences, Heinemann, London.

George, J. M. (2000). Emotion and leadership: The role of emotional intelligence. *Human Relations,* 53(8), 1027-1055.

Görgens-Ekermans, G. & Roux, C. (2021). Revisiting the emotional intelligence and transformational leadership debate: (How) does emotional intelligence matter to effective leadership? *SA Journal of Human Resource Management*, 19, 1–13.

Ghani, N. M. A., Yunus, N. S. N. M. & Bahry, N. S. (2016). Leader's personality traits and employees' job performance in public sector, Putrajaya. *Procedia Economics and Finance*, 37(16), 46–51.

Goleman, D. (2006). Emotional intelligence (10th ed.). New York: Bantam Book.

Goleman, D. (1998b). What makes a leader? *Harvard Business Review*, 77, 93-102.

Goleman, D. (1995). Emotional intelligence. New York: Bantam Books.

Ismail, F., Rosli, N. A. M. & Kadir, A. A. (2020). The Relationship Between Emotional Intelligence and Leadership Effectiveness Among Coaches at The XYZ Training Center. *Journal of Social Transformation and Regional Development*, 2(3), 142-149.

Janasz, S. D., Wood, G., Gottschalk, L., Down, K. & Schneider, B. et al. (2006). Interpersonal Skills in Organizations. North Ryde: McGraw-Hill Australia Pty Limited.

Jani, S. H. M., Tan, S. H. M. S., Othman, N. H., Salleh, N. I. S. M., Azri, P. A. Z. M. & Hissam, N. A. A. B. (2022). Literature review of emotional intelligence and psychological well-being. *International Journal of Accounting*, 7(42).

Jiménez, M. (2018). Leadership style, organizational performance, and change through the lens of emotional intelligence. *Foundations of Management*, 0(0), 237–250.

Jones, V. D. (2012). The relationship between emotional intelligence and leadership effectiveness among sponsored research administration. Retrieved March 3, 2014, from Proquest Dissertation & Theses database.

Kerr, R., Gavin, J., Heaton, N. & Boyle, E. (2005). Emotional intelligence and leadership effectiveness. *Leadership & Organization Development Journal*, 27(4), 265-279.

Khokhar, C. P. & Kush, T. (2009). Emotional intelligence and work performance among executives. Europe's Journal of Psychology.

Kim, J. I. (2018). The effects of emotional intelligence, self-leadership, psychological well-being to academic achievement of nursing college student. *Journal of the Korea Academia-Industrial Cooperation Society*, 19(12), 574-583.

Kotzé, M. & Venter, I. (2011). Differences in emotional intelligence between effective and ineffective leaders in the public sector: An empirical study. *International Review of Administrative Sciences,* 77(2), 397–427.

Kotter, J. P. (1990). A Force for Change – How Leadership Differs from Management, The Free Press, New York, NY.

Kouzes, J. & Posner, B. (2012). Leadership Practices Inventory (LPI): Individual feedback report. http://www.debonogroup.com/images/LPI4eSampleIndividualReport.pdf.

Lacerda, T. C. D. (2015). Understanding leadership effectiveness in organizational settings: An integrative approach. https://www.researchgate.net/publication/279931599.

Leary, M. R. (2001). Introduction to behavioral research methods. Needham Heights: Allyn & Bacon.

Lee, Y. H. (2019). Emotional intelligence, servant leadership, and development goal orientation in athletic directors. *Sport Management Review*, 22(3), 395–406.

Mayer, J. D. & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), Emotional development and emotional intelligence: Educational implications. New York: Basic Books.

Northouse, P. G. (2016). Leadership theory and practice seventh edition. *In SAGE,* 7, 1–6.

O'Connor, P. J., Hill, A., Kaya, M. & Martin, B. (2019). The measurement of emotional intelligence: A critical review of the literature and recommendations for researchers and practitioners. Frontiers in Psychology, 10(MAY).

Pallant, J. (2009). SPSS Survival Manual: A step-by-step guide to data analysis using SPSS for Windows. Journey in Survey Research.

Rahman, S. (2021). Emotional intelligence and leader effectiveness: A conceptual paper. *International Journal of Innovation and Business Strategy (IJIBS)*, 15(2).

Ramadass, S. D., Sambasivan, M. & Xavier, J. A. (2017). Critical factors in public sector collaboration in Malaysia: Leadership, interdependence, and community. *International Journal of Public Sector Management*, 30(5).

Rohana Ngah, Kamaruzaman Jusof & Zanariah Abdul Rahman, (2009). Emotional intelligence of Malaysian academia towards work performance. *International Journal of Education Studies*, 2(2).

Salim, S. S. & Nasir, R. (2010). Kesan kecerdasan emosi ke atas tekanan kerja dan niat berhenti kerja profession perguruan. *Jurnal Bangi, Jilid*, 5(1), 53-68.

Salovey, P. & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9, 185-211.

Salovey, P. & Grewal, D. D. (2013). The science of emotional intelligence. American Scientist, 93, 330-339.

Thorndike, E. L. (1920). Intelligence and its uses. *Harper's Magazine*, 140, 227-235.

Weinberger, L. A. (2009). Emotional intelligence, leadership style, and perceived leadership effectiveness. *Advances in Developing Human Resources,* 11(6), 747–772.

Wong, C. S. & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. In Leadership Perspectives, 13.

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Application of Technology Usage and Perception of Performance of Cash Waqf in Theory of Planned Behaviour: Analysing Intention to Contribute Cash Waqf Among Muslims in Malaysia

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Abstract: Cash waqf plays a vital role in the development of the socioeconomic well-being of the Muslim community. As monetary contributions to waqf are more flexible than those of waqf properties, scholars assert that cash waqf contributions are more significant. In Malaysia, cash waqf can be used to lessen poverty, boost social welfare, as well as lessen governmental burden. Various strategies have been put forth to persuade society to make monetary waqf contributions for the ummah's benefit. Using the Theory of Planned Behaviour (TPB), this paper intends to pinpoint the behaviors that affect cash waqf contribution in Malaysia. In line with the advances in technology, it is expected that the adoption of technology for collecting cash waqf would pave the way towards increasing waqf funds. Hence, technology usage is proposed for boosting cash waqf contribution. In addition, perception of the performance of cash waqf is proposed as the moderator variable. This study involves 284 respondents, specifically working Muslims, in identifying the factors influencing cash waqf contribution. Data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) via correlation analysis, which in turn revealed that the TPB and technology usage have a significant and positive relationship in affecting cash waqf contribution. Therefore, it can be concluded that the usage of technology for collecting cash waqf boosts the intention of Muslims to perform waqf via cash contributions. However, perception of cash waqf performance showed no significant effect in this research.

Keywords: *Cash waqf, technology advancement, technology usage, Theory of Planned Behaviour (TPB), perception.*

1. Introduction

It has been reported that the total cash waqf collection in Malaysia is glaringly inconsistent with the nation's overall Muslim population (Mat Doa, 2020). Based on the report of Yayasan Wakaf Malaysia (YWM), each employed Muslim in the country only contributed RM0.28 in cash waqf in 2019 (Mat Doa, 2020). This figure was highlighted as extremely low by Fuadah Johari, the Deputy Director of the Islamic Finance Wealth Management Institution (Johari, 2020). Although the 77th Majlis Fatwa Kebangsaan Muzakarah held in 2007 had gazetted the collection of cash waqf, awareness remains low among Muslims in the country thus resulting in poor cash waqf collection (Jalil et al., 2017; Allah Pitchay et al., 2018; Ab Fatah et al., 2017; Adeyemi et al., 2016). Such a scenario hinders the country's growth considering the significant economic and social role of cash waqf in advancing the socio-economic well-being of Muslims (Ali, 2017).

To overcome this situation, this study proposes a theoretical framework underpinned by the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) for improving the intention of Muslims to contribute cash waqf. Technology usage could be a relevant strategy for evaluating the significance of technology in boosting cash waqf contribution. This paper therefore uses technology usage as an extended variable and examines its correlation with the TPB in affecting the intention of Muslims to contribute cash waqf. Additionally, the moderator variable is denoted by the perception of cash waqf performance.

The low amount of cash waqf funds in Malaysia reflects the poor awareness of Muslims in the country regarding the significance of cash waqf, in line with the assertions of Nasiri et al. (2019) and Ab Fatah et al. (2017). Jalil et al. (2017) suggested the employment of better and more relevant methods for collecting cash waqf to boost the interest of donors. To achieve the objective of increasing cash waqf contributions, it is crucial to first investigate the behavior of cash waqf contributors. For this purpose, researchers normally use the Theory of Planned Behavior (TPB). The TPB is considered the most suitable theory for this current study due to its prominence in social psychology, specifically for investigating certain behavioral actions.

Nevertheless, several scholars including Zabri and Mohammed (2018), Mat Isa (2017), and Anwar et al. (2015) proposed for the TPB model to be expanded to include certain explanatory variables to better identify the determinants of cash waqf contribution and the behavioral intention to do so among Muslims in the country.

As asserted by Hasanah and Pranata (2019), Fauzi, et al. (2019) and Adeyemi et al. (2016), the TPB can potentially be extended by the variable of technology as technological advancement may drive cash waqf contribution. The authors highlighted that the process of cash waqf collection becomes even more efficient and effective with technology usage. This is supported by Sargeant and Woodliffe (2005) who revealed the significance of payment methods in attracting donors to contribute. Unfortunately, very few studies have examined cash waqf payment methods in the context of Malaysia (Jalil et al., 2017). Hence, in-depth studies are needed to examine the significance of technology in driving the behavioral intention of Muslims to donate cash waqf.

Qurrata et al. (2021) added that managerial effectiveness affects the way society perceives cash waqf. Based on their SWOT analysis, the authors underlined social perception towards managerial effectiveness as one of the barriers hindering cash waqf contribution. Thus, the perception of performance is used as a moderator to identify its significance to the research.

To fulfill the issue mentioned, this paper aims to investigate the significance of technology usage and perception on the performance of cash waqf towards cash waqf contribution. There are limited studies found to highlight this issue. Therefore, this research perhaps to encourage Muslims to contribute cash waqf.

2. Literature Review

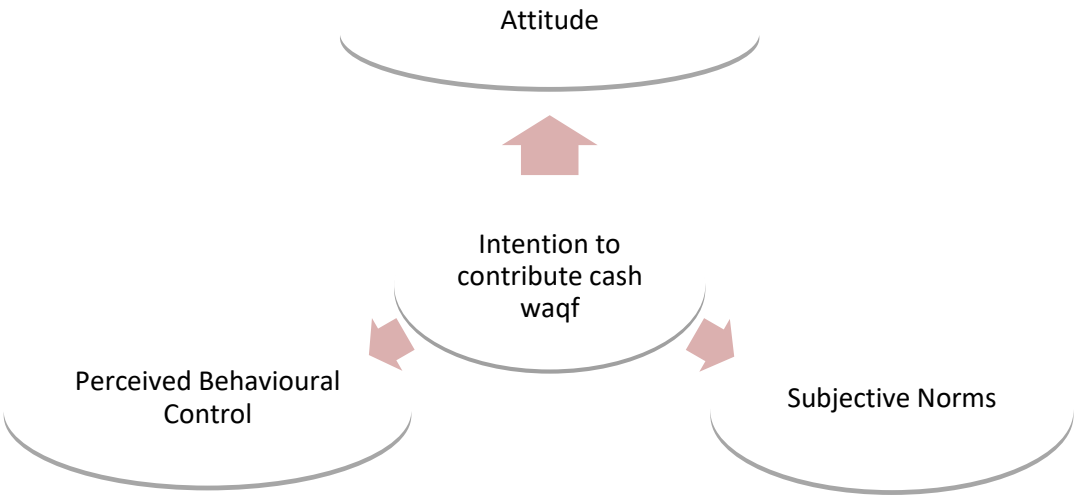
Every action is driven by intention. Linguistically, intention refers to the purpose (qasd) and desire (iradah). Scholars explain intention in two ways. Firstly, it distinguishes the different types of worship. For example, intention (niyyah) distinguishes whether one is performing the dhuhr or asr prayer, or distinguishes whether one is performing an action of worship or habit such as taking a bath to clean oneself from impurities that hinder the performance of acts of worship (e.g., prayers) or taking a shower as a daily routine. Secondly, intention differentiates the intended object of the action; for example, deeds that are performed only for Allah and none other than Him (sunnahonline.com, 2019).

According to the delineation of Fishben and Ajzen (1975), intention refers to the link between probability dimensions and the person's action. Behavioral intention refers to a person's subjective probability, i.e., if he/she will or will not perform a certain behavior. Intention, according to Yusoff et al. (2017), is the motivational determinant influencing a person's behavior. Ajzen (1991) stated that it indicates how people put effort into performing a behavior. An individual is more likely to perform a given behavior when he/she already has high intentions to do so.

Anwar et al. (2015) mentioned that Islam highlights the importance of intention as it leads to the performance of a desired behavior and influences the decision-making of the action. It is mostly significant in voluntary decision making which comes sincerely from one's heart. Umar Ibn Khattab narrated in a hadith the saying of Prophet Muhammad SAW: "Verily actions are by intentions, and for every person is what the intended. So the one whose hijrah was to Allah and His Messenger, then his Hijrah was to Allah and His Messenger. And the one whose hijrah was for the world to gain from it, or a woman to marry her, then his hijrah was to what he made hijrah for" (Sahih Bukhari).

The above hadith highlights that intention drives actions. As asserted by Anwar et al. (2015), the TRA and the TPB are extremely useful as they are commonly used by contemporary researchers for examining the intention of individuals to perform certain actions, and because both acknowledge the important role of intention. Attitude, subjective norms, and perceived behavioral control are used in this research as the independent variables that drive cash waqf intention as shown in Figure 1.

Figure 1: Relationship between TPB and Intention



According to Hasanah and Pranata (2019), there is poor awareness concerning the significance of making endowments. Hence, there is a need for a proper stimulus for the productive development of waqf management as underpinned by financial technology.

Hence, to encourage Muslims to perform cash waqf contributions, one of the best solutions would be technology usage. In the financial sector, technology is a primary channel that paves the way for better efficiency in attaining financial objectives. Additionally, technology improves user convenience and experience (Devadevan, 2013). Several other studies have examined the acceptance of online cash waqf payments (e.g., Mardziyah, 2014; Hanudin et al., 2014; Nasiri et al., 2019; Magda, 2019). Thus, technology usage is used as the extended variable and added to the theory.

Besides that, not many references are available regarding the moderating role of intention to contribute cash waqf. To address this gap, in-depth studies on the aforementioned are needed to confirm the occurrence of moderation. This significantly contributes to filling the methodological gap in this research.

Conceptual Framework: Cash waqf collection in Malaysia is quite unimpressive as the total collection is inconsistent with the nation's overall number of Muslims (Source: Yayasan Waqf Malaysia, 2020). The average cash waqf contribution per working Muslim in 2019 as reported by YWM was only RM 0.28. This is a significantly low figure (Johari, 2020). According to Mat Isa (2017), the 77th Majlis Fatwa Kebangsaan Muzakarah gazetted the collection of cash waqf in 2007. However, the collection and awareness of Muslims remain below satisfactory level (Adewale, 2016; Jalil et al., 2017).

Besides that, cash waqf presents a problem when opportunistic individuals and groups collect cash waqf without permission and for their self-purpose. Such a syndicate was highlighted in Berita Harian (2017).

In Malaysia, the poor amount of cash waqf collection is an indirect indication of poor cash waqf awareness among Muslims in this country. Likewise, Nasiri et al. (2019) highlighted the same phenomenon. As far as the current researcher is aware, there are very few existing studies on the intention to contribute cash waqf, even when it has been suggested as a key behavioral determinant (Osman et al., 2014). A prominent social psychology theory that investigates behavioral action is the Theory of Planned Behaviour (TPB).

The TPB and Extended TPB (ETPB) have been employed by Azizi et al. (2019), Salem Al-Harethi (2019), Zabri and Mohammed (2018), Kashif et al. (2015) and Osman et al. (2014) in their studies for examining cash waqf intention. Hence, the current study's framework is underpinned by the ETPB.

Additionally, Mardziyah et al. (2014) stated that public acceptance of online waqf payments remains low. This notion is supported by Ahmad and Muhamed (2011) and Muhammad et al. (2014) who revealed the role of age in influencing the acceptance of online waqf payments. In short, the acceptance of technology for making waqf contributions varies with age. According to Shukor et al. (2017), the convenience of making cash waqf payments is a crucial driver of cash waqf contribution. This is achievable via wider accessibility to online waqf facilities, reaching the younger and more IT-literate generations. With the obvious target being the youth, there is a need to reach out to the other age brackets to increase the acceptance of online waqf payment methods which are more convenient.

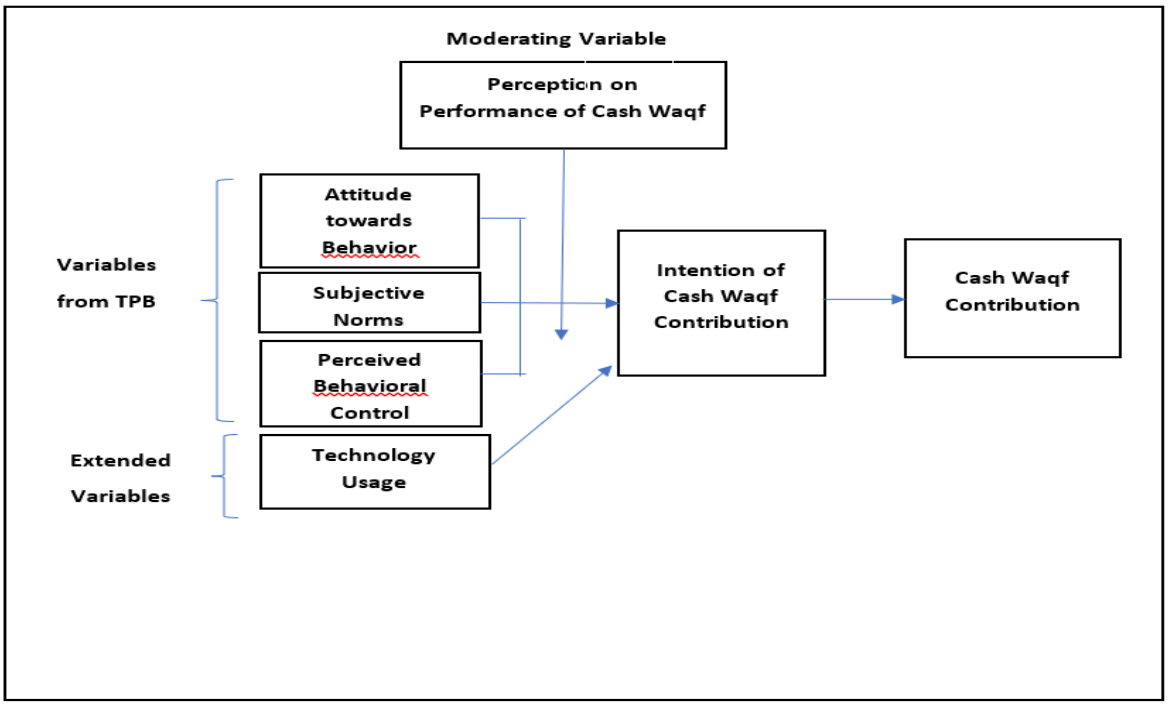
According to Mat Isa (2017), current research efforts in Malaysia are starting to investigate the factors influencing donation-giving using the TPB which has been proven to have high predictive utility. Several studies have even extended the model to include explanatory variables. Table 1 lists the studies that have utilized the TPB and ETPB.

Table 1: Past Studies Using the TPB / ETPB

Author(s)	Extended Variables from TPB
Azizi et al. (2019)	Past Behaviour
Salem Al-Harethi (2019)	Religiosity
Zabri & Mohammed (2018)	Perceived Cost Advantages
Kashif et al. (2015)	Descriptive Norm, Moral Norm,
Osman et al. (2014)	TPB Extended: Trust, Religiosity, Service Control

This current study intends to use the ETPB as the underpinning theory, employing the three TPB variables namely Attitude, Subjective Norm, and Perceived Behavioural Control along with Technology Usage as the extended variable. The purpose of this study is to fill the gap in the literature concerning the behavioral intention to contribute cash waqf, by using technology usage as the extended variable. Besides that, the perception of cash waqf performance is employed as the moderator to identify its significance to the theory. The conceptual framework is illustrated in Figure 2 below.

Figure 2: Conceptual Framework



3. Methodology

This current study is quantitative due to its objective of determining the drivers of the intention to contribute cash waqf using the Theory of Planned Behavior. It entails an examination of social or human issues and is based on theoretical model tests. This study also uses the descriptive method to illustrate the determinants of the intention to contribute cash waqf using data derived from the survey forms.

This study examines attitude, subjective norms, perceived behavioral control, and technology usage in driving cash waqf intention amongst Muslims in Malaysia. The respondents are selected based on certain set criteria, i.e., they must be Muslims who are working in the public or private sector or are self-employed. These are the same criteria employed by Pitchay et al. (2015) in investigating the determinants of the intention of Muslims to perform cash waqf.

A total of 284 survey forms were disseminated to the selected respondents. The answers given by the respondents serve as the findings of this study.

4. Findings

PLS-SEM is used for the data analysis procedure involving all the 284 data derived. The PLS-SEM entails the measurement model and structural model assessments.

Measurement Model Assessment: The measurement model assessment entails reliability and validity evaluations, specifically indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Subsequently, the structural model assessment is conducted upon confirmation of the aforementioned evaluations. The values of the outer loadings, Composite Reliability (CR), Average Variance Extracted (AVE) and convergent validity (HTMT) are measured in the measurement model assessment, whilst the values of R square, path coefficient, Variance Inflation Factor (VIF), confidence interval bias correlated, and Q square are measured in the structural model assessment.

Based on the results, all the indicators possess outer loading values above 0.708, apart from eight indicators. Despite that, only B6, C2, C3, D4, E5, F1, and G4 were omitted whilst the others were kept as only 20% out of the overall indicators were allowed to be removed. Hence, the omitted indicators are those with outer loadings of 0.5 and below (Hair et al., 2014).

Reliability is indicated by a minimum loading value of 0.70 for every item in the construct, thus suggesting sufficient convergence or internal consistency (Thurasamy et al., 2018). Table 2 presents the composite reliability results whereby all the constructs are shown to have CR values exceeding 0.7. This confirms internal consistency reliability for this study.

Table 2: Values of Composite Reliability

Constructs	Composite reliability
Attitude	0.910
Subjective Norm	0.882
Perceived Behavioural Control	0.915
Behavioural Intention-BI	0.969
Technology Usage-TU	0.940

AVE values exceeding 0.50 show the explanatory capability of the constructs in justifying more than half of its indicators' variance (Hair et al., 2014). Based on the results, all the constructs' AVE values exceed 0.50, specifically between 0.651 and 0.887, following the omission of the seven aforementioned items. This suggests that all the minimum requirements have been fulfilled by the items (Fornell & Larcker, 1981). Table 4.10 presents the AVE values for all the items (Hair et al., 2014).

Table 3: Value of Average Extract Variance (AVE

First Order Constructs	Average Variance Extract (AVE)
Attitude	0.671
Subjective Norm	0.651
Perceived Behavioural Control	0.683
Behavioural Intention-BI	0.887
Technology Usage-TU	0.797

This study evaluated discriminant validity using the Heterotrait-Monotrait (HTMT) ratio criteria (Hair et al., 2014, 2017). Discriminant validity is achieved when the HTMT value is below 0.85. The outcomes as presented in Table 4 confirm discriminant validity in this study (Hair et al., 2014).

Table 4: Heterotrait-Monotrait (HTMT) in Assessing Discriminant Validity

	ATT	BI	PBC	SN	TU
ATT					
BI	0.487				
PBC	0.566	0.545			
SN	0.738	0442	0.53		
TU	0.536	0.496	0.615	0.527	

In general, satisfactory results were derived. In particular, the indicator reliability and internal consistency values were above 0.708 whilst the AVE value for the convergent validity test was above 0.50. Meanwhile, the HTMT ratio value was satisfactory at less than 0.85, thus confirming the measurement model's discriminant validity. This allows for the subsequent step namely the structural model assessment.

Structural Model Assessment: The coefficient of determination (R2) and path coefficients were used to determine the structural model's validity. Table 5 presents the VIF (Variance Inflation Factor) values for TPB and technology usage as the determinants of behavioral intention, i.e., between 1.805 and 2.298 which are below the cut-off value of 5. This indicates that the structural model does not suffer from collinearity (Hair et al., 2014) and that the independent variables are not correlated.

Table 5: Result of Collinearity Between Constructs

	VIF
TPB	1.805
TU	2.298

The R2 value indicates the dependent variables' level of variance. The structural model can be concluded to have good predictive ability if the R2 value is high. Table 6 presents the result.

Table 6: Assessment of R^2 Value

Endogenous Constructs	R^2
Behavioral Intention	0.334

Marketing scholars suggested that endogenous latent variables with R2 values of 0.75, 0.50, or 0.25 are respectively considered major, moderate, or poor (Hair et al., 2014). Hence, in this study, the R2 value of 33.4% indicates that the endogenous construct is moderate.

In the structural model, each of the paths linking two latent variables represents a hypothesis, which is accepted or rejected via the structural model analysis. The analysis also determines how strongly related the dependent and independent variables are.

T-statistics for all the directions are determined via bootstrapping in SmartPLS to measure the significance level. Table 7 presents the results of the path coefficients, t-statistics, and significance level for each

hypothesized path. Route evaluation was performed to determine whether the hypotheses could be accepted or otherwise rejected. Theory testing is presented in the following section.

Table 7: Path Coefficients, Observed T-Statistics, and Significance Level for all Hypothesis Tested

	Original Sample (O) Path Coefficient/β	Standard Deviation (STDEV)	T-Statistics (|O/STDEV|)	Significant level/ P Values	Result
TPB -> BI	**0.375**	**0.071**	**5.307**	**0.000**	**Significant**
TU -> BI	0.144	0.069	2.1	0.036	Significant

A Q^2 value above 0 indicates predictive relevance for the structural model. Table 8 presents the Q2 result attained.

Table 8: Assessment of Predictive Relevance Q

	SSO	SSE	Q^2 (=1-SSE/SSO)
BI	1136	797.034	0.298

Assessment of Moderator Variable: The moderator variable of perception of cash waqf performance was assessed according to these steps: (1) T-statistic assessment, (2) R2 Change assessment, and (3) bootstrapping to determine significance level. Table 9 presents the results.

Table 9: Result for Moderator Variable

	Original Sample (O)/Path Coefficient (β)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	R2 Change	Findings
TPB*PERCEPTION -> BI	0.269	0.019	0.312	0.861	0.195	6%	Not Supported

Based on the results, the perception of cash waqf performance plays no moderation role in driving cash waqf intention. Rather, it hurts the link between the TPB components and cash waqf intention.

Based on the approach proposed by Rhodes and Dickau (2013), numerous moderators of the relationship between behavior and TPB measures have been identified. The results of the studies were mixed. Studies by Rehman et al. (2019), AbdulRahman et al. (2017) and Carfora et al. (2017) reported an insignificant relationship, meanwhile, Steve et al., 2008; Rhodes & Dickau, 2013; Robledo et al., 2015 among others found otherwise. This postulates that a moderator is not necessarily required to strengthen the relationship between the independent variable and the dependent variable. The result concludes that the perception of the performance of cash waqf only has a direct influence on the intention to contribute cash waqf, rather than being a moderator in the relationship between the Theory of Planned Behaviour and the intention to contribute cash waqf. This finding is supported by the studies of Civitci (2015), Le et al. (2020) and Lee and Hanna (2016).

5. Conclusion

The analysis results show that all the TPB components significantly influence the intention to contribute cash waqf. Technology usage was also found to be significant to the research. However, the perception of cash waqf performance is not significant as the P value is more than 0.05. Thus, the perception of cash waqf performance does not act as a moderator in this relationship. Overall, it can be concluded that cash waqf contribution is driven by attitude, subjective norms, and perceived behavioral control as the individual's intention to contribute cash waqf is influenced by the environment, religion, family, financial condition, and other's perceptions.

For the extended variables, the technology used for collecting cash waqf is crucial as it determines the cash waqf payment method's user-friendliness, accessibility, and convenience. In short, individual technology acceptance can be improved if the technology is of high excellence. In justifying the insignificance of the moderator, the intention to perform cash waqf is directly influenced by the factors of attitude, subjective norms, and perceived behavioral control.

References

Ab Fatah, N. S., Mansor, N., Ripain, N. & Endut, W. A. (2017). Waqf Participation and Awareness; An Exploratory Study in the West Coast of Sabah, Malaysia. *International Journal of Research Science & Management*, 4(6). https://doi.org/10.18514/MMN.2020.2947

Abdel Mohsin, M., Ismail. & Muneeza, A. (2019). Integrating Waqf Crowdfunding into the Blockchain. In U. A. Oseni & S. N. Ali (Eds.), Fintech in Islamic Finance Theory and Practice (pp. 266–280).

Adeyemi, A. A., Ismail, N. A. & Hassan, S. S. B. (2016). An empirical investigation of the determinants of cash Waqf awareness in Malaysia. *Intellectual Discourse,* 24, 501–520.

Ahmad, S. & Muhamed, N. D. (2011). Institusi Wakaf dan Pembangunan Ekonomi Negara Kes Pembangunan Tanah Wakaf di Malaysia Wakaf Institutions and National Economic Development : A Case on Wakaf Land Development in Malaysia. *Prosiding PERKEM,* VI, 1, 138–147.

Ajzen, I. (1991). The theory of planned behavior. *In Organizational Behavior and Human Decision Processes*, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T Ali. (2017, June 9). Unleashing the Potential of SCM. News Straits Times. https://doi.org/10.4018/jeis.2005010103

Amin, H., Abdul-Rahman, A. R., Ramayah, T., Supinah, R. & Mohd-Aris, M. (2014). Determinants of online waqf acceptance: An empirical investigation. *Electronic Journal of Information Systems in Developing Countries*, 60(1), 1–18. https://doi.org/10.1002/j.1681-4835.2014.tb00429.x

Allah Pitchay, A., Mohd Thas Thaker, M. A., Mydin, A. A., Azhar, Z. & Abdul Latiff, A. R. (2018). Cooperative-waqf model: a proposal to develop idle waqf lands in Malaysia. *ISRA International Journal of Islamic Finance,* 10(2), 225–236. https://doi.org/10.1108/IJIF-07-2017-0012

Anwar, P. Ahamed, K. M. & Saleem, M. (2015). Factors Influencing the Behavioral Intentions of Muslim Employees to Contribute to Cash-Waqf Through Salary Deductions, *JKAU: Islamic Econ*, 28, 57-90.

Azizi, N. D., Shukor, S. A. & Sabri, H. (2019). Determinants of repeated endowers' donation intention in cash waqf: A case study in Majlis Agama Islam dan Adat Melayu Perak (MAIPk). *Jurnal Manajemen Bisnis,* 10(2). https://doi.org/10.18196/mb.10175

Chowdury, M. S. R., Ghazali, M. F. & Ibrahim, M. F. (2011). Economics of Cash WAQF management in Malaysia: A proposed Cash WAQF model for practitioners and future researchers. *African Journal of Business Management,* 5(30). https://doi.org/10.5897/ajbm11.1810

Devadevan, V. (2013). Mobile Banking in India – Issues & Challenges. *International Journal of Emerging Technology and Advanced Engineering,* 3(6), 516–520.

Fauzi, M. H., Yahya, S., Haron, M. S. & Abu Zahrin, S. N. (2019). The Role of Online Facility in Cash Waqf Contribution: Experience of Bank Muamalat Malaysia Berhad (BMMB). *South East Asia Journal of Contemporary Business, Economics and Law,* 19(2), 46–55.

Fishben, M. & Ajzen. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.

Fornell, C. & Larcker, F. David. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research,* 18(1), 39–50.

Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Newbury Park, California: SAGE Publications Inc. Hasanah, U., & Pranata, D. (2019). Waqf Financial Tecnology in Startup Capital. International Conference on IslamicDevelopment Studies. https://doi.org/10.4108/eai.10-9-2019.2289331

Jalil, M. I. A., Pitchay, A. A. & Yahya, S. (2017). Cash Waqf and Preferred Method of Payment: Case of Malaysia Using an AHP Approach. *Revitalization of Waqf for Socio-Economic Development*, 2(January 2019), 187–206.

Johari, F. (2020). Personal Communication. January 2nd, 2020.

Kashif, M. & De Run, E. C. (2015). Money donations intentions among Muslim donors: an extended theory of planned behavior model. *International Journal of Nonprofit and Voluntary Sector Marketing,* 20(January), 84–96.

Kashif, M., Sarifuddin, S. & Hassan, A. (2015). Charity donation: Intentions and behavior. *Marketing Intelligence and Planning*, 33(1), 90–102. https://doi.org/10.1108/MIP-07-2013-0110 Mardziyah (2014). The Acceptance of Online Waqf In Islamic Banking Institutions.

Mat Doa, M. B. (2020). Yayasan Wakaf Malaysia.

Mat Isa, N. (2017). Factors Influencing Charitable Giving Behavior among Malaysians: An Extended Theory of Planned Behavior Model. In UiTM (Vol. 4, Issue September).

Nasiri, A., Noori, A. & Salleh, M. C. M. (2019). Acceptance and Practices of Cash WAQF among University's Students. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 9(3), 38–48. https://doi.org/10.6007/ijarafms/v9-i3/6325

Osman, A. F., Mohammed, M. O. & Amin, H. (2014). An Analysis of Cash Waqf Participation Among Young Intellectuals. Proceedings of Seminar Waqf Iqlami 2014, 7–20.

Qurrata, V. A., Yusida, E., Hussain, N. E. & Merlinda, S. (2021). Effectiveness of Cash Waqf Management in Improving Community Welfare: *Challenges and Opportunities. Buscompress.Com,* 10(1), 342–359.

Salem Al-Harethi, A. R. (2019). Factors Determine Cash Waqf Participation in Kedah, Malaysia: *Perception from Students in Kolej University Insaniah*. Ikonomika, 4(1), 53–59.

Shukor, S. A., Anwar, I. F., Aziz, S. A. & Sabri, H. (2017). Muslim attitude towards participation in cash WAQF: Antecedents and consequences. *International Journal of Business and Society*, 18(S1), 193–204. Sunnah Online. (2019). sunnahonline.com

Thurasamy, R., Cheah, J., Chuah, F., Ting, H. & Memon, M. A. (2018). Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0: An Updated guide and practical guide to statistical analysis (2nd ed.). Kuala Lumpur: Pearson Malaysia Sdn Bhd

Yusoff, R., Abd Rahman, S. A., Wan Mohamed, W. N., Benrit, P. & Darus, F. (2017). Predicting the Behavioural Intention for Cash Waqf: Evidence from Malaysia and Thailand. Conference on Philanthropy for Humanitarian Aid (CONPHA) 2017, May, 33–49.

Zabri, M. Z. M. & Mohammed, M. O. (2018). Examining the behavioral intention to participate in a Cash Waqf-Financial Cooperative-Musharakah Mutanaqisah home financing model. *Managerial Finance*, 44(6), 809–829. https://doi.org/10.1108/MF-05-2017-0189

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Empowering Whistleblowing Policy within Public Listed Companies: Current Practice in Malaysia

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Abstract: Whistleblowing is an act of disclosing any unethical or questionable act within an organization by disclosing them to individuals, the public or authorities that could influence the wrongdoing. It became an important part of the corporate governance process as such action would benefit society and the organization. With the increase in whistleblowing cases involving publicly listed companies (PLCs) by the mass media in Malaysia, there is a dearth of information on to what extent these PLCs manage whistleblowing matters. As a general practice, albeit not compulsory, many publicly listed companies disclose whistleblowing statements in their annual report. As this aspect of corporate governance for the employees is still unexplored, this study purports to explore the form of disclosure on whistleblowing policy by publicly listed companies in Malaysia for the financial year ending 2021. This study is a content analysis of 918 annual reports of companies listed in Malaysia. The findings reveal that most of the companies disclosed matters relating to whistleblowing policies in their Statement of Corporate Governance section, established whistleblowing policies, and mentioned the importance of whistleblowing activities within sections in their annual reports. This study focuses on companies' annual reports. Future studies could be conducted to assess whistleblowing disclosure in other mediums such as the official websites of the companies. The study explored the aspect of corporate governance for the employee as practiced within publicly listed companies in Malaysia. The findings revealed the companies' best practices for promoting transparency and accountability within organizations.

Keywords: *Whistleblowing, whistleblower, Whistleblower Protection Act 2010, whistleblowing disclosure.*

1. Introduction

Whistleblowing activity refers to an action to combat wrongdoing and corruption by encouraging disclosure of any improper behavior within an organization. In Malaysia, whistleblowing activities have only become public scrutiny recently after several cases involving publicly listed companies such as Top Glove Bhd (Top Glove) in 2020 were highlighted by the media. In the case of Top Glove, the world's leading glove maker in over 200 countries, one of its foreign workers has photographed fellow workers crowding into a factory during lockdown to workers' rights campaigners as he is afraid of being fired if he complained personally to the company's upper management. The photos which were then posted to Top Glove as well as the Malaysian government without exposing the whistleblower have led to the worker being terminated and sent back to his home country (Lee & Ananthalakshmi, 2020). Although Top Glove became one of the top tax contributors within the conglomerate in Malaysia, the Malaysian government has instructed the company to close its factories temporarily and charges have been imposed on the company. The revelation has however, brought the attention of the US Customs and Border Protection and such practice is considered forced labor thus, Top Glove product has been banned from entering the US market for one year starting July 2020 and nearly 8.7 million rubber gloves worth RM5.0 million were seized. The ban was only lifted in 2021 (Ananthalakshmi, & Latif, 2021). This is only one of the cases reported by whistleblowers on the malpractice of companies in Malaysia.

The need to protect the whistleblower in organizations is taken seriously by the Malaysian government with the enactment of the Whistleblower Protection Act (WPA) in 2010. Such an act aims to encourage and protect those who make disclosures of improper conduct in both public and private sectors. Those who make such disclosures are termed whistleblowers or informers. Section 7 of WPA enlists three (3) categories of protection for whistleblowers which are protection of confidential information, immunity from civil and criminal action as well as protection against any detrimental action. Conversely, section 10 of WPA specifically safeguards a whistleblower and anyone associated with the whistleblower from any reprisal for disclosing matters of improper conduct within the organization (Malaysia, 2010). However, the Act is argued to have its limitations. For instance, an enforcement agency may be instructed to revoke any whistleblower

protection on the ground if the whistleblower has participated in the unlawful conduct disclosed to him or herself, making false claims and disclosed improper activities that involved questioning the merits of the government policy. Whistleblowers are also not allowed to disclose matters that fall under secrecy laws such as the Official Secrets Act (OSA) 1972, Capital Markets and Services Act 2007 and Section 203A of the Penal Code. Hence, incidences of reprisals, retribution, harassment, and arrests in these situations become a natural reluctance for whistleblowers to disclose the wrongdoing within their organizations (Ganesan, 2022).

Whistleblowing within an organization involves reporting issues to upper management within an organization when they suspect any malpractice, fraud, or any indiscipline occurrence within their workplace to the Human Resource Department or Chief Executive Officer (CEO) of the company (Goa & Wong, 2015). Such workplace malpractice can be in the form of financial wrongdoing, false claims, and environmental violations. For cases involving internal whistleblowing, it is a normal practice to resolve the issue through internal investigation, with no authority involved. However, the law as stipulated in the WPA 2010 allows whistleblowers to disclose, report and complain about any misconduct to any enforcement agency that grants the authority and rights to investigate and enforce any inappropriate conduct (WPA, 2010). Section 15(1) of WPA has also protected whistleblowers who may experience any detrimental action in reprisal due to their whistleblowing activities. As such he or she is entitled to remedies in the form of compensation that the court deems fit (WPA, 2010). Therefore, companies in Malaysia need to consider employees' rights to disclose matters within an organization, particularly regarding illegal, unethical, or fraudulent activities happening in the companies. This study investigated the disclosure of whistleblowing matters within publicly listed companies in Malaysia through their annual report. The information provides an insight into the practice of whistleblowing in Malaysia and recommends the best practice of whistleblowing as evident as to-have been practiced in other countries.

2. Literature Review

Whistleblowing and Corporate Governance: Whistleblowing serves as a means for companies to convey their values through a code of conduct. It provides an ideal channel to raise awareness about potential risks that require attention, aiming to safeguard the company's reputation and integrity by promoting the right behaviors. Devillier (2016), argued that whistleblowing effectiveness within a corporate governance system is based on three pillars: a legal framework, individual responsibility, and corporate culture. The absence of a clear legal framework and whistleblowing protection currently prevents its use as a tool for corporate governance.

Whistleblowing reporting can be the medium to support good corporate governance as warranted by Handoko and Amelia (2021). Their study concluded that the implementation of good corporate governance in Indonesia has a significant effect on fraud prevention. Good corporate governance policy implemented for fraud prevention is intended to foster a positive corporate culture, enhance internal operations, and serve as a framework to support the link between management effectiveness and stakeholder interests.

Smaili and Arroyo (2022) also supported the idea that corporate governance, mainly through the board of directors, is an important tool for fostering internal whistleblowing aimed at preventing and detecting fraud. In addition, they assume that firms with an effective internal corporate governance mechanism would empower whistleblowers to report wrongdoings internally, and that weak internal corporate governance would prompt them to go to the outside.

Whistleblowing Policy and the Malaysian Code of Corporate Governance (MCCG): The whistleblowing policy is a mechanism that encourages employees or individuals to report any wrongdoing, misconduct, or unethical behavior within an organization. It protects whistleblowers against retaliation and ensures that their concerns are addressed appropriately. Whistleblowing policies are typically designed to create a culture of openness, integrity, and ethical behavior within companies. The Malaysian Code of Corporate Governance (MCCG) is a set of guidelines and best practices formulated by the Securities Commission Malaysia to promote good corporate governance among publicly listed companies in Malaysia. The MCCG outlines principles and practices that companies should adhere to enhance transparency, accountability, and integrity in their operations. The three main areas covered by the MCCG are Board leadership and effectiveness, effective audit

and risk management integrity in corporate reporting and meaningful relationships with stakeholders. (In which those areas cover the Board of Directors composition, responsibilities of directors, risk management, and internal controls (MCCG, 2021).

The connection between whistleblowing policy and the MCCG lies in their shared objective of promoting transparency and accountability within organizations. The MCCG recognizes the importance of an effective whistleblowing mechanism as a part of good corporate governance. It encourages companies to establish procedures that allow employees and stakeholders to report any concerns about misconduct, fraud, or other irregularities. By implementing a whistleblowing policy, companies can demonstrate their commitment to upholding the principles of good corporate governance outlined in the MCCG. Such policies not only help in detecting and addressing wrongdoing within organizations but also contribute to building a culture of trust, ethics, and responsible business practices. It is worth noting that while the MCCG guides the establishment of a whistleblowing mechanism, the specific details and implementation of the policy may vary across organizations based on their size, nature of operations, and industry-specific requirements.

Rachagan and Kuppusamy (2012) recommended crafting internal whistleblowing policies within corporate settings. The study also suggests that solely relying on laws to promote and safeguard whistleblowers may not be the sole remedy, considering the cultural and taxonomic differences between Malaysian public-listed companies and those in the broader Asia-Pacific region.

Whistleblowing Disclosure in Annual Reports: Studies on whistleblowing disclosures in annual reports suggest that greater disclosure of whistleblowing policies and procedures can promote greater accountability and transparency. A more positive corporate culture encourages employees to report concerns and issues as part of moving towards healthy corporate governance as well as attracting more investor participation. A study covering five Asian markets (except Singapore) listed in the main market confirms that whistleblowing disclosure quality has a significant negative relationship with the cost of equity, hence suggesting a uniform and comprehensive whistleblowing policy to strengthen the best practices of Asian corporate governance code (Md Salleh, 2019). In the same year, another study in Malaysia by Abidin et al. (2019) identified whistleblowing policy as part of the information disclosed by companies implying their support of the Malaysian Code of Corporate Governance (MCCG), with most of the companies complying with the recommendations of MCCG 2012 to uphold a high standard of ethical practice. Nevertheless, their findings indicated that the level of ethical practice disclosure among Malaysian public listed companies remains low and warrants concern that requires action by regulators.

Recent studies in Indonesia revealed that disclosure of whistleblowing policy in the annual report focuses on the disclosure in the banking sector and publicly listed (Handajani et al., 2022 Rani et al., 2022a). A study on the banking sector revealed that the bank's whistleblowing system policy acts as a mechanism to govern the banking sector i.e. as a red flag to detect any possible violations, alleged ethical irregularities and fraudulent acts (Handajani et al., 2022) The latter study over 68 PLCs in Indonesia by Rani et al. (2022a) however, revealed that companies prefer annual reports over the website as the medium to disclose whistleblowing-related information, varies in terms of depth and comprehensiveness of the disclosures and surprisingly Indonesian PLCs were reluctant to disclose whistleblowing-relating information (though obliged by authority) due to no penalty for non-disclosures.

Ahmad et al. (2018); Md. Salleh et al. (2019); Sari et al. (2021); Rani et al. (2022b) also revealed a lack of disclosure of whistleblowing activity in firms' formal reporting channels such as annual reports. Rani et al. (2022b) explained that firms tend to disclose beneficial information such as the commitment to protect whistleblower(s) without any further clues regarding the implementation. A study by Rani et al. (2022b) also revealed that Indonesian publicly listed companies are prone to implement non-anonymous reporting which can be seen as anticipation and filter to minimize complaints about firms' activity. Though applying anonymous reporting may encourage members to actively observe firms' practices, such action may also heighten the propensity of false or fake reports and other unethical use of the Whistleblowing System (WBS). Nevertheless, Indonesian financial institutions can be considered as an obedient industry as they sit in a regulated setting. As the financial industry is considered as a high risk, disclosure of whistleblowing system-related information shall assist the stakeholders to reduce information asymmetry. Erin et al. (2020)

suggested that whistleblowing reporting is mandatory for corporate organization regulatory reporting. The study also concluded that the whistleblowing framework and its determinants influence earning management which discourages the management from involving aggressive earning management.

Overall, greater disclosure of whistleblowing policies and procedures in annual reports can have a positive impact on various aspects of companies' operations and performance and can ultimately lead to better corporate governance and a more positive corporate culture. These studies suggest that whistleblowing disclosures can have both positive and negative effects on companies, depending on factors such as the level of detail disclosed, the strength of the company's internal controls and governance structures, and the reactions of stakeholders such as investors and customers.

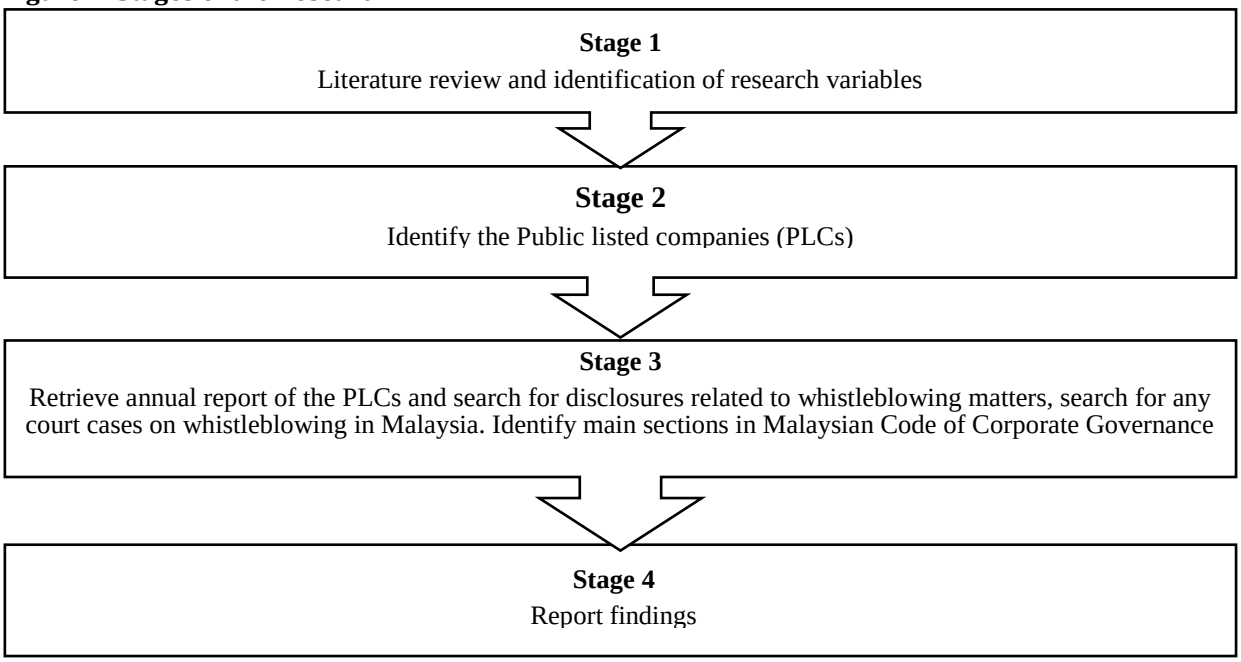
It is evident that most studies on whistleblowing disclosures concentrate on the Western countries and little study is performed on the Southeast Asian countries in particular Malaysia. Hence, this study intends to explore the type of whistleblowing information revealed in the annual report of listed companies in Malaysia.

3. Methodology

The main approach in this qualitative study is content analysis, which is used to analyze the text of a document and identify patterns or themes within it. When it comes to analyzing the annual reports of companies, content analysis can be used to identify the frequency of disclosures on certain topics, such as financial performance, risks and uncertainties, corporate social responsibility, and governance. The frequency of disclosures in annual reports can provide valuable insights into a company's priorities, values, and potential areas of risk. For instance, a company that discloses a high number of risks and uncertainties may be more vulnerable to market volatility or other external factors. On the other hand, a company that emphasizes its commitment to corporate social responsibility may be seen as more socially responsible by stakeholders (Krippendorff, 2019).

For this study, a content analysis was performed over 918 publicly listed companies (PLCs) 2021 annual reports for the year ended 2021 publicly listed in Bursa Malaysia (Malaysian Bourse). The annual report for the financial year ended 2021(any annual report ended as of 31 March, 30 June, 30 September, and 31 December respectively for the year 2021 are selected considering companies may have varied dates for financial year end) was chosen as this is latest available annual report online issued by the companies via the Bursa Malaysia website (bursamalaysia.com). In this study, researchers investigate the frequency of keywords ‘whistleblower’ and ‘whistleblowing’ mentioned in sections within the annual report mentioning those words or emphasizing them. In addition, the researchers have also searched for any reporting of whistleblowing incidents either in the annual report or mainstream media in Malaysia within the year 2021. Any link from the annual report to the Whistleblowing Policy was also identified. Figure 1 overleaf depicts the diagrammatic flow of the steps conducted to achieve the objective of the study. In stage three, details of the Malaysian Code of Corporate Governance (MCCG) details are extracted and summarized in Appendix 1. The MCCG extraction is used to check on the disclosure made by the companies selected as samples which is discussed in the findings section.

Figure 1: Stages of the Research



4. Findings and Discussion

A total of 918 annual reports of publicly listed companies over 13 industries in Malaysia with the financial year ended 2021 were retrieved to extract information about any whistleblowing disclosure information. The information was extracted from the available annual reports uploaded to the Bursa Malaysia (Malaysian Stock Exchange) website. The summary of the disclosure is revealed in Table 1 overleaf. The main industry listed in Bursa Malaysia (in terms of the number of companies) is *Industrial Products and Services* (264/918, 28.75%) followed by *Consumer Products and Services* (189/918, 20.6%) and *Technology* (94/918, 10.44%) industries respectively. The least industry with only 13 companies (1.4%) is the *Utilities* industry. It is also revealed in Table 1 that the word related to whistleblowing is disclosed mostly in the *Transport and Logistic* industry with one company mentioning the word as much as 88 times followed by 67 times by a company under the category of *Property* and thirdly by the *Financial and Services* industry with 61 times. Interestingly, there are companies under the category of *Consumer Products and Services* (CPS), *Technology* and *Industrial Products and Services* (IPS) with no disclosure at all on whistleblowing matters.

As per Table 2, it was revealed that all industries have disclosed whistleblowing information in various sections and statements within the annual report. The most disclosed whistleblowing information is in the Corporate Governance Overview Statement, followed by the Sustainability Statement, Statement of Risk Management and Internal Control and Audit Committee Report. The top three (3) industries that have disclosed many disclosures on whistleblowing matters in The Corporate Governance Overview Statement (as the main section in the annual report disclosing matters regarding whistleblowing) in order of frequency are *Transportation and Logistic* with 32 out of 34 companies (94%), followed by *Property* (86/93, 92.4%) and *Industrial Product and Services* (234/264, 88.6%) respectively. On the other hand, the establishment of whistleblowing policy (WBP) within the PLCs is mentioned in the Annual report with the majority (855/918, 93.14%) establishing the policy within their companies, implying their commitment towards following guidelines under the MCCG. Most companies (853/855, 99.76%) under all industries that have established the WBP also have provided links in the annual report to their respective WBP with companies. There are 3 main principles covered by MCCG:

A	Board Leadership and Effectiveness (Board Responsibilities, Board Composition and, Remuneration)
B	Effective Audit and Risk Management (Audit Committee and, Risk Management and Internal Control Framework)
C	Integrity in Corporate Reporting and Meaningful relationship with Stakeholders (Engagement with Stakeholders and Conduct of General Meetings)

The above three (3) main principles are divided into 13 principles of practice as per MCCG's summary tabulated in the Appendix.

Based on the contents analysis conducted from a total of 918 annual reports of publicly listed companies over 13 industries in Malaysia for the financial year ended 2021, it is found that the main principles within the MCCG disclosed in the companies' Annual Report are as depicted in Table 3. Table 3 shows that all 918 (100%) publicly listed companies comply with principle 3.2 of MCCG, where the board establishes, reviews, and implements policies and procedures on whistleblowing.

Table 1: List of Number of Times Whistleblowing Terms Mentioned in the Annual Report by Industries

Industries	**No of the listed companies under the industries (With available online annual reports)**	**Annual Report**	
		Max	**Min**
Construction	57	29	2
Consumer Product & Services (CPS)	189	47	2
Energy	29	52	4
Financial Services	35	61	3
Health Care	19	55	6
Industrial Product & Services (IPS)	264	44	0
Plantation	42	39	3
Property	93	67	2
REIT	18	25	2
Technology	94	55	0
Telecommunication	31	29	6
Transportation & Logistic	34	88	3
Utilities	13	43	6
Total	918		

Another principle within the MCCG that emphasizes the element of whistleblowing is Principle 11.1, where the internal audit should carry out its function effectively and independently. An internal audit function assists a company in accomplishing its goals by bringing an objective and disciplined approach to evaluate and improve the effectiveness of risk management, internal control, anti-corruption, whistleblowing, and governance processes. From Table 3, it was discovered that only the *Construction, Consumer Products and services (CPS), Industrial Products and services (IPS), Property, Technology and Transportation and logistics* industries complied with principle 11.1 thus, disclosed such information in their annual report. Whereas industries in *Energy, Financial Services, Health Care, Plantation, REIT, Telecommunication and Utilities* seem not to fully comply with principle 11.1. It is believed that some of the information on the internal audit findings was not disclosed transparently in the annual report. Industries that disclosed relevant information on the 13 principles of MGGC are *Consumer Product & Services (CPS)* with 12 items, followed by *Industrial Product & Services (IPS)* with 10 items and *Property Industries* with 8 items out of 24 listed items of disclosure. On the other hand, whistleblowing disclosure has been mentioned in the Corporate Governance report with a maximum frequency of 37 times in the *Property* industries, followed by 24 times by the *Plantation* industries and 22 times in the *Health Care* industries.

It can be concluded that the top 3 industries that highly disclosed their whistleblowing disclosures in the annual report are *Construction, Consumer Products & Services* (CPS), *Industrial Products & Services* (IPS) and *Property* industries.

Table 2: Whistleblower Disclosures within Companies Listed in KLSE by Industry

Industries	No of the listed companies under the industries (With available annual reports)	Whistleblowing disclosure in statements/sections (no of companies)																		
		Corporate Governance Overview Statement	Sustainability Statement / Report	Statement on Risk Management and Internal Control	Audit Committee Report	Group Internal Audit Report	Directors/Chairman Statement	Nominating Committee	Group Management Committee	Stakeholder Engagement	Workplace management	Risk & Opportunities	Ethics & Integrity	Strategic Review	Value Creation	Management & Discussion	Material Matters	Whistle Blowing Policy	Link to Whistle Blowing Policy	Total
Construction	57	46	45	33	9		5		1						1	2		54	54	250
Consumer Product & Services (CPS)	189	164	120	91	32		7		1	4				6				182	182	789
Energy	29	25	24	17	5					1							1	24	24	121
Financial Services	35	25	17	23	14		3				1	1	2					27	28	141
Health Care	19	16	12	13	6		3			2								19	19	90
Industrial Product & Services (IPS)	264	234	166	107	29		3			1		1	2			5		244	244	1,036
Plantation	42	36	25	17	6		1		1	4								36	37	163
Property	93	86	58	45	14	2	4			6			1	1	1	4		88	88	398
REIT	18	14	15	9	4							2						17	17	78
Technology	94	78	52	32	9		2											91	86	350
ecommunication	31	28	16	14	8		1								1		1	31	31	131
Transportation & Logistic	34	32	24	17	6		5			3				1		2	1	30	30	151
Utilities	13	11	8	7	3		1	2		2					2	1		12	12	61
Total	918	795	582	425	145	2	35	2	3	23	1	4	5	8	5	14	3	855	852	

Table 3: Summary of the number of times whistleblowing in the Corporate Governance Report and the Malaysian Code of Corporate Governance (MCCG) principles in the Annual Report

Industries	No of the listed companies under the industries (With available online annual reports)	Whistleblowing mentioned in the Corporate Governance Report		Principles in the Malaysian Code of Corporate Governance (MCCG) mentioned in the Annual Report																										
		Max	Min	1.1	1.2	1.6	2.1	3.1	3.2*	4.1	4.2	4.7	5.1	5.2	5.8	6.1	8.5	9.1	9.2	9.3	9.5	10.1	10.2	10.3	11.1*	12.1	13.6	Total
Construction	57	17	2	•				•	•					•			•								•			6
Consumer Product & Services (CPS)	189	18	0	•		•	•	•	•	•	•							•			•	•	•		•			12
Energy	29	14	1					•	•			•	•															4
Financial Services	35	21	0	•		•		•	•									•								•	•	7
Health Care	19	22	0	•			•	•	•													•				•		6
Industrial Product & Services (IPS)	264	14	1	•					•						•		•	•		•			•	•	•	•		10
Plantation	42	24	1	•	•			•	•		•								•			•						7
Property	93	37	0	•	•			•	•		•								•						•	•		8
REIT	18	12	0					•	•																	•		3

Technology	94			•	•			•	•										•						•	•	7
Telecommunication	31	18	3	•				•	•													•				•	5
Transportation & Logistic	34	17	2	•				•	•							•							•		•	•	7
Utilities	13	11	2	•	•			•	•																	•	5
Total	918																										

* Principles emphasize on whistleblowing

The decision of whether to disclose whistleblowing matters in the annual report depends on various factors, such as the legal and regulatory requirements in a particular jurisdiction, the company's policies and practices, and the potential benefits and drawbacks of such disclosures. In many jurisdictions, there are legal and regulatory requirements for companies to have whistleblowing policies and to disclose information about these policies in their annual reports or other public disclosures. In such cases, companies are required to provide information about the existence of their whistleblowing policies, the procedures for reporting concerns, and the outcomes of investigations into reports. Even in cases where there are no legal or regulatory requirements to disclose whistleblowing matters in the annual report, it can still be beneficial for companies to do so. Disclosure of whistleblowing policies and procedures can demonstrate a company's commitment to ethical and responsible behavior and can help to build trust and credibility with the stakeholders.

On the other hand, there may be risks associated with disclosing whistleblowing matters in the annual report. For example, such disclosures could potentially harm the company's reputation or lead to litigation or regulatory investigations. Additionally, disclosing too much information about specific whistleblowing incidents could violate the confidentiality of the individuals involved and could discourage future whistleblowers from coming forward. This study which focuses on the whistleblowing disclosure within 918 publicly listed companies in Malaysia for the year ended 2021 found that information on whistleblowing policy is disclosed in many sections within their annual report, particularly the Corporate Governance Overview Statement. Most of the publicly listed companies (93.14%) also have established their own Whistleblowing Policy, thus upholding the MCCG's best practice of promoting transparency and accountability within organizations.

In summary, whilst there may not be a universal requirement to disclose whistleblowing matters in the annual report. Companies should carefully consider the potential benefits and risks of such disclosures. Therefore, it is viable to make a decision that is in the best interests of the company and its stakeholders. Future studies could be conducted to assess whistleblowing disclosure in other mediums such as the official websites of the companies.

References

Abidin, A. F. Z., Hashim, H. A., Salleh, Z. & Devi, S. (2019). Ethical practice disclosure of Malaysian public listed companies. KnE Social Science*s*, 1168-1201.

Ahmad, S. A., Rahimah Mohamed, Y. & Juyati Amin, M. (2018). Whistleblowing Policy: An Analysis of Disclosure Level among Malaysian Listed Companies. *Global Business & Management Research,* 10(3), 36-44

Ananthalakshmi, A. & Latif, R. (2021, September 10). US lifts import ban on Malaysia's Top Glove over forced labor concerns. Reuter.

Devillier, N. (2016). Whistleblowing policy and corporate governance strategy. *Journal of Corporate Governance, Insurance, and Risk Management (JCGIRM)*, 3(1), 50-66.

Ganesan, R. (2022, January 15). What you need to know about whistleblowing in Malaysia. Free Malaysia Today.

Gao, J., Greenberg, R. & Wong On Wing, B. (2015). Whistleblowing Intentions of Lower-Level Employees: The Effect of Reporting Channel, Bystanders, and Wrongdoer Power Status. *Journal of Business Ethics*, 126, 85-99. https://doi.org/10.1007/S10551-013-2008-4.

Handajani, L., Muhsyaf, S. & Sokarina, A. (2022). Whistleblowing Disclosure of the Banking Sector. *Valid Jurnal Ilmiah*, 20(1), 22-32.

Handoko, B. L. & Amelia, R. (2021). Implementation of Good Corporate Governance, Internal Audit, and Whistle-Blowing System for Fraud Prevention in State-Owned Enterprises. In The 2021 12th International Conference on E-business, Management and Economics (pp. 305-310).

Krippendorff, K. (2019). Content analysis: An introduction to its methodology (4th ed.). Thousand Oaks, CA: Sage Publications.

Lee, L. & Ananthalakshmi, A. (2020, December 12). Malaysia's Top Glove fired whistleblower before virus outbreak. Reuter.

Malaysia. (2010). Whistleblowing Protection Act.

Md Salleh, M. F., Yusoff, W. S. & Basnan, N. (2019). Whistleblowing disclosure policy and cost of equity in ASEAN 5 publicly listed companies: A new establishment of regional whistleblowing disclosure scoring index. *Jurnal Pengurusan*, 55, 125-133.

Rachagan, S. & Kuppusamy, K. (2012). Encouraging whistle-blowing to improve corporate governance? A Malaysian Initiative. *Journal of Business Ethics*, DOI 10.007/s10551-012-1402-7.

Rani, U., Pramudyastuti, O. L. & Nugraheni, A. P. (2022). How Do Indonesian Listed Companies Disclose Information Related to Whistleblowing? *Jurnal Dinamika Akuntansi dan Bisnis,* 9(2), 223-240.

Sari, T. K., Cahaya, F. R. & Joseph, C. (2021). Coercive Pressures and Anti-corruption Reporting: The Case of ASEAN Countries. *Journal of Business Ethics,* 171(3), 495-511.

Securities Commission of Malaysia. 2021. The Malaysian Code of Corporate Governance.

Smaili, N. & Arroyo, P. (2022). Triggering changes in corporate governance: before and after external whistleblowing. *Journal of Financial Crime*, 29(3), 1027-1041.

Appendix 1: Summary of Main Sections in the Malaysian Code of Corporate Governance (MCCG)

PRINCIPLE	COMPONENT
BOARD LEADERSHIP AND EFFECTIVENESS	
	BOARD RESPONSIBILITIES
1	**Every company is headed by a board, which assumes responsibility for the company's leadership and is collectively responsible for meeting the objectives and goals of the company.** 1.1 The company's strategic aims are to ensure resources are in place, meet its objectives and review management performance. 1.2 Good corporate governance practices, leadership, and effectiveness of the board 1.3 The chairman and CEO are different individuals. 1.4 The chairman of the board should not be a member of the Audit Committee, Nomination Committee, or Remuneration Committee 1.5 The Board is supported by a suitably qualified and competent company secretary. 1.6 Directors receive meeting materials, complete and accurate within the meeting period.
2	**There is a demarcation of responsibilities between the board, board committees and management.** 2.1 A board charter (roles and responsibilities of the board, board committees, individual directors and management including issues and decisions of the board).
3	**The board is committed to promoting good business conduct and maintaining a healthy corporate culture that engenders integrity, transparency, and fairness.** 3.1 Code of Conduct and Ethics for the Company 3.2 Management implements policies and procedures on whistleblowing.
4	**The company addresses sustainability risks and opportunities in an integrated and strategic manner to support its long-term strategy and success.** 4.1 Setting the company's sustainability strategies, priorities, and targets. 4.2 Targets are communicated to its internal and external stakeholders. 4.3 Appropriate action to ensure they stay abreast with and understand the sustainability issues. 4.4 Review of the performance of the board and senior management.
	BOARD COMPOSITION
5	**Board decisions are made objectively in the best interests of the company considering diverse perspectives and insights.** 5.1 The composition of the board is refreshed periodically. 5.2 Half of the board comprises independent directors. 5.3 Tenure of an independent director does not exceed a term limit of nine years. 5.4 The Board has a policy that limits the tenure of its independent directors to nine years without further extension. 5.5 Appointments of the board and senior management are based on objective criteria, merit and with due regard for diversity in skills, experience, age, cultural background, and gender. 5.6 The Board utilizes independent sources to identify suitably qualified candidates. 5.7 The Board ensures shareholders have the information they require to make an informed decision on the appointment and reappointment of a director. 5.8 The Nominating Committee is chaired by an independent director or the Senior Independent Director. 5.9 The board comprises at least 30% women directors. 5.10 The board discloses in its annual report the company's policy on gender diversity for the board and senior management.
6	**Stakeholders can form an opinion on the overall effectiveness of the board and individual directors.** 6.1 The board should undertake a formal and objective annual evaluation to determine the effectiveness of the board, its committees, and each director.
	REMUNERATION
7	**The level and composition of remuneration of directors and senior management consider the company's desire to attract and retain the right talent on the board and senior management to drive the company's long-term objectives.** 7.1 The Board has remuneration policies and procedures to determine the remuneration of directors and senior management. 7.2 Remuneration Committee to implement its remuneration policies and procedures including reviewing and recommending matters relating to the remuneration of board and senior management.
8	**Stakeholders can assess whether the remuneration of directors and senior management is commensurate with their performance, taking into consideration the company's performance.**

	8.1 Detailed disclosure on the named basis of the remuneration of individual directors. 8.2 discloses on a named basis the top five senior management's remuneration component including salary, bonus, benefits-in-kind and other emoluments in bands of RM50,000 8.3 fully disclose the detailed remuneration of each member of senior management on a named basis.
B. EFFECTIVE AUDIT AND RISK MANAGEMENT	
	AUDIT COMMITTEE
9	**There is an effective and independent Audit Committee. The board can objectively review the Audit Committee's findings and recommendations. The company's financial statement is a reliable source of information.** 9.1 The Chairman of the Audit Committee is not the Chairman of the Board. 9.2 The Audit Committee has a policy that requires a former partner of the external audit firm of the listed company. 9.3 The Audit Committee has policies and procedures to assess the suitability, objectivity, and independence of the external auditor. 9.4 The Audit Committee should be comprised solely of independent directors. 9.5 the Audit Committee should possess a wide range of necessary skills to discharge its duties.
	RISK MANAGEMENT AND INTERNAL CONTROL FRAMEWORK
10	**Companies make informed decisions about the level of risk they want to take and implement necessary controls to pursue their objectives.** 10.1 The board should establish an effective risk management and internal control framework. 10.2 The board should disclose the features of its risk management and internal control framework and the adequacy and effectiveness of this framework. 10.3 The board establishes a Risk Management Committee, which comprises mostly independent directors, to oversee the company's risk management framework and policies.
11	**Companies have an effective governance; risk management and internal control framework and stakeholders can assess the effectiveness of such a framework.** 11.1 The Audit Committee should ensure that the internal audit function is effective and able to function independently. 11.2 The board should disclose: that internal audit personnel is free from any relationships or conflicts of interest, the number of resources in the internal audit department, the name, and qualification of the person responsible for internal audit, and the internal audit function is carried out by a recognized framework.
C. INTEGRITY IN CORPORATE REPORTING AND MEANINGFUL RELATIONSHIP WITH STAKEHOLDERS	
	ENGAGEMENT WITH STAKEHOLDERS
12	**There is continuous communication between the company and stakeholders to facilitate mutual understanding of objectives and expectations.** 12.1 The board ensures there is effective, transparent, and regular communication with its stakeholders. 12.2 Large companies are encouraged to adopt integrated reporting based on a globally recognized framework.
	CONDUCT OF GENERAL MEETINGS
13	**Shareholders can participate, engage the board and senior management effectively and make informed voting decisions at general meetings.** 13.1 Notice for an Annual General Meeting should be given to the shareholders at least 28 days before the meeting. 13.2 All directors attend general meetings. 13.3 Listed companies should leverage technology to facilitate voting & remote shareholders' participation. 13.4 The Chairman of the board should ensure that general meetings support meaningful engagement between the board, senior management, and shareholders. 13.5 The board must ensure that the conduct of a virtual general meeting (fully virtual or hybrid) support meaningful engagement between the board, senior management, and shareholders. 13.6 Minutes of the general meeting should be circulated to shareholders no later than 30 business days after the general meeting.

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Cybersecurity Awareness on Personal Data Protection Using Game-Based Learning

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Abstract: The increasing digitalization in modern society has many positive effects on communication, business, education, banking and many more. Many individuals use their smartphones, tablets and laptops regularly and appear to believe the Internet to be a secure environment. However, it has also made people more vulnerable to a variety of cybersecurity risks. The rise in cyberattacks raises serious concerns about the lack of basic knowledge and awareness regarding cyber threats such as phishing, malware and password attacks. These cyber-threats can become dangerous for users as they can even cause identity theft and loss of money. The problem arises because lack of awareness of cybersecurity on personal data protection, a lack not a good understanding of how to protect the data, and a lack of knowledge to prevent cyber threats. Thus, this project proposes game-based learning to provide awareness and educate especially the youth on cybersecurity and personal data protection in a fun and effective way. The knowledge gained from the game can be applied to reduce the risks of cybercrimes. Agile methodology has been chosen for this project and has five phases which are requirement, design, development, testing, deployment and review. The enjoyment level of the game is evaluated by using an adaptation of the E-Game Flow Model including concentration, goal clarity, feedback, challenge, autonomy, immersion and knowledge improvement. Findings of enjoyment evaluation showed that the game receives an 82% level of agreeability by the game users. The game increases awareness among game users about cybersecurity. Future work for this game includes adding more levels into the game, covering other cyber threats and enhancing mobile devices.

Keywords: *Cybersecurity, cyber threats, enjoyment, game-based learning, agile methodology.*

1. Introduction

Since its emergence in the 1980s, the Internet has drastically changed the world (Wong et al., 2020). It has since become an integral part of people's daily lives, especially the younger generation as they are born into this new age of technology. Youngsters nowadays can access the Internet easily due to being fully equipped with various gadgets such as mobile telephones and smartphones (Abd Rahim et al., 2019). Cyber security is the activity of defending electronic systems, networks, computers, servers, mobile devices, data, and electronic systems against cyberattacks, theft, and destruction. It entails utilizing technology, procedures, and laws to safeguard systems and stop unauthorized individuals from accessing, using, disclosing, disrupting, altering, or destroying information (Cybersecurity and Infrastructure Security Agency, 2021). Many individuals believe the Internet to be a secure environment but numerous attacks happen every day (de Bruijn et al., 2017). With this rise of internet usage in education, cybersecurity education has become a must in both schools and universities. Every person who lacks cybersecurity awareness does so because they are unaware of the significance and consequences of cybersecurity (Rahman et al., 2020).

One of the causes of cyber threat problems among youth is a lack of knowledge of personal data protection (Abd Rahim et al., 2019). College students still do not have a good understanding of how to protect their data, even if they believe that they are being watched when using the Internet and that even university networks are not secure (Moallem, 2018). In addition, in a study by Kovačević et al. (2020), they found that students do not have enough awareness and knowledge of cybersecurity since no one was able to answer all the questions in the knowledge part of their questionnaire correctly.

The youth have no idea how to prevent cyber threats. They become more reliant on Internet technology for daily tasks, which has encouraged the expansion of the scope of participation in cyber-related activities. In contrast, the fundamental knowledge required for mitigating cyber risks is still lagging (Mai & Tick, 2021). Students lack the necessary comprehension and knowledge of the significance of information security principles and their practical applications (Moallem, 2019).

Based on the problems mentioned above, there is a necessity to boost awareness about cybersecurity among youths. This paper aims to present an enjoyable game-based learning application for youths to be concerned about the risks of cyber-related activities.

2. Literature Review

Cybersecurity awareness is the knowledge of, and application of, defenses against, online threats and vulnerabilities. It entails being conscious of potential risks, preventing those risks, and being prepared to respond in the case of a cyberattack. People must not only be aware of potential cyber hazards but also act properly, as is made clear by this statement (Bada, Sasse & Nurse, 2019).

In research by Garba et al. (2020) on student cybersecurity awareness, they discovered that although they had a high level of awareness in a few areas, including privacy and trust, the students lacked essential knowledge about password security, phishing, and two-factor authentication. Additionally, according to another study by Blancaflor et al. (2021) on students' vulnerability to malware, 63% of the devices examined for the investigation had malware installed on them or already existed on them.

A. Cyber Threats: Phishing is the practice of pretending to be a reliable entity in an electronic conversation to get sensitive data like usernames, passwords and credit card numbers (Bhavsar, Kadlak & Sharma, 2018). Passwords are the only security measure used to keep an application safe from unwanted access, but sadly, many users do not completely understand how important passwords are (Chanda, 2016). Malware is used to penetrate a computer system or network as part of a cyber-attack to disrupt operations or obtain access to the system's resources without authorization (Symantec, 2019).

B. Game-Based Learning (GBL): By incorporating entertainment into the learning process, GBL aims to increase student participation in learning while playing and to make learning more exciting (Al-Azawi, Al-Faliti & Al-Blushi, 2016). Since they are frequently introduced to students by professionals in charge of the teaching process, who direct students to play rather than the students beginning to play voluntarily or through recommendations from friends, player enjoyment is especially crucial for educational serious games (Ferreira de Almeida & dos Santos Machado, 2021).

C. Agile Methodology: Agile stands for moving quickly, which emphasizes iterative and incremental models in software development (McCormick, 2012). This methodology makes it easy for the developer to make modifications when developing the product. This method was created to make the most of the time and resources available for software design. Changes can be quickly included in the software product because it is built in small batches (McCormick, 2012). There are six phases consisting of requirements, design, development, testing, deployment and review.

D. E-Game Flow Model: The E-Game Flow model of player satisfaction is made up of 38 criteria taken from the literature on game user experiences and organized into eight components that conceptually correspond to Csikszentmihalyi's idea of flow (Sweetser, 2020). The eight core elements in the model are concentration, challenge, skills, control, clear goals, feedback, immersion, and social interaction. This study implements the E-Game Flow Model to evaluate the user's learning cognition of enjoyment while playing the game.

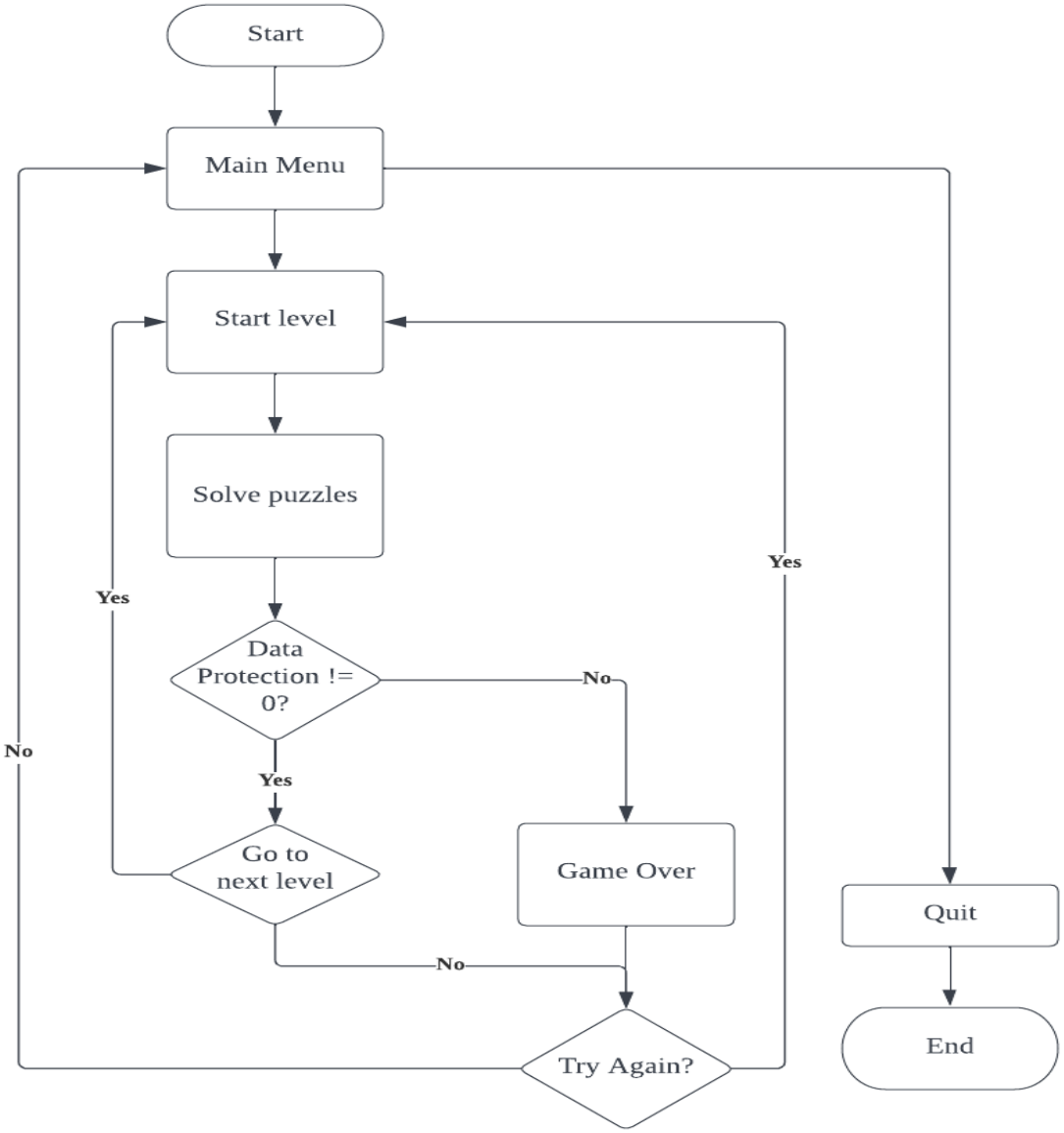
3. Methodology

The game's development is guided by the agile methodology that involves 6 phases which are requirements, design, development, testing, deployment and review.

A. Requirements: Many journals and articles were reviewed to get information about this topic, such as cybersecurity education, the implementation of game-based learning in education and several existing games about cybersecurity awareness. All the data gathered will be used to identify the problem and determine the objectives, scope and significance of developing this project.

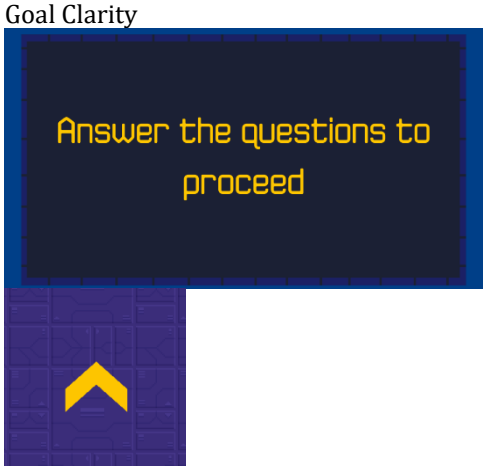
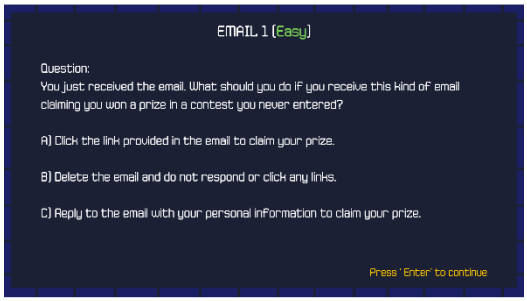
B. Design: The design phase is where the developer needs to design a flowchart and a storyboard before further development. Figure 1 shows the flow of the game.

Figure 1: Flow of the Game



C. Development: The game is developed using the Construct 3 game engine and the designing tools are Piskel and Canva. Construct 3 is an HTML-based 2D video game engine to facilitate the rapid development of games through visual programming, easy to use and powerful. Construct 3 is a 2D video game engine that uses visual programming to make it easy for non-programmers to create games. Piskel is free and open-source pixel art software that can be used to create animations and sprites. Canva is an online graphic design platform that allows users to create a variety of visual content, such as posters, social media graphics, presentations, flyers and more. It is easy and user-friendly interface makes for both experienced and new users to utilize the platform. The project development involved the elements of the E-Game Flow model to enhance the enjoyment of users while playing the game. All the elements are highlighted and explained in detail in Table 1.

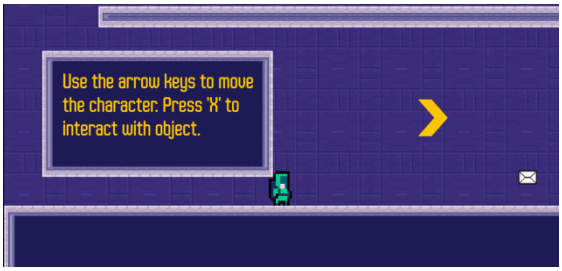
Table 1: Implementation of E-Game Flow Model in Cybersecurity Awareness

Elements	Criteria
Concentration 	The straightforward gameplay makes the player stay focused and concentrate on the gameplay instead of being distracted by other things.
Goal Clarity 	Clear goals and hints are presented throughout the game to make sure players know the goals of the game.
Feedback 	The game provides feedback for the player's actions during most of the gameplay. For example, when the player chooses the wrong answer, a pop-up panel will appear saying that the player chooses the wrong answer, and a wrong sound will be played.
Challenge 	The game provides the player with adequate challenges that scale as the game progresses. As the game progresses, the question will be harder and the player will need to answer the questions to proceed.
Autonomy	The game provides the player with the necessary information such as their



remaining lives and hints for progressing through the game. The game also provides the player with the ability to pause and stop the game whenever they want.

Immersion



To add a sense of immersion to the gameplay, feedback sounds and background music is added to the game to make the players feel more immersed.

Knowledge Improvement



The player will be able to gain knowledge on the topic of cybersecurity throughout the game by answering the questions and reading the explanations after answering.

D. Testing: Testing is conducted using an online questionnaire to 20 university students. The questionnaire is designed by the E-Game Flow model to measure the level of enjoyment and the effectiveness of the game. Seven factors have been highlighted in the questionnaire that are concentration, goal clarity, feedback, autonomy, challenge, immersion and knowledge improvement. The game and the form evaluation's link have been distributed through Google Drive to the participants. Participants have 15 minutes to play the game before answering the questionnaire. The questionnaires are in Google Forms for participants to fill out and submit after testing the game.

E. Deployment: The Developer will deliver the product to the client once it is completed and present all the details of their requests and requirements (McCormick, 2012). In this phase, the game is ready to be published on the Internet and available for all people to play.

F. Review: Review is the final stage of the agile process. The developer receives feedback from the client and takes action to assess the project's progress considering the specified goal.

4. Results and Discussions

The enjoyment testing is analyzed based on the adapted seven dimensions of the E-Game Flow model. Table 2 is the summary of the analyzed information from the testing.

Table 2: Overall Total Mean Value

Factor	Total Mean
Concentration	4.18
Goal Clarity	4.26
Feedback	4.13
Challenge	4.04
Autonomy	4.20

Immersion	3.62
Knowledge Improvement	4.27
Total Average Mean	4.10

Table 2 indicates the mean value for each dimension and the overall mean of the seven dimensions. In the concentration dimension, the total mean is 4.18. This shows that participants strongly agree that they can remain focused on the game. The total mean for the goal clarity dimension is 4.26. Most of the participants strongly agree that they are clear with the game goals. The feedback dimension in this project is achieved with a total mean of 4.13. Most of the participants strongly agree that they receive feedback while playing the game. Next, the participants strongly agree with the challenge dimension in this game with the mean value is 4.04. The autonomy dimension is 4.20 which mean most of the participants strongly agree that the game provides a sense of control over the game. The mean for the immersion dimension is 3.62. The mean for knowledge improvement is 4.27. Participants strongly agree that they were focused, did not feel tired and forgot the time when playing this game. The overall average of the dimensions is 4.10 or 82%, which shows the participants strongly agree that the game is enjoyable and effective.

5. Conclusion

Game-based learning can be used to create an enjoyable learning experience and a more exciting environment. Learning through the cybersecurity game has been successfully designed and developed to help students get enjoyment while becoming aware of cybersecurity and cyber threats. The game helps students to have an enjoyable and interesting experience. Players also can learn about cybersecurity and cyber threats through the game content.

However, the project is developed for personal computers and Windows platforms only, with limited cyber threats scope, and a few levels are provided to show progress achievement. As a future work, it is highly recommended that enhancement to mobile platforms, include awareness of a variety of cyberthreats and add many levels to motivate players to learn with fun.

References

Abd Rahim, N. H., Hamid, S. & Mat Kiah, M. L. (2019). Enhancement of Cybersecurity Awareness Program on Personal Data Protection among Youngsters in Malaysia: An Assessment. *Malaysian Journal of Computer Science*, 32(3), 221–245. https://doi.org/10.22452/mjcs.vol32no3.4

Al-Azawi, R., Al-Faliti, F. & Al-Blushi, M. (2016). Educational gamification vs. game-based learning: Comparative study. *International journal of innovation, management and technology*, 7(4), 132-136.

Bada, M., Sasse, A. M. & Nurse, J. R. (2019). Cyber security awareness campaigns: Why do they fail to change behavior? arXiv preprint arXiv: 1901.02672.

Bhavsar, V., Kadlak, A. & Sharma, S. (2018). Study on phishing attacks. *Int. J. Comput. Appl*, 182, 27-29.

Blancaflor, E., Esguerra, C., Fandiño, C., Gonzales, A. L., Nisperos, B. & Pono, L. (2021, March). A. Assessment of Student Vulnerability on the Download of Malware Disguised as Cracked Software. In Proceedings of the 11th Annual International Conference on Industrial Engineering and Operations Management Singapore.

Chanda, K. (2016). Password security: an analysis of password strengths and vulnerabilities. *International Journal of Computer Network and Information Security*, 8(7), 23.

Cybersecurity and Infrastructure Security Agency. (2021). What is cybersecurity? Retrieved from https://www.cisa.gov/what-cybersecurity

de Bruijn, H. & Janssen, M. (2017). Building cybersecurity awareness: The need for evidence-based framing strategies. *Government Information Quarterly*, 34(1), 1-7.

Garba, A. A., Siraj, M. M., Othman, S. H. & Musa, M. A. (2020). A study on cybersecurity awareness among students in Yobe State University, Nigeria: A quantitative approach. *Int. J. Emerg. Technol*, 11(5), 41-49.

Kovačević, A., Putnik, N. & Tošković, O. (2020). Factors related to cyber security behavior. *IEEE Access*, 8, 125140-125148.

Mai, P. T. & Tick, A. (2021). Cyber Security Awareness and behavior of youth in smartphone usage: A comparative study between university students in Hungary and Vietnam. Acta Polytech. *Hung*, 18, 67-89.

McCormick, M. (2012). Waterfall vs. Agile methodology. MPCS, N/A, 3.

Moallem, A. (2018, July). Cyber security awareness among college students. In International conference on applied human factors and ergonomics (pp. 79-87). Springer, Cham.

Moallem, A. (2019). Cybersecurity Awareness among Students and Faculty. CRC Press.

Rahman, N., Sairi, I., Zizi, N. A. M. & Khalid, F. (2020). The importance of cybersecurity education in school. *International Journal of Information and Education Technology*, 10(5), 378-382.

Sweetser, P. (2020, December). Game Flow 2020: 15 Years of a Model of Player Enjoyment. In 32nd Australian Conference on Human-Computer Interaction, 705-711.

Symantec. (2019). What is Malware? Retrieved from https://www.symantec.com/security-center/definition/malware

Wong, S. M., Leong, C. M. & Puah, C. H. (2020). Mobile Internet adoption in Malaysian suburbs: The moderating effect of gender. *Asian Journal of Business Research*, 9(3), 90-114.