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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 comprises papers of scholars from different universities of Malaysia, Indonesia, France, UK, Banglade, Yemen, Jordan, Qatar and Maldives. Determinants of Academicians' Mental Health, Developing Life-long Investment Literacy of Students, Integrating Safety Practices into the Supply Chain, Optimizing Safety Practices and Culture, Exploring the Impact of Authentic Personality and Social Media Posting on Self-Interested Charitable Behavior, Students Perceptions Towards Relevance of Tertiary Education, Examining Grassroot Innovation, Entrepreneurial Ecosystems to Boost Graduate Entrepreneurs, Determinants of Capital Structure, Exploring the Phenomenon of Selfie-Posting Behavior, Online Shopper Satisfaction, Impact of Training and Development, Job Embeddedness and Flexible Working Arrangements on Talent Retention, Influence of Work-Life Balance, Workload and Work Environment on Burnout, Examining the Influence of Macroeconomic Factors and Corporate Governance on Firm Performance, Tourism, Geopolitical Risk and Economic Policy Uncertainty Relationships, Factors that Influence Malaysian Muslim Travel Preferences, Framework for Healthcare Services Affordability for the Homeless, relationship between service quality and customer satisfaction, Impact of Foreign Direct Investment, Green Technology Innovation and GDP on CO_2 Emissions, Unlocking the Potential Research Directions in Effective Teaching, Determinants of Smallholder Farmers' Awareness, Effect of Liquidity M3 and Exchange Rate on Sukuk Market Size, Financial Risk: Case Study Analysis, Trust, Social Influence and Perceived Usefulness, Impact of Workplace Spirituality on Employee Performance, Are Male Muslim Leaders More Effective than Female Muslim Leaders, Factors Influencing Purchase Intention of Cosmetic Products, Exploring Rewards Systems, Turnover Intention and Trends in Digital and Critical Thinking Skills Research and Enterprise Risk Management and Sustainable Performance are some of the major practices and concepts examined in these studies. All the submitted papers were first assessed by the journal committee and then the external editorial team 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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Determinants of Academicians' Mental Health in Higher Education Institutions: A Systematic Literature Review

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Abstract: Due to the nature of the demanding working circumstances, most academicians at higher education institutions have therefore been vulnerable to experiencing mental health issues. This present study aims to investigate the prominent factors that influence academics' mental health in higher education through systematic reviews. In detail, this study is intended to analyze the trends, patterns, and knowledge gaps on the factors affecting mental health. Using the PRISMA protocol to identify and analyze datasets from the Web of Science (WoS), Scopus, Google Scholar, and Science Direct. In this present study, twenty-one papers were selected and analyzed. The findings indicate a robust influence of job demand on mental health among academicians in higher education. These review papers reveal that there is an increasing amount of research on the factors influencing the mental health of academicians in higher education. The findings highlight a worrying pattern of increasing job pressures and an increase in the frequency of mental health issues among academicians. Thus, there is a critical need for focused treatments and academic support networks to mitigate the increasing demands placed on faculty members and protect their mental health. This study contributes to the literature by focusing on mental health, primarily the job demands of academicians in the context of higher education institutions.

Keywords: *Job demand, mental health, academicians, systematic literature review*

1. Introduction and Background

A person's mental health may range from optimal to severely impaired. In addition to being free from mental illness, a state of good mental health is characterized by the development of adaptive patterns of thought and behavior that allow for successful interaction with one's surroundings. The foundation of an individual's emotions, thinking, communication, studying, sturdiness, and self-esteem is their mental health (The American Psychiatric Association, 2022). One's mental health affects relationships, their emotional and personal well-being, and their ability to positively impact society. Having good mental health allows individuals to be efficient in everyday functioning which leads to productive activities (caregiving, employment, and education), good connectivity, and the capacity to deal with change and confront adversity. A study by Peng and Surat (2021) emphasized that the everyday lives and future of an individual can be robustly influenced by their mental health. Employees' mental health is a major determinant of their overall health, which in turn promotes their quality of life and productivity (Sutarto, 2021). Organizations that foster mental wellness in their workers are essential to sustaining productive businesses and, by extension, flourishing communities. This motivates people to be stronger, more active, and healthier (Tisu et al., 2020). However, an escalating group of people are dealing with mental health concerns at work, which has an impact on academics and businesses alike.

The rate of mental illness among academic employees was three to four times greater than the overall population (Razali et al. 2019). It is because academicians face a heavy workload, mental health issues, and emotional exhaustion (Prado-Gascó et al., 2020) and these influence their mental health. The mental health of academicians has become a major issue because of increased job demand during online learning. Employees reported psychological health problems when they were chronically fatigued with their work (Bakker & de Vries, 2021). A study revealed that the burnout and stress faced by academicians are associated with their job demands and resources (Bottiani et al., 2019; Fiorilli et al., 2019; Sandmeier et al., 2022). Teaching is commonly acknowledged to be a stressful profession (Huang et al., 2019; MacIntyre et al., 2020). Increased accountability

in higher education has prompted several research examining the negative impacts of workload, role conflict and work-life imbalance on university academicians' performance and outcomes (Han et al., 2020). High levels of job demand in the teaching profession might eventually result in mental health, and leaving the profession (Burić et al., 2019). Academicians are reported to be stressed out and leave the profession in alarming numbers (Burić & Kim, 2020). An ongoing issue in the academic sector has been the significant proportion of qualified academicians quitting their jobs within five years (García & Weiss, 2019; Perryman & Calvert, 2020; Toropova et al., 2021).

Furthermore, current education reports have highlighted the effect of online learning on academician's mental health and indicate that job demand is a significant predictor of mental health problems among academicians (Ng et al., 2019). Indeed, another study remarked that academicians' mental health was influenced by work overload, working hours, and a lack of autonomy (Sandmeier et al., 2022), while other studies pointed out that it can be impacted by high stress, work-life imbalance, and emotional exhaustion (Boström et al., 2020), and role conflict (Burić et al., 2019). The resources that academicians obtain in their job such as autonomy (Sandmeier et al., 2022), social support and supportive leadership (Fiorilli et al., 2019), were thought to continuously provide happier feelings, improved well-being, and fewer intentions for academician attrition. (Wang et al., 2022). Most of the previous studies focus on the factors contributing to academician's job performance, job satisfaction and employee engagement (Capone & Petrillo, 2020; Fathi & Derakhshan, 2019; Johari et al., 2018). Scholars have repeatedly emphasized the critical role of individuals' proactive reactions toward their increasing job demands (Bakker & Demerouti, 2017). However, most of the studies focus on the job demand in the job context and do not explore the vital factors toward academic's ability to face mental health problems.

2. Literature Review

Previous studies have conducted empirical investigations on mental health (MacIntyre et al.2020; Guthrie et al., 2018; UrbinaGarcia, 2020; Camp et al., 2020; Bérubé et al., 2021; Nair & Otaki, 2021; Diendorfer et al., 2021; Karim et al., 2020). Moreover, empirical research demonstrates the impact of employment demand on the mental health of academics. From these previous studies, it can better understand how job stress affects the mental health of academics. Bakker et al. (2004) noted that job demand can be predictive of in-role performance through their link with weariness. According to research by Cordes and Dougherty (1993), conflict, ambiguity, and overload are the three most important elements of job demands. Demand in the workplace has been attributed to misalignment between what a person in a certain role is told to expect and what the person experiences (Kahn et al., 1964). One's demand for clarity and predictability, particularly about one's goals and methods of achieving those goals, is correlated with role ambiguity. It can happen if there is not sufficient knowledge for someone to carry out necessary tasks (Jackson & Schuler, 1985). Similarly, those who are juggling too many responsibilities may worry that they do not have the minimum skills or abilities required to get the job done.

Indeed, MacIntyre et al. (2020) confirmed the findings of prior research. The majority of those who responded are teachers at various levels of education. Workload, family health, loss control work, lack of recreation, blurred lines, and other stressors were among the 15 factors measured in this study, along with 14 coping techniques. Approach coping has been shown to have a positive correlation with positive psychological outcomes (well-being, health, happiness, resilience, and growth), while avoidant coping has been documented to have a negative correlation. In addition, a study performed by Guthrie et al. (2018) focusing on understanding mental health among academicians in the United Kingdom discovered that work-related stress and mental illness are major concerns for the labor market because they hurt attendance and productivity and have high costs for employees, businesses, and the whole economy. Academicians also reported higher levels of work satisfaction when they had more job autonomy, participated in decision-making, and had supportive managers. Stress reduction was also linked to professional growth opportunities. According to earlier studies, academicians' high levels of stress are primarily caused by their heavy workloads (MacIntyre et al., 2020). According to a preliminary paper by Pace et al. (2021), academicians are expected to work very hard and take on an increasing number of administrative duties, either with or without extra pay. The researchers stressed that among academicians working in higher education nowadays, mental health is a significant risk dimension for occupational stress. Academicians have been known to have high rates of early career dropout because of

an overwhelming workload (Palma-Vasquez et al., 2021).

3. Methodology

This article provides a systematic review of the literature by analyzing the influence of job demand on mental health based on twenty-one studies, to find the common themes from the past literature in the domain of mental health (Table 1). This study followed procedures proposed by Sanchez-Meca (2010) and Suarez et al (2017), including formulating the questions and research questions. In detail, this study will deal with two focuses which are to identify what are the characteristics of the selected articles. and investigating the influence of job demand on mental health among academicians in higher education institutions.

Formulating the Question

This section introduces the theoretical framework, or "constructs and concepts," and specifies the research questions that could be answered by conducting a systematic literature study.

Research questions

a) What are the characteristics of the selected articles?
b) Does job demand influence mental health among academicians in higher education institutions?

Constructs and Concepts

Job demands are "those physical, social, or organizational components of the job that require continuous physical or mental effort and, thus, are associated with specific physiological and psychological costs,". Workplace stresses include heavy workloads, tight deadlines, and difficult client encounters (Bakker et al., 2010). Anxiety and depression are just two of the symptoms that have been connected to job stress, which is caused by the demands of any employment (Tremblay & Messervey, 2011; Diestel & Schmidt, 2009; Griffin et al., 2007). While work overload will impact long-term job strain (Tremblay & Messervey, 2011).

Criteria for Inclusion and Exclusion of Articles

This study focuses on the most recent articles that include the latest four (4) years from 2020 to 2023 because of the difficulty and the constraints of researchers to review every published paper that has ever been published. It was found that from 2020 to 2023, there was more research examining the linkage between job demand and mental health, according to the search results obtained from the selected database. In detail, the paper included in this review includes the articles that have been included from the year 2020 to 2023 that are retrieved from highly reputable journals included in Web of Science, Scopus, Google Scholar, and Science Direct. The selected articles are in the area of knowledge to be studied which is job demand and mental health. All articles are published in English. This study excluded all non-peer-reviewed articles, books and conference papers. At this stage, the article inclusion and exclusion criteria are determined to search (Siva et al., 2016):

a) Articles have been included from the year 2020 to 2023.
b) Quality of Research: Articles from highly reputable journals included in Web of Science, Scopus, Google Scholar, and Science Direct.
c) Area of knowledge: Job demand and mental health.
d) Language of publication: English.
e) Keywords: “Job demand”, workload”, “mental health”, “academics”, “academicians”, “university” and “higher education”.
f) Excluded: All non-peer-reviewed articles, books and conference papers.

Article Search and Selection

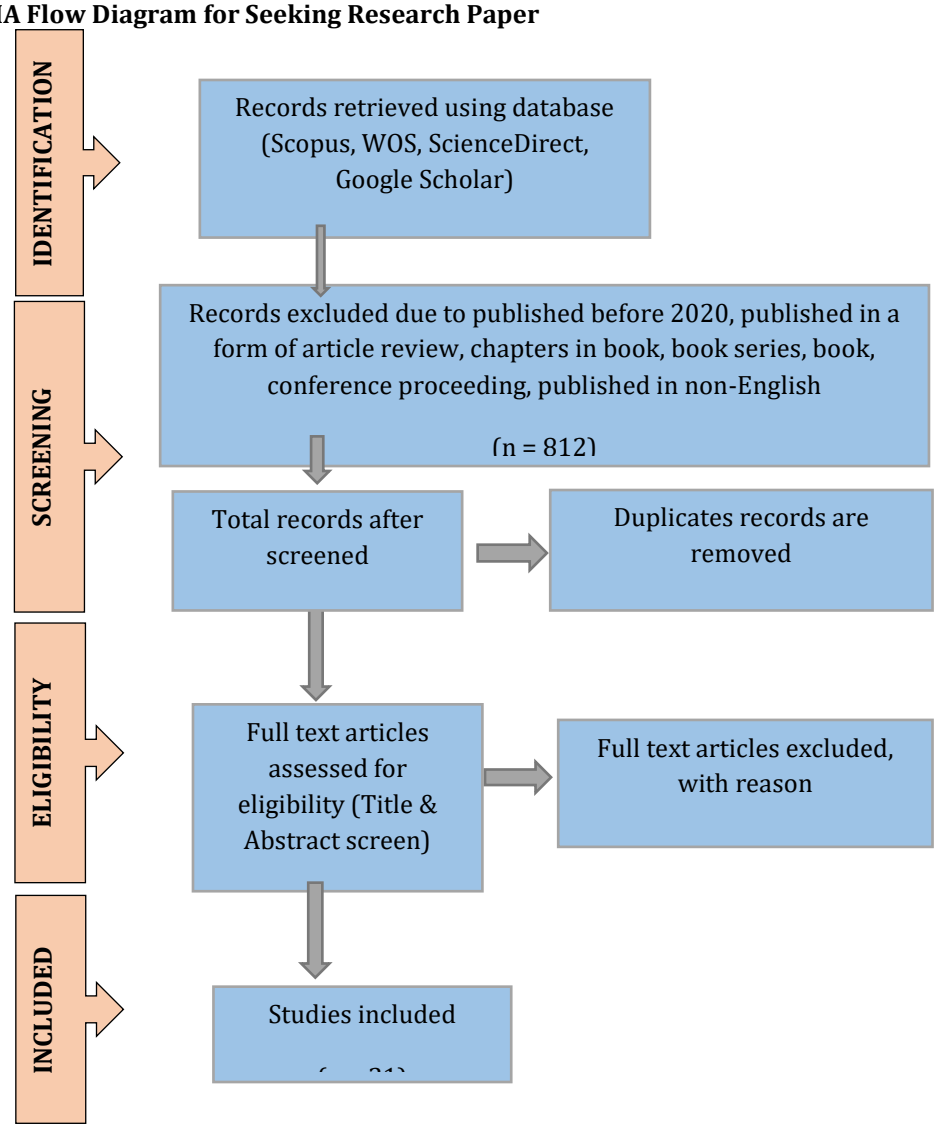
At this stage, publications were selected according to the study questions and inclusion/exclusion criteria:

a) Databases: Web of Science, Scopus, Google Scholar, and Science Direct.
b) Database search method involving title-based combinations of keywords relating to job demand and mental health.

4. Results of the Research

This study involved four datasets from Web of Science, Scopus, Google Scholar, and Science Direct, and found 929 publications that discuss the impact of job demand on the emotional well-being of university academicians. A total of 904 articles were omitted because did not fulfill the criteria for this study. Other 21 articles focused on how job demands affect academicians' mental health, while adhering to the guidelines for analysis and conclusions provided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (refer to Figure 1).

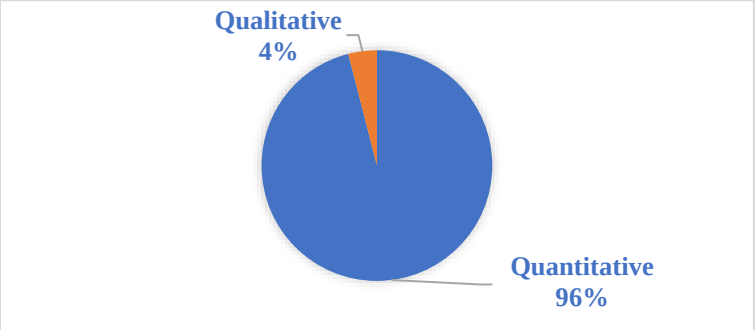
Figure 1: PRISMA Flow Diagram for Seeking Research Paper



Qualitative Studies and Quantitative Studies

Figure 1 shows the correlation between job demand and mental health research. Most of these studies applied a quantitative approach (96%) rather than a qualitative approach (4 percent, 1 study). The only qualitative study employs manual analysis of coding the themes of the data collected via interview and triangulation.

Figure 2: Types of Research Approach in the Study

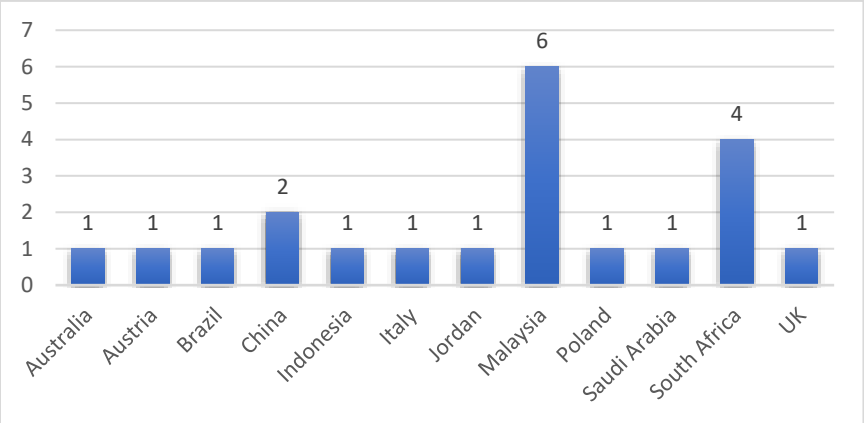


Countries Involves in the Study

With regards to research connecting job demand and mental health, Malaysia leads the pack with six studies, followed by South Africa with four, and China with two studies. Australia, Austria, Indonesia, Itali, Jordan, Poland, Brazil, and the UK tie for fourth place with one (1) study each. With six publications, Malaysia appears to be a focal point for research on the mental health of academicians in higher education institutions. The results indicate that there is increasing awareness and concern for mental well-being among Malaysian scholars and academicians, which can be impacted by various factors, including increasing workloads, shifting institutional dynamics, or cultural matters. In addition to Malaysia, China has two papers that deal with mental health among scholars. This result remarks that the topic is rising in China, and this is because China is known for its large higher education sector and rapidly evolving academic landscape.

Furthermore, this review paper discovered that four papers concerned in South Africa. The results indicate that the topic of mental health is also challenging in this nation. The included papers indicated that the concern of this study is caused by some factors, including socio-political issues, economic concerns, and unique stressors within the South African higher education system. Some papers identified also a concern addressing the well-being of academics and scholars within a historically complex and diverse academic circumstance. The remaining countries (e.g., Australia, Austria, Brazil, Indonesia, Italy, Jordan, Poland, Saudi Arabia, and the U.K.) each have one publication to deal with mental health among academicians. While these countries have contributed to the discourse on academicians' mental health, the lower number of publications suggests either a lesser focus on this topic within their respective academic communities or a relatively smaller academic output compared to countries like Malaysia and China. In summary, the distribution of publications across different countries reflects varying levels of attention and research focus on the mental health of academicians in higher education institutions. Factors such as cultural attitudes towards mental health, institutional support systems, and academic pressures likely influence the prevalence and depth of research in this area within each country. Figure 3 illustrates the list of publications in the respective countries.

Figure 3: List of Countries Involved in the Study



The Influence of Job Demand on Mental Health

The review in Table 1 indicates that 21 studies show the linkage between job demand on mental health among academicians in higher education. Most of studies reviewed are related to job demand in the context of the higher education institutions from a quantitative perspective (Teixeira, Marqueze & Moreno, 2020; Zhang et al, 2022; Brondino et al., 2022; Springer et al., 2023; Damayanti et al., 2020; Alwaely & Jarrah, 2020; Awang et al., 2021; Akunne et al., 2021; Kabito et al., 2020; Hussin et al., 2022; Jonge & Huter, 2021; Anees et al., 2021; Isa & Palpanadan, 2020; Mohamed et al., 2021; Shen & Slater, 2021; Adebayo, 2022; Nasution et al., 2022; Esteban et al., 2022; Almhdawi et al., 2021; Liu & Yan, 2020).

Preliminary papers examined the influence job demand on mental health such as anxiety (Zhang et al., 2022; Liu & Yan, 2020), stress (Teixeira, Marqueze & Moreno, 2020; Brondino et al., 2022; Springer et al., 2023; Damayanti et al., 2020; Awang et al., 2021; Akunne et al., 2021; Kabito et al., 2020; Anees et al., 2021; Isa & Palpanadan, 2020; Mohamed et al., 2021; Shen & Slater, 2021; Nasution et al., 2022; Almhdawi et al., 2021; Liu & Yan, 2020) and depression (Nasution et al., 2022; Almdawi et al., 2021). In addition, findings indicated that there is a link between feeling pressured to write academic papers and publishing them (Teixeira, Marqueze & Moreno, 2020; Springer et al., 2023), non-academic responsibilities (Awang et al., 2021), online teaching (Zhang et al., 2022) and stress.

Some of the studies argued that academic staff with high workloads negatively affect their well-being (Shen & Slater, 2021: Zhang et al., 2022). Furthermore, studies show that academicians in higher education institutions have a high stress level (Hussin et al., 2021; Kabito et al., 2020; Esteban et al., 2022; Almdawi et al., 2021). Moreover, academicians in South Africa (Naidoo-Chetty & du Plessis, 2021) and China (Zhang et al, 2022) revealed that challenges encountered in the academic setting were caused by job demands such as unfavorable working circumstances, restricted opportunities for career advancement, elevated levels of work overload, and inadequate resources. Therefore, the results indicate that job demand is a robust predictor of mental health among academicians in higher education institutions.

Table 1: Studies Selected for Review

Authors	Research Design	Country	Sample Size	Findings
Teixeira, Marquese & Moreno, 2020	Quantitative	Brazil	64	Working from home promotes work stress which shows the perception of significant pressure to deal with academic work.
Naidoo-Chetty & du Plessis, 2021	Qualitative	South Africa	23	Mental health is often linked with proper management of job demands and resources that can drive negative setbacks
Zhang et al, 2022	Quantitative	China	1060	There is a robust linkage between job demands and online teaching anxiety, job resources and online teaching anxiety, as well as subjective well-being and online teaching anxiety
Brondino et al., 2022	Quantitative	Italy	1481	Academic quality is prominent to enable university management to manage work-related stress and to mitigate the potential for harm to academics, which in turn can promote economic well-being
Springer et al., 2023	Quantitative	Poland	340	There is a robust connection between stress from a highly demanding work circumstance and burnout
Damayanti et al., 2020	Quantitative	Indonesia	70	The determinant dimension of work stress is often linked with age and higher workload
Alwaely & Jarrah, 2020	Quantitative	Saudi Arabia	60	Educators tend to have moderate burnout, while female educators are more likely to have higher burnout than males as it is directly connected with home activities

Authors	Research Design	Country	Sample Size	Findings
Awang et al., 2021	Quantitative	Malaysia	391	Stress is not influenced by academic responsibilities instead of non-academic responsibilities
Akunne et al., 2021	Quantitative	South Africa	940	Work stress is a robust predictor of mental health among academicians
Kabito et al., 2020	Quantitative	South Africa	535	Work-related stress often causes some behaviors, such as smoking cigarette
Hussin et al., 2022	Quantitative	Malaysia	328	The academicians experienced more than 50% depersonalization and 46% low-level accomplishment
Jonge & Huter, 2021	Quantitative	Australia	96	High emotional resources buffered the positive association between emotional demands and successively emotional, cognitive, and physical fatigue
Anees et al., 2021	Quantitative	Malaysia	140	There is a robust relation between job stress and workload, which affects turnover intention
Isa & Palpanadan, 2020	Quantitative	Malaysia	609	Educators' work stress is linked to workload, work environment, networking, health, and financial factors
Mohamed et al., 2021	Quantitative	Malaysia	411	Educators faced a greater burnout level and psychological distress
Shen & Slater, 2021	Quantitative	UK	87	Work stress has robustly promoted mental health and emotional welfare
Adebayo, 2022	Quantitative	South Africa	115	There is a robust link between role ambiguity, over time workhours, working circumstances, and job performance
Nasution et al., 2022	Quantitative	Malaysia	129	Educators from science and technology faculties have higher anxiety of depression compared to general lecturers
Esteban et al., 2022	Quantitative	Brazil	157	There is a robust link between psychological distress and workload, which in turn affects life satisfaction
Almhdawi et al., 2021	Quantitative	Jordan	299	Higher depression, stress, neck disability, and weight are acquainted with lower life quality
Liu & Yan, 2020	Quantitative	China	256	Stress, professional title and age were predictors for educators' anxiety, while teaching experience and its subscales were predictors for educators' stress

Several previous studies shed light on the factors affecting the mental health of academicians in higher education institutions. For instance, Teixeira et al. (2020) highlighted the pressure to publish academic papers, exacerbated by the blurred boundaries between work and home environments. Naidoo-Chetty and du Plessis (2021) emphasized the critical importance of effectively managing job demands and resources to mitigate negative setbacks. Additionally, research by Zhang et al. (2022) revealed intricate relationships between job demands, resources, subjective well-being, and online teaching anxiety, emphasizing the mediating role of subjective well-being in this dynamic. Indeed, Brondino et al. (2022) introduced a practical tool, the Academic Quality at Work Tool, which aimed at enhancing the quality of life and managing work-related stress among academics, providing a potential framework for intervention.

Furthermore, some previous studies (e.g., Springer et al., 2023; Kabito et al., 2020) underscored the detrimental effects of an overly demanding work environment, linking it to burnout, turnover intention, and chronic fatigue. Other scholars (e.g., Damayanti et al., 2020; Awang et al., 2021) identified specific dimensions, (age, workload, and non-academic responsibilities) as prominent contributors to work stress among academicians and

scholars. Similarly, Alwaely and Jarrah (2020) highlighted gender disparities in occupational burnout, with female academicians facing more pressures from household and family concerns and having higher stress instead of males. Akunne et al. (2021) and Zhang et al. (2022) found occupational stress to be a robust predictor of mental health outcomes among academicians, while Awang et al. (2021) and Kabito et al. (2020) identified specific stressors such as smoking and job dissatisfaction. These findings collectively emphasize the need for comprehensive strategies to address the diverse array of factors impacting the mental health and well-being of academicians in higher education institutions.

Discussion

The findings demonstrate that most of the articles are quantitative studies. However, only one qualitative study was found, and it manually analyzed the data. It reflected that quantitative studies are more frequently used in identifying the influence of job demand on mental health among academicians. Moreover, it can also be summarized that there are many studies from some countries like Malaysia, South Africa, and China. The search results indicate that job demand influences mental health, which are in agreement with part of the literature (Zhang et al., 2022; Liu & Yan, 2020; Teixeira, Marqueze & Moreno, 2020; Brondino et al., 2022; Springer et al., 2023; Damayanti et al., 2020; Awang et al., 2021; Akunne et al., 2021; Kabito et al., 2020; Anees et al., 2021; Isa & Palpanadan, 2020; Mohamed et al., 2021; Shen & Slater, 2021; Nasution et al., 2022; Almhdawi et al., 2021; Liu & Yan, 2020; Nasution et al., 2022; Almdawi et al., 2021). Academics will be able to better manage the demands and resources of their careers if they have a more in-depth and nuanced grasp of both. And it can help businesses provide benefits to their staff.

When employers do not provide workers with the tools they need to do their jobs well, those workers may get disengaged and start having mental health problems (Zhang et al., 2022; Liu & Yan, 2020; Teixeira, Marqueze & Moreno, 2020; Brondino et al., 2022; Springer et al., 2023; Damayanti et al., 2020; Awang et al., 2021; Akunne et al., 2021; Kabito et al., 2020; Anees et al., 2021). Nonetheless, there is conclusive proof that job demands lead to stress and strain, while job resources are associated with job satisfaction. Consistent studies have shown that failing to account for the efficient handling of job requirements and resources of one's employees can bring detrimental effects. Because academic management has not been adequately explored in studies on mental health at work, our results show that work organization and professors' mental health are related. It is crucial to stress the connection between academics' job demands and their mental health, both directly and indirectly. In conclusion, one's state of mind on the job improves as one's sense of the degree to which one must exert effort increases.

5. Conclusion and Recommendations

In this study, a thorough review of the prior research on the influence of job demand on mental health was carried out. A thorough examination of 21 research articles related to job demand and mental health was conducted using data derived from the four datasets (Web of Science, Scopus, Google Scholar, Science Direct). To reduce mental health among academicians, it is crucial to reduce the workload of academic' staff. Several studies on the impact of job demand on mental health were found in the results of the systematic literature review. Since this research was conducted in 2023, the researchers on studies published in the four years (2020-2023) to recoup timely outputs and up-to-date knowledge concerning the linkage between job demand and mental health.

The findings from the present study can be used by the government to address mental and emotional health issues and save a lot of costs to cure mental health problems, especially by improving support, counselling, and psychological services; expanding advocacy initiatives; expanding the role of non-governmental organizations as drivers of mental health programs are all steps identified by academics as being important. The present study is intended to examine the association between job demand and mental health among those in the teaching profession, particularly in developing countries and can contribute to evidence-based policy-making and informed public discussion and awareness about policy and practice. Therefore, the result of this study can help propose the right procedure for handling mental health problems thus it can improve the healthcare administration and would ensure that mental health services are provided to needed persons. Moreover, the findings will specifically help the government develop psychological interventions and mental health programs for the affected academicians.

Researchers currently rely on databases such as Web of Science, Scopus, Google Scholar, and Science Direct, but this list may grow in the future. In this analysis, the researchers factored in how occupational pressure may affect individuals' psychological well-being. More elements that affect academician mental health could be investigated in future research. Additional mediating or moderating variables, such as religious belief, could be incorporated similarly. Despite the dearth of studies that empirically investigate these interrelationships, it may be desirable to conduct future research that examines the direct and indirect connections between all these factors.

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Developing Life-long Investment Literacy of Students through Initial Public Offerings (IPO) One-Stop Support Center and Stock Trading Simulation

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Abstract: Initial Public Offerings (IPO) One-Stop Support Center website is created to help students, the public and academic researchers. One of the significant features of this website is a stock trading simulation which enables stock trading practice in a simulated or virtual environment. It simulates the experience of trading equities with virtual currency. The main aim of this trading simulation is to offer students and the public (potential retail investors) a risk-free environment to learn and practice trading before entering the real stock market. This study aims to understand the influence of trading simulation as an educational tool in improving students' lifelong learning skills through the development of investment literacy. This study was conducted using a qualitative approach. To fulfill the objective of this study, an online survey was distributed through a Google Form. A total of 110 respondents consisting of students enrolling in FIN768 (Investment and Portfolio Analysis) course, public, and academics in Universiti Teknologi MARA (UiTM), Shah Alam and Puncak Alam, Selangor took part in the online survey. This study finds that 89.10 percent of the respondents agree that this stock trading simulation is very useful for their life-long learning. This study contributes mainly to the students by providing them with valuable learning experiences and practical skills that extend beyond traditional classroom teachings.

Keywords: *IPO One-Stop Support Center; Stock Trading Simulation; Investment Literacy, Life-long Learning*

1. Introduction and Background

Creativity and innovation are an important essence in the teaching and learning process. Creative approaches in active teaching and learning are used throughout higher education institutions to increase students' interest and engagement in learning a course (Moffit & McKinney, 2010; Noreen, 2022). Supporting the necessity of innovating the teaching and learning activities and current agenda of the Securities Commission of Malaysia (SCM) to promote sustainable and responsible investment (SRI), the IPO One-Stop Support Center website (can be reached from: https://sites.google.com/uitm.edu.my/ipo-one-stop-support-center/home) is established to help students, the public (potential retail investors), academics and researchers gain important information about the initial public offerings and the stock market of Malaysia. Aligning the aim with the current initiatives of policymakers (i.e., SCM and Bursa Malaysia), this website is also built to generally promote a higher level of market transparency through information disclosure to allow more effective market surveillance and drive a higher level of transparency and disclosure to strengthen and maintain the stock market sustainability.

The specific objectives of the IPO One-Stop Support Center are to provide an online platform as an initiative for students and lecturers to comprehend investment and portfolio analysis, to provide an alternative platform, especially for users to get investment training through trading simulations as an initial exposure to the real trading experience and to provide initial public offering data as an initiative to improve the integrity of data access for academic researchers and retail investors. The IPO One-Stop Support Center also aims to become a support center that helps students and academics with reference materials such as slide presentations and publication of the latest articles related to initial public offerings and the stock market. The IPO One-Stop Support Center is expected to benefit several parties as it helps users to better understand investment and portfolio analysis, course and have a general understanding of the stock market, especially the initial public offerings as well as to perform trading simulations without the potential of capital loss and improve investment literacy before real stock investment activities. Overall, this IPO One-Stop Support Center may also assist academic researchers in conducting studies in the IPO area apart from becoming an alternative platform for information search related to initial public offerings data in Malaysia.

One of the IPO One-stop Support Center's key features is the "Trading Simulation", also known as virtual

trading, which aims to provide individuals with a risk-free environment to practice and learn about financial markets and trading strategies. The IPO One-stop support Center directs visiting users to the Bursa Marketplace platform for a hands-on experience. Users can experience real-world trading scenarios using virtual money, allowing them to practice trading activities without risking their actual capital. While the trading simulation can offer educational and learning tools, users can also hone their trading skills, such as technical analysis, fundamental analysis, risk management, and decision-making, by experimenting with different approaches and gaining practical experience. A step-by-step guide is provided on the website for users to start initiating their trading activities by appropriately choosing stocks for their portfolio through the stock screeners' function.

The main objective of this stock trading simulation is to provide users (potential retail investors) with a risk-free environment to learn and practice trading before entering the real stock market. This investment simulation experience is an initial preparation for users when participating in the stock market with high uncertainty. Users need to understand the ins and outs of the stock market more deeply to brace for investment risks while guaranteeing consistent investment returns in both the short and long term. This investment literacy is also important in helping users create a source of passive side income through investment activities in the future. Ultimately, generating passive income through investments can promote financial sustainability.

The actual trading features also can complement the formal investment education if students can experience investing before becoming real traders. Some of the key features that a Trading Simulation can offer similar to actual trading activities are when users are provided virtual money to trade, eliminating the risk of financial loss. The virtual funds represent a simulated trading account balance user can use to execute trades, it typically uses real-time or delayed market data to replicate actual market conditions accurately. This allows users to experience the price fluctuations and market dynamics they would encounter in real trading, offering a wide range of assets from different financial markets. Users can trade individual stocks, exchange-traded funds (ETFs), forex pairs, commodities, options, and more, provided with various trading tools and features, including charting tools, technical indicators, order types (market orders, limit orders, stop-loss orders, etc.), and portfolio tracking and given access to historical market data, allowing users to back-test trading strategies using past market movements. Overall, users will be able to experience real stock investing activity using the trading simulation platform on the IPO One-Stop Support Center website, aligning themselves with the current agenda for sustainable finance and better income opportunities.

This website is also accessible to the public who wish to get important information and build investment literacy before performing stock trade. Overall, the IPO One-Stop Support Center website, in particular the stock trading simulation, is a platform that can benefit various parties for a transparent and important information channel in the stock market, particularly the initial public offering market in Malaysia. While publicly listed companies in Malaysia are mandated to disclose relevant information (e.g., company history, company operations, financial health, and associated risks) by Bursa Malaysia, the encouragement of potential investors to test their understanding through simulated stock trading can be done through this simulation. As a result, future investments are safer and more sustainable, especially for newbie traders. This way, users can make investments to generate measurable positive impacts alongside sustainable financial returns. Additionally, there are other information available on this website. Among others are; general information on the initial public offerings market, how to invest and list companies listed on Bursa Malaysia, knowledge sharing and educational resources for several academic courses (Investment and Portfolio Analysis, Technical Analysis, Personal Financial Planning.

From the practical implication point of view, this website supports the SCM's objectives and the ASEAN Capital Market Forum's key point, inspiring to promotion of higher transparency in information disclosure for the capital market's long-term sustainability. In this context, the investment community should be better informed by the importance of companies' information disclosure retrieved in a more accessible platform for better protection of their investment portfolio and value. Disclosing higher specificity of information can attract higher participation from potential investors to the Malaysian stock market. In other words, the IPO One-stop Support Center is in line with a part of Malaysia's 8th Sustainable Development Growth (SDG); the Malaysian market and economic growth are expected to partly improve through a more transparent, fair, and better-regulated platform and a reachable and friendlier platform to retail investors in their early stage of investment

on IPOs. Thus, this study aims to understand the role of the Initial Public Offerings One-Stop Support Center and stock trading simulation as an educational tool in improving students' lifelong learning skills through investment literacy.

This study contributes to the literature on finance education in several ways. First, it adopts the Experiential Learning Theory (Kolb, 1984) to provide an effective learning method in the context of finance education. Second, this study evaluates the role of Initial Public Offerings One-Stop Support Center and stock trading simulation as an experiential learning activity to understand if this approach improves students' understanding of the stock market and their life-long learning experience. Overall, the findings in this study should assist students, and the public (prospective investors) in developing a better investment strategy having a risk-free environment to learn and practice trading before entering the real stock market for their sustainable investment.

The remainder of this paper is divided as follows. Section 2 provides the literature review. Section 3 discusses the methods used. Section 4 presents the main results and discussion. Section 5 provides a conclusion.

2. Literature Review

Experiential Learning Theory (ELT) and Simulations: Experiential Learning Theory (ELT), proposed by David A. Kolb in 1984, is a widely used framework that describes the process of learning through experience. The theory posits that learning is a dynamic and ongoing process that entails the conversion of experience into knowledge. Kolb's model delineates a four-stage learning cycle, highlighting the significance of both tangible experience and thoughtful observation. Kolb also identified four learning styles based on the preference for certain stages of the learning cycle which include converging, diverging, assimilating and accommodating. The ELT has been widely applied in education, training, and organizational development to design effective learning experiences that engage learners at various stages of the learning cycle.

For experiential learning, simulations in business education are an exceptionally effective pedagogical tool. Ranchhod et al. (2014) defined simulation as a simplified representation of the business world environment that is both dynamic and realistic. Through the manipulation of system variables and the receipt of immediate feedback, simulations facilitate students' comprehension of the functioning of the system under investigation. Due to their interactive and dynamic characteristics, simulations are thus an optimal medium for experiential learning. By actively engaging with the simulation environment and responding to real-world challenges, students can gain an understanding of the fundamental concepts of the system under investigation (Prensky, 2001). As such, lifelong learning abilities can be developed through simulations.

Feinstein et al. (2002) posit that simulations necessitate a reduced reliance on interpersonal communication in contrast to role-playing exercises or games. However, Ranchhod et al. (2014) contend that simulations and games are complementary and can enhance the effectiveness of teaching and learning activities through mutual reinforcement. Students can be further motivated through competition and the experiential learning process can be enhanced by integrating gaming or competition into simulations. While simulations do not inherently necessitate a competitive aspect, their allure frequently stems from the game-like atmosphere they generate and their departure from traditional pedagogical approaches. Learner motivation is enhanced through the implementation of simulation techniques, according to several studies. As found by Bakoush (2022), the simulation-based experiential learning activity can provide students with a hands-on experience of real-world practice and enhance students' satisfaction.

Stock Trading Simulation: Creating a stock trading simulation involves building a virtual environment that mimics the dynamics of real stock markets. A stock trading simulation is a computerized model or program that mimics the dynamics of actual stock markets, allowing users to test and refine trading strategies in a simulated environment. The main objective of a stock trading simulation is to provide users, regardless of their level of expertise in investing, with a hands-on opportunity to make investment choices and gain practical experience, all while avoiding the potential for real financial losses (Chulkov & Wang, 2020). Stock trading simulations encompass several crucial elements, such as the replication of market dynamics. These simulations strive to imitate essential characteristics of actual financial markets, including price fluctuations,

order book dynamics, and market liquidity. Additionally, historical data is frequently employed in these simulations to generate a realistic portrayal of market behavior by utilizing past stock prices and trading volumes. The historical data is utilized to backtest trading strategies and evaluate their potential performance. In general, stock trading simulations are widely adopted by individuals, educational institutions, and professional traders alike to augment their comprehension of financial markets, perfect their trading strategies, and acquire valuable experience in a setting devoid of risk (Chulkov & Wang, 2020).

Stock trading simulations are important to students for several reasons, providing them with valuable learning experiences and practical skills that extend beyond traditional classroom teachings. It allows students to apply theoretical concepts learned in finance and investment courses to real-world scenarios by bridging the gap between academic knowledge and practical application (Ping et al., 2020; Bakoush, 2022). The stock trading simulation also provides a risk-free environment for students to experiment with different trading strategies and learn from their mistakes without the fear of losing real money. This encourages them to take calculated risks and explore various investment approaches (Noreen, 2022). Additionally, the stock trading simulation contributes to the development of financial literacy by helping students understand concepts such as stock valuation, risk management, and the impact of economic indicators on financial markets. Students learn how to diversify their portfolios, balance risk and return, and manage their assets effectively. These skills are essential for students who are interested in a career in finance or investment management. For students considering careers in finance, trading simulations provide a practical introduction to the industry and may even serve as a foundation for more advanced studies.

In summary, Stock trading simulations provide students with a dynamic and interactive platform to cultivate practical skills, deepen their comprehension of financial markets, and equip themselves for careers in finance or related fields. The acquisition of practical knowledge through simulations enhances conventional classroom instruction, rendering it a valuable asset in the field of financial education.

Stock Trading Simulation and Students' Life-long Investment Literacy: Stock trading simulations contribute significantly to the development of lifelong learning skills in students. Stock markets are dynamic, and trends are always changing. Engaging in stock trading simulations requires students to continuously learn about market trends, economic factors, and global events. This fosters a mindset of continuous learning and adaptability. Successful trading requires thorough research and analysis of various factors influencing stock prices. Students learn to gather, evaluate, and synthesize information, developing research and analytical skills that apply to various aspects of life. Stock trading simulations present students with complex problems and decision-making scenarios. They must critically evaluate information, assess risks, and make decisions under uncertainty. These critical thinking and problem-solving skills are transferable to many areas of life. Managing a virtual portfolio through the stock trading simulation also involves assessing risks and making decisions based on probabilities (Pierce, 2021). Students learn to make informed decisions, considering the potential consequences of their actions. These skills are valuable in personal finance, career decisions, and everyday life. Students gain an understanding of investment principles, budgeting, and risk management, which are essential for making informed financial decisions throughout their lives. After several simulation activities, students often reflect on their trading strategies, successes, and mistakes. This reflection encourages a habit of self-assessment and continuous improvement, promoting lifelong learning (Tian & Wang, 2022).

From another view, not every trading strategy will be successful. Simulations provide a safe space for students to experience failure, learn from their mistakes, and refine their strategies. This resilience and ability to learn from setbacks are crucial life skills. Some simulations involve team-based trading, encouraging collaboration and teamwork. Learning to work effectively with others is a valuable skill in both personal and professional life (Mukherji et al., 2018). In essence, stock trading simulations not only teach students about the intricacies of financial markets but also instill a mindset of continuous learning, adaptability, and critical thinking that serves them well in various aspects of their lives. These lifelong learning skills are crucial in an ever-changing and complex world.

3. Research Methodology

Research Design and Data Collection: This study was conducted using a qualitative approach, specifically an online survey ("IPO One Stop-Support Center" Feedback Survey) to understand the impact of stock trading simulation on students and public users. The online survey was distributed through Google Forms: https://sites.google.com/uitm.edu.my/ipo-one-stop-support-center/feedback-survey

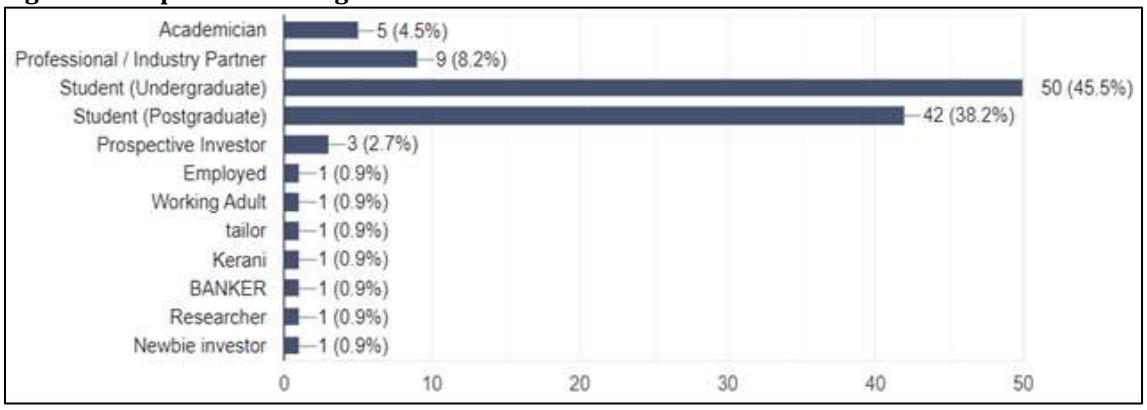
The online survey was divided into two categories, Section A: Demographic profiles and Section B: Main feedback from the user's experience of using the One-Stop Support Center and stock trading simulation. The online survey includes a section where respondents can insert their feedback for improvements to the existing platform.

Sampling and Data Analysis: To fulfill the objective of this study, the selected respondents are students enrolling in FIN768 (Investment and Portfolio Analysis) course, public, and academics in Universiti Teknologi MARA (UiTM), Shah Alam and Puncak Alam, Selangor. The total sample of this study is 110 respondents. The respondents took an online survey conducted on Google Forms that involved pre-event and post-event instruments. This study also appointed a representative (among the respondents) to monitor and guide the other respondents to answer the online survey. A total of eight questions in the main survey section were asked to the respondents including a question on the usefulness of the information on the public domain platform for potential investors, students, and academics to learn the basics of investing and conduct research in the field of IPOs and whether the IPO One-Support Center useful for improving your lifelong learning skills on investing and stock trading. All the questions were to determine the respondents' experience and level of understanding of basic investing, particularly in the area of IPOs. The feedback from all respondents was tabulated in charts for profiling and description ion of the finding's purposes.

4. Results and Discussions

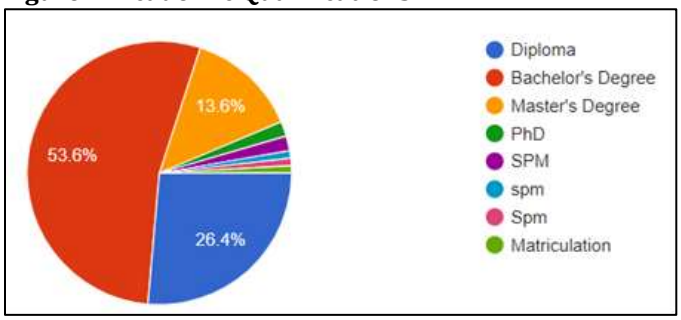
Demographic Profiles

Figure 1: Respondents Categories



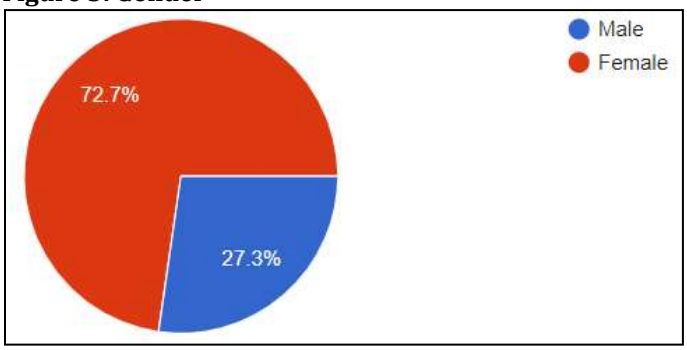
From the total number of respondents (110 people), 5 respondents (4.5%) are academics, 9 respondents (8.2%) are industrial or professional workers, 50 respondents (45.5%) are undergraduate students, 42 respondents (38.2%) are students postgraduate, 3 respondents (2.7%) are potential investors and 7 respondents (6.3%) are either researcher, banking institute employees, new retail investors and clerk.

Figure 2: Academic Qualifications



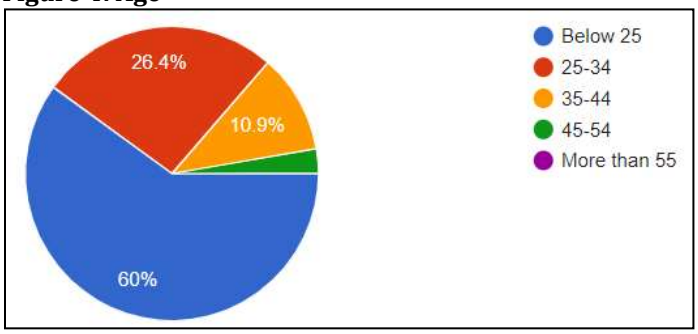
From the total number of respondents (110 people), 29 respondents (26.4%) have a diploma qualification, 59 respondents (53.6%) have a bachelor's degree qualification, 15 respondents (13.6%) have a master's degree, 2 respondents (1.8%) have a PhD qualification, 4 respondents (3.6%) are SPM graduates and 1 respondent (0.9%) is a matriculation graduate.

Figure 3: Gender



Of the total number of respondents (110 people), 80 respondents (72.7%) were women and 30 respondents (27.3%) were men.

Figure 4: Age

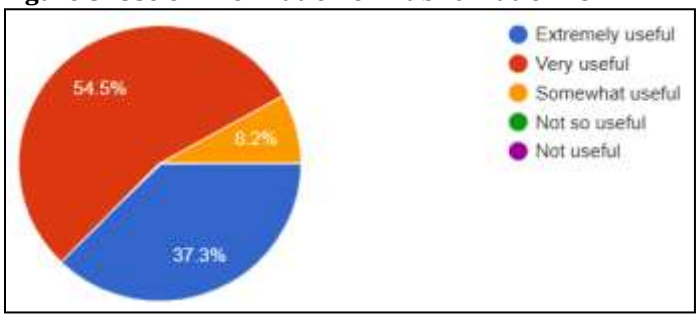


From the total number of respondents (110 people), 66 respondents (60%) were under 25 years of age, 29 respondents (26.4%) were in the age range of 25 to 34 years, 12 respondents (10.9%) were in the age range of 35 to 44 years and 3 respondents (2.7%) were in the age range of 45 to 54 years.

Main Survey Findings on the Application of IPO One-Stop Support Center and Stock Trading Simulation

How useful is the information on the public domain platform for potential investors, students, and academics to learn the basics of investing and conduct research in the field of Initial Public Offerings (IPOs)?

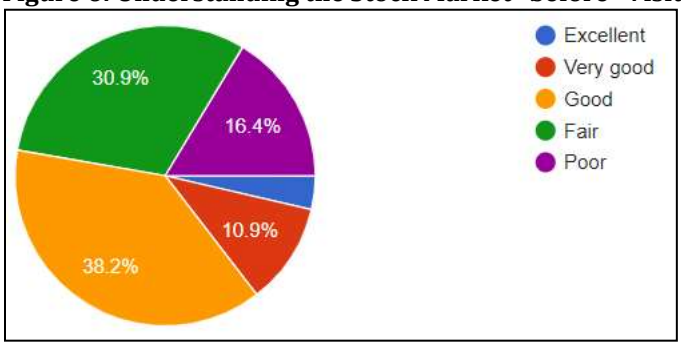
Figure 5: Use of Information on Public Platforms



From the total number of respondents (110 people), 41 respondents (37.3%) found this public domain platform extremely useful, 60 respondents (54.5%) thought that this public domain platform was very useful and 9 respondents (8.2%) thought it was quite useful for potential investors, students, academics to learn the basics of investing and conduct research in the field of Initial Public Offerings (IPOs). The responses show that information in the public domain can be incredibly valuable for potential investors, students, and academics looking to learn the basics of investing. There is a wealth of resources available, from financial news and market information to educational materials and research articles. It offers a foundation for understanding market dynamics, investment strategies, and financial concepts. For potential investors, staying informed about market trends, company performance, and economic indicators is crucial for making informed decisions. Thus, students and academics can leverage publicly available data to enhance their understanding of financial markets and conduct research.

What was your level of knowledge about investing in the stock market before visiting the IPO One-Stop Support Center?

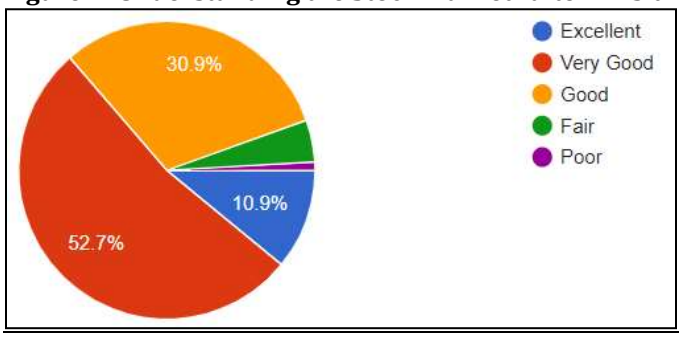
Figure 6: Understanding the Stock Market "before" Visiting the IPO One-Stop Support Center



From the total number of respondents (110 people), 4 respondents (3.6%) had an excellent understanding, 12 respondents (10.9%) had a very good understanding, 42 respondents (38.2%) had a good understanding, 34 respondents (30.9%) had a moderate level of understanding and 18 respondents (16.4%) had a low level of understanding about investing in the stock market before visiting the IPO One-Stop Support Center.

What is your level of knowledge about investing in the stock market after visiting the IPO One-Stop Support Center?

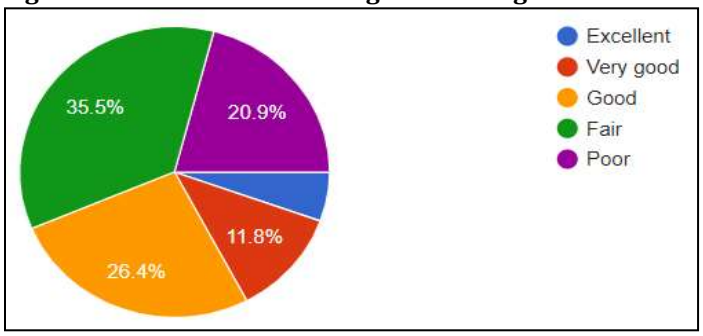
Figure 7: Understanding the Stock Market "after" Visiting the IPO One-Stop Support Center



From the total number of respondents (110 people), 12 respondents (10.9%) had an excellent understanding, 58 respondents (52.7%) had a very good understanding, 34 respondents (30.9%) had a good understanding, 5 respondents (4.5%) had a moderate level of understanding and 1 respondent (0.9%) had a low level of understanding about investing in the stock market after visiting the IPO One-Stop Support Center. The responses indicate that the IPO One-Stop Support Center can improve the understanding of users on the stock market.

What is your level of knowledge about the initial public offerings before visiting the IPO One-Stop Support Center?

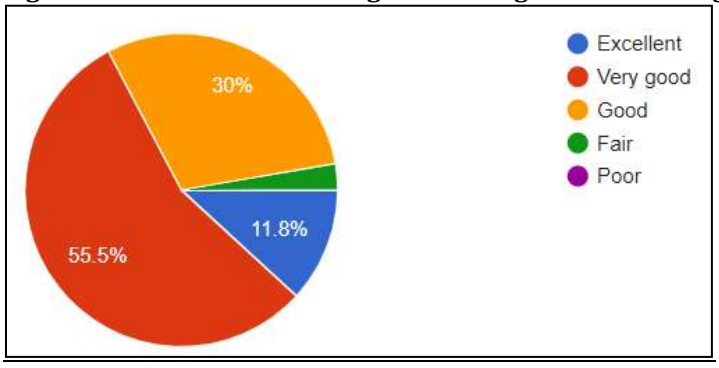
Figure 8: Initial Public Offerings' Knowledge "before" visiting the IPO One-Stop Support Center



From the total number of respondents (110 people), only 6 respondents (5.5%) had an excellent understanding, 13 respondents (11.8%) had a very good understanding, 29 respondents (26.4%) had a good understanding, 29 respondents (26.4%) have a moderate level of understanding and 23 respondents (20.9%) have a low level of understanding about the public market before visiting the IPO One-Stop Support Center.

What is your level of knowledge about the initial public market after visiting the IPO One-Stop Support Center?

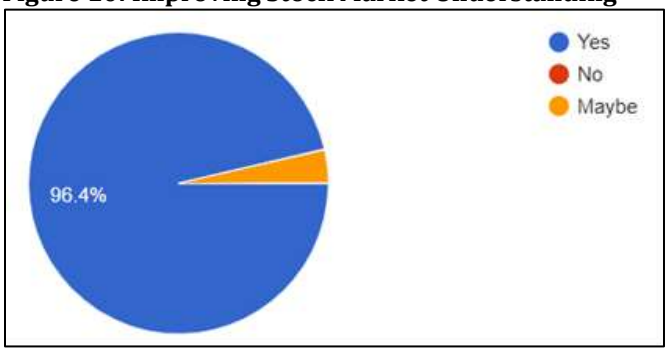
Figure 9: Initial Public Offerings' Knowledge "after" visiting the IPO One-Stop Support Center



From the total number of respondents (110 people), 13 respondents (11.8%) had an excellent understanding, 61 respondents (55.5%) had a very good understanding, 33 respondents (30%) had a good understanding, 3 respondents (2.7%) had a moderate level of understanding of the public market after visiting the IPO One-Stop Support Center. Figure 8 and Figure 9 shows an increase of 44.7% (from 11.8% to 55.5%) of respondents having better knowledge about initial public offerings after visiting the platform.

As a student, potential investor or academic, does this IPO One-Stop Support Center help improve your understanding of initial public offerings and stocks in general?

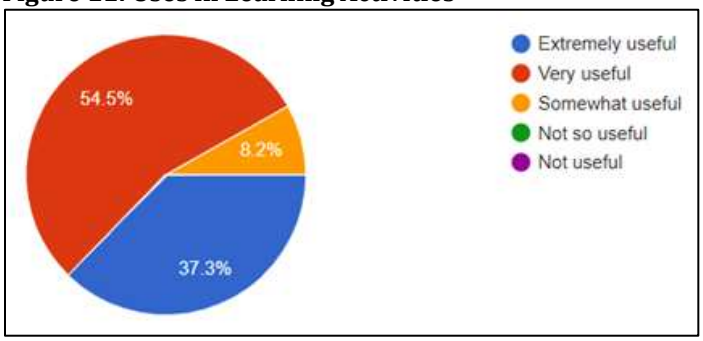
Figure 10: Improving Stock Market Understanding



From the total number of respondents (110 people), 106 respondents (96.4%) think that this support center helps to improve their understanding of initial public offerings and shares, in general. In contrast, 4 respondents (3.6%) think that there is a possibility that it can help to improve their level of understanding.

Is the IPO One-Support Center useful for your investment-related learning activities?

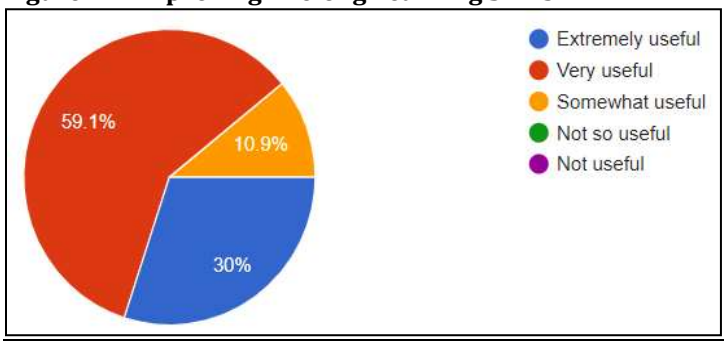
Figure 11: Uses in Learning Activities



From the total number of respondents (110 people), 41 respondents (37.3%) stated that the IPO One-Support Center is extremely useful in investment-related learning activities, 60 respondents (54.5%) stated that the IPO One-Support Center is extremely useful in investment-related learning activities and 9 respondents (8.2%) stated that the IPO One-Support Center is very useful in investment-related learning activities. This center could help users develop their knowledge and skills, make informed investment decisions, and stay updated on market trends and developments. Ultimately, the usefulness of any investment in educational support entry would depend on the quality, relevance, and accessibility of the resources and support services it provides. Users would need to evaluate whether the center meets their specific learning and investment needs and whether it offers valuable insights and guidance to support their goals (Chulkov & Wang 2020).

Is the IPO One-Support Center useful for improving your lifelong learning skills in investing and stock trading?

Figure 12: Improving Lifelong Learning Skills



From the total number of respondents (110 people), 33 respondents (30%) stated that the IPO One-Support Center is extremely useful in improving their lifelong learning skills from the investment aspect, 65 respondents (59.1%) stated that the IPO One-Support Center is very useful in improving their lifelong learning skills from the investment aspect. Meanwhile, 12 respondents (10.9%) stated that the IPO One-Support Center is useful in improving their lifelong learning skills from the investment, in particular the stock trading aspect. Figure 12 exhibits that all respondents (100%) agree that both IPO One-Support Center and stock trading simulation can improve their lifelong learning skills in investing and stock trading because the platform and the simulation provide a hands-on, practical experience that goes beyond theoretical knowledge. Users can apply concepts learned in classrooms or from textbooks in a dynamic, real-world setting. As posited by Tian and Wang (2022), incorporating stock trading simulations into teaching and learning activities can significantly contribute to the development of life-long learning skills in investing and stock trading. The responses on whether the IPO One-Support Center is useful for improving your lifelong learning skills in investing and stock trading seem to support experiential learning theory. The theory is highly applicable in the context of stock trading simulations as it helps the development of lifelong investment literacy of the users. Overall, the integration of experiential learning theory in stock trading simulations creates a useful and immersive learning environment, facilitating skill development and a deeper understanding of the complexities of financial markets.

5. Conclusion and Recommendations

This IPO One-Support Center can be the first of its kind to integrate information in catering both the needs of the Malaysian investment community (i.e., those in the early stage as investors), students and academics. This website is a "user-friendly" platform that gives interested parties free access to Malaysian stock information (i.e., IPOs) and stock trading experience. The information gathered and conveyed on this website is tailor-made to the Malaysian IPO market. From the online survey conducted, this study finds that all the respondents agree that the IPO One-Support Centre and the stock trading simulation enhance their capacity for lifelong learning regarding investing and stock trading. This is because both the platform and the simulation offer practical, hands-on experience that surpasses theoretical understanding. The feedback on the use of the IPO One-Support Centre in enhancing users' lifelong investment literacy and stock trading skills appears to support the notion that experiential learning theory is exceptionally applicable to stock trading simulations. In general, the incorporation of experiential learning theory into stock trading simulations fosters an effective and engaging educational setting that promotes the growth of competencies and a more profound comprehension of the intricate nature of financial markets (Huang et al., 2022).

Despite its practical benefits, this website must offer continuous effort, particularly in the trading simulation platform, to better serve its users. Some of the features to be included in improving the innovation are to offer information on different types of investment for students to diversify their investment interests and portfolio, a stock trading tutorial video to navigate the trading simulation experience better, weekly notification of the newly announced IPOs in Malaysia, include IPO listing day performance and to-date performance and provide a Frequently Asked Questions (FAQ) Section.

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Integrating Safety Practices into the Supply Chain for Sustainable Development in Malaysia's Building Construction Sites

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Abstract: The construction industry plays a vital role in driving sustainable development in Malaysia. However, the sector is also associated with various safety risks and challenges. Safety practices on building construction sites are crucial not only for the well-being of workers but also for the overall success of construction projects. This research employs a quantitative approach with descriptive analysis to the extent of the Integration of Safety Practices into the Supply Chain. Utilizing mean and standard deviation calculations, the study analyses rates, compliance levels, and other key safety indicators across firms in the construction sectors. By addressing safety concerns at every stage of the supply chain, from sourcing raw materials to final project delivery, stakeholders can mitigate risks, minimize accidents, and create a secure working environment. In the context of sustainable development, incorporating safety practices into the supply chain aligns with Malaysia's commitment to achieving the United Nations' Sustainable Development Goals (SDGs). Specifically, it contributes to SDG 8 (Decent Work and Economic Growth) and SDG 11 (Sustainable Cities and Communities). By prioritizing safety, the construction industry can foster a culture of well-being and productivity, attract skilled workers, and promote responsible business practices. Key safety practices that can be integrated into the supply chain include rigorous supplier vetting, ensuring the use of certified and safe construction materials, implementing proper handling and storage procedures, and conducting regular safety training for all workers involved. Additionally, leveraging technology such as Internet of Things (IoT) devices, wearables, and real-time monitoring systems can enhance safety management and enable prompt response to potential hazards.

Keywords: *Safety Management Practices, Supply Chain Management, Sustainable Supply Chain, Construction.*

1. Introduction

The construction industry in Malaysia stands as a pivotal force propelling the nation towards sustainable development. While this sector significantly contributes to economic growth and infrastructure development, it is not immune to the myriad safety risks and challenges inherent in its operations (Suhaimi et al., 2021). The integration of safety practices into the supply chain of building construction sites emerges as a critical imperative to harmonize the dual goals of advancing sustainable development and ensuring the well-being of workers (Mellado & Lou, 2020). This paper delves into the quantitative exploration of the extent to which safety practices are integrated into the supply chain within Malaysia's building construction sector, employing a descriptive analysis to elucidate key dimensions of this integration.

Safety on building construction sites is not merely a prerequisite for fulfilling occupational health and safety standards; it is an indispensable factor for the overall success of construction projects (Razak et al., 2015). This research endeavors to unravel the nuances of safety practices across firms in the construction sector, utilizing metrics such as mean and standard deviation to gauge rates of compliance and other safety indicators. The examination spans the entire supply chain, from the initial sourcing of raw materials to the final delivery of construction projects, thereby providing a comprehensive understanding of the safety landscape in the industry (Sivan et al., 2022; Othman et al., 2015).

By addressing safety concerns at every stage of the supply chain, stakeholders have the potential to mitigate risks, minimize accidents, and cultivate a secure working environment (Komatina et al., 2021; Munir et al., 2018). Such an approach aligns seamlessly with Malaysia's commitment to achieving the United Nations' Sustainable Development Goals (SDGs). Specifically, it contributes to SDG 8 (Decent Work and Economic Growth) by fostering a workplace culture that prioritizes the well-being of workers and SDG 11 (Sustainable Cities and Communities) by promoting safe and sustainable construction practices (Osei-Asibey et al., 2021; Othman et al., 2023).

In this pursuit of integrating safety practices into the supply chain, the construction industry has the opportunity to cultivate a culture of well-being and productivity (Claxton et al., 2022). Moreover, by championing safety, the sector can attract skilled workers who are increasingly discerning about their workplace conditions and contribute to responsible business practices (Al Doghan & Sundram, 2023). This paper advocates for the incorporation of key safety practices throughout the supply chain, including rigorous supplier vetting, ensuring the use of certified and safe construction materials, implementing proper handling and storage procedures, and conducting regular safety training for all workers involved.

In tandem with these traditional practices, the integration of modern technologies such as the Internet of Things (IoT) devices, wearables, and real-time monitoring systems is explored as a means to enhance safety management (Muhamed et al., 2022). These technologies offer the potential for proactive hazard identification and prompt responses, elevating safety standards in the construction industry (Muhammad, Naidu, Sundram, Hussain, Chew, & Amirrudin (2023).

This paper seeks to unfold the imperative of integrating safety practices into the supply chain of building construction sites in Malaysia, shedding light on its multifaceted benefits for sustainable development, worker well-being, and the overall success of construction projects. Through a comprehensive analysis of safety metrics, compliance rates, and industry practices, it aims to provide actionable insights that can inform policy, guide industry practices, and pave the way for a safer and more sustainable construction landscape in Malaysia.

2. Literature Review

Supply Chain Integration: Safety as a Key Component: The construction industry, renowned for its significant contributions to economic development, is concurrently notorious for its inherent safety challenges. Scholars such as Hinze and Gambatese (2003), and Jazayeri and Dadi (2017) have emphasized the need for a systemic approach to safety management, asserting that a comprehensive strategy must address safety concerns at every stage of construction. This holistic perspective underscores the critical role of integrating safety practices into the supply chain, acknowledging that the success of construction projects is intricately linked with the well-being of the workforce.

Supply chain integration in the construction industry is a pivotal aspect of efficient project management. Kumaraswamy and Palaneeswaran (2007) posit that the integration of safety measures into the supply chain positively influences project performance and stakeholder satisfaction. Their work accentuates the interconnectedness of safety and supply chain dynamics, urging industry stakeholders to extend safety considerations beyond traditional on-site practices to encompass the entire supply chain.

Sustainable Development: The Intersection with Safety Practices: The nexus between sustainable development and safety practices in the construction industry is increasingly recognized. Zou, Zhang, and Wang (2007) argue that safety practices are integral to sustainable development, with their study demonstrating that companies prioritizing safety contribute significantly to environmental and social sustainability. This underscores the importance of responsible business practices and aligns with Malaysia's commitment to achieving the United Nations' Sustainable Development Goals (SDGs) (Sundram et al., 2017).

The advent of modern technologies presents a paradigm shift in construction safety management. Lee, Hwang, and Lee (2018) delve into the adoption of wearable technologies and Internet of Things (IoT) devices in construction safety. Their findings underscore the transformative potential of technology in providing real-time monitoring, immediate responses to potential hazards, and a proactive approach to safety management.

Global Commitments and the Malaysian Context: Linking Safety Practices to SDGs: The global commitment to sustainable development, epitomized by the United Nations' SDGs, resonates with Malaysia's aspirations for responsible and sustainable construction practices (Ogunmakinde et al., 2022; Sundram et al., 2018b). Ahmad et al. (2019) investigate the alignment between construction practices in Malaysia and SDGs. Their empirical assessment underscores the importance of integrating safety into the construction supply chain as a means to achieve SDG 8 (Decent Work and Economic Growth) and SDG 11 (Sustainable Cities and Communities).

In conclusion, the comprehensive literature review illuminates the interconnectedness of safety practices, supply chain management, and sustainable development in Malaysia's building construction sector. The integration of safety practices into the supply chain emerges as not only a strategic imperative for worker well-being but also a catalyst for achieving broader goals of economic growth and sustainable urban development (Sundram et al., 2018a). The insights derived from these studies (Yusof & Ariffin, 2020; Moshood et al., 2020; Subramaniam et al., 2016) provide a foundation for industry stakeholders, policymakers, and practitioners to forge a path toward a safer, more sustainable future for Malaysia's construction industry.

3. Methodology

The research methodology for this study adopts a quantitative approach with a focus on providing a comprehensive analysis of safety practices integrated into the supply chain for sustainable development in Malaysia's building construction sector. Employing a descriptive research design, the study utilizes key metrics such as mean and standard deviation to quantify and interpret the extent of safety integration across diverse construction firms.

The data collection process involves a stratified random sampling strategy, ensuring representation across various dimensions such as project size, geographical location, and the nature of construction activities. Primary data is gathered through structured surveys distributed to construction firms, suppliers, and other stakeholders within the supply chain. Additionally, secondary data is sourced from industry reports, government publications, and academic literature to complement and enrich the primary dataset (Sundram et al., 2020).

The research variables encompass safety practices and supply chain integration. Safety practices are measured through factors such as supplier vetting processes, material certification protocols, handling and storage procedures, and the effectiveness of safety training programs. On the other hand, supply chain integration is assessed by considering collaboration levels among stakeholders, communication effectiveness, and the degree of integration of safety considerations into procurement and logistics processes.

Ethical considerations are paramount in the methodology, with informed consent obtained from all participants and measures in place to ensure confidentiality (Zetty Zahureen et al., 2020). Despite efforts to mitigate biases, limitations such as sampling bias and reliance on self-reported data are acknowledged. Rigorous steps, including content validity checks and pilot testing, are taken to enhance the validity and reliability of the study (Rozilah et al., 2020). This methodology provides a robust foundation for the quantitative analysis of safety practices in Malaysia's construction supply chain, aiming to contribute meaningful insights to the industry.

4. Data Analysis

Data analysis is the process of inspecting, cleaning, transforming, and modeling data to discover useful information, conclude, and support decision-making (Sundram et al., 2016). The results of this study's data analysis can be seen in Table 1 and Table 2. This study's respondent profile is obtained from 25 usable questionnaires out of the overall 30 distribution. Therefore, the response rate for the respondents' and company's background is 83%.

Table 1: Respondents' Background

Respondents' Background	Total Respondent	Percentage (%)
GENDER:		
Male	18	72
Female	7	28
AGE:		
20 – 29 years	14	56
30 – 39 years	11	44
YEARS OF EXPERIENCE IN THE INDUSTRY:		
0 – 5 years	17	68
6 – 10 years	8	32
POSITION:		
Managing Director	4	16
Project Manager	3	12
Contract Manager	11	44
Contract Executive	5	20
Others	2	8

Table 1 shows more than half of the respondents are male with a percentage of 72%, while the rest of the respondents are female with a percentage value of 28%. Almost half of the respondents are between the ages of 30 to 39 years old with a percentage of 44%, while the other more than half respondents are between the ages of 20 to 29 years old with a percentage of 56%. Furthermore, the majority of respondents have a working experience in the industry of 5 years or less with a percentage of 68%, while those with working experience of 6 to 10 years have a lesser percentage value of 32%. Among the total of 25 respondents, almost half of them with a percentage of 44% are Contract Managers, 20% are Contract Executives, 16% are Managing Directors, 12% are Project Managers, and the remaining 8% are from other working positions of their respective companies.

Table 2: Company Background

Company Background	Total Respondent	Percentage (%)
YEARS OF THE COMPANY'S ESTABLISHMENT:		
< 5 years	6	24
≥ 5 years	19	76
GRADE OF CIDB:		
G4	4	16
G5	2	8
G6	5	20
G7	14	56
TYPES OF PROJECTS MAINLY UNDERTAKEN:		
Building	17	68
Infrastructure	3	12

Civil Engineering	5	20
NUMBER OF EMPLOYEES:		
0 – 10 employees	7	28
11 – 20 employees	3	12
21 – 30 employees	5	20
More than 30 employees	10	40
VALUES OF CONTRACT UNDERTAKEN:		
Not more than RM 1,000,000	4	16
RM 1,000,001 – RM 3,000,000	5	20
RM 3,000,001 – RM 5,000,000	2	8
RM 5,000,001 – RM 7,000,000	6	24
RM 7,000,001 and above	8	32

The result from Table 2 shows the company's background data. Firstly, the year of the company's establishment maximum value is 5 years or more with a percentage of 76%, while the minimum value is less than 5 years with a percentage of 24%. Secondly, the maximum value for the grade of CIBD is G7 with a percentage of 56%, while the minimum value is G5 with a percentage of 8% from the total respondents' company background. Next, the type of project that the respondents' company undertakes is building with a maximum value percentage of 68%, while infrastructure projects have the minimum value with a percentage of 12% from the total respondents' company background. Furthermore, most of the companies have more than 30 employees with a maximum value percentage of 40%, while the minimum value percentage is companies with 11 to 20 employees with 12% of the total respondents' company background. Lastly, the values of the contract undertaken by the respondent's company with the largest percentage is 32% representing an amount of RM7,000,001 and above, while the amount of RM3,000,001 to RM5,000,000 have the minimum value with a percentage of 8% from the total respondents' company background.

Table 3: Safety Practices across the Construction Supply Chain

Dimensions	**Mean**	**Rank**
Safety practices are considered when selecting and vetting suppliers for construction materials.	5.67	8
Certified and safe construction materials are consistently used throughout the supply chain.	6.12	2
Safety performance is a key criterion when evaluating suppliers in the construction supply chain.	5.82	5
There is a dedicated safety team responsible for overseeing safety practices throughout the supply chain.	5.18	12
Safety culture is prioritized and promoted throughout the supply chain.	4.70	15
Suppliers are required to provide documentation proving compliance with safety standards.	5.84	4
Risk assessments are conducted to identify potential safety hazards in the supply chain.	5.74	6
Safety practices are integrated into the design phase of construction projects.	5.67	9

Technology such as IoT devices, wearables, and real-time monitoring systems are utilized to enhance safety management and response to potential hazards.	6.19	1
Safety guidelines and protocols are communicated to all stakeholders in the supply chain.	5.03	13
Contractors and suppliers actively collaborate to improve safety practices in the supply chain.	5.29	10
Adequate resources and investments are allocated towards safety initiatives in the supply chain.	4.91	14
Safety communication channels are established to ensure the effective sharing of safety information.	5.84	3
Safety training programs are tailored to address specific risks in the construction supply chain.	5.67	7
The supply chain actively collaborates with regulatory bodies to ensure compliance with safety regulations.	5.29	11

The mean of all safety practices across the construction supply chain were summarized in Table 3. Based on the results, the mean value distribution for all items of safety practices ranges from 4.70 to 6.19. The result shows that technology utilization is at the very top and most important role in enhancing safety management and response to potential hazards across the construction supply chain. The second top criterion of safety practice is that certified and safe construction materials are consistently used throughout the supply chain. The third to sixth important factors are safety communication channels for sharing safety information, suppliers are required to provide documentation proving safety standards, safety performance in evaluating suppliers, and risk assessment in identifying safety hazards. The next three factors with the same mean value are safety training programs, safety practices when selecting suppliers, and the design phase for construction purposes. Follows after until the last factors are contractors' and suppliers' collaboration, supply chain members' collaboration with regulatory bodies for safety regulations, the existence of a safety team to oversee safety practices, safety guidelines and protocols to stakeholders, adequate resources and investment toward safety initiatives, and lastly, safety culture is prioritized and promoted throughout the supply chain.

5. Conclusion and Recommendations

In navigating the complex landscape of Malaysia's building construction industry, this paper has undertaken a comprehensive exploration of integrating safety practices into the supply chain for sustainable development. The literature review substantiates the critical role of safety practices in construction, emphasizing a holistic perspective that extends beyond on-site considerations to encompass the entire supply chain. The intersectionality of safety practices, supply chain integration, and sustainable development have been highlighted, providing a nuanced understanding of the multifaceted challenges and opportunities in the construction sector.

The research underscores the imperative of cultivating a safety-conscious culture at every stage of the construction supply chain. From sourcing raw materials to final project delivery, safety practices play a pivotal role in mitigating risks, minimizing accidents, and fostering a secure working environment. The alignment with Malaysia's commitment to the United Nations' Sustainable Development Goals (SDGs) further reinforces the significance of integrating safety into the industry's DNA.

Recommendations:

Enhanced Supply Chain Integration: Stakeholders in the construction industry must prioritize the integration of safety practices into every facet of the supply chain. This includes rigorous supplier vetting, ensuring the use of certified and safe construction materials, implementing proper handling and storage procedures, and conducting regular safety training for all workers involved (Muhammad, Naidu, Sundram,

Hussain, Chew, Pillai & Ibrahim, (2023).

Leveraging Technology for Safety: Embrace modern technologies, such as the Internet of Things (IoT) devices, wearables, and real-time monitoring systems, to enhance safety management. These technologies offer the potential for proactive hazard identification and prompt responses, thereby elevating safety standards in the construction industry.

Interdisciplinary Collaboration: Foster collaboration among various stakeholders, including government bodies, industry associations, and educational institutions. This collaboration can facilitate the development of comprehensive safety guidelines, standards, and training programs that are aligned with sustainable development objectives (Sundram, Ghapar, Osman, Chew & Muhammad 2023).

Continuous Improvement and Monitoring: Establish a system for continuous improvement and monitoring of safety practices throughout the supply chain. Regular audits, performance assessments, and feedback mechanisms can help identify areas for improvement and ensure the sustained effectiveness of safety initiatives (Sundram, Ghapar, Chew, & Muhammad 2023).

Education and Awareness: Invest in educational programs and awareness campaigns to instill a strong safety culture within the industry. This includes promoting the importance of safety practices, disseminating best practices, and encouraging a proactive approach to safety at all organizational levels.

Policy Advocacy: Advocate for policies that incentivize and enforce the integration of safety practices into the construction supply chain. Collaborate with regulatory bodies to develop and implement regulations that prioritize worker well-being and align with sustainable development goals.

In conclusion, the integration of safety practices into the supply chain is not merely a regulatory obligation but a strategic imperative for the sustainable development of Malaysia's building construction industry. By embracing these recommendations, stakeholders can create a resilient and responsible construction ecosystem that prioritizes safety, fosters a culture of well-being, and contributes significantly to the nation's broader goals of sustainable development.

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Optimizing Safety Practices and Culture: A Comprehensive Examination through Perception Surveys in Malaysia's Logistics Industry

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Abstract: This study investigates safety practices within Malaysia's logistics industry, a critical component of the nation's economic infrastructure. Employing a quantitative method, specifically a descriptive analysis approach, the research conducts surveys with industry experts and professionals, alongside a quantitative analysis of safety practices. The goal is to comprehensively understand existing safety challenges, identify potential hazards, and assess compliance with safety regulations. Drawing on international best practices, the study benchmarks successful safety models implemented in global logistics hubs, providing valuable insights into the Malaysian context. The outcomes of this research aim to offer a holistic understanding of safety practices and propose actionable recommendations for stakeholders, policymakers, and regulatory bodies. By addressing safety concerns and fostering improvements in protocols, training, and technology integration, the research contributes to the development of a safer and more resilient logistics ecosystem in Malaysia. Ultimately, the study aims to promote sustainable growth in the industry, ensuring the well-being of workers and the public involved in logistics operations while aligning with global standards for safety and security in the logistics sector.

Keywords: *Safety Management Practices, Supply Chain Management, Logistics.*

1. Introduction

The logistics industry in Malaysia stands as a linchpin in the nation's economic landscape, facilitating the movement of goods across diverse sectors (Mkumbo et al., 2019; Sundram, Rajagopal., Atikah & Subramaniam, 2018). However, amidst its pivotal role, the industry faces multifaceted challenges related to safety practices. The dynamic nature of logistics operations, involving transportation, warehousing, and distribution, exposes workers and assets to potential risks (Sivan et al., 2022; Sundram, Rajagopal, Nur Atiqah, Atikah & Appasamy, & Zarina, 2018; Vatumalae et al., 2020). Understanding and improving safety measures within this sector is imperative to ensure the well-being of those involved and the uninterrupted flow of goods crucial to economic development (Kadir et al., 2020). Against this backdrop, this study delves into the safety practices prevalent in Malaysia's logistics industry, seeking to comprehensively analyze current protocols, identify gaps, and propose enhancements aligned with global best practices.

Despite the crucial role of the logistics industry in Malaysia, a persistent concern revolves around the suboptimal safety practices within the sector (Sundram, Noor Malinjasari, Ibrahim, Irwan., Nazura, & Atikah, 2020). Incidents ranging from accidents in transportation to warehouse mishaps pose significant risks to personnel, assets, and overall operational continuity (Wahab et al., 2023). Current safety protocols may not adequately address the evolving challenges of this dynamic industry, necessitating a thorough examination of existing practices and identification of key areas for improvement (Lee et al., 2019). Additionally, variations in safety compliance across different segments of the logistics sector further accentuate the need for targeted interventions (Tay et al., 2021; Merve, 2019). This research aims to address these concerns by systematically assessing the safety landscape, identifying critical issues, and proposing actionable recommendations to enhance safety practices within Malaysia's logistics industry.

2. Literature Review

The literature on safety practices within the logistics industry underscores the critical importance of fostering a secure working environment to ensure the smooth functioning of supply chain operations. Various studies highlight the dynamic and multifaceted nature of logistical activities, emphasizing the inherent risks associated with transportation, warehousing, and distribution (Vatumalae et al., 2022). Researchers (Othman et al., 2023; Okeagu et al., 2021; Auyong et al., 2016) have consistently noted that safety concerns in logistics extend beyond the physical well-being of workers to encompass the protection of assets and the prevention of disruptions in the supply chain. Effective safety measures not only safeguard human lives but also contribute to the overall efficiency and sustainability of the logistics ecosystem.

Examining global best practices provides valuable insights into potential strategies for improving safety within the Malaysian logistics context (Sundram, Ghapar, Chew, & Muhammad, 2023). t. Noteworthy models from developed logistics hubs emphasize the integration of advanced technologies, employee training programs, and stringent regulatory frameworks (Al Doghan et al., 2023). For instance, the implementation of telematics and real-time monitoring systems has demonstrated success in mitigating risks associated with transportation (Kasim et al., 2019). Additionally, studies have emphasized the role of comprehensive safety training programs in enhancing the awareness and preparedness of logistics personnel, reducing the likelihood of accidents and injuries (Jermsittiparsert et al., 2019).

However, despite these advancements, challenges persist in aligning safety practices with the unique characteristics of the Malaysian logistics landscape (Imran et al., 2023; Nee et al., 2011). Factors such as diverse infrastructure, varying compliance levels, and specific regional challenges necessitate a tailored approach to address safety concerns effectively (Ylianttila et al., 2020). As this literature review reveals, there is a pressing need for research that systematically analyses the current state of safety practices within the Malaysian logistics industry, identifies gaps, and proposes context-specific recommendations to enhance overall safety and resilience in this crucial sector (Sundram, Ghapar, Osman, Chew, & Muhammad,2023).

3. Research Methodology

This research employs a quantitative and descriptive methodology to assess safety practices within the Malaysian logistics industry. Utilizing mean and standard deviation calculations, the study analyses accident rates, compliance levels, and other key safety indicators across various sectors (Zetty Zahureen, Nur Zahidah, Ismadi, Bujang, & Sundram, 2020). The results are then used to rank safety practices, providing stakeholders with a clear hierarchy of performance. Additionally, correlation analysis is employed to identify significant contributors to safety incidents, while a comparative analysis with global best practices informs context-specific recommendations. This approach aims to offer a comprehensive understanding of safety performance, facilitate targeted interventions, and foster a safer logistics ecosystem in Malaysia.

In conclusion, the research not only quantifies safety measures through statistical analysis but also ranks these practices to prioritize improvement efforts. By focusing on mean values, standard deviations, and rankings, the study provides a quantitative foundation for recommendations, ensuring they are tailored to the specific needs of the Malaysian logistics industry (Sundram, Chandran, Atikah, Rohani, Nazura, Akmal, & Krishnasamy, 2016). The ultimate goal is to enhance safety practices, align them with global benchmarks, and contribute to the overall resilience and efficiency of the logistics sector in Malaysia.

4. Data Analysis

Table 1: Respondent Demographics

Attributes	Description	Frequency	Percentage (%)
Gender	Male	19	47.5
	Female	21	52.5
Age	18 – 30 years	17	42.5

	31 – 40 years	11	27.5
	41 and above	12	30.0
Ethnic	Malay	18	45.0
	Chinese	16	40.0
	Others	6	15.0
Marital Status	Single	14	35.0
	Married	24	60.0
	Widowed	2	5.0
Education	MCE/SPM/Cert. And below	9	22.5
	HSC/STPM/Pre U./Diploma	13	32.5
	Bachelor's Degree and above	18	45.0
Years of work in the enterprise	5 years and below	19	47.5
	6 – 10 years	7	17.5
	11 – 15 years	5	12.5
	16 years and above	9	22.5

The respondent demographic is defined as the characteristics and attributes of individuals who are participating in a survey, study, or research project (Coppock & McClellan, 2019). Understanding respondent demographics is essential for researchers and analysts as it allows them to draw insights into how different groups within the population might have varying perspectives, behaviors, or preferences (Sundram et al., 2020; Zimon & Madzík, 2020). Hence, demographic data is a crucial aspect of market research, social science studies, and many other fields where understanding the characteristics of a population is essential for drawing meaningful conclusions.

A total of 40 working individuals were able to answer questionnaires completely and thus used for this study. Based on Table 1 above, the characteristics include the factors of gender, age, ethnicity, marital status, education, and duration of the respondent's working experience. Most respondents are among the female employees (52.5%) at the age of 18 to 30 years old (42.5%). Most of the respondents are Malays (45%), who are mostly married with families of their own (60%). A good 45 percent of the respondents hold a qualification of bachelor's degree and even a master's degree or a doctorate. However, almost half of the respondents are junior and mid-level employees with a working experience of below or not more than 5 years in their respective companies (47.5%).

Table 2: Perception of Safety Management Practices

Dimensions	Mean	Std. Deviation (SD)
TS1: Invested in Risk Prevention	3.62	.886
TS2: Know Safety Policy	3.88	.771
TS3: Safety is Prioritized	3.75	.723
TS4: Informed of Hazards	3.62	.808
TS5: Provided Safety Equipment	3.62	1.025
TS6: Conducted Safety Inspection	3.71	.696
TS7: Informed of Safety Rules	4.07	.679
TS8: Provided Safety Training	3.68	.735

TS9: Provided Safety Information	3.98	.754
TS10: Provided Time to Safety Measures	3.53	.769
TS11: Held Emergency Drills	3.95	.715
TS12: Able to Locate Nearest Fire Apparatus	3.87	.669

Perception of safety management practices refers to how individuals within an organization or a specific context perceive the strategies, policies, and actions related to safety management (Willumsen et al., 2019). This perception is subjective and can vary among employees, stakeholders, or members of a community based on their experiences, observations, and interactions with safety-related practices. In the context of workplace safety practices for this study, employees may have perceptions about how well their organization prioritizes and implements safety measures. This includes their views on the effectiveness of safety training programs, the accessibility of safety equipment, the communication of safety policies, and the overall safety culture within the workplace (Yanar et al., 2019).

The data concerning the perception of safety management practices in Table 2 were analyzed for means and standard deviations. The range for mean interval level of responses is as follows; 1.00 – 2.33 are low/negative, 2.34 – 3.67 are moderate, and 3.68 – 5.00 are high/positive (Wei et al., 2020). Based on the results in Table 2, it was found that the first highest mean score fell on TS7 which is informed of safety rules (Mean = 4.07, SD = .679). Next highest would be TS9 that provide safety information (Mean = 3.98, SD = .754), followed by TS11 that is held emergency drills (Mean = 3.95, SD = .715), TS2 of knowing safety policy (Mean = 3.88, SD = .771), TS12 of able to locate nearest fire apparatus (Mean = 3.87, SD = .669), TS3 which is safety is prioritized (Mean = 3.75, SD = .723), TS6 that conduct safety inspection (Mean = 3.71, SD = .696), and TS8 that provided safety training (Mean = 3.68, SD = .735). There are three items with the same moderate mean score, which is TS1 invested in risk prevention (Mean = 3.62, SD = .886), TS4 which informed of hazard (Mean = 3.62, SD = .808), and TS5 provided safety equipment (Mean = 3.62, SD = 1.025). Lastly, the lowest mean score is TS10 which provides time to safety measures (Mean = 3.53, SD = .769). In this study, TS12 (able to locate the nearest fire apparatus) is well scattered around the mean when compared to TS5 as the SD for TS12 is smaller.

5. Conclusion and Recommendations

In conclusion, the quantitative and descriptive analysis of safety practices within the Malaysian logistics industry has provided valuable insights into the current state of affairs. The calculated mean values, standard deviations, and rankings offer a clear understanding of safety performance across sectors. The findings indicate areas of strength and pinpoint specific aspects requiring improvement, enabling stakeholders to make informed decisions for enhancing safety within the logistics ecosystem.

Based on the study's quantitative results, we recommend implementing targeted interventions to address the identified areas of concern. Stakeholders should prioritize initiatives that align with global best practices, focusing on enhancing training programs, technological integration, and regulatory frameworks. Additionally, ongoing monitoring and periodic reassessments using similar quantitative methodologies will ensure a sustained commitment to improving safety practices within the Malaysian logistics industry. These recommendations aim to foster a safer and more resilient logistics environment.

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Exploring the Impact of Authentic Personality and Social Media Posting on Self-Interested Charitable Behavior among Millennials Online Community through the Lens of Social Cognitive Theory

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Abstract: Various schools of thought within the field of psychology consider authentic personality to be an essential component of overall well-being. Similarly, people's behavior has changed since the advent of social media. Using Social Cognitive Theory as guidance, this conceptual paper aims to explore how authentic personality and social media postings affect individuals' self-interested charitable behavior, this research aims to delve into the person-centered concept of authentic personality. The sense of giving and charitable behavior includes giving to charity and involving in volunteer activity. This model is deemed appropriate because it further explains authentic personality and exposure to social media posting in an online environment. Throughout the entirety of this study, a search was conducted via a variety of literature on the fields of sociology, psychology, and social science. There was a discussion of the conclusions drawn from the research, and options for more research were outlined.

Keywords: *Authentic Personality, social media Posting, Self-Interested Charitable behavior, Well-being, Volunteerism, Marketing Non-Profit Organization, Social Cognitive theory*

1. Introduction and Background

The charitable and volunteer landscape in Malaysia has been profoundly influenced by historical, cultural, socioeconomic, and technological factors, all of which have shaped the extent of millennial engagement in such activities. It is becoming increasingly common for millennials to make an effort to lend a helping hand, particularly through a challenging period and for them to contribute to society (Checkoway, 2011). Individuals who were born between the early 1980s and the middle of the 1990s are referred to as Millennials, and they have a significant inclination towards volunteering in Malaysia. This generation values social impact and actively seeks opportunities to contribute to causes aligned with their beliefs and values. It leaves a few questions widely open: Why do significant numbers of these millennials engage in these unpaid helping activities besides religious and moral obligations? What motivates them? Is this behavioral pattern the product of fads that will fade over time or a real token of personal authenticity?

Many philanthropic organizations have capitalized on the conventional method of encouraging individuals to participate in charitable activities, which involves cash and tax benefits. However, over the years, groups have attempted to promote the 'feeling of joy' when giving back to society. There is a potential negative concern about these concerns; when individuals begin to contribute just to experience the real joy of helping others, it will result in a short-term rise in incentive to help. On the other hand, if individuals genuinely have a desire to help others, then feelings of generosity will naturally emerge in some cases.

Emotional engagement in the creation of self-interested charitable behavior is deemed more important than having to offer all the extra benefits to engage people to be involved in charitable activities. Therefore, this study is to see whether authentic personality as an emotional engagement would be deemed necessary to inculcate the internal interest to be involved in volunteerism activities. Using the tripartite model of social cognitive theory, this paper is intended to explore Authentic Personality and social media posting influence on self-interested charitable behavior. Essentially, this paper is to answer two primary aims. First, we review literature linking authentic personality and self-interested charitable behavior. Second, we consider that if a person is involved in reading social media posts it will encourage them to give more, through self-interested charitable behavior. The answer to the inquiry will be based on the review and analysis of previous literature. It is deemed significant as it will examine authentic personality and social media posting toward self-interested charitable behavior. Hence, this paper, in its conceptual nature, tries to address this issue using the concept of a tripartite model between personality, environment and behavior. We suggest that millennials who have a

strong authentic personality and exposure to social media posting will be able to initiate self-interested charitable behavior in the long run. We put on the notion that by having a strong foundation in authentic personality as well as the influence of social media, the challenge and barriers of volunteering can be overcome.

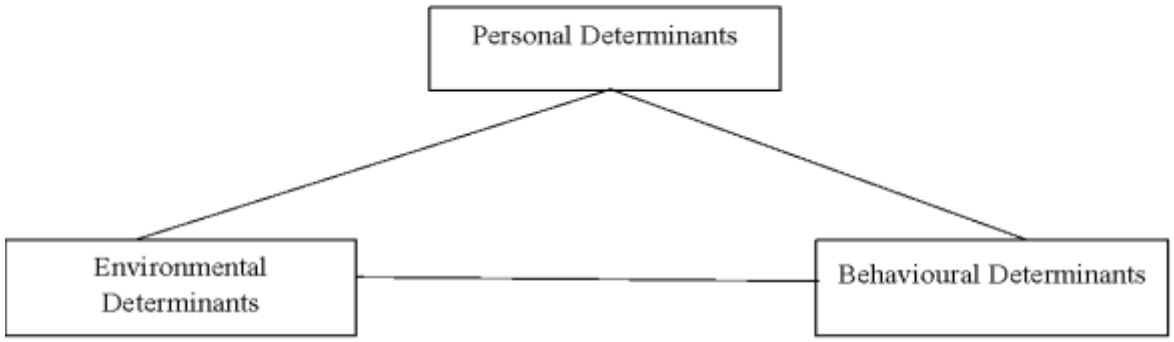
2. Literature Review

Social Cognitive Theory: Behavioral change in charity work and volunteering may also depend on people's general motivational orientations. This is consistent with formulations expressed by existing motivational literature. One of the theories to understand the motivational orientation of an individual is social cognitive theory. In this study, the Social Cognitive Theory is applied as a foundation to comprehend the impact of the environment on individual behavior. The beliefs underlying social activities become progressively more important when the knowledge gathered through inquiry is used. They have an impact on which human potentialities are developed and which are undeveloped, as well as whether reform efforts are largely focused on behavior, personal, or environmental elements.

The Social Cognitive Theory perspective sees human behavior as an interaction of dynamic, triadic, and reciprocal determinisms of behavior, both personal and environmental (Bandura, 1999). This theory upholds the idea that an individual's behavior is particularly determined by all three factors. However, one of the important notions in the development of the theory is that behavior is largely influenced or regulated through a cognitive process. This indicates that the response to behavior is a result of a strong emphasis on the mind as an active force in determining one's behavior. In a way, this will result in humans' capability to predict the consequences of their behavior, even before the behavior is performed. Another interesting notion of this theory is that humans' behavior is also formed through their interaction with the environment and their cognition. This may be achieved through an active force of feedback and searching for reciprocity. At this point, the process of cognition may involve maturity and experience, which enable human behavior to change and be predicted.

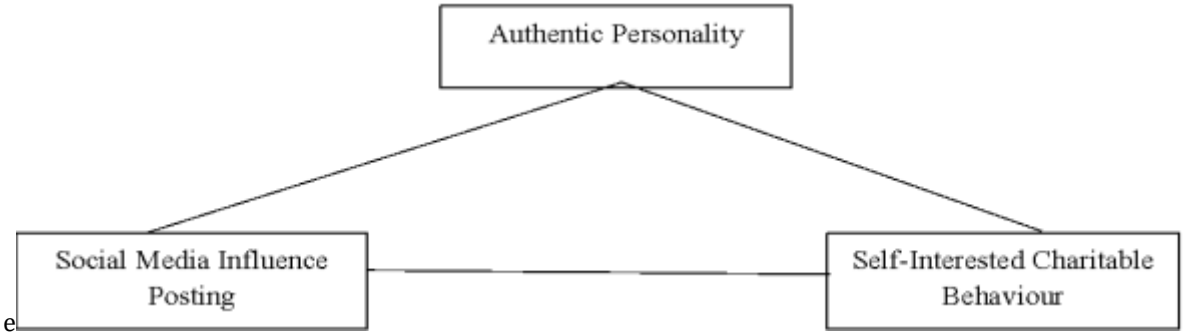
The relevance of social cognitive theory, social experience, and reciprocal determination in the development of personality is emphasized by social cognitive theory. Individuals learn by seeing others and modeling their behavior, and cognitive elements play an important part in this process (Bandura, 1991). This theory has been applied to a variety of disciplines, such as mass communication, health promotion, cultural settings, professional and personal development, and technical advancements. "Social Cognitive Theory of Mass Communication, 2009; Bandura, 2004; Bandura, 2002; Lent, 2016; Ratten & Ratten, 2007).'s work has broadened the idea of human agency to include collective agency, emphasizing the agentic approach to human growth, adaptation, and change (Bandura, 2004; Bandura, 2002). Furthermore, the notion has been used to explain strategies for boosting physical activity. In the study by Rasouli and Hamdi (2020), they investigated the area of relief campaign in Tehran involving 199 members of Tehran's Red Crescent Society. The authors study the factors that influence these society members using Bandura's social cognitive theory. The results showed that perceived self-efficacy, outcome expectancies for donating to disaster campaigns and intention to donate to charity have a positive effect on the intention to donate to a disaster campaign. Therefore, it is crucial to try to comprehend volunteering within a theoretical framework that considers the connection between volunteering and the environment as well as the personal factors that may influence the behavior.

Figure 1 Underpinning theory of Social Cognitive Theory



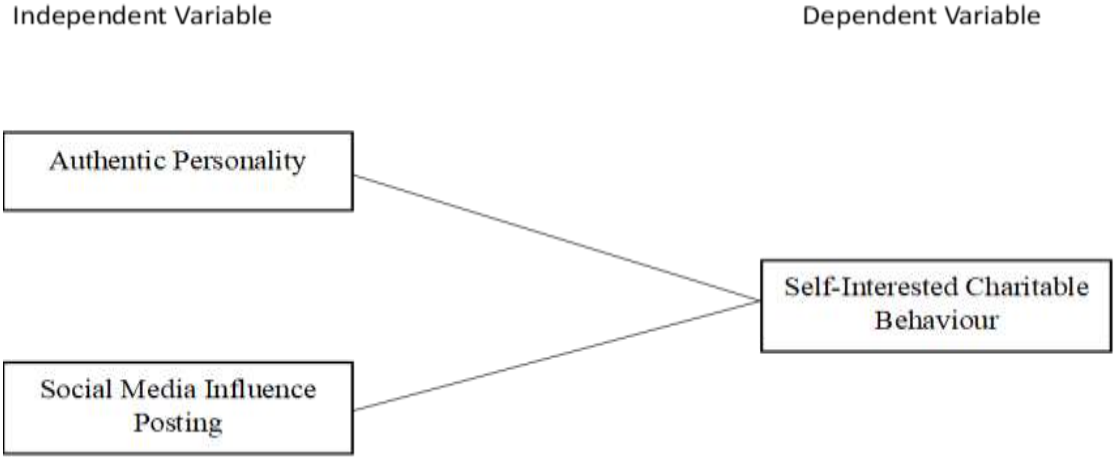
Sources Adapted from: (Bandura 1991)

Figure 2 Proposed Conceptual Framework



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Figure 3 Proposed Conceptual Framework



The Concept Authentic Personality: In the complicated fabric of human interaction, the notion of true personality emerges as a deep light, directing individuals toward real self-expression and establishing meaningful connections. Beyond the simple concept of being honest to oneself, authenticity digs deeper into interpersonal interactions, highlighting the significant importance of developing connections infused with sincerity and genuineness. This beginning inquiry tries to uncover the complicated interaction between authenticity and interpersonal relationships, shining light on how embracing one's genuine self not only improves personal growth but also promotes deep links with fellow humans.

Throughout its history, authenticity has been associated with a variety of philosophical and psychological approaches to the concept of being true to one's nature. Kierkegaard (1985) defines authenticity as being in touch with one's inner self, living by one's inner sense Personality, on the other hand, is defined as an individual differences in a way of thinking or behaving. Behaving in a manner that is in harmony with one's actual convictions or being true to one's nature is what is meant by the phrase "authentic personality," which has been used to describe behaviors. This idea was initially proposed by Wood, Linley, Maltby, Baliousis, and Joseph in the year 2008, who emphasized that authenticity is inextricably linked to a state of positive well-being. They highlighted the conceptualization of authentic personality towards the well-being of an individual. In their conceptualization of authentic personality; self-alienation, accepting external influence, and authentic living have been studied as a psychometric property within authenticity. Authenticity, according to them, is not conforming to a certain set of trends just to be in trend, but rather following their true sense.

Authentic Personality and Self-Interested Charitable Behavior: We review evidence that when a person is truly authentic, they can initiate their effort to give. Giving may come in various forms, including giving money to charity and involving in volunteerism activities. Therefore, in this study, it is important to gauge the influence of authentic personality on charitable behavior. In the study by Wu and Xu (2022), it was found that authenticity in the form of authentic leadership and the climate in the volunteer organization was significantly and positively related to volunteers' psychological capital and volunteering behavior. On the other hand, Kahana (2021) wrote about the importance of authenticity a its fundamental role in the motivations, actions and experiences of tourists and volunteer tourists.

The Influence of Millennials on The Online Community: Millennials, often known as Generation Y, were born between the early 1980s and the mid-1990s (Pramono et al., 2020). Millennials have different qualities and behaviors that have been studied across multiple fields. The studies reveal that millennials exhibit diverse purchasing habits, including patterns in food, education, health, technology, transportation, and leisure. Millennials have a significant impact on how society works, such as how leaders lead, how they spend their money, and how they care about the environment. Their preference for collaborative work and spending on food, education, health care, and transportation influence their housing choices (Folarin, 2021; Subagyo et al., 2022). Apart from that, they are also great at environmental stewardship, fostering eco-friendly tourism, and conserving particular areas (Sharmin et al., 2020). Understanding the diversity of millennials is critical because their history, money, and society have all shaped them (Johnson et al., 2020).

Millennials are concerned about environmental issues online which extend beyond their purchasing decisions. They are concerned about corporations claiming to be environmentally beneficial (greenwashing) in digital settings (Bulut et al., 2021). Their healthy choices in selecting organic food are also reflected in their online discussions about health and ethics (Sahelices-Pinto et al., 2020). It is evident in online communities that millennials still value collaboration, negotiating favorable terms, and maintaining a respectable public image (Lee et al., 2021). Millennials may influence society through their diversity, tech-savvy nature, and cultural beliefs, which can create trends in consumer behavior, workplace dynamics, and environmental consciousness, making them an influential group in modern society.

The Impacts of Social Media Posting on Shaping Social Media User's Personality: Social media posting involves publishing content such as text, photos, and videos on numerous social media networks. Social media posting can influence various parts of society and people's lives. Furthermore, the effects of content likeability, credibility, and engagement on user acceptance of product placement in mobile social networks can affect consumer behavior (Lai & Liu, 2020). Social media posting can form and grow individual personalities by influencing brand views, sharing personal recollections, and engaging in political discussions (Pink et al., 2023).

According to Pink et al. (2023) and Kamboj & Sharma (2022), this influence continues throughout the post-buy phase, favorably modifying consumer views and encouraging purchase intentions. The intention behind publishing selfies on social media also has a role, contributing to the link between posting intentions and actual behaviors, influencing the development of user personality (Kamboj & Sharma, 2022).

The influence of positive social media information can encourage positive behavior in various settings. For example, research reveals that good social media content is associated with the updates of COVID-19 preventative measures (Handayani et al., 2023). Social media users also produce positive affective material that is consistent with cultural values and influences user engagement (Hsu et al., 2021; Shahbaznezhad et al., 2021). Furthermore, technology, particularly social media, has been linked to positive influences on adolescent social change, including facilitating social life, exchanging knowledge, and provision of mental health resources (Nizariah & Suhendrayatna, 2021). These studies demonstrate the diverse impact of the positive side of social media posting in promoting positive behavior across different demographics and circumstances. For example, the content creator promotes a sustainable fashion brand on their social media posting. They publish visually appealing content while educating followers on eco-friendly practices and the environmental effects of quick fashion. Through social media engagement, the content creator can develop a community and promote the products and sustainable awareness. It highlights how effective social media posting may go beyond marketing by influencing positive consumer behavior and generating awareness.

The Overview of Self-Interested Charitable Behavior: Self-interested charity behavior refers to actions of contributing to or supporting charitable causes motivated by personal gain or benefit. Research (Jiao et al., 2021; Jamal et al., 2019; Zhao et al., 2020; Smith et al., 2019; Geng et al., 2022) has revealed a complex interplay of intrinsic and extrinsic motivations, social dynamics, religiosity, empathy, and psychological well-being. To comprehend self-interested charity behavior, one must explore the numerous reasons that lead individuals and organizations to participate in charitable activities. The literature sheds light on the complicated interaction of self-interest and generosity in philanthropic behavior. According to Zhang and Peng (2022), generosity differs from typical consumer behavior owing to self-interest (Zhang & Peng, 022). Jiao et al. (2021) go on to discuss the effects of extrinsic and intrinsic incentives on philanthropic behavior, such as reputation, reciprocity, the joy of giving, and financial restrictions (Jiao et al., 2021). While much contemporary research on philanthropic behavior seeks to operationalize philanthropy as a generalized behavior, it is vital to address the object of the assistance as well as the specific circumstances in which the charitable behavior transpires (Gordon, 2022).Individuals may be motivated by a variety of factors within this spectrum of influences, including the desire for social approval, financial constraints, religious beliefs, empathy, and the impact of social ties on charitable intentions (Jiao et al., 2021; Jamal et al., 2019; Zhao et al., 2020; Smith et al., 2019; Geng et al., 2022). The function of religion in philanthropic behavior has been investigated, finding expressions in wanting eternal benefits, self-satisfaction, and alignment with personal beliefs (Jamal et al., 2019).

In addition, studies into the impact of social knowledge and the licensing effect on generous behavior have yielded significant insights. Teunenbroek et al. (2019) and Zhang & Peng (2022) investigated the methods by which social information functions, as well as the presence of a licensing impact, underscoring the interconnection of past and present generous behaviors. This sophisticated perspective helps to resolve the complexity of self-interested charity activities and offers insight into the complicated web of circumstances that impact people's decisions to engage in philanthropy for personal gain or advantage.

The influence of Self-Interested Charitable Behavior towards Millennials: Millennials' self-interested charitable behavior is influenced by a complex mix of factors, including internal elements like self-efficacy and moral obligation as well as external factors such as self-image congruence and personal values. Understanding millennials' self-interested charitable behavior requires considering social cognitive theory's insights into cognitive, behavioral, and contextual aspects (Roxas & Marte, 2022). Internal variables such as perceived self-efficacy and moral duties impact environmentally conscious behavior and pro-social behavior (Pitchay et al., 2022). In connecting moral acts with norms, social cognitive theory emphasizes self-regulation (Wu et al., 2020). In millennial knowledge workers, creative self-efficacy moderates the influence of information sharing on innovation (Cundawan et al., 2021). However, millennials' aspirations and behaviors may be unaffected by perceived behavioral control (Kurillová & Marciánová, 2020). Personal beliefs, attitudes, and social media profiles influence millennial attitudes and behaviors (Cairns et al., 2021). Eco-fashion behavior is influenced by

personality factors and ecological and social consciousness (Wei & Liang, 2019). Attitude-behavior conflicts have a greater impact on conscience-affected and socially influenced millennials (Sahelices-Pinto et al., 2020). The tension between attitudes and behaviors, along with both extrinsic and intrinsic motives, influences millennials' charitable actions (Graça & Zwick, 2020). Additionally, personality traits, ecological consciousness, and social consciousness impact their behavior in various contexts, like eco-fashion and organic food consumption (Sahelices-Pinto et al., 2020).

3. Discussion

Authentic personality features and social media postings can have a considerable impact on self-interested charitable behavior by matching personal ideals with philanthropic acts and utilizing digital platforms' reach and influence. Individuals with authentic personalities are more likely to participate in charity activities that are consistent with their actual values and motives, demonstrating sincerity and integrity in their philanthropic efforts. When they share their experiences on social media, they provide a space for honest storytelling and open conversation, establishing trust and credibility with their audience. Authentic social media posts on charity activities can inspire others, raise the exposure of philanthropic initiatives, and foster a feeling of community based on shared values, resulting in increased involvement and support for self-interested charitable causes.

Previous research has demonstrated the critical impact that authenticity plays in volunteerism. Authenticity is integral to self-expression and values. They are more likely to commit to causes and organizations that resonate with their authentic selves. The relationship between millennials' authentic personalities, and social media posting exposure in volunteerism illustrates how these elements intersect to shape attitudes, behaviors, and engagement in charitable activities. Authentic individuals are more likely to seek meaningful connections and experiences, including opportunities for volunteerism, that resonate with their beliefs and passions. Authenticity in social media sharing has sparked attention in psychological studies. Studies have shown that authentic self-expression on social media is associated with greater subjective well-being (Bailey et.al.,2020) Social media plays a significant role in influencing charitable giving behaviors, especially among younger generations like Gen Z, who seek personal connections and authenticity in their charitable endeavors (Konstantinou & Jones, 2022). With the rise of social media platforms, individuals have taken to branding and marketing themselves in building their personal and professional lives. In addition, social media gives millennials a forum for self-expression, experience sharing, and interpersonal interaction. They usually use it to showcase their volunteer activities, interests, and issues they are concerned about. Social media platforms influence millennials' perceptions of volunteerism by providing information, raising awareness about social issues, and facilitating connections with volunteer opportunities and organizations. Authentic millennials may leverage social media to share their volunteer experiences genuinely, providing insights into their motivations, impact, and personal growth. Millennials exhibit a strong inclination towards volunteerism, driven by their desire for purposeful engagement and social impact. They seek opportunities that allow them to make a meaningful difference in their communities and the world, reflecting their authentic values and aspirations. Authentic volunteer experiences offer millennials opportunities for personal growth, fulfillment, and connection with like-minded individuals who share their values and passions.

Individuals who are authentic participate in generous activity since it is strongly aligned with their ideals. While their acts may be self-serving in certain ways, authenticity assures honesty and integrity in their humanitarian efforts. Millennials, who value authenticity, shape charity trends by linking their giving with personal views. Despite the phrase "self-interested," authenticity guarantees that philanthropic efforts stem from a genuine desire to make a good difference.

By sharing authentic stories and experiences, millennials can create a ripple effect, encouraging their peers to explore volunteer opportunities and make a positive difference in the world. The link between authentic personality and self-interested generous conduct is subtle, reflecting the complex interaction of personal ideals, cultural forces, and genuine intention. While self-interest may motivate certain parts of charitable activity, authenticity guarantees that these behaviors are grounded in sincerity, honesty, and a genuine desire to make a good difference in the world. In summary, the millennials' authentic personalities, and social media posting exposure in volunteerism underscores the interconnectedness of self-expression, social engagement, and

community involvement to inculcate self-interested charitable behavior within themselves. Authenticity serves as a guiding principle that shapes millennials' attitudes toward volunteerism and influences how they communicate and connect with others, both online and offline.

4. Implications and Recommendations

Research Implications: This study emphasizes the significance of Social Cognitive Theory (SCT) in understanding user behavior in social media environments and its implications for charitable actions. SCT suggests that individuals learn from observing others. In the context of self-interested charitable behavior, people may be influenced by observing others who engage in charitable actions for personal gain, such as enhancing their social status or reputation on social media. It demonstrates how individuals' personalities, impacted by social media content, can determine self-interested charitable behavior and contribute to managerial practices and theory. SCT suggests that people are motivated to engage in behaviors that they believe will lead to desirable outcomes. In the context of self-interested charitable behavior, individuals may be more likely to donate or participate in charitable activities if they expect to receive some personal benefit, such as social recognition or a sense of satisfaction.

Managerial Implications: Using dynamic management capabilities allows organizations to adapt to changing social media landscapes and charitable activities, promoting positive behavior in online communities. Thus, encouraging participation in charitable activities through social media increases employee satisfaction and builds a positive organizational culture. By applying SCT principles, managers can develop more effective strategies for promoting self-interested charitable behavior on social media, ultimately leading to greater participation and impact in charitable initiatives. Managers can use SCT principles to design campaigns that appeal to individuals' self-interests while promoting charitable behavior. Understanding SCT can help managers design incentive structures that encourage self-interested charitable behavior. Managers can use this principle to create a sense of social proof around charitable actions, making them more attractive to individuals who want to fit in with the perceived norm on social media. Managers can design engagement strategies that boost individuals' confidence in their ability to engage in charitable actions. Meanwhile, brands and influencers can improve their online presence by focusing on authentic communication, which leads to higher engagement and loyalty among millennials. Besides that, collaboration with charitable organizations is beneficial in increasing brand reputation and promoting positive social impact among millennials.

Theoretical implications: This study enhances our understanding of how social cognitive processes impact millennials' self-interested charitable behavior on social media, emphasizing the significance of individual characteristics and societal effects within the Social Cognitive Theory framework. It emphasizes the importance of authentic personality in shaping online behavior and contributes to existing theories of online communication and social impact. Furthermore, concentrating on millennials broadens our understanding of generational differences in online behavior and social responsibility, allowing future research across demographic groups and investigating longitudinal and cross-cultural variations in **e**xploring the impact of authentic personality and social media posting on self-interested charitable behavior. SCT proposes that behavior is influenced by a continuous interaction between personal factors, environmental factors, and behavior itself. In the context of self-interested charitable behavior, this suggests that individuals' beliefs, motivations, and behaviors are shaped by their social environment, which, in turn, influences the social environment itself.

5. Conclusion

In conclusion, SCT provides a theoretical framework for understanding how individuals' beliefs, motivations, and behaviors regarding self-interested charitable behavior are influenced by their social environment, offering insights into how these behaviors can be encouraged and reinforced in social media environments. By authentically showcasing their involvement in volunteering and charity activities, millennials not only amplify the impact of their efforts but also cultivate a culture of giving and social responsibility. Hence, the reasons why they are putting as much effort into self-charitable behavior and volunteering. As they continue to navigate the digital landscape and pursue opportunities for meaningful contribution, personal authenticity also brings impact onto their online presence. It catalyzes collective action, fostering a brighter and more compassionate

future for communities worldwide.

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Students Perceptions Towards Relevance of Tertiary Education

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Abstract: This research examines students' perceptions of higher education's broader benefits beyond job skills. It emphasizes societal advantages like environmental awareness, well-being, and civic engagement. Focused on 98 international business students at UiTM, it aims to understand factors affecting their self-esteem, particularly the link between academic prowess, social skills, and views on higher education's practical value. The study reveals strong ties between academic ability, social skills, and the importance ascribed to higher education, stressing the need for a holistic educational approach. It suggests future research areas to deepen understanding of tertiary education's relevance and societal impact. Additionally, it proposes ways for institutions to enhance students' appreciation of university education, fostering active engagement and community contribution. Overall, the research contributes to understanding the multifaceted significance of higher education, emphasizing the importance of considering academic and social competencies for informed decision-making and effective educational practices.

Keywords: *Perceptions, tertiary education, academic skills, social skills, marketability*

1. Introduction and Background

Many contemporary youths believe that tertiary education is inconsequential in the realm of employment since certain vocations no longer necessitate qualifications from tertiary institutions. The increasing number of jobless individuals with higher education degrees has further deepened this perception among young people, intensifying the issue. Hence, this study's primary objective is to explore young individuals' underlying perspectives regarding the significance of pursuing higher education. Due to the perception among some young people that tertiary education is insufficient and will not significantly contribute to their personal growth, particularly in the future job market, the issue of the relevance of higher education has arisen (Awang, 2023). Additionally, financial obligations have deterred certain individuals from pursuing additional education, raising concerns about the significance of obtaining a higher education (Dickler, 2021). However, education has been empirically demonstrated to assist young individuals in attaining their objectives and creating significant influences on society. Moreover, people with a higher level of education are more likely to make valuable contributions to the nation's development and generate groundbreaking ideas for the country. The younger generation must possess sufficient information and skills acquired from higher education institutions to make valuable contributions to the progress of the nation (Idris, Hassan, Ya'acob, Gill, and Awal, 2012). Furthermore, education has demonstrated its efficacy in mitigating inequality, particularly in regions with restricted higher education opportunities. Prior research has been undertaken to cast doubt on the caliber of our higher education (Prakash, 2018). However, most of them do not endeavor to investigate the perceptions of young individuals regarding postsecondary education. Is it because certain employment positions, such as those of social media influencers or grocery retailers, no longer require tertiary education qualifications? Therefore, it is imperative to conduct additional research to examine the elements that lead to this mindset. The major components of our study solution are enhancing the employability of college graduates and increasing public knowledge regarding the significance of obtaining a qualification from tertiary education. This will ensure that we can cultivate a favorable perception among students, encouraging them to persist in their academic pursuits. Consequently, this will result in a more significant influence on our tertiary education sector. By acknowledging students' perspectives on higher education, we can discern ways to enhance our future tertiary education system and foster a more knowledgeable community that will actively contribute to the nation's progress.

2. Literature Review

Students' perceptions of the relevancy of tertiary education: Tertiary is defined as both public and private universities, colleges, and university colleges that offer foundation, diploma, degree, and postgraduate

programs to students who have successfully finished their secondary education (Muniandy, Mutty, and Kandasamy, 2022). a study done in done by Ahmad & Ismail (2020), pointed out perception is viewed based on the institution's prestige and reputation. "prestige" refers to the external perception of the university (e.g., rankings and media coverage), while "reputation" pertains to internal factors (e.g., student welfare and financial stability). The findings indicate that the majority of non-academic staff highly rated both prestige (88.7%) and reputation (80.7%). A significant proportion of academic staff (73.3%) rated prestige higher than reputation (64.7%). This trend is consistent among current students, alumni, and the general public. The results suggest that respondents perceive the university's prestige more favorably than its reputation. Therefore, the study highlights the importance of enhancing internal performance aspects such as student support, community engagement, management, and financial stability to enhance the university's overall image (Ahmad & Ismail, 2020). Tertiary education refers to advanced and specialized education that individuals pursue after completing high school to further their studies in a specific profession. Tertiary education is not mandatory and offers students the opportunity to pursue advanced studies in specialized institutions such as colleges, polytechnics, and private or public universities. Individuals have the option to pursue further education either domestically or internationally, with or without financial support. Various legal authorities, such as MARA and JPA, have supported numerous undergraduate degrees, both domestically and internationally (Top Hat, 2020). There is a growing skepticism regarding the significance of higher education and its value in light of the stagnant economy and the rising cost of living. There is contention that investing four years in working one's way up is a superior option, as experience holds significant value (Dickler, 2021).

Some contend that facts indicate that the earnings of a university graduate are considerably higher than those of a high school graduate. There is a growing belief among certain individuals that tertiary education is not very significant, given that one may currently earn money in the digital realm by possessing the abilities demanded by today's industries, such as freelancing and content creation (Dickler, 2021). Is it worthwhile to invest a significant amount of money in postsecondary education only to receive a minimum-wage salary in return? Thus, in our society, individuals are inclined to seek the most efficient and effortless means of generating wealth rather than investing years in university education only to struggle to thrive in practical circumstances (Tar, 2011). Students perceive the purpose of higher education as preparing for the labor market, personal growth and enrichment, and contributing to societal development and progress. It does not explicitly mention whether students perceive tertiary education as relevant to their future careers and personal development (Brooks, Gupta, Jayadeva, & Abrahams, 2020). There's a study that investigates the commonalities and differences between master's and bachelor's students, focusing on how this impacts marketing strategies for private higher education institutions aiming to attract more master's students. Significant statistical disparities were found between master's and bachelor's students in smart classrooms, peer support, partnership, and perceived benefits. Notably, master's students show a strong preference for smart classrooms, peer support, and perceived benefits, whereas bachelor's students tend to favor partnership initiatives (Krishnaswamy, Nyepit. Leow, 2023).

Academic Skills: Academic skills are talents and habits that benefit academic pursuits. Examples of academic pursuits include learning, research, report writing, and presentations. Typically, to obtain a bachelor's degree, it is expected that you will finish all of your coursework and requirements within four years. However, probably, it may not be feasible. The National Student Clearinghouse Research Center's data indicate that just 58% of students who began their college education in 2012 managed to complete their degree within six years. The remaining children were either currently enrolled in school or had already discontinued their education. This is where proficiency in academic skills becomes relevant. Gaining a comprehensive understanding of the functioning of your mind, particularly in academic settings, can enhance your abilities that apply to your role as a student. Each individual has an approach when it comes to studying and acquiring knowledge. As long as the students persist in improving themselves to become better students, things will not get hard at all. The duration of your educational pursuit directly correlates with the accumulation of expenses, increasing the likelihood of resorting to additional student loans to finance your education. Exceeding six years to obtain your degree may result in accumulating additional debt, making it challenging to disentangle oneself from the financial burden (Ahmad et al., 2014). Proficiency in academic skills is essential for achieving success in several educational endeavors, including studying, research, report composition, and presentations. Research has shown that the cultivation of efficient study routines has a substantial influence on academic achievement in various educational contexts and subject areas. Onwuegbuzie et al. (2001) conducted a study that showed a

direct correlation between effective study habits and improved academic performance among secondary school students. Furthermore, a study conducted by Gahir et al. (2022) revealed that memorizing and summarizing were often employed as study techniques, underscoring their significance in academic environments. Moreover, the influence of study habits on academic achievement has been noted in several settings. Barragán-Hervella et al. (2023) found a strong link between study habits and academic success among Nigerian scientific education students. Similarly, the Adolescent Student Academic Achievement Longitudinal Study (ASAP) by Sunday & Akporehwe (2022) highlighted lifestyle habits, including study habits, as key predictors of high school academic performance. These studies underscore the significant impact of study habits on academic outcomes. Further research has explored the relationship between study habits and academic performance, considering factors such as learning styles, stress levels, and cognitive control. For instance, Dubuc et al. (2019) examined how sleep deprivation and study habits affect the academic performance of medical imaging students, emphasizing the influence of external factors on study habits. They also identified a positive correlation between study habits and academic achievement, emphasizing the importance of effective study habits in reducing academic stress and enhancing performance (Tajuddin et al., 2022).

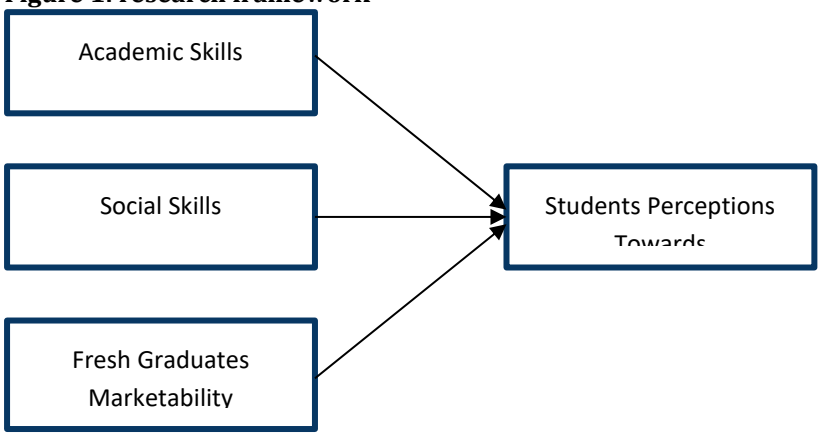
Social Skills: Social skills, also known as interpersonal skills, refer to the capacity to engage with others by employing good listening and communication techniques. Developing this skill is crucial not just for young children but also for adolescents, as it is among the most vital abilities to foster. Given that students are frequently seen as reliable indicators of forthcoming achievements, university students must focus on cultivating their social aptitudes (Kajal Sharna, 2019). There is a widely held belief that students who possess greater social skills tend to lead successful lives both personally and professionally. Universities play a crucial role in the development of social skills since students naturally assimilate them into their behavior, thereby improving their relationships with individuals from diverse backgrounds. Consequently, college graduates who acquire social skills are more adept at engaging in healthier and more successful interactions with others, thus better preparing them for life after graduation (Ahmad et al., 2014). Social skills refer to categories of social behaviors that enhance the likelihood of positive outcomes for both individuals and others, thereby contributing to successful and effective social interaction, known as social competence (Lopes, Gerolamo, Musetti, & Amaral, 2021). Recognized as essential skills for the 21st century by the Partnership for 21st Century Skills (2019), teaching social skills is acknowledged as a valuable approach to enhancing the quality of social interactions, particularly in the workplace. This is crucial due to the growing demand for social skills and the need for proficiency in communication to foster teamwork and collective decision-making. The author's analysis of academic and popular press documents underscores the critical importance of communication education for future personal and professional success (Lopes, Gerolamo, Musetti, & Amaral, 2021).

Marketability: Although a college degree is often depicted as a prerequisite for achieving financial prosperity, the level of competition for available job opportunities may exceed initial expectations. Securing a lucrative job post-graduation can prove to be arduous, especially in the aftermath of the 2020 coronavirus pandemic, which led to a substantial increase in unemployment claims, with tens of millions of individuals seeking financial assistance. As per the National Association of Colleges and Employers, the average starting salary for college graduates who join the job directly after graduation is around $51,000. While that is a decent salary for most individuals, it is a fact that many graduates will earn less than that. If you have a significant amount of student loan debt that exceeds your salary, you may encounter challenges in meeting your financial obligations (Ahmad et al., 2021). Although a college degree is often depicted as a prerequisite for achieving financial prosperity, the level of competition for available job opportunities may exceed initial expectations. Securing a lucrative job post-graduation can prove to be arduous, especially in the wake of the 2020 coronavirus pandemic, which led to millions of individuals filing for unemployment benefits. According to Bernama (2022), Malaysia has introduced five intervention initiatives to tackle the declining marketability of graduates during the COVID-19 pandemic. These initiatives include the KPT-Career Advancement Program (KPT-CAP), the Teaching Factory program, the Technical Vocational Education and Training (TVET) Transformation Program, flexible and micro-credential programs, and mobility programs. At the Education World Forum (EWF) in London, Higher Education Minister Noraini Ahmad presented the initiatives. The marketability of Malaysian graduates dropped to 84.4% in 2020 from 86.2% in 2019 due to the pandemic. The interventions aim to increase the marketability rate, achieving 85.5% by 2021. The Penjana KPT-CAP received RM150 million in funding and benefited 20,000 graduates, guaranteeing employment for at least 12 months after completion. The 'Teaching

Factory' program and TVET transformation are also part of efforts to align graduates with market demand. The National TVET Council, chaired by the Prime Minister, advises on talent requirements and technology focus to ensure the quality of higher education and graduate marketability remain intact (Bernama, 2022).

H1: There is a significant relationship between Academic Skills and Student's Perception of the Relevancy of Tertiary Education
H2: There is a significant relationship between Social Skills and Students' Perception of Relevancy of Tertiary Education
H3: There is a significant relationship between marketability and Students' Perception of Relevancy of Tertiary Education

Figure 1: research framework



Adapted from Ahmad et al., (2014) and Ahmad et al., (2021)

3. Research Methodology

The study was conducted among final-year students from the International Business program at Universiti Teknologi Mara (UiTM) Puncak Alam. Final year students have a total of 120. Referring to Sekaran and Bougie (2013), the targeted respondents for this research are 96 students. To achieve this, a non-probability sampling method was employed. Specifically, purposive sampling was chosen due to its suitability for targeting individuals with specific attributes within a smaller, more homogeneous population. Purposive sampling allows researchers to select participants based on predetermined criteria, ensuring relevance to the study's objectives. In this case, final-year students from the International Business program were chosen as they represent a crucial demographic for understanding pertinent issues related to tertiary education. By targeting this group, the research could delve deeper into factors influencing their academic experiences and perceptions. By employing purposive sampling and leveraging online platforms for data collection, the research could efficiently gather insights from final-year students at UiTM Puncak Alam. Subsequent analysis, including correlation coefficients and multiple regressions, enabled the identification of relationships between variables and the determination of influential factors in tertiary education. Overall, the methodological approach adopted in this study facilitated rigorous data collection and analysis, enhancing the validity and reliability of research outcomes.

4. Results

This section presents sets of results relating to the profile of respondents on students' perceptions towards tertiary education based on demographics.

Profile of Respondents: Table 1 displays a summary of the characteristics of the total sample of students who participated in the study.

Table 1: Demographic Information of Final Year students in the International Business Program at UiTM

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	68	69.4%
Females	30	30.6%
Total	**98**	**100%**
AGE		
19-21	17	17.3%
22-24	74	75.5%
25-27	7	7.1%
Total	**98**	**100%**
Mode of Study		
Full Time	98	100%
Total	**98**	**100%**

Correlation Analysis: A correlation matrix is used to demonstrate the strength of a linear relationship between variables in a dataset. The correlation coefficient is used to demonstrate the correlation. The correlation coefficient indicates how closely two variables are connected. Scores vary from 1 to -1. A value of one represents a perfect positive correlation, whereas a value of one represents a perfect negative correlation. Closer to zero indicates a weak association

Table 2: Correlation Analysis

	Academic Skills	Social Skills	Marketability
Perception Towards Relevance of Tertiary Education	.564*	.566**	.445**
	.000	.000	.000
	98	98	98

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

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

The correlation results presented in Table 14 illustrate the relationship between the variables examined in the study. A correlation coefficient measures the strength and direction of the linear relationship between two variables. In this analysis, several strong correlations were observed. Firstly, there is a strong positive correlation of 0.445 between students' Perceptions of the Relevance of Tertiary Education and Marketability. This indicates that as students perceive tertiary education to be more relevant, their marketability in the job market tends to increase. Secondly, there is a strong positive correlation of 0.564 between Academic Skills and Students' perceptions of Tertiary Education. This suggests that students who possess strong academic skills tend to perceive tertiary education as more relevant. Thirdly, the correlation between Students' Perceptions of

the Relevance of Tertiary Education and Social Skills is 0.566, indicating a strong positive relationship between these variables. This implies that students who perceive tertiary education as relevant also tend to possess strong social skills. Overall, the Pearson correlation coefficients for all variables are close to 1, indicating strong correlations between them. This suggests that as one variable increases, the other variable tends to increase as well, or as one variable decreases, the other variable tends to decrease. These strong correlations provide valuable insights into the relationships between students' perceptions, academic skills, social skills, and marketability in the context of tertiary education.

Analysis of Variance (ANOVA) and Multiple Regressions: ANOVA was used to determine the significant relationship between academic skills, social skills, and the marketability of fresh graduates towards the relevancy of tertiary education among international business students at UiTM Puncak Alam. The ANOVA results are displayed in Table 3.

Table 3: Coefficients

Model		**Unstandardized Coefficients**		**Standard Coefficients**		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	4.776	3.394		1.407	.163
	Academic Skills	.662	.212	.335	3.128	.002
	Social Skills	.707	.185	.361	3.831	.000
	Marketability	.114	.190	.062	.599	.551
R		.649				
R-square		.421				
Adjusted R-square		.403				
F		22.797				
Significance F value		.000				

a. Predictors: (Constant), Academic Skills, Social Skills, Marketability

Dependent Variable: Students Perception

Multiple variables are utilized in multiple regression analysis to explain variance in the dependent variable (Sekaran and Bougie, 2013). In this study, multiple regression analysis has been utilized to evaluate the independent variables of social skills, academic skills, and marketability to determine the elements that affect students' perceptions of the usefulness of tertiary education. The R-square measures how much variance in the dependent variable is explained by the predictors (Sekaran and Bougie, 2013). According to the data from the table above, R-square =. 421 for this investigation. This reveals that while 57.9 % of the dependent variable may be explained by other factors, 42.1 % of it may be explained by the study's independent variables, which include academic skills, social skills, and marketability. Whereas the F value is where it predicts the response of the sample. The minimum value is 1 but the study recorded F at 22.797, p>0005, which predicts it to be a good model for forecasting the sample. As a result, it indicates that the data gathered was valid and can be

accepted. The data's significance could be attributed to the extensive number of questions per variable being tested. Additionally, according to the SPSS 25 results presented in the table, the threshold of significance level is .000. As a result, it suggests that the information acquired was accurate and credible. The enormous number of questions used to examine each variable may be the cause of the data's importance. According to the data in the table, only two independent variables (social skills and academic skills) had a substantial impact on employee retention. Both variables' significant values were 0. 000 and 0.002. The standardized coefficient (beta) result shows that social skills are the strongest variable that contributed to the dependent variable with b =. 361 followed by academic skills that contributed with b =. 335. The result has shown that it supported hypotheses 1 and 2, there is a significant relationship between academic skills and social skills with the student's perceptions of the relevancy of tertiary education. Therefore, rejecting Hypothesis 3, there is a significant relationship between marketability and the student's perceptions of the relevancy of tertiary education.

Discussion

The fundamental purpose of this research is to better understand the interaction between academic skills, social skills, and marketability concerning how students view the usefulness of tertiary education in Malaysia. The study begins by underscoring the importance of tertiary education and its potential advantages, both economically and personally. It tries to explore deeper into students' perceptions of the importance of higher education. The report gives a brief description of the dependent and independent variables of the study, followed by a theoretical framework to facilitate understanding. Based on the findings, the correlation and linkages between variables were investigated. The investigation yielded strong results in line with the research aims. Hypothesis 1 (H1), which states that academic skills positively and significantly influence students' perceptions towards the relevance of tertiary education, was supported by the results. This implies that academic skills greatly influence students' impressions of higher education, particularly among final-year students of international business who see academic skills as vital for success in tertiary education. Hypothesis 2 (H2), suggesting that social skills positively and significantly influence students' perceptions towards the relevance of tertiary education, was similarly supported. This suggests that students believe postsecondary education is crucial in acquiring social skills, such as club engagement or organizational activity, as demonstrated in the Faculty of Business and Management at UiTM. However, Hypothesis 3 (H3), which argues that marketability positively and significantly influences students' perceptions of relevance to tertiary education, was rejected due to the significance value being higher than 0.005. This implies that final-year students of international business do not regard tertiary education as considerably boosting their marketability in the labor market. They favor practical experiences and supplementary skills over university rankings. The findings contradict a study by Ahmad, Ismail, Azizan, and Ariffin (2023), which suggests that tertiary education should provide more than intellectual and social skills to boost students' marketability. The study underlines the necessity for tertiary institutions to understand students' perceptions to improve the quality of education and graduates' marketability, ultimately contributing to the country's economic prosperity.

5. Managerial Implications and Recommendations

Recommendation for Future Research: Further Exploration of Factors Influencing Perception. Future research could delve deeper into understanding the various factors that influence students' perceptions of the relevance of tertiary education. This could include factors such as cultural background, socioeconomic status, educational experiences, and personal aspirations. For comparative studies, comparative studies across different regions or countries could offer comparative insights into how contextual factors influence students' perceptions of the relevance of tertiary education. Comparing perceptions across diverse educational systems could highlight areas for improvement and best practices.

Recommendations for Tertiary Institutions: Tertiary institutions should prioritize providing comprehensive career guidance and counseling services to help students better understand the relevance of their education in the context of future employment opportunities. This includes facilitating internships, mentorship programs, and industry partnerships to bridge the gap between academia and industry. Besides that, incorporating practical skills development programs into the curriculum can enhance students' perception of tertiary education relevance. This could involve project-based learning, experiential learning

opportunities, and hands-on training to equip students with practical skills valued by employers. Other than that, Tertiary institutions should actively engage with industry stakeholders to ensure that academic programs are aligned with industry needs and expectations. Collaborative efforts with employers can help tailor curricula to address emerging skill demands and enhance graduates' marketability.

Conclusion

In conclusion, this study has provided valuable insights into students' perceptions of the relevance of higher education. By examining the effects of various factors such as study strategies and demographics, we have gained a deeper understanding of how students perceive the value of tertiary education. The research design emphasized the intricacies of this process, highlighting the importance of considering students' perspectives when evaluating the effectiveness of higher education programs. The findings suggest that while many students view their college or university education as relevant and beneficial for their future careers, concerns about the applicability of certain coursework to their chosen field of study may arise. Educators and academic institutions need to address these concerns and continuously assess the quality and relevance of the education they provide. Furthermore, this study has contributed to filling gaps in the existing research on students' perceptions of higher education's relevance. By recognizing the importance of education in enhancing employability and competitiveness, our findings underscore the significance of investing in high-quality, relevant tertiary education programs. Looking ahead, the insights gained from this study can inform future research on the applicability of tertiary education and related areas. By strengthening the theoretical and methodological foundations in this field, we can continue to provide valuable knowledge for policymakers, educators, and other stakeholders interested in improving the quality and relevance of higher education. In summary, this research has addressed various inquiries and added complexity to our understanding of students' perceptions of the value of higher education. The authors hope that these findings will contribute to ongoing efforts to enhance the effectiveness and relevance of tertiary education for students around the world.

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Examining Grassroot Innovation: A Case Study of the Curry Puff Maker Machine Project from a Socioeconomic Perspective

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Abstract: Grassroots innovation is a customised innovation programme aimed at empowering the community by demonstrating creativity, resourcefulness, and technological proficiency to tackle issues that impact their daily life. Yayasan Inovasi Malaysia (YIM) is a prominent institution in Malaysia that serves as an anchor for this endeavour. This study examines a project that was awarded an innovation grant to produce curry puff makers and distribute the machines to individuals from marginalised demographics, including single moms, handicapped individuals, and others. The methodology of research for this study involves using a qualitative method, namely a descriptive case study approach, to engage with the grant recipient. The feedback was evaluated using thematic techniques. The project has successfully achieved its objectives across the four examined categories: social, economic, environmental, and technological adoption.

Keywords: *Grassroots, innovation, curry puff, funding, YIM*

1. Introduction and Background

The Yayasan Inovasi Malaysia (Innovation Foundation of Malaysia) is a government-appointed institution responsible for promoting innovation among Malaysians, with a special focus on grassroots-level initiatives. This esteemed agency is collaborating closely with many government organisations like the Ministry of Science, Technology, and Innovation (MOSTI), the Small and Medium Enterprises Corporation (SME. Corp.), the Malaysian Technology Development Corporation (MTDC), and numerous more.

The National Science, Technology, and Innovation Policy (NSTIP) 2121-2030 of Malaysia places significant emphasis on the utilisation of science and technology, together with creative mindsets and cultures, to stimulate the economic development of the country. The second objective of the NSTIP is to coordinate the collaborative endeavours of key stakeholders, including the government, business, academia, and the community, in the fields of research, development, commercialization, and innovation (R&D&C&I) to strengthen the nation's technological advancement capabilities. An effective approach is to prioritise social innovation as a means of delivering advantages to marginalised and underprivileged populations. The initiative has specified that funding would be allocated to social innovation initiatives that may generate social impact via the utilisation of science, technology, and innovation.

Grassroots innovation refers to the generation and implementation of novel and imaginative concepts by local groups or people within a society. The creative solutions are driven by the community's needs and barriers, to tackle social, environmental, and economic concerns at the local level (Seyfang & Longhurst, 2015). Grassroots innovation in Malaysia can exert a substantial societal impact (Syah et al., 2021). Small-scale farmers in rural parts of Malaysia have adopted cost-effective and ecologically sustainable farming practices (Zainoddin et al., 2018; Syah et al., 2021). These locals have integrated conventional agricultural methods with contemporary technologies to optimise their crop production while minimising ecological impact (Singh et al., 2019). Engaging in this practice not only enhances their well-being but also fosters sustainable farming methods, ensures food security, and promotes ecological conservation in their respective areas (Prasetyo, 2016).

In addition, the emergence of grassroots innovation in Malaysia has fostered the creation of renewable energy

initiatives that are based on community involvement. These efforts utilise local resources like solar electricity and biomass to deliver clean and cost-effective energy to rural regions. This reduces reliance on non-renewable sources and enhances the living conditions of the local population (Hossain, 2018). In addition, grassroots innovation has empowered underprivileged groups in Malaysia, providing them with a platform and the resources to tackle their social and economic obstacles.

Grassroots innovation is closely linked to the Sustainable Development Goals (SDGs). Marini et. al. (2022) did a study which revealed that over 68% of grassroots innovation efforts have at least one explicit environmental effect that corresponds to the components of the Sustainable Development Goals (SDGs). Sustainable food production methods, sustainable natural resource management, and equitable land access all exert a substantial influence. This study provides conclusive evidence that the utilisation of SDG-based categorization is an advantageous instrument for quantifying the environmental consequences of grass-roots innovation.

The corpus of the article starts with a literature review to discuss the notable determinants that have been examined in previous studies. It is then followed by method, discussion, and conclusion.

2. Literature Review

This section examines four often cited criteria, drawing on past research. Similarly, the same criteria are also employed in evaluating the performance of innovation initiatives that received funding from the government's innovation award. The considerations include technical acceptability, environmental impact, social influence, and economic implication.

Acceptance of Technology

When analysing the elements that affect the acceptability of technology in grassroots innovation, it is essential to consider the social and cultural settings in which these innovations are being accepted (Shin et al., 2019). The community's attitudes and opinions regarding technology have a substantial impact on its adoption and integration. Furthermore, the accessibility and cost of the technology, together with its perceived usefulness and simplicity of use, play a crucial role in determining its adoption (Chauhan & Kar, 2019).

The acceptance of technology among grassroots communities is influenced by cultural norms, beliefs, and traditions. It is crucial to thoroughly examine the particular dynamics of each community and comprehend how technology corresponds to their current behaviours and beliefs (Shin et al., 2019). Moreover, the significance of local leaders and influencers should not be underestimated, as their support for a certain technology may significantly influence its adoption among community members.

Essentially, to thoroughly analyse the elements that affect the acceptability of technology in grassroots innovation, it is necessary to have a profound comprehension of the community's social, cultural, and economic structure, together with an appreciation of the possible consequences of integrating technology (Singh et al., 2019). Grassroots innovation is a method of technical advancement that originates from the community itself, considering the group's unique demands and conditions. Hence, to gain a comprehensive understanding of the determinants that impact the acceptability of technology in grassroots innovation, it is imperative to actively include community members in participatory research. By engaging the local populace in the study procedure, one might acquire a more profound understanding of their distinct viewpoints, requirements, and apprehensions about the implementation of technology (Patnaik & Bhowmick, 2019).

Furthermore, it is important to analyse the historical record of technology interventions in the community to get insight into both previous accomplishments and shortcomings. The historical context can offer useful insights and guide decision-making on the implementation of new technology. Furthermore, it is important to consider the effects of external factors, such as government regulations, funding prospects, and collaborations with external groups, to comprehend the wider environment in which grassroots innovation functions (Prasetyo, 2016). The Chinese government's endorsement of grassroots innovation, demonstrated via regulations and financial backing, has been essential in the country's achievements and extensive acceptance (Shin et al., 2019).

Although social and cultural factors certainly influence the acceptability of technology in grassroots innovation, it is crucial to acknowledge the possible disadvantages and obstacles that come with integrating technology in these communities (Zelenika & Pearce, 2011). A major issue revolves around the possible loss of conventional behaviours and values as a result of the use of new technology. Oftentimes, the swift assimilation of technology can result in the erosion of cultural identity and history, since societies may favour modernity at the expense of safeguarding their distinct cultural legacy. Countries like India have acknowledged and tackled this issue by advocating for a "technology with tradition" strategy, which involves incorporating modern technologies in a manner that is consistent with and honours old customs and values (Shin et al., 2019).

Environmental impact

The environmental effects of grassroots innovation may be observed from several viewpoints. To begin with, grassroots innovation can serve as a viable strategy for achieving sustainable living. The reason for this is that grassroots innovation focuses on resolving the specific challenges faced by local communities. These efforts can encourage the adoption of sustainable living habits, resulting in a beneficial environmental influence (Gupta & Sharma, 2007). Furthermore, grassroots innovation has the potential to result in the preservation and efficient use of resources. This phenomenon arises from the fact that the majority of grassroots innovation concepts encompass do-it-yourself endeavours like rainwater collection, composting, and energy-efficient technology. These initiatives together contribute to the reduction of total resource consumption (Sareen & Nathan, 2016).

Furthermore, grassroots innovation can facilitate the adoption of renewable energy by employing small-scale solar panels, wind turbines, and bioenergy projects. Consequently, these initiatives have the potential to diminish reliance on fossil fuels and promote the adoption of cleaner energy alternatives (Smith, Raven & Vergragt, 2010). Furthermore, grassroots innovation has the potential to enhance the preservation of biodiversity. This is highly pertinent, as certain endeavours entail the advancement of sustainable farming methodologies that may have a good impact on ecosystems and contribute to the preservation of biodiversity (Hazra & Choudhury, 2015). Finally, grassroots innovation can promote the adoption of waste reduction and recycling measures. This statement is valid because grassroots innovators frequently generate inventive ideas or solutions to decrease waste and encourage recycling habits. Consequently, these efforts contribute to the reduction of environmental contamination and the preservation of resources (Acosta & Giurco, 2017).

From the preceding discussion, it can be inferred that grassroots innovation plays a substantial role in tackling environmental issues through the use of local expertise and community involvement. These programmes, which are frequently customised to address particular requirements, enable communities and cultivate a feeling of accountability towards environmental concerns. Grassroots ideas offer efficient, localised solutions and possess the capacity to spark wider transformation when duplicated in different places. Although there are obstacles such as a scarcity of resources, these endeavours can be enhanced by smart collaborations and institutional backing. It is essential to acknowledge and promote bottom-up innovation to establish a more sustainable and balanced connection between humans and the environment.

Social Effect

The effects of grassroots innovation in Malaysia on society are significant since it not only tackles local issues but also enhances the general welfare of the community (Syah et al., 2021). By implementing these cutting-edge solutions, communities are empowered to generate enduring transformation from the grassroots level, cultivating a feeling of ownership and resilience. Furthermore, grassroots innovation fosters inclusion and social fairness by guaranteeing that disadvantaged and impoverished groups have access to essential resources and opportunities (Prasetyo, 2016). Grassroots innovation in Malaysia has a favourable social influence since it tackles local obstacles, advocates for sustainability, and empowers marginalised people (Rami et al., 2018).

Nevertheless, there are obstacles and difficulties in the extensive implementation and expansion of grassroots innovation in Malaysia (Prasetyo, 2016). Several obstacles encompass restricted availability of financing and resources, insufficient recognition and backing from governmental institutions, and the necessity for legislative frameworks that acknowledge and encourage grassroots innovation. However, the capacity of grassroots innovation in Malaysia to stimulate social and economic progress is enormous. The technology possesses the capacity to improve the conditions of disadvantaged populations, tackle social and economic obstacles, and

make a positive impact on the long-term progress of Malaysia. Similarly, other nations are encountering the same obstacles. India, China, and Brazil possess dynamic grassroots innovation movements that actively tackle local concerns and propel societal change (Smith et al., 2014). Grassroots innovation has a notable societal influence since it tackles specific local problems, empowers underprivileged people, advocates for sustainability, and encourages diversity.

Prasetyo (2016) emphasises that the social effect of grassroots innovation is significant because it empowers underprivileged groups, promotes sustainability, and fosters inclusion. Frequently, grassroots innovation functions under a constrained financial framework. Consequently, the innovators must exhibit resourcefulness by extensively utilising locally available resources to tackle the challenges faced by the community. This strategy not only results in practical solutions for communities but also cultivates a feeling of responsibility and adaptability among individuals (Smith et al., 2014; Patnaik & Bhowmick, 2020). Moreover, grassroots innovation possesses the capacity to generate a cascading impact, stimulating and encouraging others to engage and become catalysts for transformation in their respective communities. Grassroots innovation can facilitate favourable societal transformation by tackling local obstacles, advocating for sustainability, empowering underprivileged groups, and promoting inclusiveness (Prasetyo, 2016).

Economic Implication

Grassroots innovation is also expected to bring positive economic implications to the nearby society that resides in the same vicinity as the innovators. This is essential because innovation must be able to change the economic lifestyle of the community through better ways of dealing with daily problems. In the context of Malaysia, YIM has emphasised on this component by ensuring that every project that receives funding, must incorporate this component into their innovation plan (Mohamed Salleh et al., 2020). Therefore, many successful grassroots innovation projects under YIM will also depict economic transformations of the innovator as well as the community involved in the project.

Furthermore, tax incentives and subsidies directed towards the private sector have been consistently identified as viable strategies to stimulate innovation. The efficacy of tax incentives in fostering innovation has been well-established in several wealthy nations. However, their effectiveness in developing countries is still under investigation. The World Bank Institute's analysis indicates that tax incentives exclusively benefit certain developing and low-income nations (OECD., 2019).

This is particularly true in nations characterised by non-specialized economic sectors and inept tax administrations (Taufik et al., 2022). Granting research bodies with particular resources would be more advantageous for the government in this scenario (Kouam & Asongu, 2022). In their work, Borras and Edquist (2019) have expressed similar views on the importance of a comprehensive innovation policy. According to research by the United Nations University, Rhyner (2017) argues that grants and tax incentives might help stimulate innovation in poor countries. However, tax incentives may be more impactful when the government specifically targets the financial and private sectors to foster economic growth. Allocating the funds towards innovation expenditures would be wasteful, whereas using them for other purposes would be more beneficial.

To summarise, tax incentives primarily focus on promoting the advancement of research and development (R&D). These incentives are particularly advantageous for emerging countries that possess a substantial tax administration and a thriving private sector. Nevertheless, in nations characterised by substantial informal economies, feeble tax administrations, and significant disparities between large and small enterprises, it may be necessary to allocate R&D funds on a more limited basis. R&D grants provide significant potential to support grassroots entrepreneurs aiming to into the formal economy.

3. Research Methodology

This research used a qualitative approach, specifically the case study method by interviewing the innovation grant recipients who in this study as the key informants, to gather feedback and contextualise it according to the themes. A descriptive case study provides a comprehensive understanding of intricate problems and explains natural occurrences based on the facts under investigation (Zainal, 2007). The objective of qualitative descriptive research is to capture and convey the personal experiences of persons or participants in a manner

that is comprehensible to others (Lambert and Lambert, 2012). This methodology offers comprehensive accounts of the experiences provided by the primary sources to the interviewer (Yin, 2013). The qualitative method also is commonly used in many countries and settings for grassroots innovation assessment (Song, Xu, Chen, Xu & Jiang, 2024; Hausmann & Schwab, 2024).

There are several types of case studies, and this research is based on a descriptive case study. The process is guided by research protocol to ensure that the study adheres to the highest ethical standard and that the key informants are treated properly, as well as to ensure the information collected is handled professionally.

The project team of innovation grant for curry puff maker was a start-up company that was attached to the local university in Malaysia. The start-up company has two key persons which are the CEO and director (the postgraduate student was the Chief Executive Officer (CEO) and the lecturer was the director). A set of questions were asked to them which was then analysed based on thematic procedure.

4. Results and Discussion

This project was awarded to a start-up company that is attached to one of the public universities in Malaysia to manufacture curry puff maker machines. The fund was channelled from the SME. Corp. to YIM to be managed under a scheme which is known as Inclusive SME Ecosystem (i-SEE). The i-SEE scheme is a continuation of the innovation grant, the High Impact Programme 6 (HIP 6) which was ended in 2020 parallel with the SME Masterplan 2012-2020.

The goal of i-SEE is to empower the lowest 40% of the income pyramid (B40) via innovation. The project aims to promote community development, specifically focusing on small businesses in rural regions, by offering advice, technical assistance, and financial aid. In this context, the curry puff maker was intended to be manufactured and distributed to the pre-identified beneficiaries who belong to vulnerable groups such as single parents, low-income communities, disabled people, and others.

Based on the four factors used as reference criteria when evaluating this project, it signifies that every component has been met. For social effect, this curry puff maker has been distributed to the beneficiaries and has been used by them to make the food for commercialization. It has helped their production capacity and income generation, which contributes to a better lifestyle.

As for economic implications, they are related to social effects. The machine can produce 150 pieces of curry puff in one hour, compared to 25 pieces when done manually. The machine has 12 slots, which can be replaced with several sizes of curry puff mould. This has contributed to economies of scale for production and a reduced requirement to hire workers. Hence, the production cost can be maintained at a reasonable level with better pricing to get more profit. This machine does not require electricity, so another important component of cost reduction is its ability to reduce.

In terms of technology acceptance and adoption, this machine does not use a sophisticated system, but it is easy to use in all walks of life, especially for those involved in this cottage industry who are from a lower education background. Thus, handling sophisticated machinery can be a problem for them. Nevertheless, the machine is developed based on the innovator's observation and transformed through the use of technology to manufacture it.

The last component, which is environmental impact, is given serious consideration by the funder so that the money is used wisely for not only addressing the gap that happened in the business or society setting but also contributing to improving the environment. The curry puff maker does not use electricity, thus contributing to better environmental preservation in the form of less energy use, resulting in less greenhouse gas emissions resulting from non-renewable energy use for electricity.

Diagram 1: Impacts of Curry Puff Maker (Receiver of i-SEE Innovation Grant)



5. Conclusion

It is exciting to note that the curry puff maker project has been able to meet the project's objectives prescribed by the innovator. To preserve the relevance of its role and remain competitive in the market, the machine requires ongoing modification.

The project team's perseverance, together with the solid backing from the funder, YIM, deserves commendation for initiating the project even during the COVID-19 outbreak while strictly adhering to limited engagement and social distancing protocols.

It would be advantageous if the relevant government agencies and private institutions, including cooperatives and banks, continued to provide substantial support for this type of innovation grant and participated actively in this social endeavour. This will accelerate grassroots innovation development in a particular country (Roysen, Bruehwiler, Kos, Boyer & Koehrsen, 2024).

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A Conceptual Paper in Developing Model of Entrepreneurial Ecosystems to Boost Graduate Entrepreneurs Through Longitudinal Study

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Abstract: High unemployment among university graduates in Malaysia is concerning. Factors contributing to the university ecosystem that support the creation of student and graduate entrepreneurs remain debatable. Malaysian public universities produce 133,940 graduates per year, however, 14,466 remain unemployed six months after graduation. This demonstrates the futility of the university entrepreneurial ecosystem to channel these graduates' mindsets. The OCDC Entrepreneurial Ecosystems framework is the reference for most universities, and evaluating the weaknesses and strengths in the ecosystem pillars at the university level allows for clarity on relevant variables. The main objective of this study is to reconsider the model in the context of Malaysian universities that will enhance student entrepreneurial growth to create jobs and generate income while lowering unemployment and improving GDP that is consistent with the SDG agendas of 'Decent Jobs and Economic Growth,' MySTIE focuses on Education, and the Big Bolds relate to Future-ready talent that relates to MOHE and MECD policies. The study will use a longitudinal qualitative multiple-case study approach through a focus group using semi-structured questions with three groups of participants. Samples will be selected using a purposeful random sampling technique. Two top management, three students involved in business while studying, and three entrepreneur alumni from UiTM, UPM, and USM will be interviewed since these universities were awarded the MOHE Entrepreneurial Awards. Data will be analyzed using thematic analysis via NVivo software. This study will contribute to implementing an entrepreneurial ecosystem model according to Malaysia's public university setting. Recommendations to the university and MOHE will be provided based on the findings to enhance students' involvement in entrepreneurship while still at university. The government can improve on appropriate regulations in providing resources and budget based on this research findings so that the university can serve as an 'incubator' for driving university students to become job creators.

Keywords: *Entrepreneurial Ecosystems, Longitudinal Study, Public Universities, Graduate Entrepreneurs*

1. Introduction and Background

Being a developing country, Malaysia has a high unemployment rate among young graduates emerging from universities. This problem has triggered the efforts of the Malaysian government to turn the country into a knowledge-based economy, where 'entrepreneur' was described as one of the main elements to solve the unemployment problem in Malaysia. University students can be cultivated as job creators rather than job seekers. To reduce or eradicate unemployment, governments are stepping up programs and policies to further aid in reducing the unemployment rate by boosting entrepreneurship (Farinha, Lopes, Bagchi-Sen, Sebastião, & Oliveira, 2020). Table 1 shows between 2018 and 2022, Malaysia saw a significant rise in new graduates' unemployment, particularly during the Covid-19 pandemic. Graduate unemployment increased by 4.13% in 2018 and by 5.5% in 2019. The number rose from 1,620,000 in 2018 to 2,024,000 in 2020 and started decreasing from 2020 to 2022 (DOSM, 2023). The unemployment rate among university graduates can be overcome when the university cultivates an entrepreneurial mindset to these graduates through the conducive entrepreneurial ecosystem in the university. The surroundings that the university offer is supposed to be unique for emerging entrepreneurship. To educate aspiring potential students and assist them in taking the first steps toward launching and developing a business, tailored practices must be prepared. It has been found that the university environment has a significant influence on students' entrepreneurial tendencies (Johnson, Bock, & George, 2019; Nicholls-Nixon, Valliere, Gedeon, & Wise, 2021). Universities must be entrepreneurial themselves to effectively encourage entrepreneurship. Encouraging and fostering entrepreneurship is extremely likely to affect what most Higher Education Institutions (HEIs) do. Through awareness, this university can create interest among the students and from the interest the development of competence can be enhanced thus leading to the students' action in becoming student entrepreneurs followed by the graduate entrepreneurs. These can reduce the unemployment rate in the country.

Table 1: The Unemployment of Fresh Graduates in Malaysia from 2016 – 2022

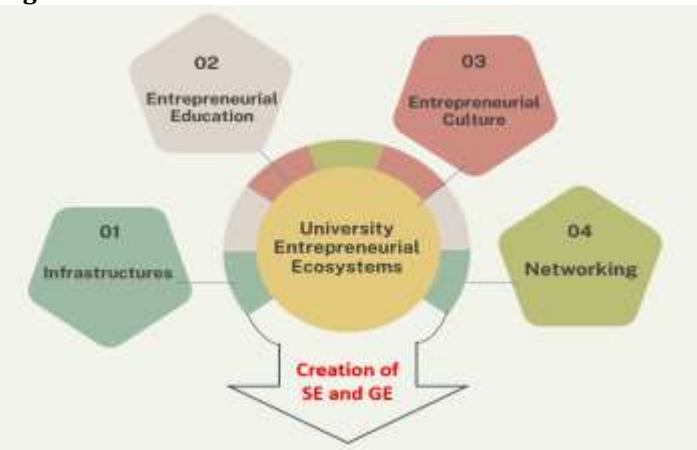
Years	Unemployment of Fresh Graduates
2018	1,620,000
2019	1,703,000
2020	2,024,000
2021	1,987,000
2022	1,878,000

Source: Malaysia Ministry of Higher Education (MOHE) (2022) and Department of Statistics Malaysia (DOSM) (2023).

Since 2020, the Malaysia Ministry of Higher Education (MOHE) has set a target for every public university (PU) to produce 5% of graduate entrepreneurs from the total graduates. One of the government's problems is how to shift the minds of students to create a new venture rather than searching for jobs. It was noticed that the university climate had a great influence on entrepreneurial intentions (Johnson et al., 2019; Nicholls-Nixon et al., 2021). The entrepreneurial intention of the students was closely linked to the university climate (Salleh, Noor, & Rahman, 2019). Many scholars have identified entrepreneurship as a solution to the issue of unemployed graduates (Looi Kim & Maritz, 2021; Pandit, Joshi, & Tiwari, 2018).

Based on the Organization for Economic Co-operation and Development (OECD) Entrepreneurial Ecosystem framework, there are seven elements highlighted: leadership and governance; organizational capacity, people and initiative; entrepreneurship development in teaching and learning; pathway for entrepreneurs; external relationship for knowledge exchange; international institution; and measuring the impact of the entrepreneurial university. There is a limited study based on the OECD Entrepreneurial Ecosystem framework in the literature; thus, this research will explore the most significant elements that will contribute to creating student entrepreneurs (SE) and graduate entrepreneurs (GE) in the setting of PU in Malaysia by classifying the seven elements in the ecosystem into 4 key factors (Figure 1): Infrastructures (organizational capacity, people and initiative); entrepreneurial education (entrepreneurship development in teaching and learning); Entrepreneurial Culture (leadership and governance and pathway for entrepreneurs) and Networking (external relationship for knowledge exchange and international institution).

Figure 1: Research Framework



According to Boldureanu, Ionescu, Bercu, Bedrule-Grigoruţă, and Boldureanu (2020), entrepreneurs are most successful when they have access to the human, financial and professional resources they need, and operate in an environment in which policies encourage and safeguard entrepreneurs. This link is described as the 'entrepreneurship ecosystem'. This study adopts the OECD Entrepreneurial Ecosystem framework as a conceptual basis in this study. The objective of this study is to ensure a favorable entrepreneurial environment for a university where the top management at the university should include the significant elements in this study's findings to be adopted in the Malaysian public university setting.

Malecki (2018), Stam and Spigel (2016) highlight that the study on the elements of entrepreneurial ecosystem have been neglected, while Adams (2021) and Donegan, Forbes, Clayton, Polly, Feldman, and Lowe (2019) admitted that most entrepreneurial ecosystem studies lack a 'time' dimension since most research to date consists of cross-sectional studies that are static, and thus miss out on crucial temporal change dynamics of entrepreneurial ecosystem evolutionary processes across time. An entrepreneurial ecosystem is always developing and evolving (Spigel & Harrison, 2018). Therefore, this study will investigate how Malaysian public universities cater to these four main elements in the university environment to develop SE and GE and at the same time, this study will adopt a longitudinal study that will explain how the entrepreneurial ecosystem elements evolve in simulating student entrepreneurs.

This study aims to address a crucial gap in the existing literature by conducting rigorous research through a longitudinal study. The study will investigate the significance of various elements in the university entrepreneurial ecosystem, using the OECD Entrepreneurial Ecosystem (EE) framework. Currently, there is a lack of research on this topic, which makes this study an important addition to the existing literature.

According to Embi, Jaiyeoba, and Yussof (2019), the university's efforts in developing a relevant curriculum, exposing students to the entrepreneurial ecosystem, and acquiring the necessary infrastructure to create the right learning environments are lacking in motivating students to become entrepreneurs. Since the Malaysian government has increased the allocation for the Higher Education Ministry (MOHE) from RM15.3 billion in 2023 to RM16.8 billion in the recent Budget 2024, the top management in the university can start planning to improve the universities' entrepreneurial ecosystem to create a conducive entrepreneurial environment to boost the student's involvement in entrepreneurship.

According to Suryanto (2019), several factors are important in the context of higher education. These factors include policies from higher education councils and university leadership regarding courses, the presence of business incubation centers, outcomes of downstream research, and faculty members influencing students' mindsets. Additionally, collaboration with government agencies and financial institutions is also crucial. Mentorship and networking opportunities have proven to be very useful for students, providing them with practical knowledge and skills, as well as access to important networks and resources for new ventures (Tomy & Pardede, 2020). According to Pittaway, Aissaoui, Ferrier, and Mass (2020), universities are investing in various projects such as student venture pre-incubators, incubators, rapid prototyping laboratories, experimental facilities, mixed-use entrepreneurship spaces, and even entrepreneurial dorms. Entrepreneurship education involves the processes of developing, fostering, and cultivating entrepreneurial abilities in students through the enhancement of information gained through hands-on experiences and active involvement in academic contexts (Wei, Liu, & Sha, 2019). Entrepreneurship culture can impact entrepreneurial activity and develop students' favorable views towards entrepreneurship (Valencia-Arias, Arango-Botero, & Sánchez-Torres 2022). Integrating institutions such as universities and government agencies allows for the necessary social connection and networking to enter the business (Dahesh, Tabarsa, Zandieh, & Hamidizadeh, 2020). However, the best practices in Malaysian public universities to cultivate entrepreneurial mindset among students remain unclear.

The role of universities in fostering an effective ecosystem of entrepreneurship is therefore considered important (Chepurenko & Kristalova, 2019). Several universities in Western countries adopted the OECD Entrepreneurial Ecosystem framework which consists of seven elements. The seven elements are leadership and governance; organizational capacity, people and initiative; entrepreneurship development in teaching and learning; pathway for entrepreneurs; external relationship for knowledge exchange; international institution and measuring the impact of the entrepreneurial university. There have been various attempts in the literature to define the Entrepreneurial University, but no consensus has been reached (Guerrero-Cano, Urbano, & Kirby, 2006). As a result, this OECD EE framework was created in 2012 (OECD, 2012). However, the study on the OECD EE framework is limited in terms of the effectiveness and significance of the elements in the Malaysian university setting. Thus, this study aims to develop an EE model based on Malaysia's public university setting.

In investigating entrepreneurial intention and its many influential factors, there seems to be lacking research about environmental factors, especially in the Malaysian context (Md Dahlan, Zainuddin, Mat Din, & Md Salleh, 2019). To address this gap, this study intends to fill the literature gap by investigating the students' actions

based on the university ecosystem that influences the student's entrepreneurial intention. Not only that, but this research will also fill in the gap by addressing a 'time' dimension that was neglected in the previous study (Adams, 2021; Donegan et al., 2019) by adopting a longitudinal study. As a result, this study proposes to fill a critical gap in the literature by conducting rigorous research using a longitudinal study to investigate the significance of elements in the university entrepreneurial ecosystem.

2. Literature Review

University Entrepreneurial Ecosystem

Based on the literature, the role of universities in developing entrepreneurship ecosystems is vague(Bedő, Erdős, & Pittaway, 2019). The entrepreneurship ecosystem is characterized in different ways based on research objectives, design and data. Some of the researchers described the ecosystem of entrepreneurship as "an interconnected group of actors committed to sustainable development in a local geographical community by promoting and facilitating new sustainable ventures" (Cohen, 2006, p. 3). While Isenberg (2011, pg 6) defines it as "… self-sustaining entrepreneurship, …need a conducive policy, markets, capital, human skills, culture, and supports". According to Stam and Van de Ven (2021) "… networks of entrepreneurs, leadership, finance, talent, knowledge, and support services determine the success of the ecosystem". Meanwhile, Theodoraki and Messeghem (2017, pg. 50) defined an entrepreneurial ecosystem based on three dimensions: "actors who form it and their interactions (formal and informal network), physical infrastructure, and culture".

Several researchers agree that a university with an entrepreneurial ecosystem is crucial (Bedő, Erdős, & Pittaway, 2020; Frederick, 2011). A study by Engel (2015) recognizes that universities play a role in promoting the environment as an agent and expend it as an "incubator" for graduates to start a new venture (Harper-Anderson 2018). A university can be interpreted as a platform for the provision of facilities, services, know-how and social networks based on these academic principles, but also for the creation and sustainability of an environment for students to engage in entrepreneurship. In the formation and viability of the environment, universities take on a more central role and provide more than just resources. Unfortunately, literature and research on entrepreneurship education and learning are almost unclear about these larger institutional circumstances and do not deeply consider how educational practice can connect with the university as a whole or the ecosystem of entrepreneurship (Pittaway et al. 2020). Previous reviews of entrepreneurship education emphasize this gap (Gorman, Hanlon, & King, 1997; Wang & Chugh 2014). Therefore, for this study, the entrepreneurial ecosystem is defined according to Theodoraki and Messeghem (2017) and Frederick's (2011) combined definition: entrepreneurial ecosystem element consists of physical infrastructure, culture, network and entrepreneurial education.

The OECD Entrepreneurial Ecosystem Framework highlights seven key areas: leadership and governance, organizational capacity, people and incentives, entrepreneurship development in teaching and learning, pathways for entrepreneurs, university-business/external relationships for knowledge exchange, the entrepreneurial university as an international institution, and measuring the impact of the entrepreneurial university. This framework is used as a guideline to identify the strengths and weaknesses, empowering to drive entrepreneurial cultural transformation. However, the study based on the OECD EE framework is limited in the literature (Alghamdi, 2020; OECD, 2012), especially in the Malaysian public university setting. Thus, this study will develop an EE model that is based on the Malaysian public university environment.

University Infrastructure

The entrepreneurial ecosystem comprises both physical and non-physical components. Physical infrastructure such as the readiness of offices, space for growing ventures, communications and transportation systems are also seen to play a role in entrepreneurship (Audretsch & Belitski, 2021). Gradually, universities are investing in student venture pre-incubators and incubators, rapid prototyping labs, experimental labs, mixed-used entrepreneurship spaces and even entrepreneurial dorms that provide a place for young entrepreneurs to grow in their personal and business lives (Pittaway et al., 2020).

The physical assets and facilities that are being set up in the university environment give educational institutions their appropriate shape and atmosphere for teaching and learning. Physical assets and the facilities in the university environment reflected the quality of the institutions (Abdullahi & Wan Yusoff, 2018). Even

though the physical assets and facilities such as entrepreneurship space, prototyping lab and shop lots in higher education are complex and cost intensive. Therefore, it is very challenging to provide the physical infrastructure to ensure the quality of the institution is at par with the high-reputation entrepreneurial university. Physical infrastructure would add value to the educational institution in determining whether the university is contributing towards entrepreneurial culture. The goal of physical assets and facilities is simply to develop the process into practical educational activities.

The role of physical infrastructure development in the entrepreneurial process has received limited attention (Audretsch, Heger, & Veith, 2015), especially in the university environment. It is acknowledged by Bennett (2019) that investments in infrastructure and environmental changes will stimulate the actions of entrepreneurs as they create changes in the physical infrastructure that may act to both open and close opportunities for entrepreneurs thus contributing to both enable and disable entrepreneurial opportunities. However, the results of the symmetrical analysis show that access to physical infrastructures is not significantly associated with entrepreneurial intentions among female Saudi university students (Ali, Ali, & Badghish, 2019). A study by Franke and Lüthje (2004) found that the support provided by the university environment hurt entrepreneurial intent. The results from this study indicated that lower-level students were found to have intentions followed by a negative appraisal of the university's activities to provide the students with the knowledge to start new venture creations actively (Frank & Luthje, 2004). The differences in entrepreneurial intentions relative to an individual's perception of the university's physical infrastructure have a mixture of outcomes.

Entrepreneurship Education

Entrepreneurial education is defined as, "the whole set of education and training activities within the educational system, or not that try to develop in the participants the intention to perform entrepreneurial behaviors or some elements that affect that intention, such as entrepreneurial knowledge, the desirability of entrepreneurial activity, or its feasibility" (Liñán, 2004, p. 163). Entrepreneurial education curricula and programs that are being offered to higher institution students can have an impact both on the local entrepreneurial culture and entrepreneurial activity in the university. A university can also assist students directly with technical skills for ventures (Feld, 2020). By providing appropriate entrepreneurial education it can attract entrepreneur's establishment.

Entrepreneurship intentionality was suggested as an indicator of the effectiveness of entrepreneurship education programs. Some researchers focused on assessing the impact of entrepreneurship education programs on students' intentions to start a business venture. The characteristics of entrepreneurship education indicated that the majority of the programs were conducted to increase the awareness and understanding of entrepreneurship as a process (Chang & Rosli, 2019), and this awareness of entrepreneurship was seen as a career possibility (Mansor & Othman, 2011). Another researcher, Rae (1997, p. 199) suggested that "the skills traditionally taught in business schools were essential, but not sufficient to make a successful entrepreneur." The findings by Smith, Barr, Barbosa, and Kickul (2008) and Weaver, Dickson, and Solomon (2006) found that there is a significant positive correlation between involvement in entrepreneurial programs and new start-ups. The findings from Ali, Ali, and Badghish (2019) done at Saudi universities show that entrepreneurship education and training are significantly associated with the development of entrepreneurial intentions among students.

The entrepreneurship curriculum is organized by discipline, program, and a degree. It is a set of courses and their content and the courses are based on a syllabus that specifics learning objectives, topics and grading criteria. Entrepreneurial curricular activities will enhance the student learning experience. These include and are not limited to programs, clubs, living experiences, workshops, guest speakers, forums, networking and other programs.

Entrepreneurial Culture

Entrepreneurial culture is the creation of a culture within the university that enables opportunity recognition and entrepreneurial capacity building, that will lead towards the entrepreneurial journey. According to Roundy (2017), there is no difference in limited resources in different locations, regardless of a small or rural location in creating a conducive entrepreneurial culture. Likewise, the culture of universities towards entrepreneurship

is also considered to vary considerably with some institutions having favorable entrepreneurial cultures and some may be less (Wright, Siegel, & Mustar, 2017). "Culture served as a conductor for entrepreneurial behavior and as the catalyst to entrepreneurship" (Berger, 1991, p. 122). The presence of a culture that supports and encourages entrepreneurial actions and activities as needed (Hisrich, Langan-Fox & Grant, 2007). The sociological theory of entrepreneurship by Max Weber (1864-1920) holds social cultures as the driving force of entrepreneurship.

Appropriate culture can lead entrepreneurs towards preferences for entrepreneurship (Bogatyreva, Edelman, Manolova, Osiyevskyy & Shirokova, 2019). The study by Ali, Ali, and Badghish (2019) shows that access to finance and cultural factors are not significantly associated with entrepreneurial intentions, whereas government policies and regulations, government programs and support and social factors are significantly associated with the development of entrepreneurial intentions among female Saudi Arab university students. The individuals' characters, actions, economic conditions, and social and political systems were all surrounded by the national culture from which they were initiated (Berger, 1991). Some countries were yet to experience a cultural shift to a paradigm that supported entrepreneurial behavior. Culture served as a "conductor for entrepreneurial behavior and as the spur to entrepreneurship" (Berger, 1991, p. 122). The presence of a favorable environment and motivational factors; such as financial rewards, achievement, and individual fulfillment motivated entrepreneurship, but a university culture that supports and encourages entrepreneurial actions and activities was needed.

Networking

The entrepreneurial ecosystem may be described as a generic, context aiming to foster entrepreneurship within a given territory. In entrepreneurship ecosystems, it is becoming clear that universities play a vital role, and that social capital, networks, mentoring and the gaining of entrepreneurial ability in a locality are all important features. Therefore, it consists of a horizontal network (customers and providers) and a vertical network (competitors and counterparts) (Theodoraki & Messeghem, 2017). It also includes university supporting entrepreneurs: funding; support entities (business incubators, consultants, etc.); and research (research centers, laboratories, etc.). The network should include different groups of people such as entrepreneurs, investors, mentors and dealmakers (Feldman & Zoller, 2016). Such conditions also include the density and connectivity of social networks and the existence of social capital in these networks (Feld, 2012). A person's role in social networks, with close relatives who were entrepreneurs, contributes towards entrepreneurial action (Raijman, 2001). Internal and external networking relationship supports and facilitate entrepreneurs in setting up their businesses through strategic networks with private sectors and government agencies, through the planning and implementation of its activities that encourage an entrepreneurial culture in the university environment. The 'social learning theory' is developed from the conceptualization that learning is a process through knowledge transmission and assimilation towards a view of learning, and identity change within a network of social relationships. A university should bring in expertise from different backgrounds that have a strong knowledge base and research skills, and also a network of formal and informal academic contacts. The role played by networks in the process of knowledge transfer has been the focus of great successful networking.

3. Research Methodology

Description of Methodology

This study will be conducted by using qualitative study by implementing multiple case studies. Starting with a case study; followed by a cross-case analysis with the three different groups of respondents from each university then comparing it with the three universities in the multiple case studies. The qualitative data will help to understand the scenario, while multiple case studies allow replication of findings, and enable researchers to confirm or disprove (Yin, 1994) the elements in the OECD EE framework that may arise. The rationale for conducting qualitative data is that the variable is uncertain. This study aims to develop an entrepreneurial ecosystem model in the university that is favorable to creating student and graduate entrepreneurs. In tandem, this study will be done by applying a longitudinal study since the data collection will be done in two phases during the 3 years time frame. The first phase of exploratory research will be done through field observations and focus group interviews with two of the top management, three students who are active in business while studying, and three entrepreneur alumni from Universiti Teknologi MARA (UiTM),

Universiti Putra Malaysia (UPM) and Universiti Sains Malaysia (USM). Since these three universities previously won the prestigious Malaysia Ministry of Higher Education Entrepreneurial Award (MEA) it is worthwhile to examine their approaches in fostering a suitable entrepreneurial climate. Top management will provide information about the university's entrepreneurial ecosystem, student entrepreneurs will provide information about the ecosystem's conduciveness, and graduate entrepreneurs will provide feedback on the impact of the university's entrepreneurial ecosystem on their businesses after they graduate. Findings from this exploratory phase will then be used to suggest strategies for enhancing the university entrepreneurial ecosystem model to cultivate entrepreneurs among students. The discoveries from the first phase will be used to conduct the second phase to identify the progress of entrepreneurial ecosystem elements over time.

Qualitative research allows for the examination of data that is not easily accessible or assessable in statistical form (Sekaran, 2006). In this study, hypotheses testing will not be done to examine differences or relationships among variables because the study's purpose involves gaining a deeper understanding of the university's entrepreneurial ecosystem elements that will lead toward student entrepreneurs and graduate entrepreneurs. The exploration design will be carried out in two main stages, which were marked by an initial phase carried out with qualitative data collection through a focus group with 3 groups of participants (top management, students' entrepreneurs and entrepreneurs' alumni) and an analysis phase, then continue with a second stage of focus group after a year with the same participants of students' entrepreneur and analysis phase.

Qualitative Research Method

A qualitative multiple case study approach will be adopted in this study which will enable us to get access to in-depth and information-rich data (Patton, 2014) and to understand how individuals' perspectives are a response to societal and institutional demands in a socially constructed context Patton (2002). But before multiple case study is being done, the within-case analysis will be carried out based on each university (UiTM, UPM, USM). Within-case analysis entails applying the techniques suggested by Strauss (1987). Normally, within-case analysis involves case-study write-ups that are generally descriptive. Also, within-case analysis is used to enable the researcher to become familiar with each case before the cross-case analysis is performed. Cross-case analysis is used to summarise the findings from each university; this encompasses three different cases and the within-case analyses by using thematic analysis. According to Miles and Huberman (1994), cross-case analysis will improve the generalisability of complicated situations. Yin (2009) also asserts that cross-case analysis is normally convincing and extensive. In the cross-case analysis conducted for this project, the three case studies are compared with the literature and with the themes described by the top management, student entrepreneurs and entrepreneur alumni.

According to Leitch, Hill, and Harrison (2010), multiple case studies require the process of coding to be performed case-by-case, identifying themes, and continuing with open coding, focus coding, and axial coding. Open coding requires choices about what should be emphasized, minimized, and eliminated, based on the researcher's knowledge of the subject. Focus coding organizes the information in a systematic way for easy interpretation. Finally, axial coding revises and refines categories; repeated themes or patterns are extracted from the data to make comparisons and connections between the codes, categories, and concepts.

The interviews will be analyzed using thematic analysis (Flick, 1998), using NVivo software. The purpose of this analysis is to identify themes that are significant or interesting, such as patterns in the data, and use these themes to address the research or suggest something about a problem. This is far more than merely summarizing the data; it interprets and makes sense of a good thematic analysis. The interview session is expected to last for about an hour to an hour and a half. The collected information is then written up as descriptive case studies which are then cross-analyzed using serial and thematic coding based on the three-focus group before multiple case studies can be done.

4. Conclusion

This study attempts to fill a critical gap in the existing knowledge by undertaking rigorous research through a longitudinal study. Using the OECD Entrepreneurial Environment (EE) framework as a guideline, this study will evaluate the importance of various factors in the university entrepreneurial ecosystem as a conceptual framework. There is currently a scarcity of research on this issue, making our work a valuable contribution to

the existing literature. Through the findings of this study, a university entrepreneurship ecosystem model will be developed to guide the top management in the public universities in Malaysia in prioritizing the resources towards building a favorable ecosystem. Universities will not only commit to incorporating sustainability into their courses and operations, but they will also be at the forefront of generating a new generation of entrepreneurs.

This study contributes to the gap in the literature on the favorable entrepreneurship ecosystem in the university that will lead the university's top management to create an entrepreneurial university instead of a traditional university that can cope with the turbulent environment. This will lead towards building 'talent stock' as emphasized by Big Bolds and 8i Innovation Helix Ecosystem Analysis in 10-10 Malaysian Science, Technology, Innovation and Economy (MySTIE) and Wawasan Kemakmuran Bersama (WKB) 2030 on the development of a knowledge-based and high-value economy. It will help to improve the Sustainable Development Goals (SDGs) on agendas 4 and 8: 'Quality Education' and 'Decent Work and Economic Growth,' which will drive MOHE and Minister of Entrepreneur and Co-operatives Development (MECD) to boost education quality and crafting policies for talented entrepreneurs. This study will impact the quality of entrepreneurial education at universities to increase employment creation, improve the standard of living, and boost productivity, particularly in National Key Result Areas (NKRA) 11. Simultaneously, the country's Gross Domestic Product (GDP) and economy will improve significantly.

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Determinants of Capital Structure from Malaysian Shariah-Compliant Food and Beverages Firms

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Abstract: This paper addresses the dearth of empirical research on the capital structure of Shariah-compliant food and beverage (F&B) firms in Malaysia. Despite the industry's dynamic growth, specific financing needs, and adherence to Shariah principles, a comprehensive investigation into the determinants of their capital structure choices is lacking. By exploring factors such as profitability, tangibility, growth opportunities, liquidity, and firm size, this paper aims to provide valuable insights into the financial strategies of these specific entities and fill crucial knowledge gaps in empirical evidence. The study employs panel data, a combination of cross-sectional and time-series data, with a sample comprising 24 Shariah-compliant F&B firms listed on Bursa Malaysia, totalling 240 observations. Quantitative methods are applied using secondary data sourced from the Eikon database and financial statements in the annual reports of Bursa Malaysia-listed companies from 2013 to 2022. The findings reveal that profitability, tangibility, liquidity, and firm size significantly impact the capital structure choices of Shariah-compliant F&B firms, while growth opportunities emerge as an insignificant factor. These results support the application of the trade-off theory for profitability and the pecking order theory for tangibility, liquidity, and firm size, shedding light on the nuanced financial decision-making processes within this sector.

Keywords: *Capital Structure, Shariah Compliant, Food and Beverage Companies, Malaysia.*

1. Introduction and Background

Capital structure is defined as the mix of financing sources it utilizes to fund its operations. It can be categorized as debt or equity, where debt encompasses bonds and notes, while equity consists of stocks and retained earnings. By achieving an optimal capital structure, a firm can enhance its valuation while simultaneously minimizing its financing expenses. Therefore, financial managers have to make crucial choices about capital structure, which involves determining how much debt and equity the company should utilize. These decisions have a significant impact on the company's ability to continue operating and making financial decisions. The manager should be able to effectively raise funds from sources either internal or external of the company (Mardan et al., 2023).

Subsequently, the Malaysian food and beverage (F&B) industry is currently undergoing substantial growth, particularly in its export market, and holds significant importance for Malaysia, contributing significantly to the country's GDP, expected to rise by 8% in 2023 (June 2023). The F&B industry, encompassing all companies engaged in manufacturing, packaging, and distributing raw food materials, witnessed remarkable growth in the initial 11 months of 2022, with processed food and consumable item exports totalling RM11.7 billion, reflecting a substantial year-on-year increase of 24%. The beverage sector also exhibited notable figures, with RM2.3 billion in exports and RM2.7 billion in imports. Furthermore, palm oil-derived products significantly contribute to Malaysia's F&B exports, solidifying the country's position as one of the two world's largest exporters (Agency, 2018).

Apart from that, the Malaysian F&B industry's halal exports stand at 41%, surpassing other industries in 2013, as reported by the Organization of Islamic Cooperation (OIC) (BNM, 2014). Presently, Malaysia's halal F&B exports reached an impressive RM27.84 billion in 2022, marking a noteworthy increase of 57.8% from the previous year reported by the Halal Development Centre (HDC). According to Sahudin et al. (2023), Malaysia also has been recognized as a prominent model for benchmarking halal food standards globally recently, setting a leading example for best practices in the industry. The country's halal standards, aligned with the guidelines established by the Codex Alimentarius Commission in Geneva in 1997, are widely adopted both domestically and internationally, reducing ambiguity in the halal food sector. Malaysia's efforts position it as a potential

global hub for the halal market, fostering economic growth and acting as a key gateway for Muslims worldwide. Given the burgeoning growth in the Malaysian halal F&B industry, comprehending the determinants of the capital structure becomes crucial for ensuring the financial resilience and sustainability of shariah-compliant F&B firms in the country.

Capital structure selection impacts risk, stakeholder power dynamics, business sustainability, profitability, and shareholder wealth. As a result, capital structure is a widely researched area of corporate finance. Firms risk financial distress if they make the wrong capital structuring decision, which affects how they allocate cash and raise funds. Without proper planning for fund acquisition, firms may unintentionally misallocate funds by resorting to excessive debt through increased bond issuance, depleting the company's cash reserves without anticipating the potential financial repercussions. (Fatima & Yasmin, 2022). Establishing an optimal level of leverage for the company is crucial in contributing to its financial resilience. This determination ensures that the company strategically manages its capital structure, avoiding pitfalls that could hinder its financial stability. Optimizing the capital structure would indirectly contribute to this halal F&B industry, impacting Malaysia's GDP and overall economic performance. This strategic financial approach enables efficient resource allocation and improves the company's performance so that it can maximize company value and lower the cost of capital.

Thus, this study contemplates delving into the capital structure behavior of Malaysian Shariah-compliant firms in the F&B industry. The exploration of this behavior involves an examination of various factors that influence the capital structure of F&B companies, such as profitability, tangibility, liquidity, growth opportunities, and firm size. Equally important, this study incorporates relevant theories, with the Trade-off theory and Pecking Order theory taking precedence in understanding firms' capital structure dynamics. The significance of these theories is supported by most past empirical studies cited by Mardan et al. (2023), Ali et al. (2022), Ibrahim & Ariba (2021), Akbar et al. (2023) and Khan et al. (2020). These studies indicate the application of theories like the static trade-off and pecking order theories in investigating the financial structure of firms.

This study tries to close the gap and create a fresh understanding by providing more recent evidence on the determinants of capital structure for shariah-compliant F&B firms in the Malaysian industry by examining five factors of independent variables. Overall, the purpose of this study is to examine whether profitability, tangibility, growth opportunities, liquidity, and firm size influence the capital structure of Malaysian Sharia-compliant F&B firms.

2. Literature Review

Capital Structure: According to Arif and Mai (2020), every business aspires to promote shareholder wealth and implement a capital structure policy as a long-term objective. The choice of capital structure becomes one of the most crucial ones to make to accomplish those objectives. It is one of the financial management duties that each business must carry out correctly. It is related to the mix of equity and debt that a business uses to finance its long-term activities. Additionally, each company has the option to regularly finance its operations or work through debt, equity, or an assortment of these two sources (Mohammad et al., 2019).

The determinants of capital structure refer to the potential factors capable of exerting influence on or impacting a company's choices regarding its capital composition. Extensive past studies have consistently identified key determinants, including but not limited to profitability, tangibility, growth opportunities, liquidity, and the size of the firm, serving as independent variables. This study aligns with the prevailing trend by employing the debt-to-equity ratio as the chosen metric to assess the capital structure, mirroring the methodology adopted in numerous prior investigations.

In 1958, Franco Modigliani and Merton Miller introduced the renowned Modigliani-Miller (M&M) theory, a seminal contribution to the discourse on capital structure (Faizal et al., 2019). According to the M&M theories, in an ideal capital market, certain circumstances render the capital structure inconsequential to a company's performance. This perspective is grounded in the assumption that taxes or issuance fees do not encumber capital-raising endeavors involving debt or equity. However, the landscape is multifaceted, and other theories have been uncovered through in-depth examination in past case studies, offering distinct perspectives on defining the optimal capital structure for firms. Notable among these are the static trade-off and pecking order

theories, as elucidated by Mardan et al. (2023), Ali et al. (2022), Ibrahim & Ariba (2021), Akbar et al. (2023), and Khan et al. (2020).

The trade-off theory, developed in response to Modigliani and Miller's 1958 irrelevance theory, posits that decisions on capital structure do impact a firm's value. While the irrelevance theory proposed that capital structure has no significant effect on a company's value, Modigliani and Miller revised their position in 1963 to accommodate certain market assumptions. Modigliani and Miller's research suggested that debt had a beneficial impact on company value, signifying that higher corporate value is correlated with a larger debt load, which encourages firms to increase their debt holdings (Mardan et al., 2023)

In contrast to the irrelevance theory, the trade-off theory recognizes that the relationship between capital structure and financial distress is quite strong since a company's ability to allocate enough money to meet working capital requirements and business expansion (Santosa et al., 2020). An increased degree of leverage heightens the likelihood of insolvency. The possible benefits of tax savings and possible costs of bankruptcy resulting from the usage of leverage are positively correlated (Gharaibeh & AL-Tahat, 2020).

The trade-off theory of capital structure states that optimal capital structure can be achieved if the benefit of debt financing equals the debt-related costs (Mohammad et al., 2019). There are advantages and disadvantages associated with each source of financing. Companies may issue debt due to the tax benefits, such as the ability to deduct interest payments from taxes and the ability to keep ownership of the debt. Additionally, debt becomes an option to raise funds in the capital markets during periods of low-interest rates because it is readily available and abundant. Nonetheless, using debt excessively raises the risk of financial hardship and lowers the company's credit rating (Mohammad et al., 2019).

Furthermore, the theory asserts that as the debt ratio increases, the value of the company rises due to the tax shelter benefit of debt, but this positive effect is offset by financial distress costs beyond a certain debt ratio. The static trade-off theory posits that a company's cash holdings result from a trade-off between the costs and benefits of holding cash. Unlike the capital structure irrelevance theory, the trade-off theory acknowledges the presence of financial distress costs as companies increase their borrowing.

In essence, the trade-off theory extends and refines the capital structure irrelevance theory by recognizing the impact of financial distress costs. It suggests that the optimal capital structure, where a firm's value is maximized, is reached when the additional benefits of taking on more debt are outweighed by the detrimental effects of financial distress costs. This critical point defines the balance between the advantages and disadvantages of debt, establishing the optimal debt-equity ratio for profit optimization.

When addressing the capital structure of Food and Beverage (F&B) firms, Donaldson first proposed the pecking order theory in 1961. This theory aims to elucidate why firms exhibit a preference for raising capital internally rather than from external sources and why they tend to choose debt issuance over equity. The theoretical model argued that the issue of safe securities generally is better than that of risks. Firms should use bond markets to raise outside money, but if at all feasible, they should increase equity retention. That is, it is better to use external debt finance rather than stock financing (Mardan et al., 2023).

According to this model, businesses adhere to a prioritized funding approach, moving from internal sources to equity based on the principle of least resistance. The Pecking Order theory attempts to quantify the costs associated with asymmetric information, considering transaction expenses and risks linked to the issuance of new securities. Consequently, firms tend to structure their preferred financing methods as follows: first, through internal retained earnings, followed by adjustments to the cash balance or the sale of accessible securities; second, through the utilization of secure external debt, and as the final option, through the issuance of equity.

The basis of the pecking order hypothesis is asymmetric information issues. Companies can choose to fund their investments. Therefore, using external funding implies giving debt precedence over equity (Mardan et al., 2023). These costs, according to the concept of trade-offs, outweigh the associated benefits. Hence, firms adopt an organizational financing structure, giving preference to debt over equity when necessary.

Profitability: Profitability, as outlined by Brealey et al. (2020), denotes the net profit resulting from a series of strategies and actions. It stands out as a widely employed factor in literature, often considered a determinant of capital structure. Capital structure theories propose that the association between profitability and capital structure is a point of both theoretical and empirical contention (Saif-Alyousfi et al., 2020).

The trade-off theory predicts a positive correlation between profitability and the debt-equity ratio. Profitable firms tend to be more open to increased tax obligations and reduced risks of bankruptcy. This inclination stems from their robust financial standing, enabling them to comfortably handle higher levels of debt and efficiently manage its timely repayment, unlike less profitable firms (Ali et al., 2022). This hypothesis implies a positive relationship between profitability and capital structure, emphasizing the potential for profitable firms to strategically leverage their capital structure to enhance their financial position. This is corroborated by studies conducted by Ahmeti et al. (2023), Ali et al. (2022), and Faizal et al. (2019), which found a significant positive relationship between the two variables, indicating that profitable companies are more likely to choose debt as their preferred financing option.

Conversely, the pecking-order theory offers a different viewpoint. Successful firms will not depend too much on external funding. They rather rely on their internal funding generated from past profits. In essence, the pecking order hypothesis posits that profitable companies accumulate more retained earnings, leading to lower leverage ratios, while unprofitable firms exhibit higher leverage ratios. Consequently, the pecking-order hypothesis predicts a negative relationship between profitability and leverage, suggesting that profitable companies prefer internal capital for financing (Moradi & Paulet, 2019). This theory's relevance is further substantiated by several past studies, including those by Abdulkarim (2023), Yahya et al. (2019), Setiawan & Yumeng (2021), and Sutomo et al. (2020), which found a significant negative impact of a firm's performance on its capital structure.
H1: There is a positive relationship between profitability and capital structure.

Tangibility: Tangible assets are physical items owned by a company, such as buildings, plants, machinery, and vehicles which usually operate in maximizing the sales revenue. Tangibility refers to the fixed tangible assets that have some degree of debt capacity (Arilyn, 2020). These assets, derived from shareholder equity and fixed liabilities, form part of the capital structure of a firm (Rummana et al., 2021). Tangible assets are crucial in determining how a company chooses to finance its operations. For example, companies with high long-term fixed assets, due to high product demand, are more likely to use long-term debt (Muhammad et al., 2023). On the other hand, companies with assets like receivables and inventory, which depend heavily on stable profitability, are less reliant on short-term financing (Muhammad et al., 2023). A study by Neves et al. (2020) suggests that companies with more tangible assets (physical property like buildings and machinery) are more likely to rely on internal funding for investments. This is because raising external funds (borrowing or issuing new shares) can be expensive due to investors having higher confidence in tangible assets compared to intangible ones. Consequently, companies with significant tangible assets tend to adopt a more conservative capital structure, meaning they rely less on debt financing (Alihodžić & Muratović-Dedić, 2020). However, some theories propose a positive correlation between asset tangibility and capital structure (amount of debt a company has). This is because tangible assets can be used as collateral for loans, potentially reducing borrowing costs and agency issues (Alihodžić & Muratović-Dedić, 2020).

According to Trade-Off theory, it suggests a positive relationship between capital structure and the proportion of tangible assets, as tangible assets act as collateral in financial distress (Orkaido, 2021; Ibrahim & Ariba, 2021). Hence, it can be inferred that the expansion of tangible assets plays a role in influencing the capital structure. Empirical studies conducted by Soekarno et al. (2021), Sutanuka Shaw & Debdas Rakshit (2021), Czerwonka & Jaworski (2022), and Stamenković et al. (2022) have all revealed that tangible assets indeed impact the capital structure. This aligns with the Trade-Off theory's prediction that debt capacity increases with the proportion of tangible assets on the balance sheet, reflecting the collateral value's impact on gearing levels.

Pecking Order theory, however, proposes an opposite relationship between tangibility and capital structure. It argues that companies with more tangible assets have less asymmetric information, making it easier and cheaper to raise equity (Ibrahim & Ariba, 2021). This, in turn, would lead them to rely less on debt and more on internal funds or equity financing. Marimuthu et al. (2023) note this negative relationship, consistent with

findings by Subiakto et al. (2021) and Haron et al. (2021). The Pecking Order theory also anticipates an adverse relationship between tangibility and capital structure, as highly tangibility firms typically borrow less. Hence, firms with high tangibility are inclined to rely more on internal financing or equity issuance rather than debt, with fixed assets playing a diminished role as collateral.
.**H2:** There is a negative relationship between tangibility and capital structure.

Growth Opportunities: Growth refers to the ability of businesses to expand and improve their firm through new investment usage (Basri et al., 2019).

According to the trade-off theory, a study by Yahya et al. (2019) reveals a negative and significant impact of growth on capital structure. Firms with robust growth prospects may seek debt as a backup source of capital when unable to issue new equity, adhering to the trade-off theory. Next, the trade-off theory suggests that organizations with future potential borrow less than those with actual assets. However, Singhal et al. (2022) believe that resource structure has an adverse relationship with manufacturing firm success, whereas growth in possessions and equity has a positive effect, but growth in financings and down payments have an unfavorable effect on manufacturing firm success. The connection between finance structure and productivity is critical and cannot be overemphasized because productivity is required for the firm to survive. Next, in a study by Akbar et al. (2023), the trade-off hypothesis predicts a negative association with growth prospects. This is supported by the findings of Alqahtani & Alnori (2019).

On the contrary, the pecking order study by Akbar et al. (2023) implies that growth prospects increase organizations' debt levels since internal finances are insufficient to finance the expansion. As a result, these companies will choose debt funding. Based on the trade-off theory, propose a negative association between growth opportunity and leverage. According to the pecking order hypothesis study by Saif-alyousfi et al. (2020) high-growth enterprises, which often have big financing needs, would end up with high debt ratios since their managements are unwilling to issue shares. There is also a chance that growth prospects have a favorable correlation with leverage. In addition, Basri et al. (2019) explain the pecking order theory, which asserts a positive relationship between anticipated growth and debt. This is because companies with significant growth prospects need more capital for their developments, resorting to external financing, particularly debt, when internal funding falls short based on the order of preference. Growth opportunity refers to corporate-owned intangible assets with no collateral value. The relationship between the possibility of development and the quantity of debt is negative (Basri et al., 2019).
HO3: There is a negative relationship between growth opportunities and capital structure.

Liquidity: Liquidity refers to the capacity of a company to transform short-term assets into cash without affecting the intrinsic worth of its assets (Basri et al., 2019). It is consistent with Haque & Shaiq (2023) defined liquidity as the easiness of a firm to promptly satisfy its immediate liabilities when needed. Once a firm is unable to satisfy its current liabilities, it might experience insolvency and require borrowing money, short-term or long-term, to cover its inventory, prevent stock shortages, and pay suppliers and creditors.

Theoretically, from the trade-off theory approach, companies that possess higher liquidity are capable of leveraging higher debt as a result of their capability to satisfy short-term commitments on time. Arilyn (2020) suggests that companies possessing greater liquid assets may utilize these resources to secure funding for upcoming investment opportunities. In addition, Zulvia & Linda (2019) further support the theory that companies with higher asset liquidity may increase their ability to take on debt since having more liquid assets provides better collateral for obtaining debt financing. Consequently, such companies can manage debt repayments effectively and experience reduced default risks. Hence, this theory expects a positive relationship between liquidity and debt levels (Fatima & Yasmin, 2022; Guizaini, 2021)

Conversely, the pecking order theory argues by Basri et al. (2019) that companies with extremely high levels of liquidity would rather finance their financial investments with internal funds as opposed to external capital, as considerable existing current assets can pay more debts. This is linked to the company's capacity to fulfill its contractual commitments. It is also consistent with the statement of Mardan et al. (2023), that companies with high liquidity possess ample current assets to support their operations, resulting in lower reliance on debt due to the current assets being sufficient to meet the company's financial requirements. In contrast, Kahya et al.

(2020) research findings indicate that companies with higher illiquidity tend to rely more on short-term funding, which might result in increased long-term debt and leverage. Thus, a negative relationship was expected between liquidity and the financial leverage of capital structure decisions (Saif-Alyousfi et al., 2020). Among those opinions, several empirical studies found that pecking order fits their findings that the liquidity of a company has a significantly negative impact on the leverage of capital structure decisions (Arilyn, 2020; Kahya et al., 2020; Mardan et al., 2023). This result proves that firms with a high level of liquid will reduce their level of debt. Lastly, from the research findings of Basri et al. (2019), it has been found that short-term liquidity exhibits a greater level of sensitivity when examining liquidity ratios with debt-to-equity ratios.
HO4: There is a negative relationship between liquidity and capital structure.

Firm Size: A firm's size is determined by the assets it owns. Numerous studies on capital structure, spanning various industries, have consistently identified firm size as a crucial factor influencing capital structure determination. According to several researchers, larger firms often necessitate more debt to sustain their operations. This phenomenon is aligned with the trade-off theory, where large firms can borrow more because they are more diversified and have lower bankruptcy costs, resulting in a positive relationship between firm size and debt level (Panda & Nanda, 2020; Shaik et al., 2022). Next, Khan et al. (2020) state that large firms have more borrowing power and thus higher gearing ratios. Their larger size means they are more diverse and less vulnerable to financial distress. Furthermore, large rims have lower monitoring costs because their cash flow is less volatile, resulting in lower agency costs of debt and easier access to the capital market. According to Kahya et al. (2020), larger firms can reduce risk, information asymmetry, and transaction costs, implying a positive relationship between firm size and debt level that is consistent with trade-off theory. Additionally, various studies, such as Mardan et al. (2023), Susanti et al. (2023), Guizani (2021), and Alabdulkarim (2023) have independently established a positive relationship between firm size and capital structure.

Nevertheless, certain researchers argue that larger firms exhibit a lower capital structure due to their stable cash flow. This aligns with the pecking order theory. Pecking order theory holds that larger firms with adequate internal resources rely primarily on these resources for financing. Consequently, it predicts a negative relationship between firm size and capital structure (Khan et al., 2020). A company of a relatively large size is more likely to use external funds, this is because the funds required to grow in tandem with the company. According to empirical studies by Yahya et al. (2019), large firms face a lower risk of bankruptcy due to their stable cash flow and diversified nature. Large firms tend to prefer equity issuance, resulting in lower leverage. In essence, firms turn to external funding only when their internal reserves prove insufficient. This is consistent with the findings of Puspita et al. (2021), which show a negative relationship between firm size and capital structure. When a company lacks internal funds, it will seek external funds in the form of debt. When the firm size is projected based on its total assets, it will be easy to obtain collateral for external funding. Additionally, Thanh & Trang (2021) and Gharaibeh & Al-Tahat (2020) also uncovered a negative relationship between firm size and capital structure in their respective research.
HO5: There is a negative relationship between firm size and capital structure.

3. Research Methodology

This study focuses on quantitative research methods since the answers to the research questions and the testing and examination of the dependent and independent variables depend on numerical data.

The dependent variable in this study is capital structure, while the independent variables are profitability, tangibility, growth, liquidity and firm size. To be specific in quantitative research methods, the researcher uses secondary data sources obtained from the Eikon database and financial statements in annual reports of listed companies on the Bursa Malaysia website from 2013 to 2022. The reason for selecting 2013 as the initial year is that we want to investigate the company's performance because the Organizations of Islamic Corporation (OIC) stated that Malaysia's food & beverage industry of halal exports in Malaysia is the highest at 41% compared to other industries in 2013 to 2018 (BNM, 2014). However, the year 2022 was chosen as this study's endpoint to ensure the inclusion of the most up-to-date financial information, enabling a current and accurate assessment of the companies' financial health.

This study focuses on Shariah-compliant food and Beverage (F&B) firms that include all listed companies in

Bursa Malaysia. There are 33 total listed companies of F&B firms under Shariah Compliant that are listed in Bursa Malaysia represented as population. However, in this study, we selected only 24 Shariah F&B firms to be a sample as well as represent the whole population of the listed companies for our study purpose.

For a company to be included in the sample, it must meet several criteria, which are as follows:
The food and beverage firms are listed under the consumer products and services sectors in the main market from Bursa Malaysia.
The company releases audited financial statements and information about the company is publicly available.

Based on the above criteria, two companies have been excluded from our sample due to insufficient financial statements being available for the study period which are SDS Group Berhad and MR D.I.Y. Group. This study covers the period from 2013 until 2022 which is equivalent to 10 years. This study extracted data from Thomson Reuters Eikon DataStream and financial data from annual reports under financial statements for the calculation of dependent and independent variables.

Table 1: List of 24 Shariah Compliant Food and Beverages (F&B) Firms in Malaysia

No	Firms	No	Firms
1	Impiana Hotels Berhad (IMPIANA)	13	zer Bhd (SPRITZER)
2	MSM Malaysia Holdings Berhad (MSM)	14	CCK Consolidated Holdings Berhad (CCK)
3	Malayan Flour Mills Berhad (MFLOUR)	15	Oriental Food Industries Holdings Berhad (OFI)
4	OCB Berhad (OCB)	16	Nestle Malaysia Berhad (NESTLE)
5	Kawan Food Berhad (KAWAN)	17	Rex Industry Berhad (REX)
6	Guan Chong Berhad (GCB)	18	Freaser & Neave Holdings Bhd (F&N)
7	Power Root Berhad (PWROOT)	19	C.I Holdings Berhad (CIHLDG)
8	Three-A Resources Berhad (3A)	20	Ajinomoto Malaysia Berhad (AJI)
9	Able Global Berhad (ABLEGLOB)	21	Lotus Kfm Berhad (LOTUS)
10	Hup Seng Industries Berhad (HUPSENG)	22	Dutch Lady Milk Industries Berhad (DLADY)
11	PPB Group Berhad (PPB)	23	Saudee Group Berhad (SAUDEE)
12	Hwa Tai Industries Berhad (HWATAI)	24	Apollo Food Holdings Berhad (APOLLO)

The dependent variable in this study is capital structure. Capital structure is measured by debt-to-equity ratio which is calculated by total debt divided by total equity (Faizal et al., 2019; Haque & Shaiq, 2023). The capital structure of a firm is determined by the combination of funding sources it uses to support its activities.

This study's variation in dependent variables will be measured against five independent variables. Profitability, tangibility, growth, liquidity, and firm size are the independent variables used to determine the dependent variable.

Table 2: Measurement of Independent Variables

Variable	Proxies	Notations	Measurements	Sources of Measurement
Capital Structure	Debt-to-equity ratio	DER	$\frac{Total\ Debt}{Total\ Equity}$	Faizal et al. (2019), Haque & Shaiq (2023).
Profitability	Return on Asset, measured by Earnings before interest and taxes to Total assets.	ROA	$\frac{EBIT}{Total\ Asset}$	Rahim et al. (2020), Alabdulkarim (2023).
Tangibility	Net Fixed Assets to Total Assets	TANGB	$\frac{Fixed\ Assets}{Total\ Assets}$	Hossin & Mia (2020), Clarisa & Nila (2022).
Growth Opportunities	Net Income	GROWTH	$\frac{NI\ (y_1) - NI\ (y_0)}{NI\ (y_0)}$	Rachmawati & Sherlita (2021).
Liquidity	Current Ratio	LIQ	$\frac{Current\ Assets}{Current\ Liabilities}$	Haque & Shaiq (2023), Saif-Alyousfi et al.

			(2020).
Firm size	Logarithm of Total Assets	SIZE	*Ln Total Assets*	Ruhmiyati & Rizkianto (2022).

4. Results

This study uses descriptive statistics to analyze 240 observations on 24 food and beverage companies listed on Bursa Malaysia that were Shariah-compliant between 2013 and 2022. This study will examine six variables, beginning with the dependent variable, capital structure, and moving on to the independent variables, profitability, tangibility, growth opportunities, liquidity, and firm size.

Table 3: Descriptive Statistics Analysis

Variable	Mean	Standard Deviation	Maximum	Minimum
DER (%)	85.91258	144.5302	1731.720	-221.2700
ROA (%)	5.719583	14.14975	41.82000	-104.4300
TANGB (%)	40.60121	42.62133	620.8200	4.570000
GROWTH (5)	-24.39721	471.2843	864.5500	-6861.170
LIQ (RATIO)	2.944333	3.163091	18.07000	0.060000
SIZE (LOG)	1.74E+09	4.63E+10	2.89E+10	1075969

According to the descriptive analysis results, the highest data for standard deviation is *GROWTH*, which was recorded as 471.2843. The dataset also has a mean of -24.39721, which indicates a central tendency around this value. The standard deviation of 471.2843 indicates a significant spread of values from the mean. However, liquidity had the lowest standard deviation at 3.163091, with a mean of 2.944333. This represents the deviation of the minimum values from their mean.

The dependent variable, capital structure, had an average value of 85.91258 percent and a maximum value of 1731.720 percent. This maximum comes from Lotus KFM Berhad. According to the annual report financial statement for 2015, total debt was higher than total equity. This is because the company spent more on payables that year, totalling nearly RM21,585,626. Next, Lotus KFM Berhad recorded a minimum of -221.2700 percent. According to the annual report financial statement for the year 2019. There is a negative total equity of -RM29,930,728 which indirectly indicates a negative capital structure for the company. This occurs because the company's accumulated losses have reduced its shareholder equity.

Regarding the independent variables, the mean value for profitability is 5.719583 percent, with a maximum of 41.82000 percent. This maximum comes from the Dutch Lady Milk industry. According to the annual report financial statement, the Dutch Lady Milk company's Return on Assets in 2021 is expected to be around 41.82% based on the information provided. This means that for every RM1 in assets, the company earns approximately RM0.4182 in operating profit. ROA of 41.82% is generally regarded as a strong performance, indicating efficient asset utilization to generate profits. However, the minimum is -104.4300 from Lotus KFM Berhad. According to the annual report financial statements for 2017, earnings before interest tax (EBIT) are negative, resulting in a larger loss. This was primarily due to the maintenance costs required to restart the operation, professional fees associated with the proposed regularization plan, and interest costs.

Furthermore, the average tangibility value is 40.60121 percent, with a maximum of 620.8200 percent. This maximum value comes from Lotus KFM Berhad. According to the annual report financial statement, the company's fixed assets in 2016 totalled RM6,679,857, which was more than the total assets of RM1,075,969. This indicates that a significant portion of the company's assets are related to physical assets, such as property, plant, and equipment. However, the lowest recorded figure was 4.570000 percent from PPB Group Berhad.

According to the 2022 annual report financial statement, it indicates that a small percentage of the company's total assets consists of tangible assets (fixed assets). The majority of the assets are likely to be intangible or other non-physical assets, as this company primarily relies on inventories, trade receivables, and cash equivalents.

Additionally, for growth, the mean value was -24.39721 percent, with a maximum value of 864.5500 percent. This maximum is from Malayan Flour Mills Berhad, as stated in the annual report financial statement for the year 2021. It shows an increase in profit in the year 2021 of RM198,542,000 with a percentage of 864% compared to the previous year's profit of RM20,584,000. Higher flour and by-product selling prices and stronger demand compensated for higher wheat costs and operating expenses, resulting in increased margins. However, the minimum recorded was 6861.170 from Saudee Group Berhad. According to the 2020 annual report financial statement, the company's profit decreased to -RM30,047,923 from the previous year's RM452,748 in 2019. The significant decrease was due to there being inventories written off of RM25 million.

As for liquidity, it has a mean value of 2.944333 and a maximum value of 18.07000. This maximum value is from Apollo Food Holdings Berhad. According to the annual report for 2022, the current assets are RM143,404,064 and the current liabilities are RM7,934,125. This demonstrates that the company is well-positioned to meet its short-term obligations, such as debt repayment and operating expenses. Next, the minimum was 0.060000 from Lotus KFM Berhad. According to the annual report financial statement for 2016, current assets were RM1,075,969 and current liabilities were RM19,035,581. This suggests that the company may have difficulty meeting its short-term obligations with current assets. A ratio significantly lower than one may indicate potential liquidity issues.

Moreover, the average firm size is 1.74E+09, with a maximum value of RM28,932,677,000. This value comes from PPB Group Berhad. According to the annual report financial statement for the year 2022, the group's total assets increased by 5.6% to RM28.9 billion as of 31 December. This was primarily due to an increase in Wilmar's net asset share. However, the minimum value of RM1,075,969 comes from Lotus KFM Berhad. According to the annual report financial statement, in 2016, the company had a severe cash flow situation and a prolonged loss position, so the company decided to temporarily cease its flour milling operations at the end of September.

Table 4: Results of Correlation Coefficient Analysis (Capital Structure)

	DER	ROA	TANGB	GROWTH	LIQ	SIZE TA
DER	1	0.030	0.007	0.017	-0.270	-0.071
ROA		1	-0.451	0.177	0.116	0.046
TANGB			1	-0.010	-0.114	-0.147
GROWTH				1	0.036	0.033
LIQ					1	-0.064
SIZE TA						1

According to Table 4, it is observed that all the variables have low correlation with one another, with reported correlation coefficients below the specified cut-off point of 0.8. This study adheres to the cut-off points outlined by Fawzi & Sunarti (2021) for correlation analysis. The highest correlation is 0.177 is a positively very weak uphill relationship found between growth opportunities and profitability while the lowest correlation is -0.451 is a negatively moderate downhill relationship found between tangibility and profitability.

The observed low correlation values suggest the absence of significant multicollinearity issues among the independent variables, aligning with the understanding that multicollinearity issues arise when variables are highly correlated. However, to further confirm the multicollinearity presence in this study, it is essential to conduct the Variation Inflation Factor (VIF) test. This step will provide a more comprehensive assessment of the independence of variables by examination of multicollinearity issues, contributing to the robustness and reliability of the result.

Table 5: Result of Variation Inflation Factor (VIF) test

Variables	Cantered VIF
ROA	1.117235
TANGB	2.307776
GROWTH	1.054626
LIQ	1.041204
SIZE	2.394961
C	NA

The findings reveal that all independent variables such as profitability, tangibility, growth opportunities, liquidity, and firm size exhibit VIF values below 5 in the analysis, signifying the absence of multicollinearity issues. The firm size exhibits the highest VIF value at 2.394961, but it remains below the specified threshold of 5 (Singh & Kumar, 2021). This outcome is crucial as it indicates that the variables do not share excessive interdependence, reinforcing the robustness of this study's analytical framework.

Consequently, this study confidently concludes that there is no noteworthy multicollinearity issue. This implies that the variables under investigation provide unique, distinct information, and different characteristics, contributing to the reliability of the analysis. In essence, the absence of redundant information enhances this study's validity, ensuring that each variable contributes independently to the overall understanding of the research context. To summarize, the variables can be considered independent of each other, underscoring the soundness of this study's statistical approach.

Table 6: Summary of the Static Panel Data Result

Dependent Variable: Capital Structure (DER)

Independent Variables:	**POLS**	**FEM**	**REM**
Profitability (ROA)	0.011561***	0.012066***	0.011561***
Tangibility (TANGB)	-0.015214***	-0.015398***	-0.015214***
Growth Opportunities (GROWTH)	-8.05E-05	-9.57E-05	-8.05E-05
Liquidity (LIQ)	-0.063683***	-0.065637***	-0.063683***
Firm Size (SIZE)	-0.887912***	-0.921647***	-0.887912***
Adjusted R-Squared	0.643519	0.658039	0.643519
F-statistic	69.95847***	11.20225***	69.95847***
Redundant fixed effect	1.000		
Hausman test		0.7961	

*Note: The sign ***, **, * indicate the result is statistical significance at the 1%, 5% and 10% respectively*

Before estimating the regression model in this study, the Redundant Fixed Effects Tests were initially conducted to evaluate the suitability of employing Pooled Ordinary Least Squares (POLS) and Fixed Effect Model (FEM). The Redundant Fixed Effects Tests yielded a p-value of 1.00, surpassing the 0.05 threshold, suggesting a preference for utilizing the estimates in the POLS model. However, before reaching a definitive conclusion, the Hausman test was also applied to both the Random Effect Model (REM) and Fixed Effect Model (FEM). The resulting p-value in the Hausman test was also statistically insignificant, registering at 0.7961. This outcome implies that the utilization of Pooled Ordinary Least Squares (POLS) in this study is more favorable than employing the Fixed Effect Model (FEM) and Random Effect Model (REM)

Table 7: Results of Pooled Ordinary Least Square (POLS)

Independent Variables	Coefficient	Std. Error	t-Statistic	Prob
ROA	0.011561	0.003422	3.378084	0.0009
TANGB	-0.015214	0.001001	-15.19984	0.0000
GROWTH	-8.05E-05	6.96E-05	-1.156353	0.2490
LIQ	-0.063683	0.019169	-3.322173	0.0011
SIZE	-0.887912	0.183439	-4.840369	0.0000
R-squared	0.652851			
Adjusted R-squared	0.643519			
F-statistic	69.95847			
Prob (F-statistic)	0.00000			

As shown in Table 7 the reported R-square is 0.652851, which indicates that the model explains 65.3% of the variation in capital structure of Shariah F&B firms. This is considered a relatively strong fit for a financial model with several independent variables. The reported adjusted R-squared stands at 64.35%, signifying that the independent variables—profitability, tangibility, growth opportunities, liquidity, and firm size—account for the variation in the Shariah F&B firm's capital structure. Consequently, the remaining 35.65% of the variation in the capital structure of firms within the model is attributed to other variables. The F-statistic of 69.96 with a very low p-value of 0.0000 indicates that the overall model is statistically significant. This means that at least one independent variable has a significant influence on the dependent variable (capital structure).

Based on the results presented in Table 4.3.2, shows a significant positive relationship between profitability (*ROA*) and capital structure with a 99% confidence level. The coefficient value of *ROA* underscores the profound impact of changes in profitability on the firms' capital structure levels, where a 1% increment of profitability will increase capital structure by 0.012%. This result is similar to Ahmeti et al. (2023), Ali et al. (2022), and Faizal et al. (2019). Consequently, the findings underscore the practical relevance of the Trade-Off Theory in the financial decisions of Malaysian Shariah F&B firms, emphasizing the strategic deployment of capital structure by profitable entities to shape their financial position.

Tangibility emerges as a robustly significant factor in elucidating capital structure, underscored by its remarkably low p-value of 0.0000. The results reveal a negative relationship between tangibility and the capital structure as the coefficient value of *TANGB* suggests that a 1% increase in the level of tangibility, represented by physical assets, corresponds to a decrease of 0.015% in the firms' reliance on debt financing. The result is supported by Subiakto et al. (2021) and Haron et al. (2021), and also aligns seamlessly with the Pecking Order Theory, asserting that companies with higher tangible assets tend to prioritize equity funding due to increased exposure to asymmetric information, leading to a reduced reliance on debt financing.

Furthermore, this study identifies Liquidity as significant at a 1% level and negatively influences the capital structure of Shariah-compliant F&B firms in Malaysia.

Liquidity (*LIQ*)'s coefficient implies that as liquidity levels rise by 1%, there is a corresponding decrease of 0.064% in the firms' reliance on external financing. This finding aligns with the Pecking Order Theory and is consistent with the result of past studies conducted by Arilyn (2020), Kahya (2020) and Mardan et al. (2023), suggesting that firms endowed with notably high liquidity tend to prioritize internal funds for financial investments, opting for internal resources over seeking external capital.

A firm's size is also reported to have a significant negative relationship with capital structure. As depicted in

Table 3, the remarkably low p-value (0.0000) associated with firm size (*SIZE*) establishes it as a potent factor in elucidating capital structure. The coefficient outcomes further elucidate that a 1% increment in firm size corresponds to a 0.89% reduction in capital structure. This implies that larger firms, often characterized by diminished information asymmetries, exhibit a preference for equity issuance over debt, ultimately leading to lower leverage. This observation is in line with the Pecking Order Theory and is corroborated by prior research by Puspita et al. (2021), Thanh et al. (2021), and Gharaibeh & AL-Tahat (2020).

As for growth opportunities (*GROWTH*), while the result is leaning towards the trade-off theory (negative relationship), growth opportunities are statistically insignificant to capital structure decisions for Shariah F&B firms in Malaysia. The result is consistent with Basri et al. (2019) which found an insignificant but positive relationship with the capital structure. However, our findings contradict the findings of Alqahtani & Alnori (2019), which found a significant negative relationship between growth opportunities and capital structure (Akbar et al.,2019).

5. Managerial Implications and Recommendations

Future studies are recommended to address several limitations identified in this study. Firstly, to grasp the limitations of the companies excluded in our study, future studies should conduct in-depth quantitative research by including companies in the ACE and LEAP markets that are not included in our study as we focus on the main market companies under the food and beverages industry only. The ACE and LEAP markets often house smaller, newer, and potentially more inventive firms compared to the Main Markets. These markets often exhibit distinct financial structures, business models, and risk profiles when compared to their main market counterparts. This approach allows for a more nuanced understanding of how variations in characteristics among these companies might influence the study outcomes, providing insights into the diversity within the sector. For example, LEAP markets can be at the forefront of innovation and disruption in the food and beverage industry. Studying them can reveal emerging trends, new business models and unique challenges not yet fully understood in the context of the sector.

To enhance data accessibility, future studies are encouraged to recognize the potential costs associated with accessing certain databases or journals, the research team can seek research funding that specifically supports data access. Funding proposals highlight the importance of comprehensive data for the study's success and allocate resources for accessing subscription-based sources. It can contribute to a more comprehensive literature review.

Lastly, due to limited generalizability, future research should consider conducting a cross-industry comparative analysis within the Sharia-compliant sector in Malaysia. This approach would help determine whether the identified capital structure determinants in the F&B industry are unique or prevalent across various sectors, providing valuable insights into industry-specific dynamics. Additionally, expanding the scope of the study to include global comparisons with Shariah-compliant firms in the food and beverages industry in other countries is another recommendation. This cross-country analysis can illuminate the generalizability of findings and highlight the impact of regional variations on capital structure determinants.

Conclusion

This study aims to scrutinize the determinants of capital structure within Malaysian Shariah-compliant food and beverage firms, focusing on six key variables: Profitability, Tangibility, Growth Opportunities, Liquidity, and Firm Size. The investigation encompasses 24 companies listed on Bursa Malaysia, adhering to Shariah principles from 2013 to 2022.

The empirical results unveil a robust model explaining 65.3% of the variation in the capital structure of Malaysian Shariah-compliant Food and Beverage (F&B) firms. The adjusted R-squared of 64.35% highlights the substantial contribution of independent variables-Profitability, Tangibility, Growth Opportunities, Liquidity, and Firm Size—while acknowledging that 35.65% of the variation remains influenced by other factors. The highly significant F-statistic of 69.96 (p-value 0.0000) affirms the overall model's statistical significance, indicating that at least one independent variable significantly impacts capital structure. Specifically, Profitability exhibits a substantial positive relationship, aligning with the Trade-Off Theory, while Tangibility,

Liquidity, and Firm Size showcase significant negative influences, consistent with the Pecking Order Theory. In contrast, Growth Opportunities, leaning towards the Trade-Off Theory, are statistically insignificant.

Future research avenues could explore additional variables, enhancing the comprehensive understanding of the intricate determinants shaping the capital structure of Sharia-compliant F&B firms in Malaysia, thereby contributing valuable insights to academia and industry alike.

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Exploring the Phenomenon of Selfie-Posting Behavior among Social Media Users

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Abstract: In the present day, the act of posting self-portraits, also known as selfies, is widely regarded as one of the most prevalent behaviors linked to the use of social media. Taking a selfie opens a new set of windows for activating specific identities, and over time and with readily available technological means, individuals are able to carefully construct online identities by editing their appearance and idealizing their self-portraits. The research discusses selfie-posting behavior in which to find out what the users are doing or constructing selfies before posting them. The primary aim of the current research is to examine these steps, specifically the context in motives, pre-occupation, selection of selfies, and selfie editing before posting. This study intended to focus on the social media users among Malaysians who engage in selfie activities. This research used a nonprobability sampling design, which is purposive sampling. The online questionnaire was administered as a cross-sectional survey, with data collected within a few months. This survey received 150 responses, and PLS SEM 4.0 was used to gather and analyze the data. Given the Selfie-Stadium Model, the finding showed that all variables are statistically significantly correlated to the following step. This research provides practical insights for developers to explore novel methods of improving device functionality and leveraging multitasking capabilities. Additionally, social media users can fully utilize device functions and benefit from technological advancements.

Keywords: *Selfie, selfie posting behavior, motive, preoccupation, selection, editing, social media.*

1. Introduction and Background

Social media is an online platform that facilitates connection between individuals via the exchange and consumption of information (Daniel Nations, 2021). Individuals use it to stay connected and engage with their family, friends, and other individuals. Social media offers numerous opportunities for users to engage in activities that allow for deep levels of self-expression and self-presentation (de Vaate et al., 2018). Currently, one of the most prevalent activities linked to the use of social media is the posting of selfies. (Boursier et al., 2020).

Most social media users spend 54 hours a year or 7 minutes a day taking selfies (Kuss & Griffiths, 2017); around 17 million selfies are uploaded to social media platforms every week, with individuals posting around 25,700 selfies throughout their lives (Winter, 2014; Broz, 2022). Despite being difficult to confirm, the numbers suggest that posting selfies is very popular (de Vaate et al., 2018). It has become an important part of social interaction on the internet (Yusof et al., 2021). In 2013, the title of Word of the Year was given to 'selfie', defined as a “self-captured image taken typically with devices like a smartphone or webcam” (Oxford Dictionaries).

The rise of technology has allowed individuals to present themselves online differently. This is because it allows them to create an identity completely different from the one, they usually use offline. With the right tools and time, it is possible to carefully choose the information and appropriate identity to present to an online audience. (Yusof et al., 2021). In other words, social media platforms, image-editing tools, and various apps have given people the means to create and curate a digital identity that may differ from their offline personality.

Therefore, these technologies enable individuals to construct an online identity distinct from their real-life personality or appearance. People may use filters, photo editing, or carefully select pictures that present them in a particular way, leading to self-presentation that may not entirely reflect their offline self. Engaging in selfie behavior provides opportunities to create distinct identities by allowing individuals to meticulously craft their online personas by editing their appearances with the help of technology (de Vaate et al., 2018).

Popularity on social media is strongly connected to how attractive individuals are perceived to be (Kleiser &

Mayeux, 2020In line with this context, a study discovered that individuals who share self-portraits on social media employ selfies as a means to enhance their self-esteem (Moneva, Perolino, & Ycong, 2020) since they possess control over how they present themselves on their social network profile. In contrast, posting selfies can impact both the experience and psychosocial effects, as social media platforms provide measurable peer responses like likes and comments, and feature content that is publicly shared, always accessible, and readily available (Nesi et al., 2021). A previous study stated that visual platforms on social media increase users' focus on looks by prompting them to selectively choose and share their selfies to appear as attractive as possible and gain approval from others (Yau & Reich, 2019). In addition, some social media studies have also reported that people use social media to shape and promote an idealized self-image, such as the interactive behavior of liking, sharing, and commenting replaces offline, face-to-face communication (You et al., 2022). Moreover, exposure to idealized selfies from peers can result in individuals comparing their appearance (Chang et al., 2019; Kleemans et al., 2018). It is crucial to investigate social media users' actions before they share their selfies due to the distinct characteristics of social media and their intersection with user peer appearance culture (Nesi et al., 2021).

This study is undertaking in Malaysia because many of the previous studies on selfie-posting have been conducted abroad, such as studies selfie behavior: assessing the Italian version of the Selfitis Behavior Scale and its mediating role in the relationship of dark traits with social media addiction (Monacis et al., 2020), how to do “selfies” impact adolescents' well-being and body confidence (McLean, et al., 2019) and a selfie: a new way of self-exploration (Ghosal, et al., 2020); limited research was done in Malaysia.

Besides, previous academics have begun investigating what motivates user selfie-posting behavior, which has become an issue examined by many academic scholars previously. Nevertheless, there is a scarcity of research investigating the typical behavior associated with pre-posting or pre-publishing a selfie. For instance, a study conducted by de Vaate et al. (2018) analyzed the several steps that individuals undergo while shooting selfies before sharing them online. This research aims to expand researchers' understanding of the motivations and persons involved in posting selfies, rather than only focusing on the act of uploading itself. Thus, this study centers on the act of sharing selfies and the preceding activities that may cause individuals to display themselves in a certain manner to an audience on the internet.

The examination of pre-selfie-posting behavior is crucial as the process of creating an online visual self-presentation encompasses more than simply uploading a selfie. It also entails activities such as selecting appropriate photographs and modifying them before sharing (Yusof et al., 2021). The objective is to comprehend the behaviors, cognitions, and cognitive processes that result in the act of posting a self-portrait on social networking platforms. This study examines individuals who take selfies using the Selfie-Stadium Model developed by de Vaate, Veldhuis, Alleva, Konijn, and Hugten (2018) to investigate the various actions done by social media users before sharing a selfie.

2. Literature Review

Selfie-Posting Behavior: In January 2021, the proportion of Malaysians using social media reached 86%, marking a 24% rise from 2016 when around 62% of the population were social media users (Müller, 2021). Social media is an online platform that facilitates communication and information exchange among individuals (Nations, 2021). According to Müller (2021), Malaysians dedicate around 7.5 hours per day to internet usage and 2.45 hours per day specifically to social media. Selfie-sharing is a common activity linked to the use of social media (Boursier et al., 2020). Josphine Jose and Shwetha (2022) mentioned that pictorial self-portraits, more commonly known as "selfies," have become a medium through which individuals create their online persona and share much autobiographical information. Selfies are part of people's daily lives and have become a phenomenon worldwide. Most social media users take 25,700 selfies in their lifetimes (Broz, 2022). The rapid growth in the popularity of social networking sites is not surprising because people are naturally social creatures and are driven by the need for endorsement and self-confirmation (Jose & Shwetha, 2022). Some people post selfies to connect with friends, while others post selfies to gain attention. Whatever the reason, posting a selfie is a way for people to share their lives with others online. In addition, Rashmi and Sood (2021) mentioned that the interesting factor that is noted and studied by many researchers is that people nowadays, especially those using social media, are not stopping by posting just one selfie.

The rise of technology has allowed individuals to present themselves online differently. This is because it allows them to create an identity completely different from the one, they usually use offline. Therefore, it is essential not only to selfie-post but also the behavior that led up to it. Thus, this research studies the current literature on selfie-posting behavior to determine what the users are doing or constructing selfies before posting.

Self-Presentation Theory: The self-presentation theory was established by Erving Goffman, a highly renowned and prominent American sociologist of the twentieth century. Goffman's dramaturgical analogy has been deeply ingrained in the field of sociology (Fine & Manning, 2003). Goffman's research paper on the presentational self is based on George Herbert Mead's concept that the self is formed via interactions in society (Branaman, 2001). According to another researcher, Goffman's self-presentation theory is based on the assumption that the way people present themselves is influenced by the cultural and societal values they are surrounded by. In other words, individuals' actions and behavior in public are influenced by what society deems acceptable (Tan, 2014).

Research on social media self-presentation has evolved from the study of online privacy, showing that privacy and self-presentation are complex and contextual processes (Rotolo, 2022). Internet users strategically posted material that they deemed appropriate for their intended audience and the social context, including the persons they expected to read their messages. However, their assessments of the viewers were often inaccurate since self-presentational goals may influence or restrict practically all types of behavior as individuals try to avoid being socially undesirable (Rotolo, 2022).

While in this concept of the study, this theory describes how communicators present the self. Goffman's (1978) early work on self-presentation explained that social behavior can be recognized as different in on-stage and off-stage behavior. Individuals on the front stage tend to behave in a way that meets the expectations of others; meanwhile, the backstage refers to the place where front-line behavior is prepared. However, Rotolo (2022) added that self-presentation is complicated when audiences, social norms, and values are unclear, and people may behave differently when uncertain of how they will be judged.

The Selfie-Stadium Model: The model was proposed by de Vaate, Veldhuis, Alleva, Konijn, E. and van Hugten, (2018). Considering the widespread phenomenon of online self-presentation through selfies, an exploratory study on selfie-related motivations and behavior in emerging adulthood has been used in this model the empirical support for the Selfie-Stadium Model confirmed that selfie-related behavior is more complex than just selfie-posting and should not be seen as a uniform behavior. Nevertheless, selfie fans undergo numerous stages of conduct associated with capturing self-portraits (de Vaate et al., 2018).

The model was also utilized in a prior study titled "Young Adults' Behavior and Motivations towards Selfie-Posting" conducted by Yusof et al. in 2021. The authors emphasized the importance of studying the pre-selfie-posting behavior that precedes the actual act of posting a selfie. This behavior is crucial because it involves the underlying actions and attitudes associated with creating a perfect selfie before sharing it online (Yusof et al., 2021).

Current Landscape of Selfie-Posting Behavior

Phases of Selfie-Posting Conduct: The Selfie-Stadium Framework: This study draws on well-studied theoretical concepts from diverse and extends previous studies by applying knowledge in these areas. To understand selfie-posting behavior, the Selfie-Stadium Model (2018) has been adapted in this study. This model illustrates the different steps that people take before posting selfies. The model includes four steps: motive, pre-occupation, selection, and editing.

Step 1 and Step 3: Motive and Selection

Motives refer to internal states encompassing wants, cognitions, and emotions. They serve as the immediate and direct drivers behind purposeful actions (Souders, 2022). In contrast to personality characteristics, the human reasons viewpoint offers a unique framework for understanding individual variances in personality (Winter, 1998). In the Uses and Gratifications viewpoint (U&G), motivations are described as the specific reasons why individuals actively seek out and engage with a particular kind of media. These motives are driven by the advantages they receive from the media and their own needs (Ruggiero, 2000). The U&G theory allows

researchers to uncover the social and psychological demands that drive individuals to select media channels (Rubin, 2009). An individual must possess their motivations for engaging in a certain action. In accordance with prior research, the researchers put out a conceptual framework wherein consumer personal motives are comprised of two distinct dimensions: positive motives and negative motives (Biradar et al., 2020). Furthermore, the purpose might also manifest as social reasons (Thilina & Gunawardane, 2019). In this paradigm, motives serve as the initial catalyst for the creation of selfies.

According to Chen and Roberts (2019), a social motive (external and positive) involves a person's desire to attain positive social advantages, and an enhancement motive (internal and positive) involves a person's desire to improve their psychological well-being, and a conformity motive (external and negative) indicates an intention to avoid disapproval from others. Finally, a coping motive (internal and negative) refers to an individual's willingness to avoid negative feelings. Within this body of literature, it is asserted that individuals must possess motivations for generating self-portraits before sharing them on online platforms. A few studies have shown a variety of motives for selfies. For instance, one study by (Chen & Roberts, 2019) demonstrated that there are five reasons for this behavior, which were organized in a sequence: capturing memories, interacting with others, getting entertained, boosting self-esteem, and garnering recognition. This stage further expands the investigation into the societal purposes of personal photographs and aims to enhance the understanding of the motivations behind individuals' capture and dissemination of selfies (Yusof et al., 2021).

A prior investigation established a connection between motivation and selection (Yusof et al., 2021). Guadamuz (2016) asserts that choosing is a crucial component in the field of art. This phenomenon is seen in several cases of "found objects" when ordinary items are chosen to serve as a fundamental manifestation of creativity. However, in this study, selecting selfies is the process of getting the best one. In other words, selfie selection is significant to the other selfie-posting behaviors. When it comes to selfies, researchers understand that the act of taking selfies initiates the process, followed by selecting which ones to post online. (Yellowlees et al., 2019). Consistent with this subject, one researcher mentioned that users invest more in selecting and presenting selfies before sharing them online (Rousseau, 2021). Hence, the objective of this study is to investigate the correlation between individuals' motives and their choice of selfies on social media platforms. The hypothesis was derived from previous investigations.
H1: Motivation and Selection are positively and significantly related.

Step 2 and Step 3: Pre-Occupation and Selection
Pre-occupation is a second step with a motive that involves selfie-posting behavior on social media. In the view of Meier and Grey (2014), pre-occupation refers to the inclination of individuals to observe and analyze the actions of others. Preoccupation, in this sense, refers to the intense attention and effort put into carefully picking a photograph that presents oneself in an idealized manner. This involves finding the most flattering selfie, dressed up, and shooting the perfect image (Bodroža et al., 2022). Likewise, these behaviors encompass expressing approval towards selfies, associating oneself with them, distributing them, and providing feedback on the selfies of others, which the authors argue will influence an individual's perception of preferred actions regarding selfies (Yusof et al., 2021).

Furthermore, a recent investigation conducted by Bodroža, Obradović and Ivanović (2022) revealed that younger persons exhibit a higher level of preoccupation with capturing selfies and are more frequently exposed to selfies from others. Additionally, they engage in a greater degree of self-comparison with the selfies from others. This past research has also proven the analysis result of self-presentation and selfie pre-occupation correspond to active forms of selfie behaviors selfies (Bodroža, Obradović & Ivanović, 2022). There is a relationship between pre-occupation and selection (Yusof et al., 2021). In another perspective on selecting selfies, Chen, Schaffer and Wu (1997) demonstrated that an attractive face influences social cognition, as people with an attractive face tend to have more positive attributes than those who are less attractive. In addition, Vogel et al. (2015) examine the outcomes of social media use, such as self-esteem, mood, and well-being. This could provide insights into how preoccupation with selfies, influenced by social comparison orientation, may impact individuals' emotional states and self-perceptions. This study investigates the correlation between preoccupation and the use of selfies among those who use social media. The hypothesis was derived from previous investigations.
H2: Selection and Editing are positively correlated.

Step 3 and Step 4: Selection and Editing

The following step in posting selfies involves selecting the ideal selfie. This view is supported by Yusof et al. (2021), who write that impression management encourages people to actively choose selfies and portray themselves in images that make them appear their best.

In addition, prior qualitative research has examined the impact of constructs on photo-sharing elements, specifically content selection. It has been discovered that individuals who share photos often opt for emotionally expressive images, anticipating audience reactions and personal involvement in the post (Stsiampkouskaya et al., 2021). Another researcher also argued that the selection of the hundreds of pictures involved an intellectual exercise, which, in their opinion, satisfies the legal requirement of an intellectual creation that reflects personality. This is supported by the presence of several intentionally blurred pictures, which indicate a deliberate selection process (Guadamuz, 2016).

The meticulous process of selecting goes alongside the act of editing selfies, which is a consequence of the subsequent stage in the selfie stadium model (Yusof et al., 2021). In a previous study conducted by Lijuan Xiao et al. (2021), selfie editing was described as a crucial process of capturing and sharing a selfie, mostly focused on enhancing its appearance. This process has become increasingly popular with social media platforms prioritizing visual aesthetics. Other than that, individuals with higher levels of narcissism tend to engage in self-enhancing behaviors, including carefully selecting and editing selfies to present an idealized image of themselves to others (Sorokowski, et al., 2015). While the primary focus is on narcissism, the findings may indirectly support the idea that careful selection and selfie editing are interrelated. This study investigates the correlation between the act of selecting and the process of editing selfies among those who use social media.
H3: Selection and Editing are positively correlated.

Step 4: Editing and Selfie-Posting Behavior

Editing is the digital photography process of adjusting photographs in a photo editing program. Editing is performed in the post-production process (Reich, 2017). Editing is the final stage in the process of creating a selfie, which involves making modifications to the image before sharing it and is a widely practiced activity before publishing selfies. This phase is employed to augment the visual aspect of people for the goal of self-presentation. Diverse software apps empower folks to get an ideal photograph before sharing it publicly on social media platforms. Common editing tools encompass beauty filters that may make substantial modifications to the face form and texture. These improvements may involve expanding the eyes or softening the complexion (Botezatu et al., 2022).

One finding was reviewed related to the final step which is editing to post (Yusof et al., 2021). It showed that editing was related to selfie-posting behavior. In addition, by drawing on selfie-posting behavior, Boursier, Gioia and Griffiths (2020) have shown that selfie-related strategies like selfie editing and posting are tools for self-presentation. In other words, selfie editing is a part of selfie-making before posting it on social media. This study investigates the correlation between the act of modifying selfies and the habit of sharing selfies among those who use social media. The hypothesis was derived from previous research.
H4: Editing positively affects selfie-posting behavior.

3. Research Methodology

The target population includes social media users in Malaysia who engage in selfie activities. This study is non-experimental and correlational, examining the relationship between variables. The relationship indicates that at least two variables move simultaneously (Sekaran & Bougie, 2019). The study used G*Power analysis to calculate the sample size. Calculations suggested that, with a maximum of four predictors, the required sample size was 85 (effect size is 0.15). As a result, a minimum of 85 respondents is needed to answer the questionnaire in this study. The instrument for this study used an existing set of questionnaires, which were adapted from various previous studies and existing questionnaires were modified and adapted according to research objectives and questions on this topic, with a five-point Likert scale ranging from 1-5, indicating strongly disagree to strongly agree. The questionnaires are conveniently given to respondents of social media users among Malaysians who engage in selfie activities. Participants who did not take and post selfies were directed to the end of the survey, as their responses did not align with the specific focus of the study. In

addition, the process of frequency and descriptive analysis distribution was carried out to determine the number of incidents for the categorical data in the demographic profile (gender, age, marital status, the highest level of education, the number of selfies taken, and the steps taken before posting the selfie) by utilizing SPSS version 24. Additionally, PLS-SEM 4.0 was used to analyze the data and quantify the connection between the variables.

4. Results

This part provides a collection of findings regarding the connection between the dependent variable, which is selfie-posting behavior, and the independent variables, which include motive, preoccupation, selection, and editing. These variables are analyzed in relation to demographic and geographic features such as gender, age, marital status, highest level of education, and number of selfies taken and posted in the past week.

The result shows that the highest percentage of genders were female, with 74%. The distribution of respondents based on age reveals interesting patterns. The majority of those who responded to this questionnaire came from individuals aged 24 to 26 years old, equivalent to 79 respondents. In addition, out of 150, most respondents were single, resulting in 128 respondents (85.3%). Besides, according to the data, it is evident that most respondents held a bachelor's degree, accounting for 57.3% of the total respondents, followed by a smaller representation of other qualifications such as diplomas, master's degrees, doctoral degrees, and others. The survey results revealed interesting insights about the frequency of selfies taken and posted by respondents it is evident that taking and posting selfies has become a popular trend among respondents, with varying levels of engagement observed within the given range of selfie counts. Of the 150 participants, 61 accounted for the highest percentage, representing approximately 40.7% of the total respondents, with just one selfie taken and posted in the past week. Only a small minority of participants, comprising just 2%, admitted to taking and posting 20 or more selfies during that time, with three individuals falling into this category. Table 1 displays a summary of the demographic characteristics of the respondents.

Profile of Respondents: Table 1 presents a concise overview of the attributes of all the participants who took part in the research.

Table 1: Details about Demographics

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	39	26%
Females	111	74%
AGE		
18-20	15	10%
21-23	35	23.3%
24-26	79	52.7%
27-29	11	7.3%
>30	10	6.7%
STATUS		
Single	128	85.3
Married	22	14.7
EDUCATION		
Malaysian Higher School Certificate (SPM)	6	4%
Diploma	35	23.3%
Bachelor's Degree	86	57.3%
Master's Degree	22	14.7%
Doctoral Degree	0	0%
Others	1	0.7%
NUMBER OF SELFIES POSTED LAST WEEK		
1 Selfie	61	40.7%
2 – 5 selfies	58	38.7%
5 – 10 selfies	24	16%

10 – 20 selfies	4	2.7%
20+ selfies	3	2%

Measurement Model

The conceptual model was evaluated utilizing version 4.0 of PLS-SEM. The analysis was partitioned into two distinct components: the structural model and the measurement model. In evaluating the measurement model, consideration was given to three criteria. Internal consistency, reliability, discriminant validity, and convergence validity were all present. The findings are displayed in Table 2.

Table 2: Convergent Validity AND Internal Consistency

Variables	Loading	AVE	CR	Cronbach Alpha
Motive				
Mot1	0.782			
Mot2	0.847			
Mot3	0.839	0.683	0.928	0.908
Mot4	0.837			
Mot5	0.849			
Mot6	0.804			
Pre-Occupation				
Pre1	0.736			
Pre2	0.799			
Pre3	0.663	0.561	0.864	0.806
Pre4	0.798			
Pre5	0.740			
Selection				
Selec1	0.560			
Selec2	0.682			
Selec3	0.664			
Selec4	0.639	0.521	0.896	0.866
Selec5	0.720			
Selec6	0.823			
Selec7	0.831			
Selec8	0.814			
Editing				
Edt1	0.874			
Edt2	0.795	0.671	0.859	0.756
Edt3	0.785			
Selfie-Posting Behaviour				
SPB1	0.909			
SPB2	0.959	0.876	0.955	0.929
SPB3	0.940			

The findings suggest that the composite reliability satisfies or surpasses the minimum requirement of 0.7 for reliability due to internal consistency (Ramayah et al. 2018). Furthermore, all indicator loadings exhibited values exceeding the minimum criterion of 0.4, and the average variance extracted (AVE) exceeded 0.5, thus confirming that the convergence validity conditions were satisfied (Memon, Ramayah, Cheah, Chuah, and Ting, 2018). The research employed a discriminant validity approach to ascertain the uniqueness of a specific concept in relation to the other construct under investigation (Lowry & Gaskin, 2014). Table 2 shows that all values fulfilled the HTMT.85 threshold according to Kline (2015) heterotrait monotrait ratio (HTMT) methodology, confirming discriminant validity.

Table 3: HTMT Criterion

	Edit	Mot	Pre	SPB	VIF
Editing					1.000
Motive	0.599				1.408
Pre-Occupation	0.547	0.609			1.408
Self-posting	0.624	0.599	0.615		
Selection	0.645	0.736	0.642	0.741	1.000

The evaluation of the structural model was carried out via many stages. Before doing hypothesis testing, it is necessary to address the problem of multicollinearity to avoid problems in the regression model. The Variance Inflation Factor (VIF) should be less than 5.0, as shown by the variance inflation indicator. All constructs shown in Table 2 exhibit Variance Inflation Factor (VIF) values that are below the specified threshold of 5.00, as stated by Hair, Hult, Ringle, & Sarstedt (2016), indicating the lack of multicollinearity. The structural model was implemented, followed using the Partial Least Squares (PLS) technique to assess the hypotheses. The technique of bootstrapping was used by using 5000 subsamples to improve the accuracy of the Partial Least Squares (PLS) estimations. The results of this analysis can be seen in Table 3.

At a 99% confidence level, four path factors were found to be statistically significant: There are substantial correlations between editing and self-posting behavior ($t = 8.574$, $p < 0.00$), motivation to selection ($t = 6.897$, $p < 0.000$), pre-occupation to selection ($t = 3.498$, $p < 0.000$), and selection to editing ($t = 8.005$, $p < 0.000$). Based on this analysis, it can be inferred that the four hypothesized correlations in this research are confirmed. The R2 value for editing is 0.287, representing 28% of the editing is determined by self-posting behavior. In addition, the R2 value for selection is 0.504, which represents 50% of the selection is determined by motive and preoccupation. Finally, the R-value for editing is 0.290, which means that selection determines 29% of editing. So, the R2 value of 0.20 in this study is acceptable since Hair et al. (2016) say this is a high value for consumer-related studies.

Table 4: Path Coefficient Assessment and Determination of Coefficient (R2)

Relationship	R2	Path Coefficient	SE	T value	P value/CI	Decision
Editing→SPB	0.287	0.535	0.540	8.574	0.000 CI (0.395,0.647)	Supported
MOT→Selection	0.504	0.516	0.515	6.897	0.000 CI (0.360,0.652)	Supported
Pre→Selection		0.283	0.293	3.498	0.000 CI (0.107,0.430)	Supported
Selection→Editing	0.292	0.546	0.546	8.005	0.000 CI (0.385,0.653)	Supported

Table 5: Summary of Hypotheses Result

No.	Hypotheses	Result
H1	Motivation and Selection are positively and significantly related.	Supported
H2	Pre-occupation is positively and significantly correlated with selection	Supported
H3	Selection and Editing are positively correlated.	Supported
H4	Editing positively affects selfie-posting behavior.	Supported

Discussion

The objective of this research was to investigate the correlation between motivation and selection. The research documented the respondents' perspectives on the motivation and criteria for capturing selfies. It seems that when it comes to the intention of taking selfies, most respondents either somewhat disagreed, were indifferent, or virtually agreed. However, when it came to the motivations for shooting or publishing selfies, most respondents leaned towards a strong agreement. With the p-value being smaller than the significant level value, the results support hypothesis 1's assertion that there is a meaningful relationship between motivation and selection. This result aligns with previous studies whereas a positive relationship between both variables

(Yusof et al., 2021). In future investigations, it might be possible to use a different motive variable, which can be done differently to help shed more light on this topic. Other factors, such as social norms, peer influence, or personal preferences, may also have played a more significant role in determining the reasons for engaging in selfie-related behaviors. In short, understanding the reason individuals share images on social media can offer insight into the motivations behind selfie-taking and sharing, potentially influencing the selection process.

A substantial correlation was discovered between pre-occupation and the selection of selfies among social media users, indicating a strong link between the two variables. The study demonstrates that hypothesis 2 has been supported by the p-value, which was lower than the predetermined significance threshold. This indicates that pre-occupation, which refers to the level of involvement or pre-occupation individuals have with taking and posting selfies, is a useful predictor of the selection of selfies. These findings suggest that individuals more preoccupied with taking and posting selfies are more likely to select specific types of selfies to share on social media. Thus, the study's results support the hypothesis that pre-occupation influences the selection of selfies among social media users. To sum up, the analysis revealed that selection is influenced by pre-occupation and motive. This is because, whatever it is, individuals' motives for taking selfies play a crucial role in their selection process, as captured in the Selfie Stadium Model (Yusof et al., 2021). Interestingly, pre-occupation emerged as a significant factor in selfie selection. Participants who were more concerned about their appearance and how others perceived them were more likely to curate their selfies carefully. Overall, this research highlights the interplay between motives, preoccupation, and selfie selection, shedding light on the complex psychology behind these selfie activities.

A very strong link was found between selection and editing, which was another interesting finding. The findings indicate that individuals who adjust their selfies are more prone to carefully select ones for sharing on social media. Thus, the findings confirm the hypothesis that editing plays a substantial role in the selection of selfies. Moreover, these findings are consistent with the outcomes of prior research. According to Annaliese B. Piraino (2021), individuals who take selfies can edit their photos and choose specific moments to capture themselves during planned and preferred situations. It means selfie selection capability empowers individuals to capture themselves during memorable moments, whether it is a milestone achievement or a cherished memory with loved ones. It is related to the editing process, where individuals choose the perfect lighting, angle, and filter before posting it to social media. In short, selfie selection and editing have transformed how individuals capture and present themselves on social media.

Next, the result indicates the analysis between editing and selfie-posting behavior. The findings of this analysis, which established a statistically significant correlation between editing and selfie-posting behavior, provide fascinating support for the hypothesis. This suggests that the act of editing selfies, which involves modifying or enhancing the appearance of the images, is associated with individuals' behavior of posting those edited selfies on social media platforms. These findings are probably connected to previous research (Felig et al., 2023) that showed regular correlations between selfie-related behaviors such as taking, publishing, and editing selfies. For instance, research has indicated that they may be related to the need for self-presentation as individuals want to improve their looks to socially acceptable beauty standards. Thus, this finding highlights editing behavior, the last step in the selfie-taking process before it is posted.

5. Conclusion

Overall, this research highlights the interplay between motives, preoccupation, and selfie selection, shedding light on the complex psychology behind these selfie activities. It seeks to understand the actions, thoughts, and decision-making processes that lead to sharing a selfie on social media. Interestingly, pre-occupation emerged as a significant factor in selfie selection. Participants who were more concerned about their appearance and how others perceived them were more likely to curate their selfies carefully. It was proven that it has given individuals the opportunity to present themselves online in a different way. However, the result suggests that individuals might have specific motives or reasons for engaging in self-presentation behaviors. In future investigations, it might be possible to use a different motive variable, which can be done differently to help shed more light on this topic. Through the analysis of self-presentation motives, researchers can get valuable insights into the reasons behind individuals' inclination to capture and share selfies. This examination also facilitates a more profound comprehension of the psychological determinants that influence selfie behavior.

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Online Shopper Satisfaction: Exploring the Impact of e-Service Quality

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Abstract: The advent of online shopping has brought a significant revolution in how individuals exchange goods and services. Online purchasing has gained considerable popularity, especially after the Movement Control Order due to COVID-19. Therefore, this study aims to find the relationship and identify the most dominant factors of e-service quality that affect online shopping. Convenience sampling was used to collect primary data. 250 self-administered questionnaires with four Likert scales were distributed through a social media channel among Klang Valley residents aged 18 years and above. The data was then analyzed using SPPS Version 26. Multiple Regression Analysis was used to investigate the relationship between e-service quality and customer satisfaction. The researcher found a collective significant effect between Customer Satisfaction and all independent variables except Perceived Risk. Convenience was found to be the most dominant factor that influences Customer Satisfaction. Hence, this study can benefit online business owners as they develop appropriate strategies based on the findings to expand their business.

Keywords: *e-service quality, online shopper, online purchase, customer satisfaction, online business*

1. Introduction and Background

In 2019, there were 4.13 billion Internet subscribers worldwide, implying that more than half of the world's population could access the Internet (Clement, 2020). According to Clement (2020), while global internet connectivity is increasing steadily, it depends on countries focusing on developing infrastructures to improve communication quality, which is superior. According to the U.S. International Trade Administration (2022), Malaysia is an attractive market for e-commerce in Southeast Asia because of its thriving economy and advanced digital technology infrastructure. In 2021, there were 27.4 million active internet users in Malaysia, which had a high mobile phone penetration rate of 84.2%. In Malaysia, there were 39.99 million mobile connections as of January 2021, and there were 28 million users of social media. According to Samuel & Anita (2022), the ongoing progression of technology enables individuals to access their necessities conveniently. The distinguishing characteristic of this phenomenon lies in the presence of the internet. The number of Internet consumers has steadily increased each year.

The Impact of COVID-19 On Malaysian Consumer Purchases: In the year 2020, the COVID-19 pandemic hit the world and this led to the Movement Control Order (MCO) imposed by the government the citizen of Malaysia During the MCO period, non-essential stores such as clothing and accessory shops are not allowed to be open, and individuals are prohibited from doing any unnecessary movement to other district or state (Moorthy, Kamarudin, Govindarajo & Ting, 2022). As a result of the pandemic, online shopping transactions have significantly increased. One of Malaysia's online shopping platforms, Lazada, has witnessed an 80% surge in orders compared to pre-pandemic levels (Nathan, 2021). During COVID-19, the demand for online services has increased significantly compared to offline services. This is due to the desire for a simpler lifestyle, instant service, greater product availability, and the government's large-scale social restrictions that force most activities to be performed at home. The e-commerce phenomenon has steadily grown in Malaysia, with no signs of future decline (Shuradin & Adnan, 2022). Then, the buying pattern shifts from traditional to online shopping, and the business operator must be creative in highlighting their product in the virtual marketplace by promoting it through the website. There are many more examples of the marketplace; however, the website will be the main bridge to liaise the online shopper with the business provider as the business operator will own and operate this platform. The intriguing question is how to encourage online consumers to return to a website or purchase online. Therefore, this study was interested in examining the relationship between e-service quality and the satisfaction of online consumers.

This study focuses on the transformative effect of the COVID-19 pandemic on consumer behavior in the context of online purchasing due to the Movement Control Order, a significant economic downturn in numerous businesses, resulting in a heightened struggle for survival. Certain businesses have transitioned from traditional methods of selling goods and services to electronic commerce (e-commerce). People stayed at home, maintained social distance, and did not shop as frequently as they typically would (Statista, 2021a; Zamboni et al., 2021). While the pandemic reduced physical store purchasing, online shopping increased. The increase in online shopping during lockdowns highlighted the importance of a website's design and functionality in retaining consumers and influencing their purchasing intentions. The adoption of online purchasing was hindered by concerns regarding data security and payment methods, which led to issues of trust. Despite the benefits of convenience and a more extensive selection of products, certain demographics had difficulty entirely adopting online shopping. The pandemic prompted a significant increase in the preference for online purchasing in Malaysia, with government policies further advancing this trend. To facilitate businesses' successful transition to the digital marketplace, this paper identifies the factors influencing online purchasing satisfaction.

To have a critical understanding of the topic, the following research objective will be examined:

(i) To determine the influence of e-service quality (website design, service convenience, perceived Risk, and Fulfillment) on customer satisfaction.
(ii) To examine the most dominant factors of e-service quality that influence customer satisfaction.

2. Literature Review

Customer Satisfaction: Customer satisfaction is a crucial element of a business strategy as it determines service performance. Customer satisfaction encompasses multiple definitions that can be applied in diverse contexts, consistently linked to products and services. The significance of customer happiness in business has been a subject of interest among researchers. Many scholars have emphasized the importance of satisfying customers, as they are considered the lifeblood of any organization.

Oliver (1980) was one of the early scholars who defined customer satisfaction as the subjective result of comparing the customer's expectations to the perceived product or service performance. It is supported by some scholars (Anderson, Fornell, & Lehmann, 1994; Brunner, Stöcklin, & Opwis, 2008), who stated that consumer satisfaction should be evaluated according to cumulative satisfaction. That is based on past and present customers' experiences with the outcomes of the supermarket's products/services, as opposed to a post-transaction evaluation (Filipe et al., 2017). Kotler and Keller (2016) defined customer satisfaction as clients' emotional responses, such as happiness or frustration, influencing fulfillment or failure to meet their expectations. It is further explained by Barnes et al., (2021) that in addition to being satisfied with the seller's pleasant surprise, a consumer is delighted when their expectations are met or exceeded. It can be concluded that customer satisfaction is correlated with the congruence between performance and expectations. When performance meets or exceeds expectations, customers typically convey satisfaction. In contrast, customer dissatisfaction ensues if the actual outcome falls short of expectations. This relationship highlights the crucial role that managing and exceeding customer expectations plays in nurturing positive outcomes and sustaining high customer satisfaction.

In highlighting the importance of understanding customer satisfaction and online shopping, a significant number of investigations have been conducted (Ballantine, 2005; Cappelli et al., 2011; Jun et al., 2004). his can be seen through the study done by Guo et al. (2012), which determined three factors that could influence online shopping customer satisfaction, namely, (i) variables of technology, including security, usability, web design, and privacy; (ii) variables of shopping, including ease, trust, and trustworthiness, and delivery; and (iii) variables of product, including the value of merchandising products, and product customization.

Based on the previous study elaborated above, the customer satisfaction index can be seen from various aspects, such as the drop in sales volume in the business, profit margin, and the number of records or data registered in the sales performance sheet. Thus, it is important to retain customer satisfaction for a business to be sustained. It is a greater challenge for business operators to measure customer satisfaction as the

contribution of customer satisfaction can derive from many factors or variances. Customer satisfaction is the top priority for business and should be one of the main agendas for business as customer satisfaction is more important than other matters in the business. The business operation may collapse if it fails to meet customer satisfaction.

Online Shopping: The COVID-19 pandemic has shifted the purchasing pattern of the consumer from going to a store to making a purchase, and customers can now make transactions online. Online purchasing is more advantageous and economical, particularly during and after the COVID-19 pandemic. Many businesses have invested considerable time and resources during this crisis to develop or enhance their e-commerce strategies. This is to ensure that e-commerce can maintain the popularity it garnered during the shutdown, even after the reopening of stores (Koch et al., 2020). Online shopping is electronic commerce that allows customers to purchase through an online marketplace such as Shoppe, Lazada, or Mudah. my, Taobao, or Amazon, and direct to the seller's website, such as Harvey Norman, SenHeng, HP, Tefal, and many more. Interestingly, due to the growth of online purchasing, the number of shopping websites operated by local micro sellers has increased. Therefore, online purchasing has expanded the market, made it possible to sell nearly impossible products, and created new markets not limited by geographical considerations (Rahman & Norman, 2016).

According to Koch et al., (2020), investigating established factors of online purchase behavior is crucial, as businesses must capitalize on consumer behavior to maintain a competitive advantage. Understanding online shopping behavior can contribute to the strategic management of online shopping and lead to success in online business. A significant fraction of the economic footprint of modern countries is accounted for by customer purchasing. Current behaviors and structures are being questioned because of the COVID-19 pandemic. Crises can result in fundamental economic and societal shifts, businesses must understand consumer behavior in the present (Koch et al., 2020).

E-Service Quality: Service quality has received growing attention from scholars in the service marketing literature. Parasuraman et al. (1988) defined service quality as the gap between customer presumption and the experience of service consumption and product delivery. This group of researchers developed a five-scale model, SERVQUAL, to measure service quality, which includes physicality, approachability, steadfastness, understanding, and guarantee. However, the difficulty arises in measuring internet service quality due to the difference in environment between offline and online. Due to the differences, Parasuraman et al., (2005) later created the e-Service Quality (E-S-QUAL) model. There are four dimensions of a 22-item system to measure electronic service quality: availability and privacy (E-S-QUAL). E-S-QUAL). Additional measures for the recovery service standard (E-RecSQUAL) three-dimensional items, (i) responsiveness, (ii) reimbursement, and (iii) touch only apply to those with unusual experiences on the website. Several studies were carried out using the scales of these models to test the indifferent content of service efficiency, such as shopping places, banking, tourism, and e-commerce, using similar variables or with some adjustment innovation.

Service quality is becoming the center of attention in electronic commerce (Santos, 2003). Essentially, e-service quality is an important key to determining the success of e-commerce. This is an important key to determining the success of e-commerce, including costless, feasible, and more accessible than offline. It proposes and discusses a conceptual model of the determinants of e-service quality. The overall quality of e-service is statistically strongly correlated with consumer actions. To suit online shopping and analysis work, different aspects of e-service efficiency have developed. Rita et al. (2019) analyzed the four-dimensional e-service efficiency model that predicts consumer behavior. The study aims to assess the impact of customer loyalty on customer behavior, specifically regarding repurchasing decisions, product recommendations, and revisiting websites.

Additionally, it seeks to examine the influence of customer confidence on these outcomes to enhance our understanding of the diverse national cultures and their relationship to different levels of e-service quality attributes. Analytical studies have shown that three dimensions of e-service quality influence overall e-service efficiency, specifically (i)website architecture, (ii) security/privacy, and (iii) efficiency. Thus, this paper used the e-service scale from Rita et al. (2019) to measure e-service quality.

The researcher has summarized five aspects that will be utilized for these studies, as outlined in Table 1.

Table 1: Definition of e-Service Quality

Construct	Definition	References
e-Satisfaction	Customer pleasant experience and overall satisfaction.	Blut (2016), Rita et al. (2019), and Ting et al. (2016)
Website Design	The website interface is well-designed and visually appealing, including up-to-date information, vendor prompt services, and guarantee.	Rita et al. (2019), Blut (2016) and Holloway & Beatty (2008)
Service Convenience	The website is well-organized and easy to navigate includes saving time	Rita et al., (2019), Chen & Dhillon (2003), Blut (2016), and Holloway & Beatty (2008)
Perceived Risk	The website conveys trust and confidence	Rita et al., (2019), Blut, (2016), and Holloway & Beatty, (2008)
Fulfillment	The service delivers as promised	Blut, (2016); Khan et al., 2019; Wang et al., (2003)

The e-service scale from Rita et al. (2019) measured e-service quality, including website design, service convenience, perceived risk, and fulfillment. The first dimension, website design, encompasses all aspects of the user experience on a website, including information quality, website aesthetics, purchase procedure, website convenience, product selection, price offerings, website personalization, and system availability (Rita et al., 2019). It is further explained that the website interface should be well-designed and visually appealing, including up-to-date information, vendor prompt services, and guarantees. According to the study by Arilaha, Fahri, and Buamonabot (2021), most respondents agreed that website design must be visually attractive, have a well-organized appearance, and facilitate quick and easy transaction completion. It shows that website design is crucial in online shopping. It is highlighted in a previous study that the features of website design, such as ease of navigation and user-friendly designs, encourage buyers to continue engaging in buying behavior (Venkatakrishnan, Alagiriswamy and Parayitam, 2023). The critical factor leading to return visits to the website is the web content, which includes font, pictures, illustrations, assembly sound, motion, and someday, surprise, maybe even smell. Successful web design requires the correct web content decisions as this can attract customers to visit again.

The second dimension is service convenience. According to Rita et. al., (2019), aside from the website being well-organized and easy to navigate, it should be able to save time. Service convenience specific to online shopping has been established in prior online service quality literature suggesting some factors to improve website quality, such as ease of use, interactivity, information search, information depth and richness, and protection (Ahmad et al., 2016; Jun et al., 2004; Parasuraman et al., 2005; Yang, Jin & Peterson, 2004). However, researchers have paid little attention to empirically examining the prominent aspects of online shopping convenience and their appropriate characteristics in-depth and systematically. Nevertheless, very few studies have addressed the problem of perceived consumer convenience in e-commerce. The researchers empirically find that service convenience has a major impact on customers' overall satisfaction. Other researchers have also established several primary convenience elements conducive to customer satisfaction, such as graphic design, information superiority, and delivery facility (Jiang, Yang & Jun, 2013).

Next is perceived risk, which is important for understanding the assessment and decision-making of the client when selecting a specific brand (Conchar et al., 2004). Perceived risk in customer behavior is powerful because customers are driven to prevent more errors that increase the buying utility (Mitchell, 2001). Risk assessment and risk-taking are part of the cost of choice and are an important part of decision-making (Conchar et al., 2004). For the first time in 1960, Bauer defined perceived risk as "subjectively perceived risk in a situation of purchasing behavior of choice," numerous researchers followed him to refine, improve, and extend it until today. According to Udo, Bagachi, and Kirs (2010), online purchase is significantly hampered by perceived risk, which is indicated by phrases like personal risk, privacy, economic, psychological, and technological risk system failure, and related losses are examples of factors that can affect the quality of e-services and consumer satisfaction. Perceived risk emphasizes the idea of the risk that a customer would experience when conducting online transactions. The higher perceived risk causes the customer to fear more during online transactions and vice versa (Salim et al., 2023). Increased customer engagement behavior can be achieved by lowering perceived

risks. However, a lack of research has been done on the risk mechanism (Fan, Shao, and Dong (2022).

The last dimension of e-service quality is fulfillment. According to Wang et al. (2003), "fulfillment" is regarded as one of the major elements of e-service quality by Zeithaml (1988). Fulfillment was characterized by Wang et al. (2003) as "accuracy of service claims, having items in stock, and delivering the proper product within the given period." Besides, Blut (2016) defined fulfillment as ensuring customers receive precisely what they bought, such as delivery timing, order correctness, and delivery condition. This can only be evaluated once the payment has been made.

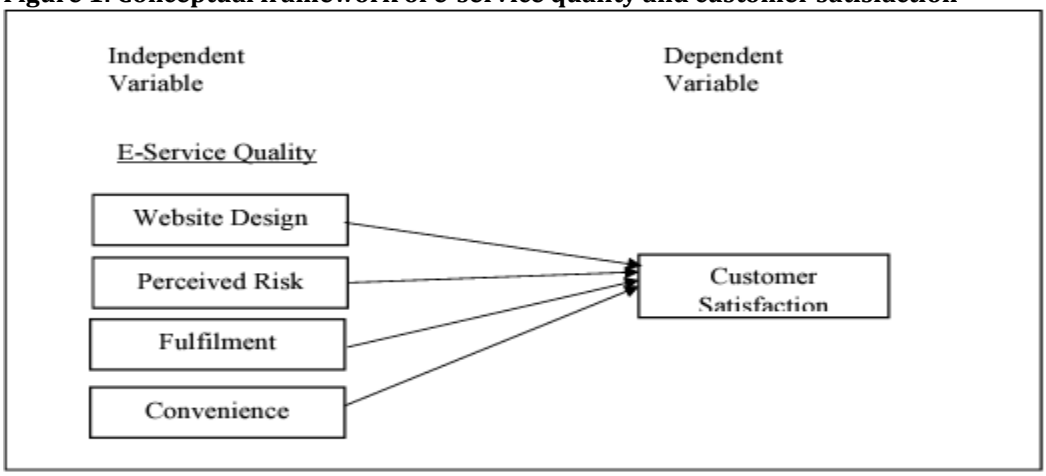
Further explained by Suryani et. al., (2020) that fulfillment is the website's ability to fulfill customer needs when customers experience service failure. According to Liao & Keng (2013), consumer post-payment dissonance is more common in online shopping than in offline shopping since buyers cannot inspect the goods before purchasing them. To provide excellent service quality to clients, businesses must assure delivery timeliness, order correctness, and delivery conditions. While discussing e-service quality, Narteh (2013) discovered that fulfillment was an important aspect of service quality, leading to high e-customer loyalty and satisfaction. According to Jain et al. (2015), e-fulfillment has three distinct processes: "order procurement, order fulfillment, and product returns." Thus Wang et al., (2003) investigated the link between these three processes and e-customer satisfaction, and the results revealed that e-fulfillment is the most important factor in promoting e-customer satisfaction and a long-term relationship with the customer. It was further highlighted by Putra & Antonio (2021) that the fulfillment element from e-service quality affected the whole e-service quality.

Relationship between e-service quality and customer satisfaction: Quality of service and customer satisfaction are extremely important concepts that businesses must recognize to remain competitive and successful. Quality of service contributes to customer satisfaction. It is recommended that enterprises maintain a high level of service to survive. Customer satisfaction is essential for the survival of a business, as it influences repurchase, product loyalty, and positive word-of-mouth, and satisfied customers can become strategic business partners. Lee and Lin (2005) found that a website's design, usability, responsiveness, and trust influence the overall service quality and consumer satisfaction. The aforementioned factors are strongly related to customers' purchasing intentions. However, the personalization factor is unrelated to the overall quality of service and consumer satisfaction in the online market, which has increased steadily in recent years. Enhancing online service quality can increase customer satisfaction. Hang et al. (2009) concluded from their research that website owners should improve the quality of e-service and prioritize the perceived consumer. According to a study conducted in Nigeria by Olasanmi (2019), over fifty percent of respondents regularly shop online. t was also discovered that many reasons for preferring certain online shops were cited, including convenience, the availability of better product information, a more comprehensive selection of products to choose from, and lower prices than others. In addition, it was demonstrated that online shopping usage, as reflected by prices, degree of awareness, time and convenience, product quality, and associated risks, substantially influenced consumer happiness. According to the survey, increased consumer satisfaction may result in increased online shopping.

Hypothesis: The hypothesis is formulated based on research objective 1: To determine the influence of e-service quality (website design, service convenience, perceived Risk and Fulfillment) on customer satisfaction.
H1: Website design has a remarkable influence on customer satisfaction.
H2: Customer-perceived Risk has a remarkable influence on customer satisfaction.
H3: e-Service convenience has a remarkable influence on customer satisfaction.
H4: Fulfilment has a remarkable influence on customer satisfaction.

Conceptual Framework: The conceptual framework is illustrated in Figure 1.

Figure 1: Conceptual framework of e-service quality and customer satisfaction



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3. Research Methodology

As a result of the study's research objectives, the quantitative approach with correlational analysis was utilized for the research design. This study examined the relationship between service quality and online shopping customer satisfaction. Global Data (2020) mentioned that before the COVID-19 pandemic, only 30% of Malaysians chose online shopping, and the trend lifted well, with 51% of Malaysians preferring online shopping after COVID-19. Malaysia's e-commerce market experienced a 24.7% growth in 2020.

A convenient sampling technique was used among Klang Valley residents aged 18 and above. Convenience sampling can be defined as a type of non-probability sampling involving subjects from the nearby part of the population. With the advancement of technology and the COVID-19 pandemic, the questionnaires were developed through Google Forms, which were then distributed through e-mail, WhatsApp, Facebook, Instagram, and Twitter. For this study, the sample size was determined by using G*Power software. The researcher calculates the sample size by using the G*Power 3.1.9.4. Hence, the settings measured in this study are as follows: Effect size f2: 0.15, α=0.05, and the number of predictors=4 (Website Quality, E-Service Convenient, Perceived Risk, Fulfilment). The power was set at 95%. This calculation shows that the sample size for four predictors should be 129 respondents.

The questionnaires contained two segments, Sections A and B. Section A comprised the demographic profile, which included gender, marital status, ethnicity, age, occupation, and monthly household income. Also included in Section A were how frequently, how much spending, and the mode of payment for online shopping. In Section B, the e-Service Quality, including Website Service Quality, Perceived Risk, Intention, E-Service Convenience, and E-Satisfaction, was assessed. Section A was the descriptive measure using a nominal scale, while Section B was measured using the four Likert scales.

The researcher adopted the question proven from past research to ensure its validity. The instrument is summarized in the table below:

Table 2: Validity of instrument sources from the previous study

Name of Construct	Measure	Scale of Source
e-Satisfaction	4 items	Blut, (2016), (Ting et al., 2016)
Website Design	4 items	Blut, (2016) and Holloway & Beatty, (2008)
Service Convenience	4 items	Blut, (2016) and Holloway & Beatty, (2008)
Perceived Risk	3 items	Chen & Dhillon (2003), Blut, (2016), and Holloway & Beatty, (2008)
Fulfillment	4 items	Khan et al., (2019)

Expert opinions and suggestions were also considered to ensure the instrument's validity before distributing the questionnaire to the targeted respondents. The reliability test was run before proceeding to data analysis. There was one commonly recognized rule for describing Cronbach's Alpha value of reliability. The acceptable value for reliability is > 0.7. Table 3 below shows the reliability statistics rule.

Pilot tests were conducted in the initial stages to test the respondents' understanding of and reliability of the questionnaires. 66 questionnaires were distributed for the pilot test consisting of non-Klang Valley respondents. The result has shown that the Cronbach Alpha was above .70 for each dimension, which, according to the Rules of Thumb by Hair et al. (2015), the reliability was acceptable. Then, the actual study supported the reality, as shown in Table 3, whereby the Cronbach Alpha was above .70 for each dimension.

Table 3: Pilot Test for Validity Instruments

Variables	Cronbach's Alpha for Pilot Test	Cronbach's Alpha for Actual Data	No of Items
Web Design (WD)	.832	.795	4
Perceived Risk (PR)	.781	.864	4
Fulfillment (F)	.880	.781	4
Convenience (C)	.768	.827	3

4. Results

This section presents sets of results relating to the profile of respondents' demographics, the description of e-service quality and customer satisfaction, and the correlation analysis to ascertain the relationship between each variable.

Demographic Profile and Respondents' Information: The demographic profile and respondents' information were summarized in Table 4.

Table 4: Demographic Profile and Respondents' Information

Demographic profile and respondence information		Frequency	Percentage (%)
Gender	Male	65	38.2
	Female	105	61.8
Marital Status	Single	30	17.6
	Married	140	82.4
Ethnicity	Chinese	1	0.6
	Indian	3	1.8
	Malay	166	97.6
Age	18 - 25 years old	7	4.1
	26 – 33 years old	23	13.5
	34 – 41 years old	70	41.2
	42 – 49 years old	49	28.8
	50 years old and above	21	12.4
Occupation	Government Servant	24	14.1
	Private Sector Employee	107	62.9
	Self- Employed	24	14.1
	Students	5	2.9
	Others	10	5.9
Monthly Household Income	Less than RM2,000.00	12	7.1

RM2,001.00 – RM4,000.00	42	24.7
RM4,001.00 – RM6,000.00	43	25.3
RM6,001.00 – RM8,000.00	22	12.9
RM8,001.00 – RM10,000.00	14	8.2
More than RM10,000.00	37	21.8

The study involved 170 residents of the Klang Valley. The respondents were predominantly female (61.8%) and married (82.4%). The ethnic distribution mainly was Malay (97.6%), followed by Indian (3%) and Chinese (0.6%). Most respondents (41.2%) were aged between 34 to 41 years, with other age groups represented as well. In terms of employment, the highest percentage (62.9%) were private sector employees, followed by government servants (14.1%) and self-employed individuals (14.1%). Some respondents were students, pensioners, housewives, or unemployed. Regarding monthly household income, 25.3% earned RM4,001.00 to RM6,000.00, while 24.7% earned RM2,001.00 to RM4,000.00. One-fifth had over RM10,000.00, and the rest fell in different income brackets.

Descriptive Table of E-Service Quality and Customer Satisfaction: Based on the descriptive analysis shown in Table 5, the mean score for Customer Satisfaction was (M=3.3162, SD=0.47227). This mean was high and showed that the customers were satisfied with their online purchases. Analysis of Independent Variables shows that convenience had the highest mean score (M=3.5276, SD=0.5214), followed by Web Design (M=3.4794, SD=0.41283), Perceived Risk (M=3.3250, SD= 0.70703) and Fulfilment (M=3.1088, SD=0.48184).

Table 5: The summary of studies related to service quality, including web design, perceived Risk, Fulfillment, and Convenience on customer satisfaction.

Variable	Mean	Standard Deviation	Minimum	Maximum
Web Design (WD)	3.48	.41	2.75	4.00
Perceived Risk (PR)	3.33	.71	1.00	4.00
Fulfillment (FF)	3.11	.48	1.50	4.00
Convenience (C)	3.53	.50	1.67	4.00
Customer Satisfaction (CS)	3.32	.47	2.00	4.00

Correlation Analysis: As shown in Table 6, a Pearson product-moment correlation was calculated to ascertain the relationship between each variable. There was no significant correlation between Perceived Risk and Web Design (r=-.012, n=170, p=.872). Nonetheless, there was a moderately significant positive correlation between Web Design and Fulfillment (r=.387**, n=170, p=.000); Convenience (r=.400**, n=170, p=.000); and Customer Satisfaction (r=.527**, n=170, p=.000). Perceived Risk had no significant correlation with fulfillment (r=.023, n=170, p=.770), Convenience (r=.049, n=170, p=.527), or Customer Satisfaction (r=.115, n=170, p=.137) besides Web Design. A significant positive weak correlation existed between Fulfilment and Convenience (r=.208**, n=170, p=.007), and a significant positive moderate correlation existed between Fulfilment and Customer Satisfaction (r=.475**, n=170, p=.000). In addition, convenience demonstrated a moderately significant positive correlation with Customer Satisfaction (r=.592**, n=170, p=.000). Due to the Correlation Analysis, the research questions should be answered in detail.

Table 6: Pearson Product-Moment Correlation.

	Web Design (WD)	Perceived Risk (PR)	Fulfillment (FF))	Convenience (C)	Customer Satisfaction (CS)
Web Design (WD)	1				
Perceived Risk (PR)	-.012	1			
Fulfillment (FF)	.387**	.023	1		
Convenience (C)	.400**	.049	.208**	1	
Customer Satisfaction (CS)	.527**	.115	.475**	.592**	1

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

Discussion

Research Question 1: To determine the influence of e-service quality (website design, service convenience, perceived Risk, and Fulfillment) on customer satisfaction.

Influence of Web Design on Customer Satisfaction: Based on the findings, the study showed that web design had a significant positive moderate correlation (r=.527**, n=170, p=.000) influence on Customer Satisfaction. Respondents agreed with web design because they feel satisfied with their online shopping experience. According to Bhatti et al., (2020), web design may influence customers buying products as customer satisfaction depends on their experience. Hatti et al., (2020) believe that when they find easy and accessible websites, they must take advantage of them. Furthermore, it plays a vital role in their satisfaction. Apart from that, Cyr et al. (2008) show that web design, including the menu layout, accessibility to product information, logical presentation of product information, screen design, navigation, sequencing, presentation of product attributes, and product availability, contribute to customer satisfaction where most respondents were satisfied with the website that had more features and was user-friendly, which made navigation easier and faster. The same study also found that websites that are more complicated and time-consuming to navigate due to the lengthy information reduced customer satisfaction. Setyaning & Nugroho (2020) proved that a good quality web design might make customers interested in proceeding with their online shopping. They stated that a good web design will display a website that is easy to navigate and requires less effort to explore. They also acknowledged that creating the right user-friendly website allows the customer to access it in a way that is most enjoyable for them. Camilleri (2021) identified one of the critical factors of online service delivery during the COVID-19 pandemic as the website's features, including its attractiveness and functionality. These factors are believed to increase customer satisfaction, generate repeat business, and create positive reviews on social media. It is in line with the findings from Arilaha, Fahri, Muamonabot (2021) and Venkatakrishnan, Alagiriswamy, and Parayitam, 2023), which revealed that website design played a significant effect on e-service quality. It is also further supported by Venkatakrishnan et al. (2023), who found that web customer satisfaction is higher when a high level of web design interacts with e-service quality than at low levels of web design. However, when the e-service quality increases from low to high, the difference between customer satisfaction at high web design and low web design increases under the conditions of high trust.

Influence of Perceived Risk on Customer Satisfaction: The study showed that perceived risk had no significant correlation with Customer Satisfaction (r=.115, n=170, p=.137). The relationship between these two variables was not significant. Raman et al. (2020) stated that privacy and security might be the basic things online customers expect. They claimed that both factors that contributed to the perceived risk might be the hygienic factors for online shopping as the absence of that factor would affect the adoption of online shopping while its presence may not contribute to buying behavior. As most of the respondents were young adults (aged below 41 years old), they were aware of the risk online, but they are generally less concerned about it and keep shopping online for other reasons. Amileri (2021) also found that perceived risk and website security had a negligible effect on customer satisfaction. This behavior differs from older adults who have developed less trust in online shopping (Raman et al., 2020). The findings are also similar to Fan, Shao, and Dong (2022), who state that customers' perception of e-service quality of community e-commerce directly and positively affects the main stage of customer engagement behavior, and customer-perceived risk mediates this process. Salim et al. (2023) explained that perceived risk emphasizes the idea of the risk that a customer would experience when conducting online transactions. Thus, the higher perceived risk causes the customer to have a higher fear during online transactions and vice versa. t can be concluded that the higher perceived risk does not lead to customer satisfaction.

Influence of Fulfilment on Customer Satisfaction: Based on the findings, the study showed that fulfillment had a significant positive moderate correlation with customer satisfaction (r=.475**, n=170, p=.000). fulfillment had a remarkable influence on customer satisfaction. Camileri (2021) proved that Fulfilment during an unprecedented COVID-19 pandemic increased customer satisfaction towards online shopping, potentially generated repeated business, and created positive reviews on social media. The study shows that timely deliveries and the provision of personalized services significantly affect consumer satisfaction and loyalty. Besides, Camileri (2021) also stated that online retailers should respond to customer inquiries promptly. The researcher believed minimum customer complaints may increase customer satisfaction and reduce negative

criticism on review websites and social media. It is supported by previous research that found that the biggest dimension contributor to e-service is Fulfillment (Suryani et al., 2020). This dimension indicates the company's capacity to supply products, fulfill customer commitments, and meet customer expectations. These findings aligned with a study from Putra & Antonio (2021), which highlighted that the strongest impact on e-service quality comes from fulfillment. The same finding was found in a study by Çelik (2021) that showed the fulfillment dimension, one of the e-service quality dimensions, significantly and positively affects e-satisfaction. Therefore, the fulfillment variable is a priority that should be noticed in the services. Thus, it is acknowledged that business players must concentrate on the requirements of timely and well-maintained delivery of goods.

Influence of Convenience on Customer Satisfaction: Based on the findings, convenience had a significantly positive moderate correlation with Customer Satisfaction (r=.592**, n=170, p=.000). The findings align with the arguments that e-service convenience contributes to customer satisfaction. As proven in the previous study by Mpinganjira (2015), four dimensions of service convenience, including search evaluation, order, and possession, had a significant influence on customer satisfaction and behavioral intentions to repurchase from an online store. Furthermore, according to Le-Hoang (2020), seven dimensions of online convenience affect customer satisfaction, including access, evaluation, attentiveness, transaction, possession, and post-possession. Hoang stated that the online convenience experience was essential as customers would feel satisfied and continue to make online purchases at the website. This was also supported by Ashiq & Hussain (2023), who said that online users can easily trust websites and have a level of satisfaction if the service providers bring convenience to their online shopping experience.

Multiple Linear Regression: Multiple linear regression was calculated to predict customer satisfaction based on four (4) independent variables: web design, perceived risk, Fulfillment, and convenience. Perceived risk was dropped in the regression as it had no significant relationship with Customer Satisfaction. The results of the analysis are shown in Table 7.

Table 7: Multiple Linear Regression Test.

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistic	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 **(Constant)**	1.352	.208		6.488	.000		
Convenience	.557	.058	.592	9.525	.000	1.000	1.000
Dependent variable: Customer Satisfaction (CS)							
R^2 = 0.351, Adjusted R^2 =0.347, Sig. = 0.000							
2 **(Constant)**	.293	.246		1.189	.236		
Convenience	.407	.057	.432	7.132	.000	.840	1.191
Web Design	.457	.069	.399	6.585	.000	.840	1.191
Dependent variable: Customer Satisfaction (CS)							
R^2 = 0.485, Adjusted R^2 =0.478, Sig. = 0.000							
3 **(Constant)**	-.089	.244		-.363	.717		
Convenience	.390	.054	.415	7.273	.000	.837	1.195
Web Design	.344	.069	.301	4.965	.000	.743	1.345
Fulfillment	.267	.056	.273	4.506	.000	.847	1.181
Dependent variable: Customer Satisfaction (CS)							
R^2 = 0.547, Adjusted R^2 =0.539, Sig. = 0.000							

Note: Significance Levels: *p<0.05; **p<0.001.

As shown in Table 7, Model 1 indicates that there was a significant effect between customer satisfaction and Convenience β=0.415, and p<0.01 (F (1,168) = 90.721, p < .001), with an R2 of .351. This means that 35.1% of the customer satisfaction is from the Convenience factor only, and 64.9% is from factors outside the model. Next, Model 2 showed there was a collective significant effect between Customer Satisfaction and independent variables, including Web Design and Convenience (F (1,167) = 43.366, p < .001), with R2 of .485.

This means that 48.5% of customer satisfaction is from Web Design and Convenience, while another 51.5% is from factors outside the model. Moreover, Model 3 showed that there was a collective significant effect between Customer Satisfaction and all three independent variables, including Web Design, Fulfilment, and Convenience ($F(1,166) = 23.100$, $p < .001$), with $R2$ of .547. These findings show that 54.7% of customer satisfaction is influenced by Web Design, Fulfilment, and Convenience, while the remaining 45.3% could be other factors outside the model. In conclusion, of the three models presented, Model 3 is the best as 54.7% of customer satisfaction can be predicted from three independent variables that have been studied. The p-value of 0.000 shows that the research model is fit, and the independent variables (Web Design, Fulfilment, and Convenience) used were statistically significant. In addition, variance inflation factors (VIF) are too small, showing no multicollinearity in the model. Hence, none of the independent variables correlate. The multiple regression by unstandardized coefficients can be identified: $CS = -0.089 + 0.390*C + 0.344*WD + 0.267*F$. The multiple regression by standardized coefficients can be identified: $CS = 0.244 + 0.054*C + 0.069*WD + 0.056*F$.

Research Question 2: What is the most dominant e-service quality factor influencing customer satisfaction?

As shown in Table 7, convenience is the most dominant quality factor influencing customer satisfaction, as it shows the highest B value (0.390). Furthermore, convenience had the highest mean score (3.5276 + 0.5214) compared to other independent variables studied.

Thus, a summary of the hypothesis is concluded in Table 8.

Table 8: Summary of Hypothesis

Hypothesis	Results
H1 Website design has a remarkable influence on customer satisfaction.	Supported
H2 Customer perceived risk has a remarkable influence on customer satisfaction.	Not supported
H3 e-Service convenience has a remarkable influence on customer satisfaction.	Supported
H4 Fulfilment has a remarkable influence on customer satisfaction.	Supported

5. Managerial Implications and Recommendations

This study discovered only 54.7% of the factors influencing Customer Satisfaction in online shopping. Meanwhile, the remaining 45.3% could be other factors not included in the regression analysis. Potential factors might come from the demographic profile or other factors, such as customer relationships and perceived fairness, which are not included in the study.

The study findings can enhance the business operator's ability to win the customer's heart. This study provides a comprehensive e-service quality framework crucial for businesses aiming to enhance their online operations and meet the evolving expectations of digital consumers. This study concluded that Web Design, Fulfilment, and Convenience are vital in determining customer satisfaction. Hence, the business operator should also pay attention to the market trends as the market always changes, and technological evolution might influence customer satisfaction to stay relevant and competitive in the online market. For example, the business operator should add features using a mobile application so that the customer can easily reach them and offer various payment methods that are convenient to the customer. To ensure the online shopping process goes smoothly, the business operator can keep updating the technology adaptation for the business to succeed. It is also suggested that online business players create visually appealing community web designs to increase customer engagement. Customer trust and happiness can be enhanced by concentrating on elements such as intelligent fulfillment, interactive service, system design, and security assurance. Besides that, online business players should establish clear protocols for handling order exceptions, such as out-of-stock situations or shipment delays, to provide excellent customer service. Provide customers with quick and receptive customer care

methods, such as email or live chat, to handle their questions and problems as soon as they arise. Online businesses need to optimize order fulfillment and indirectly enhance customer satisfaction. To summarize, a comprehensive framework for e-service quality comprises multiple dimensions such as website design, customer-perceived Risk, Convenience, and Fulfillment. Businesses can improve the quality standard of their e-services, differentiate themselves in the competitive digital market, and cultivate enduring client connections short term and long term by creating and executing such a framework.

Conclusion

The study emphasizes the significant influence of e-service quality on customer satisfaction in online shopping. Positive perceptions of web design, service fulfillment, and convenience enhance the appeal of online shopping. Surprisingly, Perceived Risk was not found to impact customer satisfaction, suggesting that concerns about risk do not discourage online shoppers. This reflects a growing openness among Malaysian online shoppers to digitalization, which is evident through their engagement with diverse platforms like social media and dedicated e-commerce sites such as Amazon, Lazada, and Shopee. Prominent brands like McDonald's and Pizza Hut have reshaped online shopping by introducing applications that streamline the process. An essential feature of these apps is the incorporation of easily navigable online payment methods, which have significantly enhanced the ease and effectiveness of online shopping. These firms have streamlined the checkout process and catered to their customers' varying tastes by offering various payment methods, including proprietary e-wallets and online banking. Thus, this study highlights managerial implications that can guide future strategies and actions in the e-commerce landscape. Based on these findings, businesses must prioritize developing and implementing a comprehensive E-Service Quality Framework, emphasizing website functionality and responsive customer support. Additionally, integrating a real-time Customer Feedback Loop and fostering a customer-centric organizational culture are vital strategies to adapt and refine services consistently, ultimately guaranteeing heightened online shopper satisfaction and loyalty. As a result, the Malaysian market may progressively adopt a thriving online shopping landscape, indicating a changing stance towards digital transactions.

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The Impact of Training and Development, Job Embeddedness and Flexible Working Arrangements on Talent Retention Among Young Generation in Pharmaceutical Companies in Malaysia

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Abstract: The study aims to investigate the relationship between training and development, job embeddedness and flexible working arrangements on talent retention among the young generation of employees in Malaysian pharmaceutical companies. This research will employ a cross-sectional survey design, using the questionnaire survey method to collect data on the study variables. The sampling technique used in this research is non-probability, purposive sampling. A sample will be collected from 348 young-generation employees working in pharmaceutical companies residing in Malaysia. PLS-SEM will be used to analyze the hypothesized relationships, providing valuable insight into critical factors influencing talent retention in pharmaceutical companies in Malaysia. The scarcity of research in the pharmaceutical context emphasizes the importance of identifying key influences on employee retention, which include training and development, job embeddedness, and flexible working arrangements. Interventions addressing these elements are critical for retaining skilled employees and improving organizational performance. The result of this research contributes to the comprehension of retention schemes, training and development plans, effective flexible work arrangements, and factors promoting job embeddedness. The findings guide organizational leaders in predicting employee preferences, reducing turnover rates, and implementing effective retention strategies, ultimately contributing to enhanced productivity and economic growth in Malaysia's pharmaceutical sector. The research also highlights the positive impact on employees' career advancement, employability, work-life balance, and overall well-being.

Keywords: *Talent retention, training and development, flexible working arrangements, job embeddedness*

1. Introduction

Talent retention is one of the most important tactics for maintaining business in an agile organization (Mujtaba et al., 2022). In a volatile, unpredictable, complex, and ambiguous (VUCA) environment where change is the only constant, retaining talented employees becomes paramount. Talented individuals possess the capacity to propel a company to the next level, making talent retention a key indicator of success in today's globalized economy. Talent retention is described as a company's implementation of a strategy, an activity, or a practice to keep its talent for the longest possible time (Khandelwal & Shekhawat, 2018; Sheraz et al., 2019). Additionally, talent retention also refers to a strategy used by the organization to influence staff to maximize their performance for a longer period and to retain staff for the longest possible time (Houssein et al., 2020). The war for talent will continue as long as talented people are regarded as an organization's primary source of competitive advantage (Latukha, 2018). Retaining talent is hard to cope with, with a great deal of challenges (Kalyanamitra et al., 2020). Globalization and competition have increased the need to attract and retain a competent and skilled workforce (Arasanmi & Krishna, 2019). Many organizations have become flatter as a result of globalization, which also poses many uncertainties. This situation motivates employees to take charge of their career development (Ott et al., 2018).

The formidable challenges presented by external factors, such as COVID-19, made it difficult for an organization to gain a competitive advantage over competitors (Sharma & Prasad, 2018). In the demanding business environment of today, many companies find themselves grappling with the task of retaining employees amid the ever-present threat of defection to competitors (Sharma & Prasad, 2018). According to second research by Robert Walters, 60% of firms have difficulty retaining top personnel, particularly experts in professions requiring technical expertise, experience, and abilities (Digital News Asia, 2023). Increasing competitiveness,

coupled with a shortage of human capital, has made talent retention a global concern (Arasanmi & Krishna, 2019). Recognizing the impending dominance of the young generation in current and future business, organizations must understand their traits and characteristics (Eyoun et al., 2020; Ou et al., 2017). As today's labor market predominantly consists of individuals from the young generation and is seen as the future generation that contributes to corporate success and competitiveness (Andrea et al., 2016), understanding and retaining them becomes paramount. Several key challenges to retaining talented young generation employees in today's competitive businesses such as the pharmaceutical industry, include career growth, workplace well-being, industry competition, globalization, and the changing employment landscape (Mohamad Mazlan & Jambulingam, 2023). For effective talent retention especially in the current evolving workplace, organizations must understand value differences, attitudes, and motivation among young generations (Alhmoud & Rjoub, 2020; Frye et al., 2020). The key components, with individual attributes serving as the foundation for talent retention with training emerging as the central element in talent development, and leadership style identified as one of the primary factors contributing to talent retention (Shahi et al., 2020).

A global survey of 480 respondents from biopharmaceuticals around the world revealed that 56 percent will jump to another company given the opportunity (Peters, 2019). Malaysia reported an attrition rate of 6.5 percent in the first half of 2019 (Malaysian Reserve, 2020). However, when specifically examining pharmaceutical companies, a significantly higher voluntary turnover rate of 15.7 percent was recorded, almost double the national figure. Voluntary turnover in Malaysian pharmaceutical companies has increased steadily. This trend persisted and even escalated, with voluntary turnover in Malaysian pharmaceutical companies surging from 15.7 percent in 2020 to a concerning 17.4 percent in Q3 2023 (internal data, 2023). Of particular concern is the emerging pattern where voluntary turnover among employees with less than two years of experience surpasses the overall rate. The trend, commencing at 15.7 percent in 2020, reached its peak in Q3 2023 at a notable 22.5 percent. This indicates that employees with less than two years of tenure are more likely to leave the organization. The steadily increasing voluntary turnover indicates that pharmaceutical companies in Malaysia are struggling to retain their employees, particularly those with less than two years of service. In the context of the young generation's propensity to change employment every two years, the complexity of workplace diversity further complicates the landscape of employee retention (Singh, 2019).

In Malaysian pharmaceutical companies, prevalent compensation practices predominantly take the form of incentives and bonuses, aligning with performance-related pay structures. While this type of compensation has a positive relationship with retention, organizations are encouraged to look beyond the paycheck benefit, especially in a highly stressful and competitive environment (Bharath, 2021). Amidst the intensified war for talent in the competitive landscape of pharmaceutical companies, it becomes imperative for organizations to invest more comprehensively in talent retention beyond financial rewards (Jindal & Shaikh, 2021). Addressing factors such as work-life balance, effective leadership, and organizational culture becomes crucial, with engagement, flexibility, and autonomy identified as key drivers for retaining talent in the pharmaceutical industry (Jindal & Shaikh, 2021). To identify the factors contributing to retention among the young generation in pharmaceutical companies in Malaysia, a preliminary study was conducted, utilizing in-depth interviews. The findings underscore the significance of the non-financial variables that affect their retention. While some participants brought up wages and remuneration, the majority did not prioritize them. Instead, they emphasized the importance of elements such as leadership style, work-life balance, company culture, opportunities for professional advancement, and supportive relationships. Participants were more interested in factors that enhance their overall work experience and professional development, as they perceived their existing pay and compensation to be competitive.

Although financial elements like wages were mentioned, participants consistently prioritized non-financial factors such as leadership style, work-life balance, company culture, professional advancement opportunities, and supportive relationships. Learning opportunities, even those unrelated to their work, were deemed crucial for motivation. Interpersonal relationships and collaboration were highlighted, emphasizing the importance of teamwork in a dynamic work environment. Flexibility, including remote work and flexible schedules, was seen as a significant perk, especially for younger workers valuing personal time. Line managers played a pivotal role, with positive relationships contributing to motivation and job satisfaction.

Talented employees exhibit distinct mental requirements, necessitating tailored retention strategies. Identifying these nuances is crucial for the development of a robust and cost-effective retention strategy (Mukherjee et al., 2020). To prevent the loss of such valuable assets, organizations must address the psychosocial needs of their employees and cultivate a positive social environment (Al Kurdi et al., 2020). Several studies support the importance of training and development in promoting talent retention (Diah et al., 2020; Ivana, 2020; Pandita & Ray, 2018; Subramaniam et al., 2019). Employees with high embeddedness tend to forge deeper relationships with their managers and co-workers, significantly influencing their performance (Al-Ghazali, 2020). In the pharmaceutical industry, flexibility and autonomy are appreciated; hence, employees tend to stay longer if they are given the freedom to perform their jobs (Ali & Ullah, 2023). Employees consider working-hour flexibility, place of work, leadership style, and healthy relationships, to be effective motivational factors and improve talent retention (Dirani et al., 2016).

Research Objectives

This study is structured around three primary research objectives, as follows:

RO1: To determine the influence of learning and development on talent retention among the young generation in pharmaceutical companies in Malaysia.
RO2: To determine the influence of job embeddedness on talent retention among the young generation in pharmaceutical companies in Malaysia.
RO3: To determine the influence of flexible work arrangements on talent retention among the young generation in pharmaceutical companies in Malaysia.

2. Literature Review

Effective talent management not only enhances performance and innovation but also addresses the significant costs associated with recruitment and training. The definition of talent retention involves organizational actions aimed at motivating employees to stay for an extended period or until project completion (Sheraz et al., 2019). Talent retention refers to the actions taken by the current organization to motivate and influence employees to maximize their function for the longest possible period (Latukha et al., 2020). It encompasses systematic efforts, policies, and practices to address diverse employee needs, fostering a conducive environment for long-term commitment and productivity (Aljbour et al., 2021; Houssein et al., 2020; Kossivi et al., 2016).

Talent retention can be seen from a group perspective, such as motivation, job satisfaction, and organizational culture, or from an individual one, such as advancement prospects or salary (Kossivi et al., 2016). Understanding the reasons why people stay or leave is essential for organizations to develop an effective personnel strategy. Nevertheless, companies should focus on the "staying factors" that increase happiness and commitment to keep great individuals (Kamalaveni et al., 2019). Talents, in this context, are defined as key personnel with exceptional abilities who can perform well within their functions and contribute to the organization's success (Gallardo-Gallardo & Thunnissen, 2016; Kwon & Jang, 2022). Retaining high-performing personnel necessitates a plan that permits talent to support organizational growth while also fitting future positions (Aina & Atan, 2020). Organizations must have tailored techniques to nurture and retain talented employees (Mukherjee et al., 2020).

The young generation is defined as Generation Y, born between 1980 and 1995, and Generation Z, born between 1995 and 2010 (Andrea et al., 2016). Generations are groups with similar historical and social experiences. The group likely has similar beliefs, behaviors, and qualities (Lee et al., 2022). The characteristics of the young generation are: being tech-savvy, easily adaptable to changes, preferring short-term plans, looking for work-life balance, and preferring to work in a workplace where they can enjoy themselves, as described by Andrea et al. (2016). They value teamwork, self-interested information sharing, freedom, and empowerment, choose virtual labor, rapid remuneration, and less commitment (Andrea et al., 2016). They are more loyal to co-workers than to their company. The young generation leaves companies in less than two years (Singh, 2019), indicating a retention problem. Generational cohorts join the work market at similar ages and experience similar employment markets and environments; therefore, they see historical events similarly

(Kowske et al., 2010). Generational demographic shifts are difficult to handle in emerging economies. Thus, organizations must comprehend talent retention in light of the demographic shift (Panday & Kaur, 2021).

Factors Affecting Talent Retention Among Young Generation

Employee commitment and retention are influenced by a cluster of factors rather than a single issue. The reward system, especially among multinational companies in Malaysia, while having a significant positive impact on employee turnover, was found to be less influential compared to other factors in the MNC work environment (Subramaniam et al., 2019). Tangible reward benefits such as salary, bonuses, and promotions were considered to positively impact retention, but the effectiveness of the reward system in reducing turnover showed conflicting results (Hosen, 2022; Subramaniam et al., 2019). Singh (2019) supported this notion in a literature review, emphasizing the significance of a flexible compensation package and opposing standardized compensation due to distinct preferences among different age groups.

Several studies support the importance of training and development in promoting talent retention (Diah et al., 2020; Ivana, 2020; Pandita & Ray, 2018; Subramaniam et al., 2019). Comprehensive training sessions encompassing both technical and soft skills will enhance employee retention (Ivana, 2020). Job-related training boosts problem-solving skills; workplace flexibility promotes work-life balance; and improved retention (Singh, 2019). Training and development provided will signal that the employer invested in the employee's development, leading to the formation of a sustainable talent pool, and this positive perception will likely encourage employees to stay with the organization (Hosen, 2022; Pandita & Ray, 2018; Subramaniam et al., 2019).

Josiam et al. (2009) found that young generation workers are less cynical and less motivated by money than their predecessors. The average number of employers in the lifetime of Gen Y is between 15 and 16, double that of Gen X, which is only between 6 and 8 (Turner, 2019; King, 2020). They prioritize the work environment, corporate social responsibility, training, career growth, supervisor-manager relationships, individual responsibility, and difficult work (Festing & Schäfer, 2014, Naim & Lenka, 2018). If employers and managers do not comprehend these concepts, they may struggle with motivation, hiring, and retention (Jayathilake et al., 2021; Josiam et al., 2009; Naim & Lenka, 2017).

Retaining great individuals has become an organization's top priority in the current era of intense competition and the "battle for talent." The young generation has different values and needs, making it more difficult to retain them (Malik & Malik, 2023). For organizations to attract the young generation, they should provide lucrative and unique extrinsic rewards that are equal to their workload (Hassan & Govindhasamy, 2020). Since this generation is younger, it is a popular belief that they want recognition and awards to stick with the company. Studies evaluating extrinsic rewards among Gen Y found it has a significant impact on their retention (Alhmoud & Rjoub, 2020; Hassan & Govindhasamy, 2020). Financial incentives, fair salary increases, and bonuses are examples of extrinsic rewards that are motivating for the young generation (Zarina et al., 2018).

However, money is not the long-term answer for keeping highly skilled employees, as skills beyond paychecks are preferred by most employees as deemed more important for retention (Bharath, 2021). On top of competitive extrinsic rewards, this generation looks for self-actualization, values leadership, communication, work-life balance, job security, job satisfaction, and training and personal development (Jayathilake, 2019; Singh, 2019; Thompson & Muda, 2021). Studies also discovered that intrinsic rewards, like job stability and flexible working arrangements, also had an impact on retention (Alhmoud & Rjoub, 2020; Bharath, 2021; Hassan & Govindhasamy, 2020). For this reason, employers should prioritize providing young workers with intrinsic rewards in addition to competitive compensation.

The young generation prioritizes growth opportunities; hence, training and career development opportunities reduce turnover intention (Climek et al., 2022; Jena & Nayak, 2022). Mentoring, reverse mentoring, quick feedback, effective leadership techniques, career development, and training to improve skills ultimately lower employee retention among the young generation (Jayathilake, 2019; Younas & Bari, 2020). Since they value empowerment and autonomy, businesses should view their workers as internal customers, and building strong bonds with managers can help achieve this (Frye et al., 2020; Islam et al., 2022; Kossyva et al., 2021). The young generation values meaningful work, task variety, job autonomy, flexible work arrangements, and work-life

balance, all of which contribute to decreasing turnover intention (Climek et al., 2022). Organizations can improve work environmental factors such as supervisory support, job autonomy, and job security while aligning with the needs of this generation, which values career development and flexible work arrangements (Islam et al., 2022).

In addition to desiring professional advancement, the young generation seeks demanding jobs that balance work and personal life (Younas & Bari, 2020). Companies should adjust their strategy to accommodate flexible work arrangements while continuing to build employee capabilities and provide assistance, particularly during the change management process, as they emphasize autonomy and want to be more involved in the decision-making process (Kossyva et al., 2021; Lin & Wang, 2022). This generation also appreciates clarity on job tasks and responsibilities as their motivation to stay; hence, companies can focus on creating job characteristics that fit into their values and expectations (Vui-Yee & Paggy, 2020). They respect participatory management styles and strong social relationships with supervisors as aspects of organizational culture (Climek et al., 2022). Enhancing their retention can be achieved through coaching and mentoring, participation in corporate decision-making, and a welcoming and inclusive work environment (Climek et al., 2022; Islam et al., 2022; Younas & Bari, 2020).

Factors Affecting Talent Retention in Pharmaceutical Companies

The pharmaceutical industry confronts distinctive challenges and opportunities, necessitating a nuanced approach to talent retention strategies. While competitive compensation and benefits are prevalent, the industry's rigorous standards impose significant stress on employees, making internal encouragement through continuous learning and development essential for talent retention. Recognizing the pivotal role of talent in organizational success, pharmaceutical businesses must establish robust retention schemes to counter the risks of talent poaching by competitors.

The pharmaceutical industry grapples with distinct challenges and opportunities, necessitating a delicate balance in talent retention strategies. The most common compensation practices in Malaysian pharmaceutical companies are in the form of incentives and bonuses, which are performance-related pay. Even though this type of compensation has a positive relationship with retention, organizations are encouraged to look beyond the paycheck benefit, especially in a highly stressful and competitive environment (Bharath, 2021). Within the pharmaceutical industry, besides compensation, and supervisory support, growth opportunities will affect employee retention (Aman-Ullah et al., 2020). Several studies emphasize the significance of comprehensive strategies for employee retention, considering compensation, leadership, training, and development, as well as the working environment (Diah et al., 2020; Jindal & Shaikh, 2021; Kalyanamitra et al., 2020; Ninroon et al., 2020; Sherrina et al., 2021; Thilagham et al., 2022).

From the standpoint of the organization, having talented individuals is essential to its success. Purchasing talent is an expensive fix in dire circumstances (Kerdpitak & Jermsittiparsert, 2020). Due to this industry practice, organizations also run the risk of competitors poaching their talent. Recognizing the pivotal role of talent in organizational success, pharmaceutical businesses must establish robust retention schemes to counter the risks of talent poaching by competitors (Jindal & Shaikh, 2021).

In the current competitive landscape of pharmaceutical companies, the war for talent has intensified, making it essential for companies to invest more in talent retention beyond financial rewards (Jindal & Shaikh, 2021). Pharmaceutical businesses need to establish retention schemes as crucial components of talent retention to overcome these problems. Building a talent pipeline, having a thorough awareness of the market and competitors, utilizing technical expertise, providing a positive onboarding experience, ongoing coaching and mentoring, providing opportunities for training and development, and encouraging engagement are all factors in talent retention (Jindal & Shaikh, 2021). The concept of training and development as talent retention strategies has been stated in several studies (Diah et al., 2020; Dirani et al., 2016; Kalyanamitra et al., 2020; Ninroon et al., 2020; Thilagham et al., 2022). By investing in training and development, pharmaceutical companies can equip their employees with valuable skills and knowledge, which eventually boost productivity (Diah et al., 2020). The investment in development improves employee attitudes and enhances retention. Employees who do not think they are growing in their careers tend to look for new jobs; hence, the absence of training will affect employee retention (Ninroon et al., 2020). Providing training facilities enables employees

to enhance their career success and encourages them to set higher goals, resulting in improved satisfaction, which eventually leads to higher retention (Kalyanamitra et al., 2020).

The negative side of training and development facilities is that the knowledge and experience gained have led young professionals to secure opportunities in higher-paying jobs in the same industry (Thilagham et al., 2022). This will be more apparent with young generations, as it has been found that they switch jobs frequently. Therefore, competitive compensation and appropriate benefits are other factors that positively influence retention (Kalyanamitra et al., 2020). With higher remuneration, employers tend to post higher expectations towards their employees, which leads to high stress among their staff if they fail to meet the expectations (Thilagham et al., 2022). Training and development emerge as recurrent themes in talent retention, enhancing employee skills and knowledge to boost productivity and foster a positive attitude. However, challenges arise as the gained expertise may lure employees to higher-paying opportunities elsewhere.

While competitive compensation and benefits are commonplace, the demanding standards place considerable stress on employees (Thilagham et al., 2022). The interplay of compensation, stress, and competitive landscapes underscores the complexity of retaining talent. The impracticality of switching companies prompts the need for internal encouragement through continuous learning and development, offering a pathway to higher positions and expertise (Thilagham et al., 2022). Addressing factors such as work-life balance, effective leadership, and organizational culture becomes crucial, with engagement, flexibility, and autonomy identified as key drivers for retaining talent in the pharmaceutical industry (Dirani et al., 2016; Kerdpitak & Jermsittiparsert, 2020).

In the pharmaceutical industry, flexibility and autonomy are appreciated; hence, employees tend to stay longer if they are given the freedom to perform their jobs (Ali & Ullah, 2023). This is more relevant to talented employees, as talent is self-determined and self-competent without much monitoring. Employees consider working-hour flexibility, place of work, leadership style, and healthy relationships to be effective motivational factors and improve talent retention (Dirani et al., 2016). A study by Mozaffari et al. (2022) identified that relationships with peers and managers improve engagement, which leads to higher retention as engaged employees stay longer (Jindal et al., 2017).

Addressing factors such as work-life balance, effective leadership, and organizational culture becomes crucial, with engagement, flexibility, and autonomy identified as key drivers for retaining talent in the pharmaceutical industry. The overarching message is clear: proactive efforts by pharmaceutical companies are imperative to ensure employee growth, learning, and job satisfaction, thereby mitigating the high costs and consequences associated with turnover. There is a call for further research in the pharmaceutical industry on relationships, organizational support, leadership style, and supportive work behavior (Bharath, 2021), training and development programs, working-hour flexibility, and healthy relationships among workers as part of the motivational factors culture (Dirani et al., 2016).

Training and Development

Organizations must provide training to upskill their employees, especially in industries that face rapid changes and challenges, such as the pharmaceutical industry. Training and development training provided by the organization benefits employee knowledge and skills as a retention tool, and this diminishes the gap between standard and desired performance (Akther & Tariq, 2020). Learning new knowledge will improve employee effectiveness, and qualified employees are a crucial asset for organizations to achieve long-term performance and competitive advantage (Rahaman et al., 2023). Training and development are viewed as pivotal in career growth, skill enhancement, and capability building, all contributing to a better quality of service and support in achieving organizational objectives (Aleem & Bowra, 2020).

Training and development are defined as human resource management functions used to bridge the gap between current and expected performance (Elnaga & Imran, 2013). It is intended to improve mastery of various skills and techniques for carrying out specific, detailed, and routine work, whereas development is intended for managerial-level employees to improve conceptual abilities, decision-making abilities, and human relations (Mangkunegara, 2013).

Relationship Between Training & Development and Talent Retention

Training and development can instill confidence as employees can master new skills and achieve a high level of commitment, which leads to retention. Training and development are a statistically significant predictor of employee retention (Elsafty & Oraby, 2022; Mirić & Slavković, 2023). It also has a significant positive effect on organizational commitment, indicating that training and development determine commitment, and commitment has a significant positive effect on employee retention (Mirić & Slavković, 2023). Implementing effective training and career development techniques can improve employee engagement and job satisfaction, leading to higher retention rates (Aleem & Bowra, 2020; Merican et al., 2022). Providing training creates a sense of obligation in employees, leading to their commitment to the organization (Bhakuni & Saxena, 2023). When employees feel obliged and committed, they are more likely to stay in the organization for the long term.

Training and development can provide growth opportunities, enhance skills, and improve employees' attitudes. Employee retention is indeed influenced by growth opportunities, self-attainment, training and development, and employee benefits (Akther & Tariq, 2020; Rahaman et al., 2023). The study also underscores the importance of comprehensive training in retaining employees, emphasizing the need for training that enhances knowledge, skills, and attitudes. Moreover, future growth opportunities were identified as crucial for retaining employees, as they foster trust and confidence. From the perspective of employees, they view training as an opportunity to learn and interact with others, especially training involving conferences, seminars, and workshops (Bharadwaj, 2023). The study also found empirical support for the notion that employees are more likely to identify with organizations that prioritize training and development, leading to higher retention rates. The young generation places importance on career development; hence, the clarity of their career development plan as well as training aspects are valued by this generation (Younas & Bari, 2020). It is therefore hypothesized that:

H1: Learning and development have an influence on talent retention among the young generation in pharmaceutical companies in Malaysia.

Job Embeddedness

The concept of job embeddedness serves as a crucial framework for understanding the multifaceted factors influencing employee decisions to stay within an organization. Job embeddedness is based on the interrelated components of fit, linkages, and sacrifice and includes aspects that occur both during and outside of work. The concept of job embeddedness was coined by Mitchell et al. (2001), based on Lewin's theory that psychological reality depicts the totality of connections that determine behaviors at any given time and is a function of both the individual and the environment. This whole system is important in terms of life space. Based on this theory, William Lee et al. (2014) posited that the individual's job was in the middle of these connections or the web.

The concept of job embeddedness emerges as a key framework for understanding the complex factors that influence employee decisions to quit a job, highlighting the combined forces that deter individuals from leaving an organization and emphasizing the importance of elements such as fit, links, and sacrifice within the working environment. Employees often go through some degree of mental consideration before quitting a job, comparing current and alternative jobs. Job embeddedness can be a result of organization-related forces and is defined as a combined force that keeps a person from leaving the organization (Crossley et al., 2007). Mitchell et al. (2001) introduced job embeddedness theory, which focuses on why people stay and describes the feeling of being enmeshed in a social system. The underlying components of job embeddedness are fit, links, and sacrifice, wherein fit refers to an employee's perceived compatibility with the working environment, links are concerned with formal or informal ties between employees and organizations and other co-workers, and sacrifice refers to the ostensible cost incurred by leaving a job.

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Relationship Between Job Embeddedness and Talent Retention

Improving on-the-job embeddedness is essential from an organizational perspective since it is controllable within the organization, unlike community job embeddedness, which is harder to manage, given the significance of job embeddedness in boosting retention. On-the-job embeddedness significantly predicts affective commitment and improves retention (Lim et al., 2022). Off-the-job embeddedness, however, found no significant association between community-level embeddedness and organizational commitment. The results point towards the importance of on-the-job embeddedness in fostering affective commitment, suggesting that employees with a strong level of embeddedness tend to exhibit a higher level of commitment. Previous studies

have shown that on-the-job and off-the-job embeddedness differently influence employee behavior and work attitudes (Lee et al., 2004; Porter et al., 2019). Moreover, some studies have failed to find evidence for the impact of community factors in predicting turnover, suggesting that on-the-job embeddedness is a more important factor in explaining why people stay at their jobs (Zhang et al., 2012).

High job embeddedness is linked to lower turnover intentions, especially on-the-job embeddedness and its sub-dimensions, links, fit, and sacrifice (Coetzer et al., 2019). Turnover can be reduced by promoting group cohesion and addressing particular aspects of embeddedness, such as fit and sacrifice. Positive relationships among employees will enhance the feeling of job embeddedness in the employees and influence performance and retention (Al-Ghazali, 2020; Khalid et al., 2021). Job embeddedness—more especially, the characteristics of linkages, fit, and sacrifice—is positively correlated with a felt mastery climate (Steindórsdóttir et al., 2020). The study provides important insights into the variables affecting employee retention and well-being by identifying the mediating function of psychological need satisfaction (autonomy, competence, and relatedness) in this relationship. The results underscore the significance of cultivating an environment of mastery and giving psychological need satisfaction a top priority to improve employee connection, engagement, and the overall performance of the firm. Members of the young generation are attracted to close interaction, and they tend to socialize more because the higher the interaction, the better the benefit to them (Fuchs, 2022). Embedding shared commitment, organizing social functions, and arranging training are some of the actions a company can take to increase on-the-job linkage (Al-Ghazali, 2020). The sacrifice dimension is significantly impacting Gen Y's intention to quit (Fuchs, 2022). It is therefore hypothesized that:
H2: Job embeddedness has an influence on talent retention among the young generation in pharmaceutical companies in Malaysia.

Flexible Work Arrangement
Several human resource strategies may improve employees' ability to balance the demands of personal and professional life and foster the development of a positive attitude toward their employer (Subramaniam et al., 2019). Satisfied employees tend to be more committed and make more positive contributions due to their higher willingness to exert extra effort, which eventually helps to enhance the organization's effectiveness and success (Kokobun, 2017).

Flexible work arrangements are defined as "alternative work options that allow employees to accomplish tasks outside of the temporal (timing) and spatial (location) boundaries of a standard workday" (Sekhar & Patwardhan, 2021). Flex time (temporal flexibility) is when employees are given leeway on when to arrive and leave the workplace (Amirul & Shaari, 2021; Sekhar & Patwardhan, 2021). Part-time or job sharing, flextime, and compressed workweeks are examples of temporal flexibility. For instance, an employee may request to work part-time to care for a child. If an employee changes her child-care schedule, the employee may request a flexible plan to arrive at work earlier and leave earlier.

Spatial flexibility comprises professional job autonomy, new working conditions, and telecommuting (Matli, 2020). Flexible work arrangement provides a sense of autonomy, and this is deemed a sign of trust and respect, leading to increased commitment (Weideman & Hofmeyr, 2021). Working from home (place flexibility) is when employees are allowed to perform tasks at home through virtual means (Sekhar & Patwardhan, 2021). Flex leave (immediate temporal and/or place flexibility) is when employees who require immediate attention to resolve personal issues during working hours are given the flexibility to take paid time off (Tsen et al., 2021). In the context of pharmaceutical companies, this excludes tasks that require face-to-face interaction with customers.

Relationship Between Flexible Working Arrangement and Talent Retention
Flexible working arrangements reduce turnover by providing greater flexibility and autonomy (Choi, 2020). Flexible work arrangements provide a sense of autonomy, and this is deemed a sign of trust and respect, leading to increased commitment (Weideman & Hofmeyr, 2021). Employees with high job independence show lower turnover intentions when utilizing flexible working arrangements (Tsen et al., 2021).

Implementing flexible work arrangements benefits employers and employees as it improves work-life balance and productivity (Amirul & Shaari, 2021; Sekhar & Patwardhan, 2021; Weideman & Hofmeyr, 2021).

Employees with direct family responsibilities, regardless of gender and marital status, also value flexibility (Arredondo-Trapero et al., 2022; Ciarniene & Vienazindiene, 2018). Having a good work-life balance positively influences job satisfaction and employee retention (Silaban & Margaretha, 2021). Flexible working arrangements also positively impact loyalty and satisfaction among this generation (Capnary et al., 2018). A favorable work environment can attract and retain talent, and providing flexible work arrangements can help with turnover rates, especially among the young generation (2022). Flexible working arrangements reduce turnover (Choi, 2020). It will improve the well-being of employees, leading to increased employee satisfaction and reduced turnover (Gordon et al., 2019). It also improves performance and increases talent retention (Richman, 2015; Kaya & Karatepe, 2020; Mohammed et al., 2020). It is therefore hypothesized:
H3: Flexible work arrangement has an influence on talent retention among the young generation in pharmaceutical companies in Malaysia.

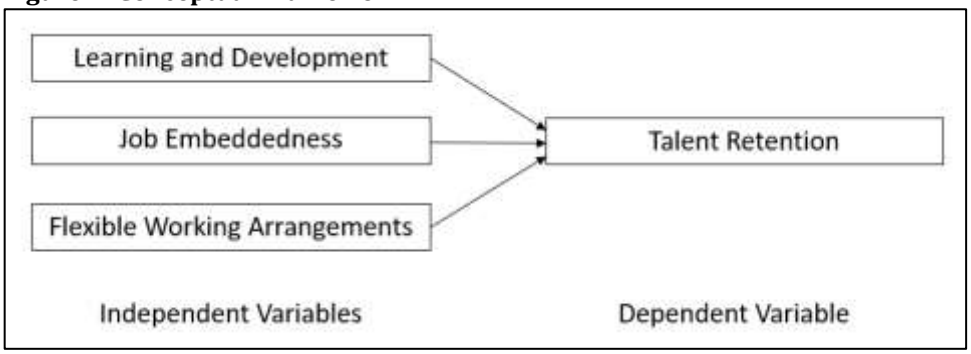
3. Underpinning Theory: Social Exchange Theory

The Social Exchange Theory was first introduced by Blau (1964) and has been used in various studies to explain the motivators that shape the attitudes and behaviors of individuals and thus govern the context of relationships. This makes the theory a perfect framework for understanding the relationship between employees and employers (Diah et al., 2020). The social exchange theory posits that people maximize their rewards while minimizing costs when making human interactions and becomes an economic analysis of social interaction (Emerson, 1976). The theory explains human behavior in relationships in terms of costs, rewards, profits, and losses, and if a person believes that he will gain more rewards by performing certain behaviors and the risk is minimized, he will be able to perform those behaviors. Economic exchange involves financial transactions and interactions between the parties (Jung & Takeuchi, 2019). In economic exchange, the organizations award the employees financially for the better performance they show in their job responsibilities and duties. Rewards include fellowship, belonging, satisfaction, and others, and as long as rewards outweigh the cost, it is worthwhile to stay in the relationship and vice versa.

When people are engaged in an exchange relationship, they expect various economic as well as social benefits (Zhang et al., 2020). The exchange relationships will eventually build trust, loyalty, and commitment, provided both parties follow the stipulated rules (Liyanaarachchi et al., 2021). Social exchange theory proposes that social contracts are formed whenever some transactions take place and are constituted on trust in the party that initiated the contract (Cropanzano et al., 2017; Diah et al., 2020). Social exchange provides employees with a trustful, long-term, and reciprocal relationship with the organization (Bianchi et al., 2016; Rubel et al., 2020). When an individual or organization provides reciprocity for another party, they expect a return, although the timing of the return is uncertain. This forms a development of interpersonal relationships and is based on a subjective evaluation of interest and cost (Lin et al., 2019). Both social and economic exchange phenomena improve the show of employees and also increase their job satisfaction, and as a result, employees make effective commitments to the organization (Buch et al., 2019). Social exchange may involve personal investment in resources, efforts, identity, attachment, and commitment for some benefits. Recent studies have argued that employees who perceive that the organization values their contribution develop positive feelings toward their jobs and attitudes toward an organization (Tsarenko et al., 2018). Thus, the theories of social exchange and reciprocity are applicable in the context of employee retention.

Other retention-related studies acknowledge that the employee and employer are deemed "two actors," and the actions of the employer in supporting retention practices are the employee's decision to stay or leave the organization (Allen & Shanock, 2013; Mignonac & Richebe, 2013). In return, employee competency and performance may support the employer's decision to retain the employee by increasing the incentives or benefits that are important to the employee (Diah et al., 2020). This exchange can be considered a social exchange concept as workers remain with their respective organizations if management is seen to implement and value these strategies (Al-Emadi et al., 2015). Social exchange theory explains the motivation of employees and their good attitudes towards the organization (Stafford, 2017). The SET can be regarded as relevant to this research and can be applied to elaborate the framework of this study because employees are expected to return the same value of what is provided by the employer by continuing to work in the organization (Almaaitah et al., 2017). Aman-Ullah et al. (2020) review existing literature on employee retention in the context of Pakistan, and the social exchange theory emerges as the most frequently employed theory to explain employee retention.

Figure 1: Conceptual Framework



4. Methodology

The purpose of the study aligns with an explanatory research design, as defined by Sekaran and Bougie (2016). Explanatory research is focused on understanding the relationship between variables and explaining the reasons behind certain outcomes. This study aims to investigate the relationship between training and development, job embeddedness, flexible working arrangements, and talent retention among the young generation in Malaysian pharmaceutical companies. This research is based on positivist philosophy and uses a deductive approach whereby quantitative analysis will be performed using the PLS-SEM tool. This research employed the positivist paradigm because it offers a distinctive perspective by observing, describing, and believing how issues should be understood and addressed (Creswell, 2014). This research is conducted in a natural setting in a non-contrived manner using controlled, non-probability, purposive sampling. The unit of analysis is individual and online, and a face-to-face questionnaire will be distributed to employees working in pharmaceutical companies in Malaysia, regardless of position. The time horizon is cross-sectional. Data is gathered once and conducted over some time to allow participants to answer all the questionnaire items. Then hypothesis testing is to be conducted to conclude from the results.

This research focuses on employees working in pharmaceutical companies in Malaysia who reside in Malaysia and are registered under PhAMA. The unit analysis of this study is based on individuals, and as the research is on talent retention, the employees are individuals working in pharmaceutical companies. The respondents are unique individuals working in pharmaceutical companies in Malaysia; hence, they will be individuals and not organizations. The sampling technique used in this research is purposive, non-probability sampling. Researchers attempted to collect data on employees working in pharmaceutical companies in the country but failed to do so due to the Personal Data Protection Act of 2010. The goal of the study is to have a sample size that offers enough statistical power to identify important connections and effects. The Slovin formula will be used in this study to calculate the sample size. The Slovin formula can be used to determine the bare minimum number of samples needed when a population's behavior is uncertain (Batool & Kashif, 2022; Aryadinata & Samopa, 2019; Indarti et al., 2017). The total population size is projected at 2727 (PhAMA, 2018). The projected sample size for this study is 348 people due to the intricate nature of the links being examined and the requirement for a thorough statistical analysis.

The questionnaire is intentionally distributed, targeting the population to be studied. The survey questionnaire was divided into 3 sections: Section A for demographic profile, Section B for the dependent variable (talent retention), and Section C for independent variables. In Section A, questionnaire items are designed using the nominal scale and ordinal scale, while the constructs in Sections B and C will be measured using the interval scale, which is the five-point Likert scale, ranging from strongly disagree (1) to 'strongly agree' (5). The proposed framework can be assessed using structural equation modeling (SEM). This research used PLS-SEM to analyze the hypothesized relationships. It is called 'partial' given that the iterative PLS-SEM algorithm estimates the coefficients for the partial ordinary least squares regression in both measurement and structural models (Hair et al., 2011). Given the flexibility and capacity of PLS-SEM, which facilitated a better understanding of complex data relationships, this research allowed for a balance between explanation and prediction (Hair et al., 2017). In addition, it was a useful tool because this model's complexity and the sample

sizes, particularly the oil palm cooperatives, were comparatively small, consistent with the suggestion by Hair et al. (2017).

5. Conclusion

This research underscores the critical importance of talent retention among the young generation in agile organizations, particularly within the pharmaceutical industry in Malaysia. In a volatile and competitive global environment, the retention of skilled individuals is identified as a key indicator of organizational success. The challenges posed by the war for talent, globalization, and external factors like the COVID-19 pandemic are some of the contributing factors to the struggle of companies to retain talented employees.

Pharmaceutical companies in Malaysia revealed a significantly higher voluntary turnover rate than the national average. Multifaceted issues are contributing to this trend, including workplace diversity, compensation practices, and the evolving needs of the young workforce. The preliminary study conducted by the researcher within the pharmaceutical industry highlights the prominence of non-financial variables in employee retention, with an emphasis on factors like training and development, interpersonal relationships, and flexible working arrangements displayed by the manager.

The study broadens the retention focus beyond financial incentives, exploring the impact of learning and development, job embeddedness, and flexible working arrangements. By uncovering the multifaceted aspects influencing talent retention, the research equips pharmaceutical companies in Malaysia with valuable insights to formulate comprehensive and effective retention strategies for a competitive edge in the global marketplace.

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The Influence of Work-Life Balance, Workload and Work Environment on Burnout among Teachers in Melaka Tengah District, Malaysia

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Abstract: Teacher burnout emerges as a complex issue intertwined with challenges in maintaining work-life balance, managing heavy workloads, and navigating the work environment within the educational sector. Factors such as the difficulty in achieving a balance between professional responsibilities and personal well-being, excessive work demands, and unsupportive work environments significantly contribute to the risk and prevalence of burnout among teachers. Efforts to address these contributing factors through supportive policies, workload management, and the cultivation of a positive work atmosphere are essential for mitigating burnout and enhancing teacher well-being and retention. This study determines the relationships between work-life balance, workload, work environment, and teacher burnout, utilizing a quantitative approach with data from 332 teachers via a Google Form survey. The findings reveal a positive relationship between work-life balance and burnout, challenging the notion that improved balance alone mitigates burnout. Workload demonstrates a strong positive association with burnout, highlighting the impact of increased demands on teachers. Conversely, a positive work environment exhibits a negative relationship with burnout, suggesting that a supportive organizational climate acts as a protective factor. This study underscores the need for a holistic approach to teacher well-being, recognizing the intricate relationships between workload, personal life, and the organizational environment. These findings offer valuable insights for educational institutions aiming to foster a supportive work environment and mitigate the adverse effects of burnout among teachers.

Keywords: *Work-Life Balance, Workload, Work Environment, Burnout, School Teachers*

1. Introduction

The issue of teacher burnout in the educational sector has gathered significant attention, with research highlighting the critical role of work-life balance, workload, and work environment in influencing teacher well-being and performance. This synthesis of literature explores the intricate dynamics between these factors and their collective impact on the teaching profession.

Achieving a harmonious work-life balance is paramount for teacher efficacy and well-being. Johari et al. (2018) emphasize the difficulties teachers encounter in juggling professional duties with personal life, noting the detrimental effects of imbalance on performance. Supporting this, Mulyani et al. (2021) argue that a stable work-life balance can act as a safeguard against burnout, underscoring its significance. The advocacy by the National Union of Teachers (2022) for policies that foster a better balance, such as reasonable work hours and enhanced professional development support, is a testament to the pressing need for systemic changes to encourage teacher retention and productivity. This consensus points to a direct correlation between work-life balance and teacher outcomes, advocating for strategic interventions to alleviate imbalance-related stress and attrition.

The literature identifies workload as a major stressor and precipitant of turnover intentions among teachers. Holland et al. (2019) highlight how excessive workload strains teachers, reducing their productivity and fueling desires to exit the profession. This is echoed by Abbas et al. (2015) and Rizky et al. (2021), who observe a direct link between workload magnitude and the propensity for job change or early retirement. Such findings underline the urgent need for effective workload management strategies aimed at curtailing burnout and enhancing teacher satisfaction and loyalty to the profession.

The significance of the work environment in shaping teachers' job satisfaction, performance, and retention cannot be overstated. Al Sabei et al. (2020) argue that a positive work atmosphere not only augments performance but also minimizes turnover risks. This is complemented by Noer et al. (2020), who identify the profound influence of supportive and understanding employers on job satisfaction and retention. Conversely, Steiner and Woo (2021) detail how negative work environments, marked by ineffective management and insufficient support, contribute to job dissatisfaction and turnover. These insights reveal the dual impact of the work environment, both physical and non-physical, on teacher well-being and effectiveness, highlighting the necessity for holistic improvements to create a conducive teaching atmosphere.

This review illuminates the complex relationship between work-life balance, workload, and work environment, underscoring their collective impact on teacher burnout, well-being, and effectiveness. While the criticality of each factor is well documented, the challenge lies in implementing meaningful and sustainable interventions. The literature points to a glaring gap in comprehensive, empirically validated strategies that address these issues collectively. There is a pressing need for research to assess the efficacy of such interventions and to explore their variable impacts across different educational contexts and among diverse teacher demographics.

The combination of work-life balance, workload, and work environment factors poses significant challenges to the teaching profession, contributing to burnout and affecting overall teacher well-being and effectiveness. There is a need for a holistic approach to address these challenges, advocating for systemic changes and targeted interventions. By prioritizing improvements in work-life balance, workload management, and the work environment, educational stakeholders can make substantial progress in mitigating teacher burnout, enhancing well-being, and ensuring the delivery of high-quality education.

2. Literature Review

Burnout

Organizational transformations, including mergers, acquisitions, outsourcing, and downsizing, are pivotal in shaping the work environment and have been linked to increased instances of employee burnout. Chenevert et al. (2019) highlight these changes as significant stressors, corroborating the Job Demands-Resources (JD-R) model by Demerouti et al. (2001), which posits that job demands escalate during periods of change, leading to psychological strain and mental fatigue. In the educational sector, such organizational shifts often manifest as heightened workloads for teachers, who are expected to fulfill their responsibilities with limited resources, propelling them toward burnout (Srivastava & Agrawal, 2020). The sense of community and support within educational institutions emerges as a crucial element in retaining teaching staff. According to Fiorillo et al. (2020), the lack of belonging and appreciation, especially from peers, significantly contributes to teachers' decisions to leave their positions. This is further exacerbated by the emotional demands of teaching, inadequate support systems, and scarce opportunities for career progression, which collectively fuel burnout and intentions to exit the profession (Heffernan et al., 2022). Johnson et al. (2021) underline the strong correlation between burnout and turnover intentions, indicating that chronic burnout impedes teachers' career trajectories and escalates turnover rates.

Organizational changes, particularly those leading to reductions in staff or resources, are identified as key factors accelerating burnout and, consequently, teacher turnover. The direct impact of such changes on the teaching profession underscores the need for robust support systems and career development opportunities to mitigate the adverse effects of burnout (Chenevert et al., 2019). Moreover, burnout significantly hinders teachers' participation in professional development activities. Smetackova et al. (2019) note that the depletion of energy and motivation associated with burnout limits teachers' ability and willingness to engage in skill enhancement and career advancement. This is further compounded by the lack of adequate resources and institutional support, which Ginsberg and Wlodkowsk (2019) identify as critical barriers to professional development involvement.

Work-Life Balance

The construct of burnout, particularly within organizational psychology, has been extensively explored, highlighting its emergence from prolonged occupational stress. Maslach et al. (1998) categorically defined burnout through three primary dimensions: reduced professional efficacy, increased cynicism, and emotional

exhaustion. This framework has proven instrumental in dissecting the burnout phenomenon across various professions, including education. For educators and teachers, the relationship between burnout and factors such as work-life balance, workload, and work environment are of critical importance. A skewed work-life balance, characterized by an inability to harmoniously integrate professional responsibilities with personal life, exacerbates stress levels, potentially culminating in burnout and an elevated risk of turnover intentions (Khawand & Zargar, 2022). This scenario underscores the necessity for educational institutions to actively foster environments that promote a healthy work-life balance, thereby enhancing teacher retention, job satisfaction, and the overall quality of education (Wan & Salahudin, 2023).

Work-life balance emerges not only as a pivotal determinant of teachers' well-being and performance but also as a crucial factor affecting job satisfaction. Given the demanding nature of teaching, strategies aimed at bolstering work-life balance are essential. Such measures can significantly contribute to the sustainability of the educational environment by improving both teacher welfare and student outcomes (Austinson, 2022; Khawand & Zargar, 2022). It becomes apparent that while the detrimental impacts of work-life imbalance on educators are well-documented, the discourse often leans towards identifying solutions rather than deeply analyzing the root causes of imbalance. In essence, the critical examination of work-life balance within the context of educational settings highlights the importance of strategic interventions and policy reforms. By prioritizing the well-being of teachers through supportive measures aimed at ensuring a healthy work-life balance, educational institutions can pave the way for a more resilient, effective, and satisfying teaching environment.

Workload

Workload, as a central aspect of employment, significantly influences employee turnover intentions, encapsulating the range of tasks, responsibilities, and duties allocated to employees within a specified timeframe (Anees et al., 2021). According to Masta and Riyanto (2020), workload encompasses a broad spectrum of activities, from time-sensitive tasks to substantial job requirements and the challenges posed by interruptions. Effective workload management is thus pivotal in ensuring continued productivity and job satisfaction across various professions, including education. In the teaching domain, the workload extends beyond instructional duties to encompass lesson planning, student assessment, participation in meetings, and engagement in professional development, as well as fulfilling administrative demands (Kreuzfeld et al., 2022). The ability to adeptly manage these responsibilities can significantly enhance a teacher's productivity, job satisfaction, and personal achievement.

Critically examining the concept of workload within the educational sector reveals the complex nature of teaching responsibilities. While Fishbein et al. (2020) acknowledge the customary nature of diverse workloads in teaching, the implications for teacher well-being and effectiveness are profound. The successful balancing of workload not only improves individual performance but also has broader implications for educational quality and student outcomes. However, literature often treats workload management as a straightforward task, overlooking the complexities and unique challenges faced by educators. The dynamic and sometimes unpredictable nature of teaching demands flexibility and adaptive strategies that are not always acknowledged in discussions about workload management. Moreover, the relationship between workload and turnover intention suggests a critical area for intervention. As Anees et al. (2021) suggest, reducing turnover requires understanding and addressing the workload-related stressors that drive teachers away from the profession.

Work Environment

The evolution of healthcare and the demographic shift towards an aging population have notably intensified workloads and responsibilities within the healthcare sector (Muharni & Wardhani, 2020). This phenomenon is not isolated from healthcare alone but is reflective of broader trends affecting various professional fields, including education. The work environment, encompassing both its physical and non-physical dimensions, plays a pivotal role in employee performance, job satisfaction, and the likelihood of turnover. Al Sabei et al. (2020) have documented that optimal working conditions are fundamental to enhancing performance and reducing turnover intentions, underscoring the importance of a supportive work environment. For newcomers, especially apprentices, the transition into their roles is significantly influenced by the time and support provided to adapt to their responsibilities and the overarching work setting. This adaptation process is crucial for fostering a sense of belonging and competence.

In exploring the relationship between work environment and employee engagement, Noer et al. (2020) emphasize the value of warmth, mutual understanding, and acceptance within the workplace. These non-physical aspects of the work environment significantly contribute to employees' decisions to commit to their roles, particularly in public service positions. Similarly, in the educational sector, Kraft and Falken (2020) assert that a supportive and respectful work environment catalyzes teachers' performance, allowing them to leverage their expertise effectively. The positive impact of a conducive work atmosphere extends beyond individual performance to influence overall organizational culture and productivity. Sazili et al. (2022) distinguish between the physical and non-physical elements of the work environment, including workplace layout, employee interactions, and environmental conditions such as lighting, temperature, and air quality. These factors collectively contribute to the creation of a work setting that either facilitates or impedes employee well-being and effectiveness.

The Relationship Between Work-Life Balance and Burnout

The hypothesis under scrutiny posits a direct link between the difficulties employees face in achieving work-life balance and the prevalence of burnout, a condition marked by emotional exhaustion, detachment, and inefficacy. This relationship is explored within the contexts of teaching and nursing professions, where the fast-paced and demanding work environments contribute significantly to the imbalance between professional responsibilities and personal life, thereby exacerbating burnout symptoms. Leisure and Forde (2020) shed light on the teaching profession, where the intense pace of work and extended working hours beyond the conventional eight-hour day led to a considerable erosion of work-life balance. This imbalance manifests in a moderate level of burnout, characterized by exhaustion, restlessness, and a growing sense of disconnection from one's job. Similarly, in the nursing sector, Lee et al. (2020) confirm that challenges in maintaining a work-life balance are closely linked to diminished job satisfaction and adverse effects on physical and mental health, impacting overall quality of life. Liu et al. (2021) further elaborate that the inherent demands of nursing, including the responsibility towards patient care, significantly impede the achievement of a balanced work-life dynamic, propelling nurses toward stress, fatigue, and emotional exhaustion.

Additionally, Gallois et al. (2022) and Galanis et al. (2021) highlight the acute risk of burnout among nurses who struggle to sustain a healthy work-life balance, exacerbated by long hours and unpredictable work schedules. These demanding conditions restrict nurses' ability to dedicate time to self-care, family, and leisure, thereby increasing stress levels and reducing job satisfaction. The cumulative evidence from both professions underscores the pivotal role of work-life balance in maintaining occupational well-being. The direct correlation between work-life imbalance and burnout across teaching and nursing fields points to a broader, universal challenge. It underscores the necessity for targeted interventions designed to promote a healthier equilibrium between professional and personal lives. Such strategies are imperative not only for mitigating the risk of burnout but also for enhancing job satisfaction, physical and mental health, and overall life quality among employees. In light of this evidence, it is feasible to hypothesize that:

H1: There is a positive relationship between work-life balance and burnout.

The Relationship Between Workload and Burnout

The correlation between teachers' workloads and their susceptibility to burnout forms the core of the hypothesis being examined. The premise is that an increase in workload correlates directly with heightened work-related stress, leading to burnout. This concept finds empirical backing in studies that map out the stress landscape teachers navigate, characterized by symptoms such as nocturnal awakenings, a pervasive sense of busyness, and diminished task concentration. Belay et al. (2023) provide concrete evidence of these stress manifestations, attributing them to a blend of instructional, administrative, and extracurricular duties that collectively augment the workload.

Further reinforcing this connection, Johnson and Smith (2022) delineate a moderate burnout level among educators, marked by exhaustion, restlessness, and a growing detachment from their professional roles. These symptoms indicate that beyond inducing stress, an excessive workload cultivates a psychological milieu ripe for burnout. The causality implied here is straightforward: an upsurge in workload precipitates an increase in burnout incidents among teachers. This relationship underscores the need to devise strategies aimed at workload management to curb the onset of burnout. By addressing the workload directly, it's feasible to alleviate the associated stress and prevent the psychological deterioration that culminates in burnout. The

evidence presented thus advocates for a critical evaluation of workload expectations and the implementation of measures designed to offer relief and support to educators. Hence, it is reasonable to propose that:
H2: There is a positive relationship between workload and burnout.

The Relationship Between Work Environment and Burnout
The investigation into the correlation between work environment quality and burnout prevalence among teachers reveals a significant relationship, suggesting that supportive and affirming work conditions are key to reducing burnout. Empirical studies, such as those conducted by Hossain and Sultana (2022), and Chen et al. (2023), collectively underscore the pivotal role of a positive work environment in mitigating the factors that contribute to burnout. Smectackova et al. (2019) highlight that environments where school principals actively foster positive relations and demonstrate a commitment to teacher welfare are associated with lower levels of teacher burnout. This finding is crucial, as it directly links leadership behavior with the emotional and psychological well-being of teachers. Hossain and Sultana (2022) further elaborate on what constitutes a positive work environment by including supportive leadership, recognition of teacher efforts, and access to necessary resources as key elements. Their research points to a holistic approach to workplace enhancement, indicating that such an environment significantly diminishes burnout incidences among teachers.

Chen et al. (2023) reinforce these observations by stating that improving work environment quality effectively reduces burnout by lowering stress levels among educators. Their research validates the notion that a well-structured, supportive work setting is instrumental in promoting teacher well-being. The synthesis of these findings illustrates a clear inverse relationship between the quality of the working environment and the occurrence of burnout. Workplaces that are characterized by positive interactions, supportive leadership, and adequate resource provision not only enhance teacher satisfaction but also contribute to a more sustainable teaching profession by mitigating burnout risks. The evidence strongly supports the hypothesis that a positive and supportive work environment significantly lowers burnout levels among teachers. This underscores the need for educational institutions to prioritize and implement organizational practices that foster a sense of value and support among their staff, thereby enhancing overall teacher well-being and reducing the prevalence of burnout. Therefore, it is plausible to hypothesize that:
H3: The is a negative relationship between work environment and burnout.

3. Methodology

The current study employs a quantitative method to examine the intricate relationships between work-life balance, workload, and work environment on teacher burnout in the Melaka Tengah District, Melaka. A total of 332 teachers participated in this study endeavor, sharing valuable insights via an online survey performed using Google Forms. The data collection process involved systematically gathering information from a sample of the research population (Sundram et al., 2016). For this study, respondents completed an online questionnaire by themselves, chosen for its convenience, low cost, minimal resource requirements, and quick completion time (Verma et al., 2024). The questionnaire was distributed and shared through WhatsApp. Respondents had the flexibility to fill out the questionnaire at their most convenient time. Instructions on the Google Form guided respondents on how to complete the survey and its purpose, and ensured confidentiality, encouraging accurate and thoughtful responses. This method allowed respondents to express their personal feelings about the questions without external influence or constraints.

In exploring the multifaceted dimensions of employee well-being and organizational dynamics, this study integrates several foundational measures. Specifically, the concept of work-life balance is examined through the lens of Jaharuddin and Zainol (2019), utilizing a comprehensive 10-item scale that captures the essence of balancing professional and personal life. Additionally, the assessment of workload is derived from the work of Omar et al. (2021), incorporating a 10-item metric that evaluates the volume and intensity of work-related tasks. The work environment is conceptualized based on the 6-item framework proposed by Ekabu et al. (2018), while the phenomenon of burnout is scrutinized using a 5-item scale from Chen et al. (2019), allowing for a nuanced understanding of employee exhaustion and disengagement. Each part used Likert-scale responses (5 = Strongly Agree, 1 = Strongly Disagree) to assess certain features of the variables.

Descriptive statistics were used to summarize the data on participant demographics, variable scores, and

relationships between variables. Cronbach's alpha was employed to assess the internal consistency of the items within each scale measuring the independent and dependent variables. This statistical test evaluated how well the items in a set were positively correlated with each other and measured the same underlying concept. By ensuring adequate internal consistency for each variable, researchers could be more confident in the accuracy of their measurements and the validity of their findings from the subsequent multiple regression analysis. Finally, multiple regression analysis was conducted to test the hypothesized relationships between work-life balance, workload, and work environment as predictors of teacher burnout intention. This analysis allowed researchers to examine the relative influence of each independent variable on burnout.

4. Results and Discussion

Table 1: Demographic Profile (n = 332)

Category	Details
Gender	Female: 50.6% (n=168) Male: 49.4% (n=164)
Age	41-45 years: 19.9% (n=132) 46-50 years: 19.9% (n=132) 30-35 years: 9.6% (n=32) 51-55 years: 16.3% (n=54)
Ethnicity	Malay: 54.5% (n=181) Chinese: 25.6% (n=85) Indian: 16.9% (n=56)
Marital Status	Married: 73.8% (n=230) Single: 28.6% (n=95)
Educational Qualifications	Degree: 73.8% (n=245) Master's: 16.6% (n=55) Diploma: 8.7% (n=29)
Professional Roles	Ordinary Teachers: 53.0% (n=176) Subject Committees: 35.8% (n=119) Headmasters: 11.1% (n=37)
Salary Levels	RM6501-RM7500: 27.4% (n=91) RM5501-RM6500: 24.7% (n=82) RM4501-RM5500: 14.8% (n=49)

The demographic profile (Table 1) of the participants revealed a diverse composition. In terms of gender, the distribution was nearly equal, with 50.6% female (n=168) and 49.4% male (n=164) teachers contributing to the study. The age distribution showcased a predominant presence of teachers in the age brackets of 41-45 and 46-50 years, each constituting 19.9% of the sample (n=132). Additionally, noteworthy groups included teachers aged 30-35 years (9.6%, n=32) and 51-55 years (16.3%, n=54). Ethnically, the majority of participants identified as Malay (54.5%, n=181), while significant representations were observed among Chinese (25.6%, n=85) and Indian (16.9%, n=56) teachers. Marital status varied, with the majority being married (73.8%, n=230), while a substantial portion comprised single teachers (28.6%, n=95). In terms of educational qualifications, a substantial proportion held a degree (73.8%, n=245), followed by those with a master's degree (16.6%, n=55), and a smaller contingent with a diploma (8.7%, n=29). Regarding professional roles, ordinary teachers constituted the majority (53.0%, n=176), with significant representation from those involved in Subject Committees (35.8%, n=119) and Headmasters (11.1%, n=37). The distribution of salary levels indicated a majority falling within the RM6501-RM7500 range (27.4%, n=91), followed by RM5501-RM6500 (24.7%, n=82), and RM4501-RM5500 (14.8%, n=49).

In the multiple regression analysis (Table 2), the focus shifts to burnout providing valuable insights into the nuanced relationships between various workplace factors and employees' experiences of burnout. This step sheds light on how specific predictors contribute to the levels of burnout and emphasizes their significance in understanding the dynamics within the organizational context.

Table 2: Results of Multiple Regression (Burnout as the Dependent Variable)

Model	Standardized Coefficients β	Sig.
(Constant)		.000
Work-Life Balance	.431	.000
Workload	.391	.000
Work Environment	-.112	.002
F-Change	177.675	
Sig.	.000	
Adjusted R^2	.616	
R^2	.619	

Work-Life Balance

The positive relationship (β= 0.431, p < 0.01) between work-life balance and burnout suggests that as employees perceive an improvement in their work-life balance, there is a concurrent increase in reported levels of burnout. This finding prompts a closer examination of the intricate interplay between personal and professional life, indicating that an apparent balance might not necessarily mitigate the experience of burnout for individuals. Previous studies by Wanamaker (2018) and Zhang et al. (2022) have underscored the critical importance of examining variables like work-life balance (WLB) in the context of employee well-being. The current study builds upon this foundation by confirming a positive relationship between work-life balance and burnout among teachers. The implications of this positive association are profound, suggesting that as work-life balance deteriorates, burnout levels increase. This implies that addressing work-life balance issues directly influences burnout levels, subsequently mitigating the likelihood of teachers contemplating leaving their positions.

Workload

The positive association (β= 0.391, p < 0.01) between workload and burnout underscores the impact of the demands placed on employees. As workload intensifies, individuals are more likely to experience heightened levels of burnout. This observation highlights the importance of workload management and the potential consequences of excessive demands on employees' well-being. Extending the narrative to workload, existing research, as highlighted by Lee and Kim (2020), consistently emphasizes the impact of workload on burnout. The current study aligns with these established findings, illustrating a positive relationship between workload and burnout among teachers. This connection emphasizes that heightened work demands contribute to increased burnout levels. In other words, excessive workload not only directly influences turnover intention but does so significantly through its effect on burnout.

Work Environment

The negative relationship (β= -0.112, p < 0.05) between work environment and burnout introduces a contrasting dynamic. A positive work environment appears to be associated with lower levels of burnout. This insight emphasizes the role of organizational climate and culture in shaping the psychological well-being of employees, indicating that a supportive and conducive work environment may act as a protective factor against burnout. Turning attention to the work environment, the study aligns with the broader literature, including the work of Steiner and Woo (2021), emphasizing the significance of the work environment regarding burnout and turnover intention among teachers. The findings from the current research suggest a negative relationship between the work environment and burnout. A supportive work environment appears to act as a buffer against burnout, highlighting the importance of organizational culture, leadership, and interpersonal dynamics in shaping teachers' well-being. This implies that an unfavorable work environment not only directly impacts turnover intention but does so significantly through its association with increased burnout levels. Implementing strategies to enhance the work environment, such as fostering a positive workplace culture and providing adequate support, emerges as a key avenue for addressing burnout.

The coefficient of determination (R^2) standing at 0.619, signifies that the combined influence of work-life balance, workload, and work environment explains approximately 61.9% of the variance in burnout. This substantial proportion reinforces the relevance of these factors in understanding the complexities of burnout

within the studied context. The F-statistic ($F = 177.675$, $p < 0.001$), indicates that at least one of the predictors significantly contributes to explaining the variance in the dependent variable. the regression coefficient was .903 for constant and .361 for work-life balance, work environment -.126 and workload .322 proving the regression coefficients support and quantify the relationships between the independent variables (work-life balance, work environment, and workload) and the dependent variable. The signs and significance of these coefficients provide evidence that better work-life balance and higher workload are positively associated with the dependent variable, while an improvement in the work environment is negatively associated. It reinforces the idea that these specific workplace factors are crucial elements to consider when examining and addressing burnout among employees.

The intricate relationships between work-life balance, workload, work environment, and burnout. The positive and negative associations underscore the need for a comprehensive approach to employee well-being, acknowledging the delicate balance between workload, personal life, and the organizational environment. These findings contribute valuable insights for organizations aiming to create a supportive work environment and mitigate the detrimental effects of burnout among their workforces. These findings underscore the critical role of burnout in influencing teachers' decisions to stay or leave their positions. By expanding the understanding of the intricate relationships between work-life balance, workload, work environment, and burnout this research contributes valuable insights that can inform targeted interventions and policies aimed at improving the overall well-being and retention of teachers within educational settings.

5. Conclusion, Limitations and Recommendations for Future Research

One pivotal recommendation is the development and implementation of comprehensive well-being programs. These initiatives should be meticulously crafted to target the specific dimensions identified in the analysis, namely work-life balance, workload management, and the creation of a conducive work environment. Educational institutions should collaborate with experts in organizational psychology and employee well-being to design programs that resonate with the unique challenges faced by teachers. Such programs could include workshops, seminars, and training sessions that provide practical strategies for achieving a better work-life balance. Additionally, they should offer guidance on effective workload management techniques and emphasize the importance of maintaining a positive work environment. By integrating these elements into well-being programs, educational institutions can proactively address the root causes of burnout. Addressing excessive workloads is paramount in mitigating burnout among teachers. Policymakers and educational leaders must prioritize resource allocation to ensure that teachers have the necessary support and tools to fulfill their roles effectively. This includes investing in technology, educational materials, and support staff. By streamlining administrative processes and providing adequate resources, educational institutions can alleviate the burden on teachers and create an environment conducive to sustainable professional engagement. Moreover, it is crucial to establish mechanisms for ongoing assessment of workload distribution. Regular evaluations can identify areas where additional resources are required, allowing for timely interventions. By actively addressing workload concerns, educational institutions demonstrate a commitment to the well-being of their teaching staff. Fostering supportive work environments is a multifaceted recommendation that encompasses both cultural and structural aspects. Educational institutions should prioritize cultivating a culture where teachers feel valued, acknowledged, and empowered in their roles. Recognition programs, peer appreciation initiatives, and mentorship opportunities can contribute to a positive and supportive atmosphere. Additionally, opportunities for career enhancement should be integrated into the professional development framework. This can include mentorship programs, leadership training, and pathways for advancement. When teachers perceive a clear trajectory for career growth within the educational institution, it enhances their job satisfaction and diminishes the likelihood of burnout. In conclusion, these recommendations are interconnected and form a holistic approach to addressing burnout among teachers. Well-being programs serve as a proactive measure to equip educators with the necessary tools, while resource allocation and the creation of supportive work environments act as foundational pillars for sustained well-being. By implementing these recommendations collectively, educational institutions and policymakers can foster a resilient and empowered teaching workforce, ultimately benefiting the entire education system.

One promising direction for future research involves the implementation of longitudinal studies. While the study provides valuable insights into the current state of teacher well-being, longitudinal analyses can offer a

more nuanced understanding of the temporal dynamics. By tracking the impact of interventions over an extended period, researchers can assess the sustainability of positive changes and identify potential fluctuations or challenges that may arise over time. This longitudinal lens is crucial for discerning the lasting effects of well-being programs and their implications for long-term retention. To deepen their understanding, future research should extend beyond the variables investigated in the study. Exploring additional factors that may influence burnout is essential for a comprehensive perspective. Variables such as perceived competence, teacher identity, and communication dynamics represent untapped dimensions that can significantly contribute to the complexity of teacher well-being. By integrating these variables into the research framework, researchers can uncover nuanced insights into the multifaceted nature of teacher experiences and tailor interventions to address a broader spectrum of contributing factors. Another avenue for future research involves conducting comparative analyses across diverse educational settings. While the study provides valuable insights within a specific context, extending the research to different educational environments allows for a broader understanding of the generalizability of findings. Educational systems vary significantly, and factors influencing teacher's well-being may differ based on institutional structures, cultural contexts, or regional disparities. Comparative analyses enable researchers to identify commonalities and unique challenges, facilitating the customization of interventions to suit the specific needs of diverse educational settings. In conclusion, these proposed directions for future research align seamlessly with the overarching goal of refining the comprehension of teacher well-being. Longitudinal studies provide a temporal dimension, exploring the sustainability of interventions, while the exploration of additional variables adds layers of complexity to the understanding. Comparative analyses offer a broader perspective, ensuring that insights are applicable across diverse educational landscapes. By collectively addressing these avenues for future research, researchers can contribute to the continuous evolution of evidence-based strategies for enhancing teacher retention and fostering a resilient and thriving educational workforce.

The study on teacher well-being and burnout provides valuable insights; however, it encounters significant limitations. Primarily, its sample size and composition, confined to specific demographics, may restrict the generalizability of its findings beyond the studied context. Additionally, the study's cross-sectional design limits the ability to infer causality or changes over time. The study on teacher well-being and burnout provides useful insights, although it has significant limitations. First of all, the sample size and complexion, which are constrained to certain demographics, may limit the findings' generalizability beyond the examined setting. The study's cross-sectional methodology makes determining causality difficult, requiring a more nuanced viewpoint through a longitudinal perspective. Second, reliance on self-reported data involves possible response bias, and the limited emphasis on teachers may restrict the findings' application to other professions. External factors that influence teacher well-being, such as economic issues, are omitted. The study's recommendations for well-being programs do not address their long-term impact, and the subjectivity of burnout measures complicates matters. Recognizing these limitations is vital for developing methods and guiding future research to comprehensively address the diversity of teacher experiences.

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Examining the Influence of Macroeconomic Factors and Corporate Governance on Firm Performance in the ACE Market

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Abstract: This study focused on investigating the impact of macroeconomic factors and corporate governance on the financial performance of firms listed on the ACE Market of Bursa Malaysia. The ACE Market serves as a platform for smaller, emerging companies, providing them with an opportunity to raise capital with less stringent requirements compared to the Main Market. Using a panel data set of 72 companies over the period 2018-2022, the research employed panel-corrected standard errors (PCSE) regression. PCSE is a panel regression model that accounts for contemporaneous correlations, corrects for deviations from spherical errors, and enhances inference from linear models. The analysis revealed that ACE market companies, on average, show a negative return on equity (ROE) but positive numbers of women (NOW) and board meetings (NOM). The PCSE regression results, however, failed to show a statistically significant relationship between NOW and ROE, suggesting that the presence of women on the board of directors does not significantly impact the firm performance. The findings provide valuable insights for the firms in the ACE market companies regarding the consideration of important factors in improving firm performance. The research's broader goal is to inform the development of strategies fostering enhanced overall performance and sustainability in the ACE market. The study also suggests several recommendations such as broadening the scope and inclusion of international trade dynamics variables.

Keywords: *Firm performance, Corporate Governance, Macroeconomics Factor, consumer product and services sector, ACE Market*

1. Introduction and Background

The health and effectiveness of a firm are evaluated through financial performance, which considers assets and sales (Siddiqui, YuSheng, & Tajeddini, 2023). Internal stakeholders assess this measure to gauge the well-being of the firm, while external stakeholders use it to evaluate its performance. There are two types of analysis used: technical analysis based on market statistics and fundamental analysis based on financial statements (Brealey and Myers, 1991). According to Kyere and Ausloos (2021), a company's strong financial performance draws investors and helps decision-makers. Additionally, affects market reactions and is essential for risk assessment to improve a company's standing in the marketplace, drawing clients, financiers, and possible workers. In this study, Return on Equity (ROE) has been used as the measure of firm performance. ROE measures both the profitability and efficiency of a corporation in managing its growing capital. ROE indicates the company's ability to earn significant profits without needing to increase capital. Efficient evaluation of the firm may be achieved by monitoring the rise in ROE, as it indicates the ability to generate significant profits without requiring more cash (Purwohandoko & Iriani, 2021).

Macroeconomic variables play a pivotal role in understanding and foreseeing overall financial execution. These components are external to the organization and lie outside the realm of management's control. Bobenič-Hintošová, Bobenič, Hajduová, and Szajt (2020) highlight GDP as a degree of a country's total production value, while inflation rates demonstrate the overall cost of products and services. In addition, corporate governance's relationship with business performance is a crucial focus of empirical and theoretical research in the field of corporate studies. Corporate governance has gained prominence and evolved as a crucial tool in recent decades (Guluma,2021). The rapid expansion of privatizations, the recent global financial crises, and the advancement of financial institutions have strengthened the enhancement of corporate governance procedures. Efficient corporate governance processes are crucial for enhancing business performance since they enhance its reputation, boost investor trust, and minimize the likelihood of fraudulent behavior (Nguyen & Dao, 2022).

Bursa Malaysia plays a pivotal role in Malaysia's economic development by providing two distinct segments: the Main Market and the ACE Market. The Main Market caters to well-established businesses, while the ACE

Market focuses on facilitating fundraising for smaller, emerging enterprises. Established in 2009, the ACE Market offers startups a platform to secure additional funding with its flexible standards. This fosters economic growth by providing smaller companies the opportunity to thrive. Bursa Malaysia's significance in capital formation and as a venue for IPOs further emphasizes its crucial role in supporting Malaysia's economic progress (Saddam et al., 2021). However, the performance of ACE market companies is impacted by various macroeconomic and corporate governance factors, posing challenges for the whole market. The objective of this research is to examine the relationships and contribute to the existing body of research. This process will uncover gaps and offer valuable perspectives for enhancing performance. It aims to pinpoint precise areas for improvement.

The main objective of this study is to analyze the factors that affect firm performance, enabling companies to make well-informed decisions regarding corporate governance and navigate the macroeconomic landscape. The goal is to devise strategies that improve performance and ensure sustainability in the consumer product and services sector of the ACE market. The consumer products sector has been selected since this sector is vital to the global economy because of its tight ties to other sectors. It is the foundation of many nations' economies and a major contributor to the country's GDP. It also catalyzes other sectors of the economy, particularly the retail and advertising sectors.

Both Corporate government and macroeconomics variables are crucial in determining the form performance. The agency theory demonstrates the crucial role of corporate governance in aligning the interests of stakeholders and enhancing the financial performance of the company. Through the implementation of effective control and supervision mechanisms, corporate governance can mitigate conflicts of interest and enhance the value for shareholders. Effective governance structures enable organizations to access information quickly to make an informed decision. Additionally, economic variables that are associated with improvements in income distribution include higher growth rates, higher income levels, higher investment rates, real depreciation (particularly in low-income countries), and improvements in the terms of trade. The variables are also highly associated with firm performance. Therefore, this study aims to examine the contribution of macroeconomic variables and corporate governance to firms in the ACE market.

2. Literature Review

Financial Performance

Financial performance may be defined as the efficiency with which a corporation makes profits, encompassing several other aspects as well. It reflects all the contributing components to profitability, both individually and collectively. Financial performance is crucial for the organization's overall performance. The statement evaluates the financial health and sustainability of the organization by assessing its potential to generate money from its assets (Fatihudin & Mochklas, 2018). Financial ratios are commonly used to assess a company's financial health and forecast its performance, according to Masa'deh, Tayeh, Jarrah & Tarhini (2015). Financial ratios are the predominant method of performance evaluation in the field of finance (Naz & Ijaz, 2016). Typically, investors and creditors are primarily concerned with a firm's financial performance as it offers insights into the firm's economic status, ensuring the safety and profitability of their investments. Various stakeholders, including management, investors, and lenders, will evaluate a business's financial performance from different perspectives and with specific goals. Therefore, a business's financial success cannot be accurately assessed using only one measure. Various metrics, both individually and jointly, are utilized to conduct this evaluation (Fatihudin & Mochklas, 2018). Financial performance significantly influences growth potential, as well as the success and failure of commercial organizations. It is a crucial factor in all economic decision-making. ROA and ROE are often used metrics by investors, creditors, and managers to measure a company's financial success (Samiloglu, Oztop, & Kahraman, 2017). This study uses ROE as a financial performance indicator.

Macroeconomics Factors

Macroeconomics is a field of economics that examines the whole behavior of an economy, encompassing markets, businesses, consumers, and governments (Egbunike & Okerekeoti, 2018b). Macroeconomics originates from the Greek prefix makro, meaning "large," and economics. It is a field of economics that focuses on the overall performance, structure, behavior, and decision-making of the economy (Egbunike & Okerekeoti,

2018). The connection between macroeconomic conditions and corporate performance is intricate, demonstrated by the inconclusive findings in past studies. It assesses the performance of an economy, identifies affecting variables, and predicts future performance. Macroeconomic factors such as GDP, and interest rates impact corporate performance (Soukhakian & Khodakarami, 2019). GDP quantifies the total worth of goods and services generated in a nation, and interest rates establish the fee for using assets. Numerous research has examined the connection between macroeconomic conditions and publicly listed companies' performance; yet experts have produced inconsistent results (Romus, Anita, Abdillah, & Zakaria, 2020).

Gross Domestic Product (GDP)

GDP is the aggregate value of all products and services generated within a country's economy during a specific period. It comprises all end products and services created by economic entities within a country, irrespective of ownership, and not intended for resale (Egbunike & Okerekeoti, 2018). The economic well-being of nations and its effects on different industries can be effectively evaluated through the Gross Domestic Product (GDP), making it a critical measure. A decrease in GDP has the potential to result in a diminished impact. The profitability of a company can be adversely impacted by a decrease in credit demand, whereas a growing economy is often associated with positive GDP growth (Tanaka, Bloom, David, & Koga, 2020). This correlation is particularly relevant for microfinance customers. To reduce the effects of local economic fluctuations, it is recommended to limit financial market integration. This approach is particularly beneficial during periods of economic decline as it helps protect consumer interests. As per Mwangi (2013), GDP is a commonly applied macroeconomic statistic that gauges the whole economic activity in an economy; its growth rate is indicative of the economic cycle's condition. It serves as the primary indicator of output and economic activity globally.

Interest rate

Interest rates are the cost that a borrower incurs for using money borrowed from a lender or the charge associated with borrowed assets. The firm’s performance is closely related to interest rates, as higher rates affect global liquidity (Miles & Ezzell, 1980). The study highlights the importance of corporate funding strategies, stating that in an ideal situation, a company's revenue generation technique is less important than its assets. Despite the expense, borrowing money is considered a wise decision due to the tax benefits loans provide, making them more appealing (Miles and Ezzell, 1980). The liquidity principle emphasizes the significance of interest rates in managing the balance between desired cash reserves and their actual availability. This theory encourages economic growth by encouraging investment and savings (Bondinuba, Bondinuba, Opoku, Owusu-Manu, & Mittal, 2022).

Corporate Governance

Corporate governance has become a crucial tool for improving corporate performance in response to the global financial crisis, emphasizing the need for strong corporate governance practices and frameworks. Corporate governance problems have garnered significant study interest over the years due to their possible impact on the performance of enterprises in both developed and emerging countries (Puni & Anlesinya, 2019). Corporate governance encompasses rules and protocols that oversee a company, ensuring a balance between the interests of stakeholders. It covers all facets of management, serving as the basis for attaining a company's objectives, including action plans, performance evaluation, and corporate transparency (Al-Ahdal, Alsamhi, Tabash, & Farhan, 2020). Having a strong foundation of high-quality corporate governance is crucial for enhancing the enduring effectiveness and viability of enterprises. Enhanced corporate governance enhances an organization's reputation, boosts shareholder trust, and reduces the risk of fraud. The board of directors (BoD), external and internal audits, management, audit committee, and ICM are crucial elements of effective corporate governance that aid in detecting anomalies at an early stage of the project life cycle. Corporate governance varies among companies and countries, but the main goals remain consistent: to attain profitability, ensure outstanding performance, and supervise management to safeguard shareholders' interests. Inadequate or unsuitable corporate governance may result in abuses, fraud, and negative outcomes (Alabdullah, Ahmed, & Kanaan, 2022).

Board Meeting

Studies on the frequency of board meetings and their influence on business performance have produced varied results. The empirical findings indicate that the frequency of board meetings typically has a beneficial influence on financial success. Similarly, many researchers (Lipton and Lorsch, 1992; Jensen, 1993) have suggested that

rare board sessions may not allow members enough opportunity to address important concerns. Frequent board meetings can enhance the performance of listed firms in Ghana by effectively reducing conflict of interest and agency costs. These meetings allow board members to assess and suggest improvements to the policies and programs implemented by the management. Kanakriyah (2021) found an initial negative correlation indicating a harmful impact on performance, followed by an improvement a year later. Pucheta-Martínez and Gallego-Álvarez (2020) discovered favorable correlations between board meeting frequency and firm performance, highlighting improved consultation, oversight, and management. Khan, Al-Jabri, and Saif's (2021) study of 328 Malaysian publicly listed enterprises found a correlation between higher board meeting frequency and lower performance.

Gender diversity

The impact of gender diversity on corporate performance has been widely studied. Various theoretical frameworks suggest that gender diversity can enhance a company's success. Gender diversity is believed to impact corporate performance by introducing a variety of skills, knowledge, experience, views, values, and leadership styles (Galbreath, 2018). Rahman, Zahid, and Al-Faryan (2023) discovered that having women in leadership roles led to higher financial reporting conservatism and lower tax aggression. Faccio, Marchica, and Mura (2016) observed a negative correlation between the presence of female CEOs and corporate risk-taking and leverage. Moreover, female CFOs were linked to lower company risk and more cautious financial reporting.

Hypotheses

H_1 - There is a relationship between gender diversity and a firm's financial performance.
H_2- There is a relationship between board meetings and the firm's financial performance.
H_3 - There is a relationship between Gross Domestic Product and the firm's financial performance.
H_4 - There is a relationship between Interest Rate and the firm's financial performance.

3. Research Methodology

Sample and data

The research sample is centered on the ACE Market companies in Malaysia. This study focused on 72 publicly listed firms that met specified requirements, particularly those in the consumer products and services industry. The data for this study was gathered by selecting the accessibility of the firm's financial information. The macroeconomic and ROE data for five years (2018 to 2022) is retrieved by using Refinitiv Eikon Datastream. The corporate governance variables data is retrieved from the annual reports of the firms. The output of the panel dataset for this study is 276 observations at the firm level.

Table 1: Variables measurement

Variables (abbreviations)	**Explanation**
Dependent variable	
Return on equity (ROE)	Net income / Total equity
Independent variables	
Macroeconomics	
Growth domestic product rate (GDP)	GDP Growth
Interest rate (INTEREST)	
Corporate governance	
Board meeting (NOM)	Number of meetings
Gender diversity (NOW)	Number of women/Total number of board members

Figure 1: Research Framework

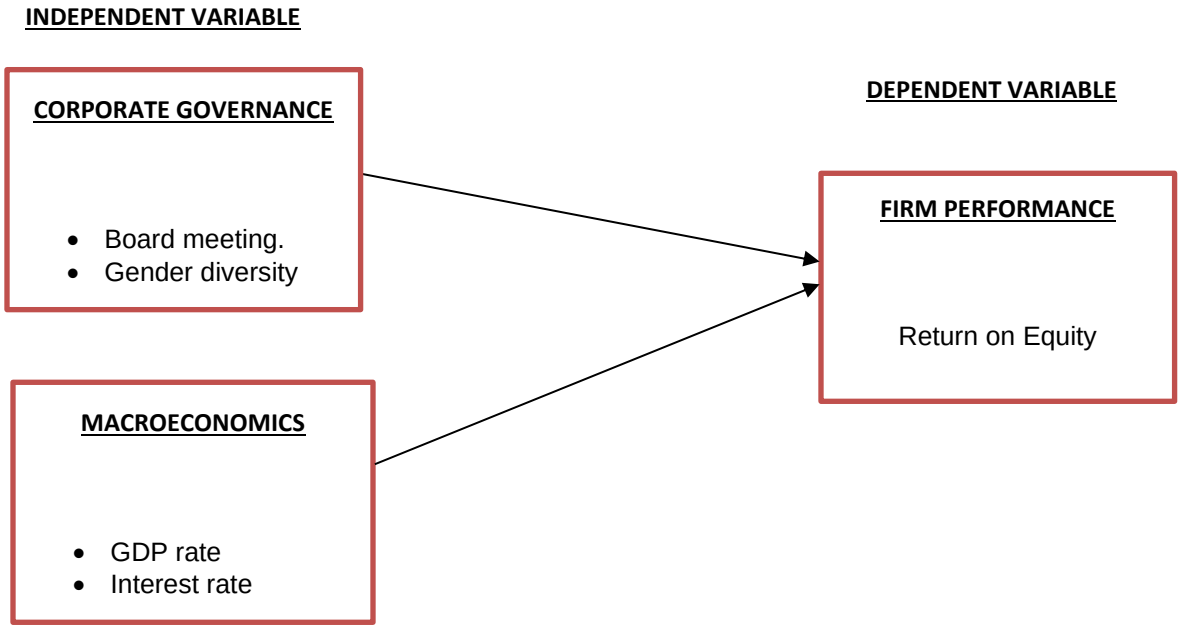


Figure 1 shows the research framework which consists of four independent variables, and one dependent variable. The independent variables are grouped into two categories which are macroeconomics and corporate governance. Macroeconomic variables consist of GDP rate (GDP), and interest rate (INTEREST). The corporate governance variables consist of board meetings (NOM) and gender diversity (NOW). Meanwhile, the dependent variable, the firm performance is measured by using ROE.

Regression model

The study examines whether microeconomics and corporate governance have impacts on performance. The dependent variable of firm performance is ROE. According to Hair, Blck, Babin, and Aderson (2009), the expression in the methodology is based on the underlying hypotheses (serial correlation and heteroscedasticity) that were tested. Applying the regression formula as follows. $FP\ (ROE_{it}) = a_0 + \beta\ \ INFR_{it} + \beta_2 GDP_{it} + \beta_3 INTR_{it} + \beta_4 NOM_{it} + \beta_5 NOW_{it} + \varepsilon_{it}$

4. Results

This study uses the return on equity, number of women, number of meetings, GDP, inflation rate, and interest rate to analyze financial success. The World Bank and Bursa Malaysia provided the data, which will be analyzed between 2018 and 2022. 72 businesses from Bursa Malaysia's ACE market are included in this research. This section shows results for descriptive statistics, correlation, and regression.

Descriptive statistics

The descriptive statistics for each variable are compiled in this study for the sample period of 2018 to 2022. The average (median) scores in our sample are 13.51 (12.5), 5.59 (5.00), 5.29 (4.84) and 14.10 (13.12) for NOW, NOM, GDP, and interest respectively. The variable of interest rate shows a greater score in comparison to the NOW, NOM, and GDP. Furthermore, the measurement of financial performance reveals that the mean (median) value of ROE is -0.082 (-0.035). According to Table 2 below, the descriptive analysis results for ACE market businesses listed on Bursa Malaysia show significant conclusions. The average Return on Equity (ROE) shows a negative performance, with significant variability among enterprises. Corporate governance, as assessed by the number of women (NOW), demonstrates a reasonable level, highlighting diversity. The number of meetings (NOM), shows a low level of variability, suggesting a well-balanced performance among organizations. The Malaysian GDP growth rate has a mean of 5.28%, indicating a minimal fluctuation in economic conditions. The statistical metrics offer a thorough analysis, highlighting the need to investigate the

elements affecting ROE, NOW, NOM, GDP, and INTEREST within the ACE market to enhance comprehension of firm performance. The descriptive data provide insights into the features of interest rates in Malaysia. The average interest rate is 14.09%.

Table 2: Descriptive Statistics

	Mean	Median	Max	Min	SD	Observations
ROE	-0.082	-0.035	0.220	-0.770	0.175	360
NOW	13.511	12.500	54.550	0.000	12.836	360
NOM	5.589	5.000	13.000	2.000	1.474	360
GDP	5.285	4.843	8.694	3.092	2.073	360
INTEREST	14.092	13.120	16.290	12.450	1.473	360

Correlation analysis

Table 2 displays the results of the correlation analysis for the independent and dependent variables. NOW, NOM, GDP and INTEREST have significant and negative correlations with ROE. As no variables correlate 0.70, there is no multicollinearity problem exists in the data.

Table 3: Correlation analysis

	ROE	NOW	NOM	GDP	INTEREST
ROE	1				
NOW	-0.062	1			
NOM	-0.271***	-0.105*	1		
GDP	-0.040	0.034	-0.038	1	
INTEREST	-0.057	0.029	0.114*	-0.047	1

Notes: Standard errors *, **, and *** indicate significance at 10%, 5% and 1% respectively.

Regression analysis

Table 4 reports the findings of the panel-corrected standard error (PCSE) regression for this study. The PCSE deals with the cross-sectional dependence problem in the data. In panel data analysis, Panel-Corrected Standard Errors (PCSE) address a critical concern: cross-sectional dependence. This arises when error terms across different cross-sectional units (e.g., countries, firms) are correlated, violating the standard regression assumption of independence. This violation leads to underestimated standard errors, inflating confidence in potentially spurious results, and potentially biased coefficient estimates. PCSE rectifies this issue by explicitly incorporating information about cross-sectional correlations into the variance estimation process. This results in robust standard errors that accurately reflect the uncertainty surrounding the estimates, even in the presence of dependence. Consequently, PCSE leads to more reliable statistical inference and potentially improved model fit (Beck & Katz, 1995).

Table 4: Regression analysis

Dependent Variables	**ROE**
Independent Variables	**Random Effect Model**
NOW	-0.00 (0.199)
NOM	-0.032*** (0.006)
GDP	-0.006*** (0.000)
INTEREST	-0.007*** (0.000)
Constant	0.237*** (0.000)
R^2	0.668
F	8.597*** (0.000)
Hausman Test	4.000 (1.000)
Wald Chi^2	470.98*** (0.000)

Notes: Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.1.

Based on Table 4, the regression analysis was to examine whether the performance of ACE market enterprises in Malaysia is affected by characteristics such as the number of women (NOW), number of meetings (NOM), Gross Domestic Product (GDP), and interest rate (INTEREST). The R-squared value of the model is merely 0.02, indicating that the model explains only 2 percent of the variation in ROE. The adjusted R-squared, which accounts for the number of predictors in the model, is negative (-0.008), suggesting that the model performs worse than an intercept-only model. Additionally, the F-statistic, which assesses the overall significance of the model, is 0.36 with a p-value of 0.876, indicating that the model lacks explanatory power.

The coefficients for all independent variables are negative, suggesting an inverse relationship with the performance of the company. The coefficients of NOM, GDP, and interest rate are statistically significant, as indicated by the p-values less than 0.05. It shows that these variables are significant at 95 percent confidence intervals. The negative relationship between the number of women and firm performance has a similar result to the previous study by Kweh, Ting, Zhang, and Hassan (2019). The result of several meetings with firm performance contrasts with the study of Buchdadi (2019). The attendance of a board meeting by a board of directors also has a statistically positive association with firm performance. The significant and negative relationship between GDP and firm performance is consistent with Sairin, Salisi and Bujang (2020). The interest rate shows a negative significant relationship, which is consistent with the findings by Bruyland, Lasfer, Maeseneire, and Song (2019).

Discussion

The results of this study shed light on the relationship between macroeconomic factors and corporate governance with financial performance. Results reveal that NOM, GDP, and interest rate have a negative significant relationship with the firm's performance. This aligns with existing literature that suggests that fluctuations in macroeconomic variables can exert considerable influence on corporate performance (Issah & Antwi, 2017). This is because the low NOM, GDP and interest rate have an impact on the firm's performance. However, only GDP and interest rate have a good relationship with firm performance. Moreover, the positive relationship between GDP and interest rates with firm performance highlights the nuanced dynamics at play within the macroeconomic landscape. While low GDP growth may signal economic stagnation and reduced consumer spending, thereby impacting firm revenues, it also indicates lower inflationary pressures and

potentially lower operating costs for firms (Tanaka, Bloom, David, & Koga, 2020). Similarly, while higher interest rates may increase borrowing costs for firms, they also reflect a strong economy with robust demand, which can boost overall corporate performance. ACE market companies are high-growth performance companies and some of them have not fully implemented the corporate governance elements. Hence, the H_2, H_3 and H_4 are supported based on the result in this study.

5. Managerial Implications and Recommendations

The study has several limitations that can be considered in future research. Firstly, the sample size of 72 firms from the consumer product and services sector may not be fully representative of the entire ACE market. Using a larger and more diverse sample could enhance the generalizability of the findings. Secondly, relying solely on ROE as a measure of firm performance might overlook multidimensional aspects. Including additional indicators like market value or innovation could offer a more comprehensive understanding. Furthermore, the use of short periods may limit statistical power and reduce the precision of estimates or tests. Therefore, future studies may consider the period beyond five years. Lastly, future research in the ACE market should explore the influence of international trade dynamics, including variables like currency rates and global supply networks in the context of growing globalization. Studying the impact of digital transformation on strategy and operations would offer significant insights. Moreover, studying corporate social responsibility (CSR) practices and their impact on business performance is crucial due to increasing stakeholder worries. Lastly, investigating whether leadership styles and organizational culture influence corporate performance might reveal the impact of the human element on the success of ACE market enterprises. This research has the potential to enhance comprehension and provide practical benefits for everyone involved.

Conclusion

Superior financial results are frequently cited as a key advantage of adopting excellent corporate governance practices and favorable macroeconomic conditions. Theoretically, this study contributes to the existing literature by providing evidence that not only firm-specific but country-specific variables are also crucial for maintaining the firm's competitiveness and sustainability. Companies that prioritize effective corporate governance may experience increased shareholder value due to better cash flow and decreased cost of capital. Companies with poor corporate governance systems are unable to provide long-term wealth generation for shareholders because the governance mechanisms are insufficient to hold leaders responsible for their management. Ultimately, in this study, the company's performance may be enhanced by primarily focusing on the number of meetings, GDP, and interest rate as key variables. This study aims to examine the impact of macroeconomics and corporate governance factors on business performance. The data for this research was obtained from 72 enterprises listed on the ACE market in Malaysia between 2018 and 2022. The study's results show that NOM, GDP, and interest rate are the most influential variables that can improve corporate performance if managed properly. Methodologically, this study contributes by using panel-corrected standard error (PCSE) for estimation which helps to cope with the problem of cross-sectional dependence. The study's results have significant consequences for management. Practically, the study's results aid firm stakeholders, decision-makers, policymakers, and academics in understanding the relationship between NOM, GDP, interest rates, and business performance. The study's findings demonstrate that firms may mitigate avoidable risks. Additionally, the results of this study might provide the foundation for future research in the field of corporate finance.

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Empirical Evidence on Tourism, Geopolitical Risk and Economic Policy Uncertainty Relationships in Malaysia

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Abstract: Malaysia, celebrated for its rich cultural diversity, vibrant cities, and pristine natural landscapes, stands prominently on the global tourism map. However, the tourism industry is susceptible to the impact of geopolitical risk and economic policy uncertainty. These external factors, shaped by global events and policy changes, can significantly influence the tourism landscape in Malaysia. Given this significance, the study aims to empirically investigate the cointegrating relationship between international inbound tourism levels (tourist arrivals), geopolitical risk (GPR index), and economic policy uncertainty (EU index) in Malaysia. The analysis uses quarterly observations from the first quarter of 2000 to the fourth quarter of 2022. The study employs the Granger Causality test, supported by structural VAR impulse functions and variance decomposition analysis to illustrate how economic policy uncertainty responds to shocks in tourist arrivals. The significant causal relationship observed moves from tourist arrivals to economic policy uncertainty. In other words, the study implies that variations in tourist arrivals have a lasting impact on economic policy uncertainty but not necessarily on geopolitical risk. This study provides valuable implications for policy planning and decision-making. Policymakers should consider the implications of shifts in tourism patterns for economic policy uncertainty. The absence of a long-term relationship between tourist arrivals and geopolitical risk may suggest conducting separate risk assessments to manage geopolitical risks that may affect the tourism industry in Malaysia.

Keywords: *tourism, economic policy uncertainties, geopolitical risk, VAR impulse function, Malaysia*

1. Introduction and Background

Research in the tourism area is of paramount importance in today's globalized and interrelated world. It comprises a multidisciplinary field that investigates various aspects of tourists' attraction factors, travel services, accommodations, hospitality, and policies and their impacts on tourists, communities, economies, and the environment. According to the World Travel and Tourism Council (2021), travel and tourism are two of the world's largest and most important sectors, comprising approximately 80% of small and medium-sized enterprises (SMEs). The sector holds significant importance in promoting socio-economic development, job creation, and empowering women, youth, and other societal groups in many countries. In light of the high interdependence of the global landscape, it has become imperative for all countries to become crisis-ready, especially in times of high uncertainty. It is worth noting that the primary concern is not about the type of crisis that happens but rather about the preparation, management, and responses by the affected economies.

Malaysia's economy is highly dependent on international trade. The level of the country's exports contributes significantly to a portion of its GDP. Based on statistics provided by the World Bank, as of 2022, the country's international trade accounted for 141% of the total GDP. Despite the relatively low level of geopolitical risk and economic policy uncertainty index in the country, these factors remain significant for Malaysia's economic condition. This is because any disturbance in global trade, regardless of regional conflicts, trade disputes, or international tensions, can directly affect Malaysia's economic well-being. In addition, Malaysia also depends on tourism and foreign direct investment (FDI) to increase its economic growth. Geopolitical risk and economic policy uncertainties may affect tourists' and foreign investors' willingness to spend money and invest in the country.

This study aims to analyze the significance of geopolitical risk and economic policy uncertainties concerning the Malaysian economy. Specifically, this study examines the tourism sector to fill the gap in existing research

regarding the impacts of geopolitical risk and economic policy uncertainties on the tourism market. Following Caldara and Iacoviello (2022), this study defines the geopolitical risk index as a measure of adverse geopolitical events and associated risks based on a tally of newspaper articles that cover geopolitical tensions and their evolution and economic effects since 1900. The economic policy uncertainty index, as defined by Ahir et al. (2022), is determined by the frequency of the word 'uncertainty' in quarterly Economist Intelligence Unit country reports. Specifically, these two indices highlight words related to threats and uncertainty as reported in various global reports and newspapers. Past literature in the same study area lacked a standardized approach for quantifying uncertainty (Zhang et al., 2022). In addition, the importance of geopolitical factors in shaping macroeconomic outcomes has not been the subject of systematic empirical analysis (Caldara and Iacoviello, 2022). The creation of the geopolitical risk (GPR) and economic policy uncertainty (EPU) indices provides additional evidence linking economic policy uncertainty and geopolitical issues.

The contribution of this paper to the literature is twofold. First, we contribute to the limited body of literature on the nexus between GPR and tourism using unified and recently developed measures of uncertainty lacking in earlier literature. The advantage of using unified measures of uncertainty in the study of tourism demand is that our model can provide stronger affirmation of the tourism-led growth hypothesis which can contribute to the more contextual discussion of the empirical evidence about the link between uncertainty in geopolitical conditions, economic policy and tourism track the effect of GPR on the economy more closely in real-time. Second, we employ the structural VAR impulse response function to demonstrate how economic policy uncertainty reacts to a shock in the number of tourist arrivals. To the best of our knowledge, no other study has been conducted to validate the impact of geopolitical tensions and economic policy uncertainty on international inbound tourist arrivals in the context of Malaysia. In addition, the use of robust econometric techniques such as the structural VAR model and impulse response function may result in a model with greater explanatory power about the variations in tourist arrivals in response to changes in geopolitical risk level and economic policy uncertainty. The remaining sections of the paper are organized in the following manner: Section 2 examines the relationships between GPR, EPU, and tourism as discussed in past literature. Section 3 explores data sets and research methodology. The findings and analysis are located in Section 4, followed by Section 5, which provides a conclusion to the article along with observations on the policy implications of the findings.

2. Literature Review

International Inbound Tourism in Malaysia: Malaysia has been a popular tourist destination, attracting millions of international tourists annually. As of 2022, Malaysia has recorded 10,070,964 tourist arrivals, which is over a 100% increase from 2020 (Malaysia Tourism Promotion Board, 2022). Considering the post-pandemic period, Malaysia has shown commendable growth in tourist arrivals after the two-year hiatus due to the global COVID-19 pandemic. Key sources of international visitors for Malaysia in 2022 were Singapore, Indonesia, Thailand, India, and Brunei. Malaysia possesses a diverse range of attractions, including its cultural diversity, pristine beaches, lush rainforests, and vibrant cities. Among the popular destinations are Pahang, Perak, Selangor, Johor, and Kedah. Besides attractive destinations to visit, Malaysia is also known for its cultural diversity, which includes a blend of Malaysian, Chinese, Indian, and indigenous influences. The multicultural setting has also allowed the country and visitors to celebrate its diversity through various cultural festivals, religious practices, and culinary delights, which have a significant influence on tourists' perceptions and as a tourism product (Samsudin and Fuza, 2021; Muzaini, 2018). The tourism industry in Malaysia, like many others, also faces challenges such as global economic changes, natural disasters, and most recently, the COVID-19 pandemic. In addition, factors involving geopolitical risk and economic uncertainty also affect the Malaysian tourism industry.

Geopolitical Risk and Tourism: Geopolitical risk (GPR) can be defined as the shifts in the relationships between countries or regions (Mokdadi and Saadaoui, 2023) and is a global phenomenon, continuously flowing and interconnected from one country to another (Hasan et al., 2020). Geopolitical risk rises with shifts in the geographic and political factors influencing country relations. Things that happen may be caused by political, economic, or security factors in a specific country which may adversely affect the tourism industry. Geopolitical risks can significantly discourage tourists from visiting a country. Tourists are more inclined to choose safer travel destinations. The presence of a higher level of safety at the travel destination has been found to have a

positive correlation with the destination image. It was found by Gavurova et al. (2023) that a higher level of destination safety may be associated with a more positive destination image. In addition, this sense of safety among tourists is constructed at different travel stages not only before a trip but also during and after a trip (Zou and Yu, 2022). Tourists' perceptions during and after a trip may develop a nostalgia effect. Unfavorable travel experiences perceived by tourists may dissuade revisit intention as a result of the high level of disappointment risk which may contribute to negative nostalgia for the visitors (Hu and Xu, 2021). Hence, it can be said that tourists' decisions to revisit may decrease in a heightened-risk environment. Proper risk identification and management to encourage tourists' revisit activities are critical to attract foreign investment and capital flow in the tourism sector.

Past studies on geopolitical risks and the tourism industry have been concentrated in several areas, including examining the effect of geopolitical risks on stock returns and studying the relationship between geopolitical risks and various economic measures. Regarding stock return performance, geopolitical risks have shown significant predictive power for the returns and volatility of tourism stocks (Raheem and Le Roux, 2023), particularly for emerging economies under normal market conditions (Hasan et al., 2020). These findings suggest that geopolitical risks play a substantial role in influencing the tourism sector. Zhang et al. (2022) proposed that the impact of geopolitical risks on tourism was greater than the effect of economic policy uncertainty, based on their study during the global financial crisis. Additionally, empirical results from Demir et al. (2019) indicated that geopolitical risks negatively affect inbound tourism. A standard deviation shock in geopolitical risk may contribute to more than a 10% variation in tourism income (Hailemariam and Ivanovski, 2021), with this negative effect persisting in both the short and long run (Saint Akadiri et al., 2020). Regardless of the positive connections between nations, increased geopolitical danger could make them less effective in attracting foreign visitors (Wujie, 2023). In summary, these findings collectively underscore the substantial impact of geopolitical risks on the tourism sector, economic measures, and visitor arrivals, with implications for both short- and long-term outcomes.

Economic Policy Uncertainty and Tourism: Economic policy uncertainty can be defined as unanticipated changes that affect the economic system that could lead to changes in governmental fiscal, political, regulatory, and monetary policies (Al-Thaqeb et al., 2022). Economic policy uncertainty significantly affects the demand for international tourism, particularly during major events such as the subprime crisis, Euro-crisis, and pandemics (Doğan et al., 2023). Payne et al. (2023) found a negative impact of economic policy uncertainty on international tourist arrivals in coastal countries. Uncertain economic policies tend to decrease the number of international tourist arrivals, potentially impacting the region's economic growth and residents' income (Uzuner et al., 2020). Some studies suggest a long-term effect of economic policy uncertainty on tourist arrivals (Ongan and Gozgor, 2018), while others highlight a short-term impact (Tiwari et al., 2019). Ongan and Gozgor's (2018) investigation into Japanese tourist arrivals in the United States from 1996 to 2015 revealed that a one-standard-deviation increase in the Economic Policy Uncertainty Index led to a notable and persistent 4.7% decrease in Japanese tourists visiting the US. This effect weakens over time, especially with an increased lag period (Álvares et al., 2007). In contrast, Tiwari et al. (2019), examining tourist arrivals in India, suggested that economic policy uncertainty primarily affects tourist arrivals in the short term. The variation in the timing of the impact could be attributed to differences in the economic class of the sample countries (developed vs. developing) used by these researchers.

Previous literature predominantly suggests a unidirectional impact of economic policy uncertainty on international tourist arrivals. Nevertheless, a bidirectional relationship may exist between economic policy uncertainty and international tourist arrivals. Simply put, tourist arrivals can contribute to reduced economic policy uncertainty. Both inbound and outbound tourism have the potential to foster economic growth (Tsung-Li et al., 2022), instilling confidence in businesses, investors, and the general population and thus lowering uncertainty about future economic conditions. It is crucial to note that the positive impact of the tourism industry on economic growth is primarily driven by factors such as tourist attractions (Zhang and Zhang, 2023), tourism revenues (Soylu, 2020), and higher tourist expenditure (Usmani et al., 2021) in the visited country, rather than solely by the number of tourist arrivals. Exploring potential bidirectional interactions between economic policy uncertainty and tourist arrivals in developing countries, as suggested by some literature, could provide a more comprehensive understanding of the dynamics involved. Therefore, this study aims to contribute additional evidence in the context of developing countries, using Malaysia as the study sample.

3. Research Methodology

Dependent Variable: The dependent variable is represented by the term "tourist arrivals" or TA. The unit of measurement is the number of tourists. This study considers the quarterly observations from the first quarter of the year 2000 to the fourth quarter of the year 2022. The data source for TA is the official Tourism Malaysia website, which can be accessed at the following URL: https://www.tourism.gov.my/statistics.

Explanatory Variables: Geopolitical risk, proxied by GPR, is one of the main explanatory variables used in this study. In addition to GPR, the Economic Uncertainty Index, represented by the EU variable, is also employed as an explanatory variable. The quarterly observations for GPR are obtained from datasets downloaded from http://www.policyuncertainty.com/gpr.html. This index was developed by Caldara and Iacoviello (2022) and represents the measure of adverse geopolitical events based on several newspaper articles covering geopolitical pressures. The second main explanatory variable, EU quarterly data, was obtained from the Datastream database, referring to the relative frequency of own-country newspaper articles containing a trio of terms related to the economy, policy, and uncertainty.

This study contributes to the existing literature by investigating the interconnections between Geopolitical Risk (GPR) and Economic Uncertainty (EU) and their impact on the tourism sector. The aim is to estimate the significance of GPR and EU in the growth of the tourism sector by examining their roles as crucial determinants of international inbound tourist arrivals to Malaysia. For both GPR and EU, values are normalized by the total number of words and rescaled by multiplying by 1,000, using the average of the base year's data until the most recent data equals 100. A value greater than 100 indicates higher levels of risk, while a lower index value suggests a lower level of risk.

Control variables, following Ghosh (2002), include economic growth proxied by the industrial production index (IP), exchange rate (EX), inflation (CPI), and trade openness (EM), computed by dividing exports by imports. The data source for IP is the Department of Statistics Malaysia (DOSM), retrieved from https://open.dosm.gov.my/. Imports and export data for computing the EM variable were collected from the DOSM database. The data source for EX is the Bank for International Settlements (BIS), available at https://data.bis.org/topics/EER/data. According to BIS, real effective exchange rates measure the international competitiveness of components of financial condition indices and are calculated as geometric trade-weighted averages of bilateral exchange rates adjusted by relative consumer prices. Similar to EM, CPI data were also collected from the DOSM database. According to DOSM, CPI measures the cost of purchasing a constant 'basket' of goods and services by households in a specified period relative to a base period (year 2010 = 100). For all variables, the period of observations is quarterly, from 2000 until 2022.

Table 1 displays the descriptive statistics of the data, whereas Table 2 illustrates the correlation between variables. According to the data in Table 1, we observe that most of the variables (except TA and EX) have a positive skewness. The variable with the lowest standard deviation is GPR, while CPI has the highest standard deviation. The correlation matrix in Table 2 reveals that there is a positive relationship between TA and GPR, whereas a negative relationship is observed between TA and EU variables. Furthermore, there is also a negative relationship between industrial production and tourist arrivals.

After selecting the variables, we checked for multicollinearity, which occurs when independent variables in the regression model are highly correlated with each other. Ignoring multicollinearity may result in a vague, imprecise, and unreliable model. Correlation coefficients exceeding 0.8 indicate severe multicollinearity. Based on Table 2, the correlation value between IP and CPI variables is the highest, with a value of 0.98. To further test for multicollinearity with these variables in the model, we used variance inflation factors (VIF) in this study. Table 3 shows that the average VIF value is greater than 10 when CPI and IP variables are included in the same model. By removing the CPI variable (with the highest VIF value) from the existing model, the average VIF score is then reduced to 2.16, indicating that there is no severe multicollinearity in the model. Given these findings, CPI will be excluded in the subsequent analyses to address the multicollinearity issue.

Table 1: Descriptive Statistics

Variables	Mean	Median	Std. Dev.	Skewness	Kurtosis
TA	4,715,383	5,388,534	2,037,286	-0.94	2.97
GPR	0.04	0.03	0.05	6.14	49.47
EU	0.14	0.09	0.16	1.77	5.99
EM	1.19	1.19	0.06	0.13	2.49
EX	110.50	112.15	7.31	-0.32	1.94
IP	102.00	100.20	13.52	0.11	1.94
CPI	102.95	103.28	14.99	0.00	1.64

Table 2: Correlation Matrix

Variables	TA	GPR	EU	EM	EX	IP	CPI
TA	1.00						
GPR	0.01	1.00					
EU	-0.33***	0.00	1.00				
EM	-0.46***	-0.22**	0.27***	1.00			
EX	0.21**	0.14	-0.10	0.01	1.00		
IP	-0.48***	0.04	0.25*	-0.03	-0.82***	1.00	
CPI	0.15	-0.07	0.03	-0.31***	-0.73***	0.98***	1.00

Table 3: Variance Inflation Factors

	CPI and IP in the same model		Excluding CPI from the model	
Variables	VIF	1/VIF	VIF	1/VIF
GPR	1.31	0.89	1.31	0.76
EU	1.11	0.76	1.11	0.89
EM	2.02	0.49	1.42	0.70
EX	5.87	0.17	3.50	0.28
IP	32.72	0.03	3.47	0.28
CPI	46.77	0.02	NA	NA
Mean VIF	14.97		2.16	

Model Estimation: This study explores how tourism in Malaysia is impacted by the geopolitical risk index and economic policy uncertainty. To avoid the problem of omitted variable bias, this study includes selected control variables, which encompass industrial production, inflation, effective exchange rate, and trade openness. The general functional forms for exploring the impact of geopolitical risk and economic policy uncertainty on tourism are expressed in equations (1) and (2).

$$TA_t = f(GPR_t, EM_t, EX_t, IP_t, \epsilon_t) \cdots\cdots \quad (1)$$

$$TA_t = f(EU_t, EM_t, EX_t, IP_t, \theta_t) \cdots\cdots \quad (2)$$

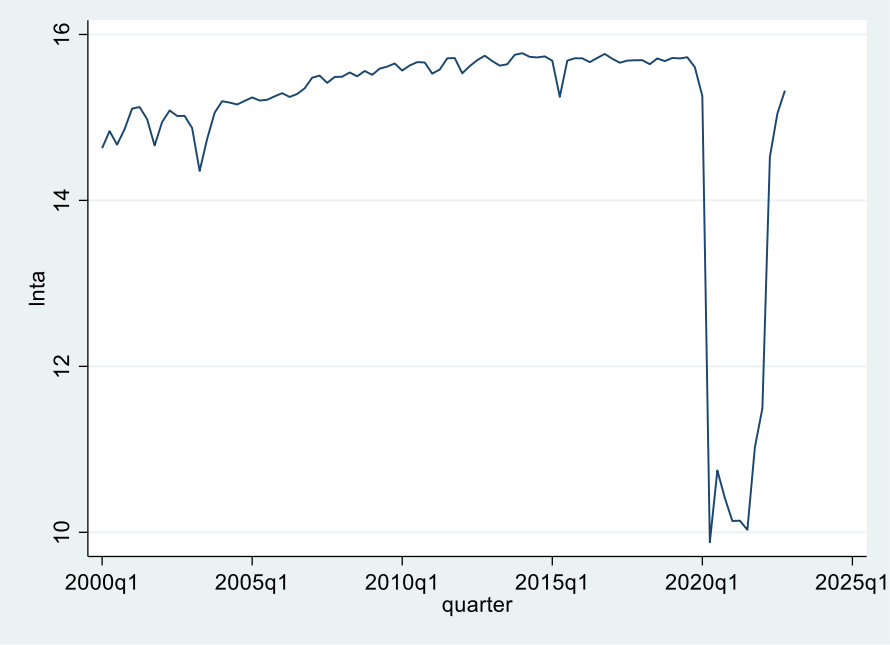
Here, TA denotes tourist arrivals, GPR is the geopolitical risk index, EU is the economic policy uncertainty index, EM is the ratio of exports to imports, EX is the effective exchange rate, IP is industrial production, while ϵ_t and θ represents the usual error term for equations (1) and (2), respectively. An increase in geopolitical risk and economic policy uncertainty is expected to result in negative reactions to tourist arrivals. An increase in geopolitical risk and economic uncertainty, coupled with a rise in the exchange rate and inflation, will consequently lead to a slowdown in the tourism business due to the increase in the cost of buying the currencies of visited countries. Additionally, the rising cost of living contributes to this slowdown. On the other hand, a rise in industrial production will have a positive impact on tourism because it will lead to the growth of

businesses that support the sector. In addition, growing import and export activities will also have a positive effect on the tourism sector. It is inferred that when consumers have a higher propensity to spend, there will be increased travel and tourism activities.

Unit Root Testing: Before employing any time series method, it is imperative to confirm the stationarity of the series. Failure to consider the stationarity of time series data in the analysis may lead to spurious regression, subsequently resulting in the model's failure to predict the data across different time intervals (Granger and Newbold, 1974). In this study, the Augmented Dickey-Fuller unit root test (ADF test) (Dickey and Fuller, 1979) and the Phillips-Perron unit root test (Phillips and Perron, 1988) are used to assess the stationarity of the collected series.

Zivot And Andrews Unit Root Test with One Structural Break: In identifying the structural break in the series, we apply the Zivot and Andrews (ZA) unit root test with one structural break. The results in Figure 1 show that tourist data in Malaysia has one breakpoint in the model, which is in the year 2020, quarter 1 (2020q1 in the graph). The ZA model can be stated as in equation (4).

Figure 1: Total number of tourist arrivals in Malaysia from the year 2000 (Qtr 1) until 2022 (Qtr 4)



$$H_0: y_t = \mu + y_{t-1} + e_t \quad (3)$$

$$H_1: y_t = \hat{\mu} + \hat{\theta} DU_t(\widehat{T_b}) + \hat{\beta} t + \hat{\gamma} DT_t(\widehat{T_b}) + \hat{\alpha} y_{t-1} + \sum_{j=1}^{k} \hat{c_j} \Delta y_{t-j} + \hat{e_t} \quad (4)$$

As shown in equation (3), the null hypothesis for the Zivot-Andrews unit root test is that the series has a unit root with a drift that excludes exogenous structural change. The model allows for a change in the intercept and a break in the trend. Similar to conventional Dickey-Fuller unit root test equations, the test equations include the k-lagged differences of y to eliminate the effect of the error correlation structure on the asymptotic distribution of the statistics. DU_t is a dummy variable indicating changes in the intercept, and DT_t is another dummy variable explaining the change in the trend occurring at time T_b. T_b is the break date. The null hypothesis is rejected when α is statistically significant.

Cointegration analysis: In practice, many economic and financial variables contain one unit root and are thus I(1). Cointegration between variables exists when a linear combination of them is stationary, even if the individual variables have unit roots and are non-stationary. A cointegrating relationship may also be seen as a long-term or equilibrium phenomenon. Although cointegrating variables can deviate from their relationship in

the short run, their association tends to return in the long run (Brooks, 2019).

To test the cointegrating relationship between TA, GPR, EU, EM, EX, and IP, this study employed the Engle-Granger 2-step method (Engle and Granger, 1987). This method recommends a two-step procedure for cointegration analysis. In the first step, we ensure that all individual variables are stationary after first differencing. Next, the cointegrating regression is estimated using Ordinary Least Squares (OLS). The residuals of the cointegrating regression are denoted as $\widehat{u_t}$ are saved before conducting a unit root test on these residuals to confirm that they are I(0). Once it is confirmed that the residuals of the cointegrating regression are I(0), step 2 can be conducted. However, if the residuals are I(1), the models will be estimated using only the first differences. In this study, it was found that the residuals of the cointegrating relations were all I(0).

In the second step, the residuals obtained in step 1 are used as one variable in the error correction model, as stated in equation (5).

$$\Delta y_t = \beta_1 \Delta X_t + \beta_2(\hat{\mu}_{t-1}) + v_t \quad (5)$$

Where $\hat{\mu}_{t-1} = y_{t-1} - \hat{\tau} X_{t-1}$. The stationarity, a linear combination of non-stationary variables is also known as a cointegrating vector. (1-$\hat{\tau}$) is called the cointegrating vector. The null hypothesis of no cointegration can be precluded when the Z(t) test value is less than the critical value by at least a 5% confidence level.

In this study, additional control variables used in the system, excluding any constant term, may increase the number of variables to k. Consequently, there could be up to r linearly independent cointegrating relationships, where r ≤ k-1. To address this, the study complements the Engle-Granger cointegration test with the Johansen cointegration test.

Granger Causality Test: After establishing the long-run relationship between tourist arrivals and geopolitical and economic uncertainties, this study further investigates dynamic causality among TA, GPR, and EU. The causality analysis is based on the Vector Error Correction Model (VECM), and the Granger Causality Test is applied. Equation (6) represents the VECM model.

$$\Delta \begin{bmatrix} TA_t \\ X_t \\ EM_t \\ EX_t \\ IP_t \\ CPI_t \end{bmatrix} = \begin{bmatrix} \gamma_1 \\ \gamma_2 \\ \gamma_3 \\ \gamma_4 \\ \gamma_5 \\ \gamma_6 \end{bmatrix} + \sum_{i=1}^{m} \Delta \begin{bmatrix} \theta_{11i} & \theta_{12i} & \theta_{13i} & \theta_{14i} & \theta_{15i} & \theta_{16i} \\ \theta_{21i} & \theta_{22i} & \theta_{23i} & \theta_{24i} & \theta_{25i} & \theta_{26i} \\ \theta_{31i} & \theta_{32i} & \theta_{33i} & \theta_{34i} & \theta_{35i} & \theta_{36i} \\ \theta_{41i} & \theta_{41i} & \theta_{41i} & \theta_{41i} & \theta_{41i} & \theta_{41i} \\ \theta_{51i} & \theta_{51i} & \theta_{51i} & \theta_{51i} & \theta_{51i} & \theta_{51i} \\ \theta_{61i} & \theta_{61i} & \theta_{61i} & \theta_{61i} & \theta_{61i} & \theta_{61i} \end{bmatrix} \times \begin{bmatrix} TA_{t-1} \\ GPR_{t-1} \\ EM_{t-1} \\ EX_{t-1} \\ IP_{t-1} \\ CPI_{t-1} \end{bmatrix} + \begin{bmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \\ \delta_4 \\ \delta_5 \\ \delta_6 \end{bmatrix} (ECT_{t-1}) + \begin{bmatrix} \mu_{1t} \\ \mu_{2t} \\ \mu_{3t} \\ \mu_{4t} \\ \mu_{6t} \\ \mu_{7t} \end{bmatrix} \quad (6)$$

Where Δ is the differences operator, ECT_{t-1} is the one-period lagged error correction term, derived from the cointegrating vector. Xt is the main regressor in this study which are GPR and EU, $\mu_{1t}, \mu_{2t}, \ldots$ and $represent$present the residual terms. The above VAR contains six variables in the first differenced form of the left-hand side, and t-1 lags of the dependent variables in the right-hand side, each with the coefficient matrix attached to it. The statistical significance of ECT_{t-1} explains the long-run Granger causality behavior, while Wald's test statistics demonstrate the short-run dynamics. As a robustness check, variance decompositions and impulse response functions (IRFs) results are also presented in this study.

4. Results and Discussion

Unit Root Test and Cointegration: In this section, this study analyzed and presented the empirical findings. The analysis began with stationarity tests on the identified series. The Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), and Zivot-Andrews (ZA) unit root tests were employed for this purpose. The ZA unit root test was also used to account for the presence of a structural break in the TA series. The findings, as indicated in Tables 4 and Table 5, confirm that the variables display integration of order I(1). Since the variables are integrated at order I (1), the cointegration test was performed.

Table 4: Unit root test ADF and Phillips Perron (PP) tests

At level	ADF test	Results	PP test	Results
TA	-2.30	Non-stationary	-2.59	Non-stationary
GPR	-5.70***	Stationary	-5.72***	Stationary
EU	-5.73***	Stationary	-5.65***	Stationary
EM	-3.99***	Stationary	-3.76***	Stationary
EX	-0.75	Non-stationary	-0.89	Non-stationary
IP	-1.35	Non-stationary	-1.13	Non-stationary
CPI	-0.34	Non-stationary	-0.35	Non-stationary
First difference	**ADF test**	**Results**	**PP test**	**Results**
ΔTA	-9.29***	Stationary	-9.33***	Stationary
ΔGPR	-12.97***	Stationary	-15.59***	Stationary
ΔEU	-11.76***	Stationary	-13.03***	Stationary
ΔEM	-11.75***	Stationary	-13.35***	Stationary
ΔEX	-8.47***	Stationary	-8.44***	Stationary
ΔIP	-12.49***	Stationary	-13.87***	Stationary
ΔCPI	-8.79***	Stationary	-8.77***	Stationary

Note: *** and ** indicate that the finding is significant at 1% and 5% level, respectively.

Table 5: Zivot-Andrews Test Results

At level	Break date (TB)	k	t	Inference
TA	2016q4	2	-3.66	Non-stationary
GPR	2008q1	2	-3.80	Non-stationary
EU	2019q2	0	-5.99	Stationary
EM	2016q4	2	-3.10	Non-stationary
EX	2012q2	0	-2.83	Non-stationary
IP	2017q4	0	-5.73	Non-stationary
CPI	2017q1	0	-3.27	Non-stationary
First difference	**Break date (TB)**	**k**	**t**	**Inference**
ΔTA	2019q2	0	-9.63	Stationary
ΔGPR	2004q3	3	-8.21	Stationary
ΔEU	2004q3	2	-8.40	Stationary
ΔEM	2012q3	2	-8.273	Stationary
ΔEX	2003q4	0	-8.559	Stationary
ΔIP	2020q3	0	12.529	Stationary
ΔCPI	2006q2	3	-6.562	Stationary

Notes:
Critical values: 1%: -4.93; 5%: -4.42; 10%: -4.11
The null hypothesis for Zivot-Andrews's test is the series has a unit root with a structural break.

The results of the Engle-Granger cointegration test are displayed in Table 6. The null hypothesis of no cointegration is rejected based on the lower test statistic values compared to the critical value at the 5% level. Tourist arrivals are found to be cointegrated with GPR and EU. In the case where there are only two variables in the equation, y_t and x_t, there can be at most only one linear combination of the independent and dependent

variables (given the direction of the relationship is from x_t to y_t). However, in this study, we have other control variables in the system (ignoring any constant term) that may increase the number of variables to k. In this case, there may be up to r linearly independent cointegrating relationships (where r ≤ k-1). To address this, we supplement the Engle-Granger cointegration test findings with Johansen cointegration test results.

Table 6: Engle-Granger Cointegration Test

Dependent	Independent variable	Test statistic	Critical value at 5% level	Inference
TA	GPR	-2.327	-3.404	No cointegration
TA	EU	-2.944	-3.404	No cointegration
TA	EM	-2.911	-3.404	No cointegration
TA	EX	-2.460	-3.404	No cointegration
TA	IP	-2.290	-3.404	No cointegration
GPR	TA	-5.745*	-3.404	Cointegration
EU	TA	-6.243 *	-3.404	Cointegration

Note: (*) shows rejection of the null hypothesis of no cointegration at a 5% level of significance.

The results of the Johansen cointegration test are presented in Table 7. For Model 1 and Model 2 results, it can be seen that the test statistic is smaller than the critical value for maximum rank 1. This indicates that we can reject the null hypothesis of no cointegration. In other words, we accept the null hypothesis that there is one cointegrating equation in both Model 1 and Model 2. Thus, we confirm the long-run cointegrating relationship across tourist arrivals, geopolitical risk, economic uncertainty, trade openness, exchange rate and economic growth.

Table 7: Johansen Cointegration Test Results

Model 1
$TA_t = f(GPR_t, EM_t, EX_t, IP_t)$

Maximum Rank	Eigenvalue	Trace statistic	Critical value
0	.	95.3105	68.52
1	0.59898	45.0550*	47.21
2	0.36654	19.9444	29.68
3	0.23693	5.0718	15.41
4	0.07246	0.9346	3.76

Model 2
$TA_t = f(EU, EM_t, EX_t, IP_t)$

Maximum Rank	Eigenvalue	Trace statistic	Critical value
0	.	95.3105	68.52
1	0.59898	45.0550*	47.21
2	0.36654	19.9444	29.68
3	0.23693	5.0718	15.41
4	0.07246	0.9346	3.76

The causality analysis of the relationship between Tourist Arrivals (TA), Geopolitical Risk (GPR), Economic Uncertainty (EU), Exchange Rate (EX), Equity Market (EM), and Industrial Production (IP) based on the Vector Error Correction Model (VECM) is presented in Table 8. The coefficient of the error correction term in the EU_t equation is negative and statistically significant. The significance of this coefficient indicates a unidirectional Granger causality from TA to EU. Therefore, this study concludes that changes in tourism are a cause of economic policy uncertainty in Malaysia.

Table 8: Granger-causality Wald test results

Panel A: Relationship between GPR and TA						
Dependent variable	$the \sum \Delta TA_{t-1}$	$\sum \Delta GPR_{t-1}$	$\sum \Delta EM_{t-1}$	$\sum \Delta EX_{t-1}$	$\sum \Delta IP_{t-1}$	ECM_{t-1}
Δ TA_t	-	0.0104	-1.9836	-0.4901	-1.1565	-0.1941
Δ GPR_t	0.0495	-	-1.5527	-2.7147	-0.4564	0.0870
Panel B: Relationship between EU and TA						
Dependent variable	$\sum \Delta TA_{t-1}$	$\sum \Delta EU_{t-1}$	$\sum \Delta EM_{t-1}$	$\sum \Delta EX_{t-1}$	$\sum \Delta IP_{t-1}$	
Δ TA_t	-	0.6885	-1.7552	-0.6717	-1.2118	-0.0592
Δ EU_t	-0.0127***	-	-0.3369***	0.1388	0.0036	-0.0572**

Note: (***), (**) and (*) denote significance at the 1%, 5%, and 10% levels, respectively.

After establishing the unidirectional causality relationship from Tourist Arrivals (TA) to Economic Uncertainty (EU), the study employs the structural VAR impulse response function to illustrate how economic policy uncertainty responds to a shock in the number of tourist arrivals. The results, depicted in Figure 2, demonstrate that during the initial stages, there is a rapid decrease of less than 0.1% in economic policy uncertainty when tourist arrivals increase by 1%. The reaction of the EU to a shock in TA becomes consistently stable after the first 10 periods. Figure 3 also presents, through the variance decomposition method, that the response of EU to a shock in TA stabilizes in the long run. By the second period, 5% of the variability in the EU is attributed to the shock in TA. These findings indicate that an increase in the tourist arrivals rate correlates with a decrease in economic policy uncertainty. The study suggests that elevated tourism levels contribute significantly to a country's revenue through taxes, fees, and tourist spending, fostering greater fiscal stability for the government and diminishing the likelihood of abrupt changes in the country's economic policy.

Figure 2: Impulse response of the economic policy uncertainty index

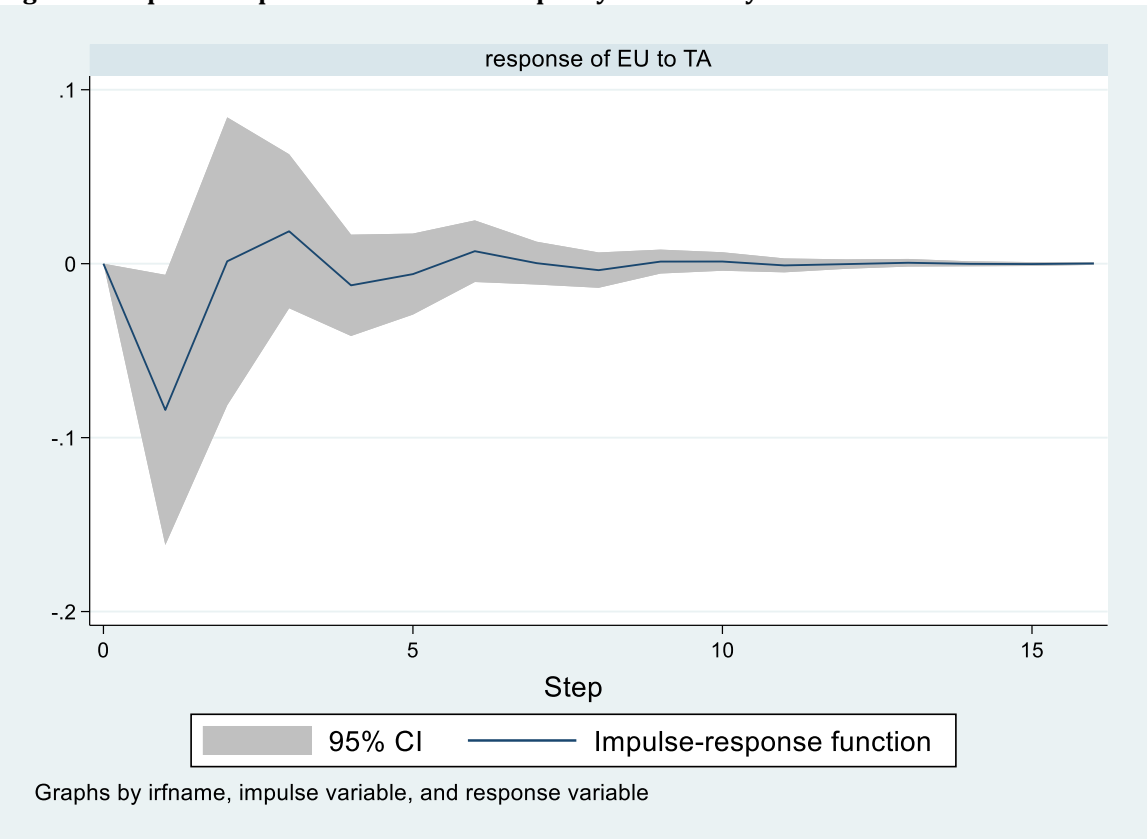
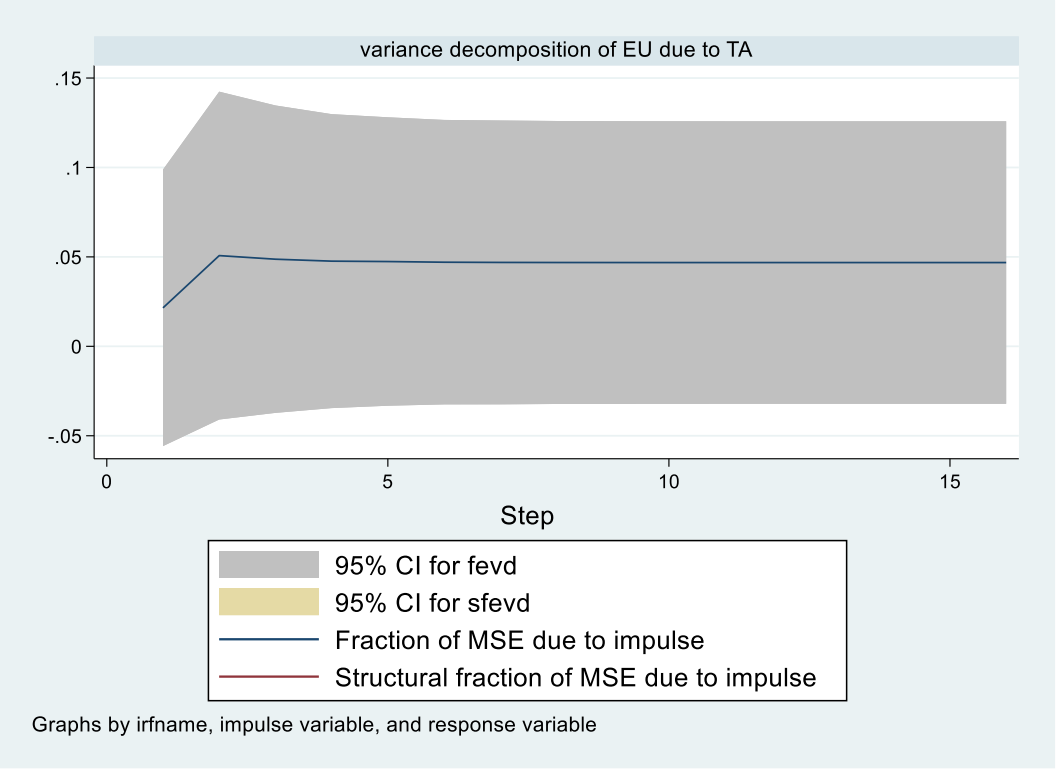


Figure 3: Variance decomposition of economic policy uncertainty index



Discussion: The results for the geopolitical risk variable show no significant long-term relationship between tourist arrivals and geopolitical risk. In the short run, there is a weak negative impact of geopolitical risk on Malaysian tourism, confirming previous findings by Syed et al. (2022) that the influence of geopolitical risk varies across countries, affecting some more significantly than others. These findings are also in line with Balli et al. (2019) study, suggesting that international tourists may not consider geopolitical risk seriously when deciding to travel, particularly for countries with appealing tourism destinations like Malaysia. The limited impact of geopolitical risks on tourist arrivals in Malaysia over the long run may be attributed to the significant appeal of the country's numerous destinations.

Findings from the analysis of causality reveal a cointegrating relationship between economic uncertainty and tourist arrivals. A decrease in tourist arrivals may lead to increased economic policy uncertainty in Malaysia, while a thriving tourism industry could contribute to economic stability and reduced uncertainty. These results align with the study by Akadiri et al. (2020), supporting a one-way causality relationship from international tourist arrivals to economic policy uncertainty, consistent with the tourism-economic policy uncertainty hypothesis.

This study also presents the results from the structural VAR impulse response function in Figure 2. The findings demonstrate that a rise in tourist arrivals quantitatively results in a rapid initial decrease (less than 0.1%) in economic policy uncertainty. This decrease remains relatively stable in the long run, with approximately 5% of the variability in economic policy uncertainty attributed to the impact of tourist arrivals (Figure 3). Overall, these results suggest that increased tourism in Malaysia corresponds to lower economic policy uncertainty. This is because the tourism industry significantly contributes to the country's revenue through taxes (Tovmasyan, 2021; Pole and Grizane, 2021), fees (Wu et al., 2017; Walpole et al., 2001), and tourist spending (Gavurova et al., 2020). This income remains relevant in boosting Malaysia's economy and reducing the likelihood of sudden changes in economic policy, as reported by Fuad and Puasa (2011).

5. Managerial Implications and Recommendations

This study provides valuable insights for policymakers and managers. The limited long-term impact of geopolitical risk on tourist arrivals suggests that policymakers can mitigate short-term effects by leveraging attractive destinations and implementing effective security measures to prepare for potential future risks. Furthermore, the study emphasizes that increased tourist arrivals contribute to fostering a stable economic policy environment. Businesses can benefit by aligning their strategies with a thriving tourism industry. Therefore, continuous efforts to support and promote tourism are vital for maintaining economic stability.

Conclusion

In this study, the researchers investigated the relationship among geopolitical risk, economic policy uncertainty, and tourist arrivals in Malaysia using quarterly data spanning from 2000 to 2022. The tourism industry's substantial contribution to Malaysia's GDP, with a 26.7% increase observed from 2021 to 2022, underscores the importance of understanding the interplay between various risk factors and tourist arrivals for potential insights into economic fluctuations.

Existing literature has consistently shown that escalating geopolitical tensions and economic policy uncertainty have adverse effects on tourist arrivals (Payne et al., 2023; Tiwari et al., 2019; Ongan and Gozgor, 2018). While previous studies have predominantly focused on the impact of geopolitical risk and economic policy uncertainty on tourist arrivals, there has been limited attention dedicated to comprehending how tourist arrivals might reciprocally influence these uncertainties. This study aims to address this gap in the existing literature.

The analysis, conducted using the GPR index developed by Caldara and Iacoviello (2022) and EU data sourced from the Datastream database, reveals a cointegrating relationship between economic uncertainty and tourist arrivals, contrasting with the absence of a similar relationship for geopolitical risk. Moreover, the findings indicate a unidirectional Granger causality relationship between tourist arrivals to changes in economic policy uncertainty. Specifically, a 1% increase in tourist arrivals results in a slight decrease (less than 0.1%) in economic policy uncertainty. This observation is attributed to the positive influence of heightened tourism on income generation from tourism activities, leading to a minor reduction in economic policy uncertainty. These consistent results are obtained across various robust econometric techniques, including the Johansen cointegration test, structural VAR model, impulse response function, and variance decomposition analysis. The study underscores the significance of recognizing the role of tourism industry growth in mitigating economic policy uncertainty, offering valuable insights for practitioners, policymakers, and investors.

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Factors that Influence Malaysian Muslim Travel Preferences

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Abstract: Tourism has become an important industry that contributes to a country's economy. Currently, the Muslim tourist segment is viewed as one of the important segments in the tourism industry. In addition, there has been a growing interest in understanding the preferences and motivations of Muslim travelers. This is due to the increasing number of Muslim travelers worldwide and the recognition that catering to their specific needs is essential for successful tourism development. The number of Muslim tourists from a Muslim-majority country increases significantly. Muslim travelers are looking for destinations in which the majority of the population are Muslims. This study is aimed to determine the factors that influence Muslim traveler preferences and to determine the most dominant factor that influences Muslim traveler preferences. Therefore, a survey of 100 Malaysian Muslim travelers in Shah Alam Selangor was done to determine the factors that influence Muslim traveler preferences. Statistical Package for Social Science (SPSS) is used to analyze the multiple regression to test hypotheses on the factors that influence Muslim traveler preferences. The result of the survey suggests that halal certification is a significant factor in explaining Muslim traveler preferences. The availability of halal food and Sharia-compliant hotels were found not to have a significant relationship with Muslim travel preferences. This study provides evidence of the detailed needs and preferences of Muslim travelers and enhances the knowledge of tourists, government, and service providers about Islamic tourism.

Keywords: *Islamic Tourism*, *Travel Preferences, Halal Food, Halal Certification, Sharia Compliant Hotel*

1. Introduction and Background

The development of the tourism industry shows tremendous improvements including the Muslim travel market. Islamic tourism has emerged as one of the tourism business concepts recently. Muslim travelers are searching for destinations that comprise of larger part of the Muslim community that can offer them a Halal-friendly tourism environment (Henderson, 2010). For the tourism industry, it is essential to understand the needs and preferences of Muslim travelers. As the Muslim travel market continues to grow, destinations and businesses need to cater to the diverse requirements of Muslim travelers. Muslims have been living in the way of Islamic teachings under the practical frame of Islamic religious principles. Therefore, the daily lives of each Muslim including eating and drinking are all approved by the religious rules or called halal. It is suggested that Muslim hospitality and services aren't just produced for Muslim travelers but in addition searching for non-Muslims which can be seen as a potential market portion (Zulkifli et al., 2011).

This involves not only providing halal food and prayer facilities but also being mindful of cultural sensitivities and offering experiences that align with Islamic principles. Muslim travelers are increasingly seeking spiritual tourism experiences. Muslim individuals' cognition and psychological well-being are influenced by the Islamic religion, which affects the choice of one's product preferences. Research on Muslim tourists showed that the Islamic religion is an attribute to travel satisfaction (Battour, 2012). Muslim travelers are increasingly seeking destinations that offer halal tourism experiences. This trend aligns with the global increase in Muslim tourists and the rising demand for halal tourism (Haq & Wong, 2010). In addition, through Islamic tourism, religious duty was executed as well as knowledge was achieved for a wider dimension (Bhuiyan et al., 2011).

2. Literature Review

Travel preferences: Tourists' destination decision-making relies on four variables; internal (push), external (pull), features of the trip and tourists' experience of their travel and the internal relationship between these variables (Uysal et al., 2009). Moreover, push factors are internal motives, often emotional in nature, that drive individuals to want to travel, to spend time with people they love or to immerse themselves in nature to relax (Battour et al., 2010). Muslim travelers decide their travel preferences complying with their beliefs (Hamza et

al., 2012). In addition, Islamic-friendly accommodation, halal food, and modest dress code as the preferences (Battour et al., 2011). People regularly define their motives for traveling by evaluating their inner needs or exterior factors, which encourage them to travel to an international destination. The variety of factors that influence tourism formed different types of tourism, such as holiday tourism, cultural tourism, social tourism, economic tourism and political tourism. Besides, the Shariah-compliant hotel or Islamic hotel is one of the motivations for Muslim travelers to go abroad (Albattat et al., 2018)

Availability of halal food: Halal is a part of Shariah as an arrangement of ethics to manage Muslims' activities and conduct, however, this ought not to be mistaken for halal as a component of a classified arrangement of Shariah law. Battour et al. (2010) in their studies have discussed the development of Islamic-oriented tourism standards, such as alcohol and gambling-free zones and the availability of halal food. Muslims have to choose to consume halal food since it encounters the requirements that they believe make it suitable for consumption. Azmin et al. (2015) give clear recommendations for providing food that fulfills Sharia laws. Moreover, the importance of Halal food has gained attention from some service providers in the Western tourism industry (Henderson, 2003). Hence, both tourism locations and providers of tourism services are responsible for guaranteeing Muslims are getting halal food as it is a mandatory obligation in Islam. Tourism locations are anticipated to make initiatives to meet Sharia rules concerning halal food obligations.
H1: There is a significant relationship between the availability of halal food and Muslim travel preference.

Halal certification: Firms, businesses or individuals who need to get or apply for halal certification and the halal logo have to a submit request to a halal certification body. Halal certification is a safety guarantee for Muslims to consume halal food products according to the teachings of Muslims (Nurcahyo & Hudrasyah, 2017). Halal certification bodies have the role of certifying products and ensuring that every product that has been submitted fulfills the requirements of Halal. Whenever a product acquires a Halal certification logo it increases customer's confidence to buy those products (Zakaria et al., 2017). In addition, Junaidi (2020) suggested that halal food certification significantly influenced Indonesia's tourism industry. Besides food, halal certification also comprises other items such as cosmetics, pharmaceuticals, and toiletries. The demand for halal requirements has an outcome in processing halal certification among business operators (Katuk et al., 2021).
H2: There is a significant relationship between halal certification and Muslim travel preference.

Sharia-compliant hotel: The key factor that determines travel to Islamic destinations is the readiness of Muslim-oriented amenities and services that provide for Muslim travelers and provide them with Islamic hospitality (Nassar et al., 2015). In addition, sharia-compliant hotel is a new innovative and creative service offered by hotels around the world (Azmin et al., 2015). The Islamic norms can influence Muslims' travel decisions such as destination choice, hotel selection, expectation of service, consumption of food, and preferences for activities that need to follow Islamic-friendly criteria. The Shariah-compliant hotel or Islamic hotel characteristic not only covers serving halal food and drink, but it extends to the management and operation of hotels based on Shariah principles (Shaharuddin et al., 2018).
H3: There is a significant relationship between Sharia-compliant hotels and Muslim travel preferences.

3. Methodology

The survey was conducted amongst Malaysian Muslim travelers residing in Shah Alam Selangor Malaysia. By using a quantitative study, a questionnaire was used to determine the factors that influence Muslim travel preferences. Therefore, a quantitative approach was used to conduct the study. Overall, 120 questionnaires were disseminated and 100 questionnaires stood meaningful for analysis purposes. The total of 100 respondents is sufficient to conduct analysis (Faul et al., 2009). The questionnaire was the main instrument for data collection. The questionnaire covered five sections. The first section was intended to gather the demographic profile of the respondents. The second part recognized the availability of halal food items (Golnaz et al., 2010). Next, the third section predicted halal certification items (Junaidi, 2020). The fourth section measured Sharia-compliant hotels (Albattat et al., 2018). Finally, the fifth section recognized Muslim travel preferences items (Battour et al., 2011). A five-point Likert scale, where 1= strongly disagree to 5 = strongly agree was used to measure the questionnaire items. Correlation coefficients were used to recognize the relationship between both dependent variables and independent variables. Furthermore, multiple regressions were applied to determine the significant factors that affect Muslim travel preferences.

4. Results

Profile of Respondents: Table 1 shows the demographic profile. In terms of demographic information, 62 percent were male and 38 percent were female. By age, the majority of respondents were 31 to 40 years old with 35 percent while 7 percent of respondents were below 20 years old. By marital status, 82 percent of respondents were married and the remaining 2 percent were single. In terms of monthly income, 38 percent of respondents had an income of more than RM5,000 while 2 percent of the respondents had an income between RM1,001 to RM2,000.

Table 1: Demographic Profile (n=100)

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Male	62	62%
Female	38	38%
Total	**100**	**100%**
AGE		
below 20 years old	7	7%
21–30 years old	14	14%
31–40 years old	35	35%
41- 50 years old	14	14%
50 years old and above	30	30%
Total	**100**	**100%**
MARITAL STATUS		
Single	18	18%
Married	82	82%
Total	**100**	**100%**
MONTHLY INCOME		
Below RM1000	13	13%
RM1001–RM2000	2	2%
RM2001–RM3000	14	14%
RM3001–RM4000	22	22%
RM4001- RM5000	11	11%
Above RM5000	38	38%
Total	**100**	**100%**

Reliability Analysis: Table 2 presents the reliability analysis for both independent variables and dependent variables. The variables are the availability of halal food, halal certification and sharia-compliant hotels, as well as travel preferences.

Table 2: Reliability Analysis

Variables	Cronbach's Alpha	Reliability Level
Travel Preferences	.617	Moderate
Availability of halal food	.686	Moderate
Halal certification	.928	Good
Sharia-compliant hotel	.952	Good

The interpretation of Cronbach's Alpha is based on Sekaran & Bougie (2013). The Cronbach's Alpha value for travel preference is 0.617, suggesting a moderate reliability result. In addition, Cronbach's Alpha for the availability of halal food is 0.686, signifying a moderately reliability level. The value of Cronbach's Alpha for halal certification is 0.928, representing a good reliability result. Lastly, the value of Cronbach's Alpha for shariah compliant hotel is 0.952, showcasing a good reliability result.

Correlation Analysis: Table 3 shows correlation analysis to prove the strength of a linear association between variables. The coefficient of correlation is applied to measure the strength of the correlation between variables.

Correlation coefficient levels vary from 1 to -1. A perfect positive correlation is represented by a correlation coefficient level of 1 whereas a perfect negative correlation is signified by a correlation coefficient level of -1. The correlation coefficient level which is closer to '0' indicates a weak relationship between variables.

Table 3: Correlation Analysis

Dependent Variable	Independent Variable		
	Availability of Halal Food	Halal Certification	Sharia Compliant Hotel
Travel Preferences	.203*	0.536**	.301**

(*p<0.05, **p<0.01)

The correlation analysis interpretation was based on Guildford's Rule of Thumb (Guildford, 1973). The result found a moderate relationship between travel preferences and halal certification ($r = 0.536$, $p < 0.01$). There was a weak relationship between travel preferences and availability of halal food ($r = 0.203$, $p < 0.05$). Finally, there was a weak relationship between travel preferences and Sharia-compliant hotels ($r = 0.301$, $p < 0.01$).

Regression Analysis: Multiple regression analysis was conducted to further investigate the significant relationship between dependent variables and independent variables. Table 4 shows the results of multiple regression.

Table 4: Multiple Regression Analysis

Independent Variable	Dependent Variable: Travel Preference
Availability of Halal Food	.0.039
Halal Certification	.0.529**
Sharia Compliant Hotel	-0.009
R^2	0.266
F	12.987**

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

From multiple regression analysis, halal certification was identified significant factor determining travel preference ($B = 0.529$, $p < 0.01$). This result is in line with Junaidi (2020). In contrast, other factors, availability of halal food ($B = 0.039$) and sharia-compliant hotels ($B = -0.009$) were identified as not significant to determining travel preferences. Hence, from multiple regression procedures, the model consisting of availability of halal food, halal certification, and sharia-compliant hotel was found to be significant where the $R^2 = 0.266$ explaining 26.6% of the variance in travel preferences ($F = 12.987$, $p < 0.01$).

Discussion: The research aims to achieve a better understanding of the relationship between factors that are the availability of halal food, halal certification and sharia-compliant hotels, and Muslim travel preferences. The results of this research were obtained through various statistical methods namely, correlation analysis, reliability test, and regression analysis. These analyses provided a valued understanding of the factors that influence Muslim travel preferences to Muslim travel destinations. Based on correlation analysis, all variables namely the availability of halal food, halal certification and sharia-compliant hotels were found to have positive and significant associations with travel preferences. The multiple regression analysis presented that halal certification has a significant relationship with travel preferences. The result is consistent with empirical studies such as Junaidi (2020). In contrast, the two remaining factors, availability of halal food and sharia-compliant hotels were found not significantly related to travel preferences. This study provides valuable insights for travel operators and policymakers targeting to improve their plans and decision-making in helping them understand Islamic tourism. In addition, enhancing the knowledge of Muslim travel preferences is crucial for tourists, government, and service providers.

Managerial Implications and Recommendations: It is essential for destinations and service providers to understand the core needs and concerns of Muslim travelers to provide for their requirements effectively (Said et al., 2020). Thus, it is evident that providing the detailed needs and preferences of Muslim travelers is crucial for the tourism industry to flourish. As the global Muslim tourist population continues to rise, destinations and

businesses should prioritize providing not only halal certification but also culturally sensitive experiences that align with Islamic principles. In addition, by understanding and addressing the unique requirements of Muslim travelers, the travel industry can tap into this growing market and ensure a more inclusive and welcoming environment for all visitors. Though the research highlights the factors that influence Muslim travel preferences, it also presents opportunities for the travel industry to innovate and create tailored offerings. Finally, destinations and service providers can consider developing dedicated tours and packages that cater specifically to the religious and cultural preferences of Muslim travelers.

5. Conclusion

In conclusion, the study found that halal certification was a significant factor that influenced Malaysian Muslim travel preferences while the availability of halal food and shariah-compliant hotels did not prove a significant effect. This study was restricted to the investigation of three variables that influence Malaysian Muslim travel preferences. However, it is vital to recognize the potential presence of other factors that might affect Malaysian Muslim travel preferences. Hence, it is suggested that future research should choose variables that comprise halal awareness, destination marketing, and Islamic motivation (Septiani & Ridlwan, 2020; Battour et al., 2014; Hassani & Moghavvemi, 2020). These factors could give better outcomes in understanding Malaysian Muslim travel preferences. Finally, the future of the travel industry lies in accepting and accommodating the needs of Muslim travelers, innovating tailored offerings, and promoting an inclusive environment for visitors from diverse cultural and religious backgrounds.

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A Framework for Healthcare Services Affordability for the Homeless in Malaysia: Addressing Inequalities

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Abstract: The issue of homelessness is a worldwide problem that necessitates attention from all stakeholders. The major concerns are around inadequate legislation safeguarding the rights of the homeless and their financial ability to seek medical care. This study aims to assess the feasibility of establishing a healthcare framework specifically tailored for the homeless population in Malaysia. Semi-structured interviews were carried out with individuals aged 18 years and older who are currently residing in homeless-related facilities in Malaysia. A total of 57 participants from three distinct sites were questioned. Based on the input from these participants, this study discovered that homelessness can be attributed to a range of factors, such as unemployment, familial issues, criminal histories, and even personal choice. When questioned about their primary necessities when experiencing homelessness, the majority expressed apprehension regarding access to sustenance and housing, while a few also voiced concerns about receiving medical care. Although many individuals disregard the importance of seeking medical care, a portion of the homeless population experiences severe ailments. The report presents preventive and sustainable ways to address the issues of homelessness and suggests improvements to legislation.

Keywords: *Destitute, Healthcare, Homeless, Legislation, Vagrants*.

1. Introduction and Background

Homelessness is one of the national issues that happens globally. It is projected that by 2030, a substantial proportion of the global impoverished population, ranging from 50% to 80%, will be concentrated in nations that are both politically unstable and afflicted by conflicts. Furthermore, several of these countries have a majority Muslim population or a considerable Muslim demographic (Modeer, 2018)

The precise figures for the homeless population in Malaysia remain uncertain, with multiple conflicting reports. The Social Welfare Department surveyed in 2010 and identified a total of 1,387 individuals who were sleeping rough in Kuala Lumpur, as reported by Rusenko in 2015. In 2011, a total of 1,408 individuals around the country were apprehended in 1,190 enforcement actions conducted under the Destitute Persons Act 1977 (DPA). In 2019, YB Hannah Yeoh, the Deputy Minister of Women, Family, and Community Development, said that there was a total of 1,439 individuals officially recognized as homeless. Among the homeless population, those between the ages of 18 and 30 accounted for almost 38 percent. Nevertheless, the data provided by the Department of Welfare and Society indicate that the true number of individuals experiencing homelessness exceeds the officially recorded figures.

Table 1: Number of Destitute Persons Rescued (2017-2020)

YEAR	MALE	FEMALE	TOTAL
2017	3345	1020	4365
2018	2467	1005	3472
2019	2263	968	3221
2020	1547	561	2108

Source: Department of Welfare and Society

The appended Table 1 shows the latest statistics from the Department of Welfare and Society on the number of destitute persons rescued, and in 2020 there were 2108 people rescued. According to Datuk Sri Rina Mohd Harun, the former Minister of Women, Family and Community Development, all of them were placed in 23 temporary homeless centers all over Malaysia. However, out of 2108 persons stated, only the data on the registered persons with Desa Bina Diri as appended in Table 2 were disclosed.

Table 2: Number of Desa Bina Diri Residents by Institution and Gender (2020)

DESA BINA DIRI:	MALE	FEMALE	TOTAL
Kota Kinabalu	15	6	21
Kuching	15	11	26
Jerantut	271	0	271
Mersing	156	165	321
Sg. Buloh	35	27	62
Total	**492**	**209**	**701**

Source: Department of Welfare and Society

As per Table 2, the registered residents in all 5 Desa Bina Diri in Malaysia are 701. Out of this, males made up more than 70% of the residents in Desa Bina Diri. Though the exact number of homeless individuals is uncertain, inadequate legislation safeguarding the rights of these individuals is still one of the critical aspects of addressing the issue of homelessness. In Malaysia, the issue is addressed through the utilization of the Destitute Persons Act 1977 (DPA). However, the establishment of DPA which originally was the Vagrant Act of 1965, predominantly occurred during the British era when begging and vagrancy were deemed criminal offenses. This implies that DPA may no longer be appropriate for usage in the present-day context. The improved version of the latter was amended again in 1985 and formed the Destitute Persons (Amendment) Act (1985).

A more profound comprehension of the matter is required, wherein homelessness now refers to the condition of lacking stable residence. The term "homeless" includes individuals who reside in the residences of acquaintances and relatives, in shelters and lodgings, or at their places of employment (if housing is provided). Street homelessness is the most conspicuous kind of homelessness, often going unnoticed in many instances. However, the Malaysian Ministry of Women, Family and Community Development has also implemented a program called 'Dasar Sosial Negara' (DSN), which focuses on promoting stability and social welfare. However, Sharifah and Alifatul (2012) argue that there is currently no policy specifically addressing the issue of homelessness, and the government's efforts to assist the homeless are ineffective. This is because the problem extends beyond the lack of housing and encompasses the social well-being of individuals. Moreover, the writers noted the dearth of academic publications on the homelessness issue in Malaysia.

Table 3 displays the pertinent legislation concerning the financing of the healthcare industry in Malaysia. Act 209, also referred to as the Fees Act of 1951, establishes the framework for imposing fees for public services. The Fees Act of 1951, specifically the Fees (Medical) Order of 1982 [PU(A)359/1982], stipulates the requirement for patients in government health facilities to make nominal payments for costs incurred. This Act was subsequently revised multiple times, with the introduction of increased fees for non-Malaysians seeking medical treatment at government health facilities.

Table 3: Funds Legislation Regulating Health Sector in Malaysia

LEGISLATION	REMARKS
Fees Act 1951	Known as Act 209 - An Act to provide for the levy of fees and payments for licenses, permits and other matters to be leviable in subordinate courts and public offices.
Fees Act 1951 - Fees (Medical) Order 1982 [PU(A)359/1982]	Act 209 is not directly under the Ministry of Health (MOH) but Orders relating to medical fees made under the Fees Act 1951 under the care of MOH. It sets small payment charges for patients in government health facilities. It was amended in

1982 and has been amended several times.
Amendments:
1. 1985
Fees Act 1951 - Fees (Medical) (Extension to Federal Territory of Labuan Sabah and Sarawak) Order 1985 [PU(A)67/1985]
2. 1994
Fees Act 1951 - Fees (Medical) (Amendment) Order 1994 [PU(A)5/1994]
Fees Act 1951 - Fees (Medical) (Amendment) (No. 2) Order 1994 [PU(A)468/1994]
3. 2003
Fees Act 1951 - Fees (Medical) (Amendment) Order 2003 [PU(A)6/2003]
4. 2017
Fees (Medical) (Amendment) Order 2017

Research Problem

This study focuses on the economic accessibility of medical care for homeless individuals. Financial affordability includes both medical bills and the cost of accessing healthcare services. Public healthcare is essentially cost-free for Malaysians, with patients only required to pay nominal fees of RM1 for outpatients and RM5 for specialized services. The cost for a single occupancy first-class general ward is RM120 per day, whereas a third-class ward is merely RM3. If the patients are employed, their employers will cover some expenses such as surgery or crucial treatment. However, not all medical expenses are fully reimbursed. Certain patients requiring specialized treatments or specific medical instruments may still be responsible for certain expenses.

Homeless folks frequently delay seeking assistance until the latter stages of their sickness, resulting in the missed chance to intervene during the first phases of the illness or injury. Medical care is frequently sought solely during the later stages of an illness, necessitating more comprehensive and costly therapy (Stafford & Wood, 2017). Nevertheless, the fees charges; as stipulated under the Fees (Medical) Order 1982 and Fees (Medical) (Amendment) Order 2017, accounted for only one percent of the total amount spent on public health care. The rest of the cost is borne by the government through the subsidy scheme. Even though the government is trying to strengthen the country's health care system so that it is more equitable, has high standards, is easily accessible at a reasonable cost, and is sustainable in the long run; this matter requires much financial reform in the healthcare system.

The government's total expenditure on health has been steadily increasing over the past decade, rising from RM32.89 billion or 4 percent of the gross domestic product (GDP) in 2010, to RM64.31 billion or 4.3 percent of GDP in 2019. About 52.5 percent of the amount in 2019 was from public funding, while 47.5 percent was from private spending. In 2020, the Ministry of Health (MOH) received RM30.6 billion or 10.23 percent of the overall RM299 billion budget for the year. In 2024, MOH received an increased budget of RM41.2 billion, compared to RM36.3 billion in 2023.

It is unknown for how long the government can sustain the same healthcare system, especially so in the current economic condition, where inflation has skyrocketed. In case there is a major change in the budget of the healthcare system, then the homeless will be the most affected group of people. Spending more on the healthcare budget is an additional pressure on the federal budget, and for that, the government is in the process of proposing various health financing options.

Another challenge is how to provide coherence between the DPA and Fees Act, avoiding redundancy or isolated functioning. It is crucial that both Acts explicitly address the provision of healthcare for the homeless population. The DPA does not contain any explicit provision regarding healthcare and only possesses a universal fee legislation applicable to the entire population. An integrated approach must be taken to effectively tackle both the healthcare and financial affordability challenges.

Research Objectives

In light of the current concerns, it is imperative to assess the financial feasibility of healthcare services for the

homeless population. Therefore, the study will concentrate on the following aspects:

i. To profile the backgrounds of homeless people.
ii. To explore the experience of the homeless in attaining government healthcare services.
iii. To investigate the income sources for healthcare services and factors of homelessness.
iv. To develop a healthcare framework for the homeless and address inequalities.

2. Literature Review

At present, the Malaysian federal government largely applied the Destitute Persons Act (DPA) to cater to the issues of homelessness. The 1977 act has its roots in the anti-vagrancy ordinances deployed by the British in colonial Malaya, which date back to the late 19th and early 20th centuries. This ordinance was designed to remove poor people from public view by sentencing or fining offenders. The act was previously governed by the Vagrants Act of 1965, which enabled police detention of poor and homeless persons. In 1977, the DPA was supposedly enacted to bring a more humanitarian touch to the issue of homelessness. The reasons for homelessness are still perplexing. Even though there are studies conducted to investigate this issue, most of the studies are based on Western and developed countries. Furthermore, studies on homelessness across multi-racial groups are rare. It is important to document it, especially in a multiracial country like Malaysia. Mohd et al. (2016) claim that the issue of homeless in Malaysia is raising public attention due to the increasing numbers of homelessness especially in big cities. Carvalho et.al., (2018) reveals that the problem of homelessness occurs due to various reasons such as unemployment, drug addiction and mental health problems. The study on homelessness and its relation to ethnicity is limited, yet many studies relate ethnicity to the healthcare of older persons. Ethnicity/race and poverty are among the determinants of health in older persons Foong, Hamid & Ibrahim (2021).

Among the elderly aged 70–79 years, Chinese and Indians were more likely to undergo medical check-ups than Malays. Among the elderly with monthly incomes of ≤ RM999, Chinese and Indians were more likely to undergo medical check-ups than Malays. Indian males were more likely to undergo medical check-ups than Malay males). Chinese with hypercholesterolemia and hypertension were more likely to undergo medical check-ups than Malays. There were ethnic differences in participation in medical check-ups among the elderly. These ethnic differences varied across age, income, marital status, gender, household location, insurance access and health status (Cheah & Meltzer, 2020).

The willingness to do the medical check-ups may also reflected in the life expectancy among multiracial Malaysians. On average, Chinese life expectancy is the highest (77 years), followed by Malay (73.8 years) and Indian (71.4) years (DOSM, 2024). While Statista (2022) forecasted that the life expectancy in Malaysia is 76.3 years. This may indicate that more budget needs to be spent per individual. Malaysians have been spending more on health care at about 5.1 percent of their monthly household expenditure (National Health and Morbidity Survey (NHMS), 2019). It is reported that financial sources for health services expenditure by households are 81.4 percent from current income, 35.8 percent from savings, 8.1 percent insurance reimbursement, and about 11 percent borrowed from family and friends. The NHMS 2019 also reported only 22 percent of the population is insured with personal health insurance (PHI), with 36 percent of the uninsured population claiming that PHI is not necessary and a staggering 43 percent of them unable to afford PHI. As much as 45.5 percent of the Malaysian population; including about 71 percent of the poorest 20 percent, do not have any means of supplementary financial coverage for medical treatment, other than the existing tax-funded health care coverage provided by the government. This situation definitely will be worse for the homeless, as some of them rely on zakat (almsgiving), charity funds, and savings from their previous employment.

The cases of outpatient healthcare services in public facilities also show that among the patients are the T20 group (9.1%), where we expected they have sufficient means for private facilities, or the cost is covered by their employers. Meanwhile, M40 (7.6%) and B40 (8.1%) used the outpatient healthcare services of the public facilities. The issue of homelessness is an emerging issue, especially in situations of uncertain economic conditions, unexpected natural disasters, unprecedented pandemics, and wars. A policy or a code to cater to these issues should be established beforehand. WHO defines expenditure as ‘catastrophic’ if a household’s health care costs exceed 40% of income remaining after subsistence needs are met. OOP payments in Malaysia at 34% of THE in 2009 are above the 30.9% average for upper middle-income countries internationally

(Tangcharoensathien et al, 2011).

3. Research Methodology

The study is designed based on a qualitative approach where data were collected from a series of interviews. A survey was conducted to the respondents, who are homeless aged 18 years and above, Malaysian who can communicate with interviewers and are not aggressive. The respondents are in transit at the following selected

i. Anjung Singgah, Kuala Lumpur
ii. Pusat Transit Gelandangan, Kuala Lumpur
iii. Pusat Transit Gelandangan Sementara, Larkin, Johor Bahru.

The following methods were applied to address the research questions:

a) Phase 1: Interview session with the activists and desktop research.
An interview with the activists was conducted to gather information about the existing issues of healthcare among the homeless. The activists are chosen among the Malay, Indian and Chinese, who are actively engaged in charity and philanthropy among the poor and homeless. The information gathered is related to the general background of the homeless, factors of being homeless and actions taken so far to cater to the issues. At the same stage, desktop research was conducted where all related documents and publications were studied and analyzed.

b) Phase 2: Validation of the questions.
Validation is a process of determining whether a proposed framework meets users' expectations, as well as whether it represents the real world from the perspective of the proposed usage (Sommerville, 2007). Before the interview, the questions were endorsed and validated. The survey questions were approved by the UiTM's ethical committee and endorsed by the Yayasan Kebajikan Negara (YKN). This is to ensure that the questions being asked are understandable, suitable, and not sensitive. The questions consist of two main sections. Section A focuses on the demographic, while Section B is a semi-structured interview related to the homeless experience in public healthcare service, financial resources, and reasons for being homeless.

c) Phase 3: Semi-structured interview with the homeless.
The researchers conducted interviews with the homeless by observing the participants directly. Yet, during the interview, we were being monitored from time to time by the officers as part of safety measures. The interviews involved semi-structured and generally open-ended questions. The interview questions are guided by the activist's output.

d) Phase 4: Analysis and proposing the framework.
The data from the interview were transcribed and the analysis will cohesively present themes. Then, the researchers developed a relevant framework based on the insights available.

4. Analysis and Discussion

We successfully conducted interviews with 57 respondents from three distinct sites. The duration of each interview ranged from approximately 15 to 20 minutes per individual. Table 4 displays the demographic characteristics of the participants.

Table 4: Demographic Profiling of the Respondents
PANEL A

AGE	MALAY/ BUMIPUTERA	CHINESE	INDIAN
< 40 years	6	5	3
> 40 years	10	7	6
> 60 years	11	8	1

N=57	**27**	**20**	**10**

PANEL B

EDUCATION BACKGROUND	
No formal education	2
Primary school	2
Secondary school	18
College/Tertiary	4
No information	31
N	**57**

PANEL C

HOMETOWN	
Kedah	5
Johor	22
Melaka	1
Negeri Sembilan	3
Pahang	1
Perak	8
Selangor	4
WP. Labuan	1
Pulau Pinang	1
Kelantan	2
Terengganu	1
Sabah	2
Sarawak	5
No information	1
N	**57**

PANEL D

FREQUENCY OF BEING HOMELESS	
First time	42
The second time, and more	15
N	**57**

Table 4 states that 27 respondents identify as Malay/Bumiputera, 20 identify as Chinese, and 10 identify as Indians. The respondents encompass individuals from several age brackets. The initial age group consists of individuals who are 40 years old, and they are classified as young in Malaysia. The second age bracket encompasses those between the ages of 40 and 59, while the third category includes individuals aged 60 and above, who are classified as senior citizens in Malaysia. Most responders belong to the second age group (40 to 59 years old), with a total of 23 people. Subsequently, there were 20 senior people and 14 youths in attendance. Among the 57 responses, 22 were from Johor, while 8 were from Perak. The study also indicates that 42 of the respondents are currently experiencing homelessness for the first time, while the remaining 15 respondents had previously experienced homelessness.

Based on the thematic analysis, themes are identified based on five main categories of interview namely factors of homelessness, needs during the homelessness, experience when attaining government healthcare services, and financial affordability.

Factors of Homelessness

We also inquired about the reasons behind their current state of homelessness. Diverse theme responses can be discerned from their answers. A portion of the participants find themselves on the streets resulting from their pursuit of employment and housing. For example, Respondents 1, 7, 19, 26, and 44, who had left their hometown, were subsequently apprehended by the social welfare department when they were sleeping on the street.

Similarly, unemployment is also one of the contributing factors to homelessness. Unemployed, they experience a loss of income and lack the means to afford necessities, let alone rent a room. Respondents 2, 6, 8, 11, 16, 28, 30, 35, and 36 are included in the group. Several individuals experienced job retrenchment and faced cash depletion, such as Respondents 9, 12, 13, 47, and 49. Respondent 6 (R6) stated, "I am homeless because I do not have income and I cannot afford to pay the rent". While Respondent 24 (R24) attributes his job loss to his former employer's decision to cease operations due to a lockdown, it is ironic that this is the third instance of him experiencing homelessness, with the first occurrence happening in 2009. Likewise, Respondent 28 (R28), who voluntarily left his previous job, expressed a desire not to go back to his hometown.

The presence of familial issues contributed to the individual's experience of homelessness. One is experiencing profound sadness, a diminishing sense of optimism, and a lack of emotional assistance. Respondents 3, 4, 5, and 20, for example, are all unmarried individuals who experienced a family dispute before becoming homeless. Nevertheless, the familial discord is partially instigated by their substance abuse and alcohol dependency. Respondent 10 (R10) attributes their homelessness to their alcohol addiction, he responded "At the homeless center, I abstain from consuming alcohol. However, I intend to get it, albeit in a little quantity". The same applies to Respondent 20 (R20), who has become ensnared in drug addiction. Respondent 3 (R3) stated that their lack of income, family issues, and drug addiction are the reasons for their current situation.

Certain individuals experience a protracted dispute with their loved ones. R17, R21, and R27 depart from the residence following their divorce, while R34 and R24 have been evicted from the premises. R24 stated, "I was forcibly expelled from the residence following the dissolution of my marriage." On the other hand, due to R50's infirmity and his desire to convert to a different religion, the family decided to split up him, "My mother harbors animosity towards me, subjecting me to physical abuse since my childhood. It is evident that she does not possess any affection or love for me," he expressed tearfully. He added, "I called her, but my dad said she does not want to speak to me". R4 is attempting to mend relations with their family, expressing, "I have been participating in religious instruction intending to return to my true nature (fitrah)," he uttered quietly, resembling the tone of a woman.

Some of them achieved success but unfortunately, they were arrested and subsequently served a prison sentence. Respondent 40 (R40) is an architecture graduate who is divorced and has one daughter. R40 advises the researcher to refrain from engaging in bribery under any circumstances. "Refrain from engaging in scandalous behavior with other women," said the individual who desired to be addressed as 'ayah' (father). Likewise, to R56 and R29. R29 was a civil servant who had undergone a divorce. However, for certain individuals, being homeless is a deliberate decision. The individual in question, who is in their early 70s, has made the deliberate decision to live in solitude. "I desire to independently lead my own life." Similarly, R25, who initially resided with a nephew, eventually opted for independent living. R14 departed from the residence due to his sibling's nuptials.

Needs During the Homelessness

Participants were surveyed regarding their primary necessities while experiencing homelessness. Most of them have a comparable response to the requirements. Many were primarily concerned with obtaining food and shelter. However, some individuals express their apprehension about using healthcare services. R7 and R17 are afflicted with asthma, while R11 is experiencing a leg condition and has undergone surgery. R7 is suffering from a condition of low blood volume. An individual in their late 60s, classified as R18, experiences numerous severe health conditions such as heart disease, hypertension, and gallstones. While R21 and R28 solely referred to 'medicine' in response to our inquiries, other matters appeared to be of lesser significance. R43 desires nothing further. "I desire to return to Sarawak. I have lost both my identification and my luggage. All I require is a flight ticket to facilitate my journey back home," expressed the elderly gentleman, who has

experienced auditory difficulties since infancy. R47, R48, and R50 are eager to secure employment. They appear somewhat distinct from the other participants. In contrast to the others, they explicitly stated "I need a job" as their primary issue, whereas the others, such as R4, R5, R6, and R7, emphasized 'money' as their main focus. Conversely, R51, a 24-year-old individual, expressed that love holds the utmost significance. He recounted the painful experience of being separated from his siblings due to the unfortunate circumstances of their fractured family background.

Experience in Government Healthcare Services

Gathering input on the respondents' experience in using government healthcare services is difficult. While some spoke candidly, others chose to withhold their response. R7 remarked that it is straightforward to deal with the government clinic.

Due to the loss of his identity card, R18 is not entitled to free medicine and so must pay for it himself. Conversely, R37 expressed feeling timid and anxious when recounting their experience of receiving medical treatment. R53 expressed that he was reprimanded by the medical personnel, stating, "The hospital staff lacks regard for me, possibly due to my condition," conveying a sense of being marginalized. R55, at the age of 60, stated, "I utilized public transportation by boarding a bus. I endured a considerable wait at the hospital due to a large number of individuals present". Furthermore, individual R58 expressed dissatisfaction, stating that it required 3 months alone to secure an appointment date. This assertion was made by an individual afflicted with eczema, who also alleged the presence of a racial component in their experience.

Financial Affordability to Healthcare Services

The level of financial affordability among the homeless population varies. Several individuals possessed a savings or EPF account from their prior employment. While a portion of them were remunerated during their incarceration. Specifically, R18, R19, R20, R23, and R26 personally financed the cost of the prescription. Some responders completely depend on government financial help. Respondent 14 utilized Bantuan Sara Hidup (BSH), R17 allocated funds from Jabatan Kebajikan Masyarakat (JKM), R31 relied on generous assistance from the Persatuan Bulan Sabit Merah (PBSM), R43 utilized funds from Baitulmal, while R48 utilized funds from Bantuan Rakyat 1Malaysia (BRIM).

However, some responders depend on their previous savings to fund their medical expenses. At the age of 47, R1 withdrew his savings from the iCitra program. R49, a 55-year-old woman, stated that she intends to utilize her Employee Provident Fund (EPF) which she has stored in Singapore. She alleges that her previous employer has held her funds in the EPF. The same applies to R38. However, at the age of 36, R42 was declared bankrupt and is currently dependent on the homeless center for all his necessities. Ironically, R6, a 51-year-old individual who rarely undergoes medical check-ups and has experienced homelessness three times, stated, "During my time on the streets, I did not fall ill, thus I did not require any medication".

During the interview procedure, certain homeless individuals willingly disclosed information to the researchers regarding their health status. Some individuals experienced normal ailments, while others endured severe illnesses. Examples of medical conditions include asthma (R7, R17, R47), migraine (R10), injuries and surgery (R11, R12), low blood pressure (R14), heart problems, high blood pressure and kidney stones (R18), liver problem (R20, R22), allergies (R31), diabetes (R34, R35), gout (R38), savant syndrome (R50), and thyroid issues (R53).

Upon analyzing the interview and transcribing the findings, it becomes evident that a significant portion of the homeless population relies heavily on government financial aid. They encounter difficulties in accessing public healthcare facilities and are confronted with health problems. Some homeless individuals see racial bias and exclusion from society.

Table 5: Thematic Analysis

CATEGORIES OF INTERVIEW QUESTIONS	THEME
Factors of homelessness	Unemployment and job retrenchment Family issues, divorce, protracted disputes with their loved ones. Deliberate decision
Needs during homelessness	Foods Shelter Healthcare services Job Money Loves
Experience when attaining government healthcare services	Straightforward Anxious Dissatisfaction & social equality
Financial affordability	Provident fund scheme Remuneration Government financial aids Baitulmal/Zakat Savings

Furthermore, after analyzing all the results, the researchers have categorized the homeless population into three primary groups: i) Employable homeless individuals, ii) Temporarily unemployable homeless individuals and iii) Permanently unemployable homeless individuals. The categories can be explained in Table 6:

Table 6: Categories of the homeless population

CATEGORIES	REMARKS
Capable of working.	Good health (including mental & and physical) condition or very minor health problems. Free from drugs or alcoholic addiction
Not capable of working. (temporarily)	Have major problems of health conditions but still can be treated. Undergoing rehab treatment for drugs and alcohol addiction.
Not capable of working. (permanently)	Aging. Suffered critical illness including mental and physical health

Proposed Framework for the Healthcare Services Affordability for the Homeless

The 12th Malaysia Plan introduced the concept of a National Health Endowment Fund, which aims to enhance the healthcare finance system in Malaysia by utilizing waqf donations (endowments made by Muslims). This will only come to fruition in four years. The state government has also implemented initiatives, such as Selangor's Peduli Sihat scheme, to enhance the efficiency of healthcare services. However, the researchers recommend developing new strategies for preventative and stimulation purposes based on the findings.

Chart 1: Preventive & Sustainable Strategies Based on Three Categories of Homeless

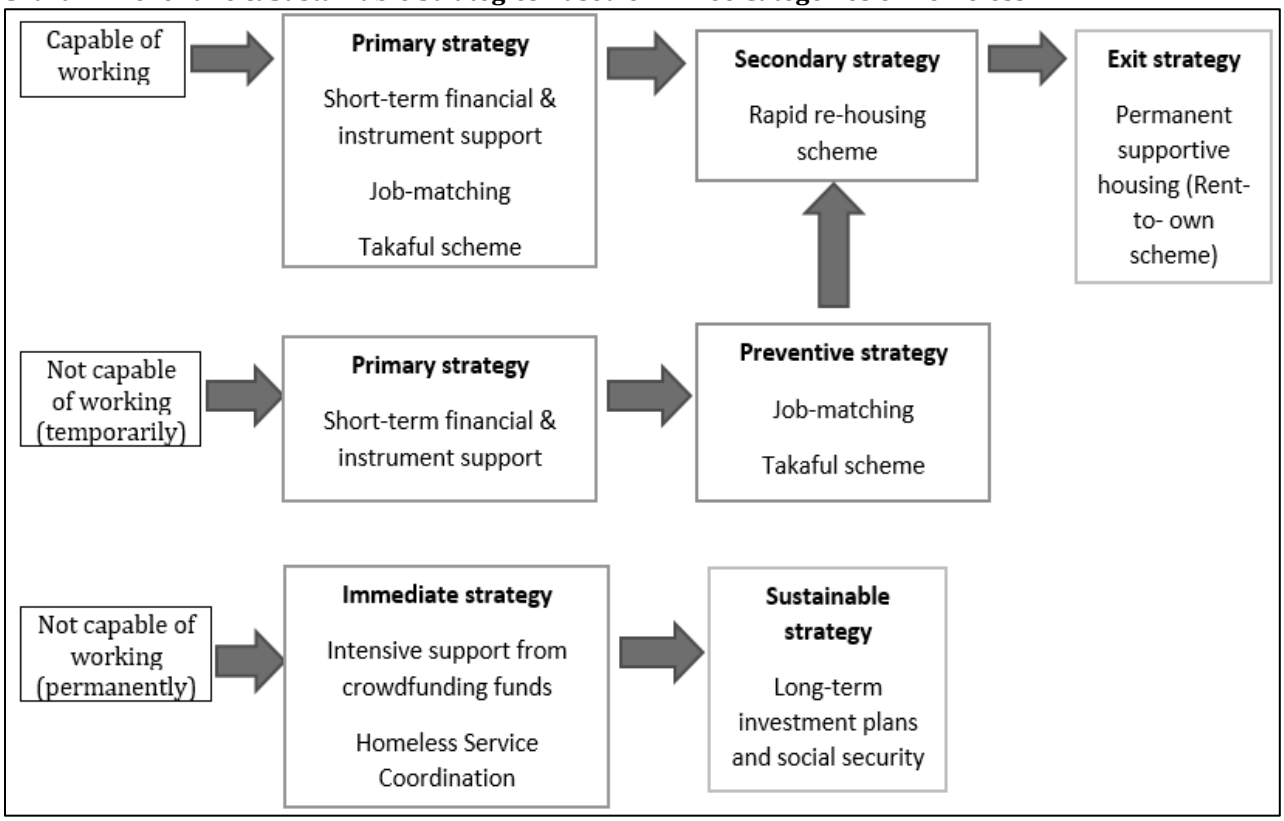


Chart 1 proposes the preventive and sustainable strategies for three categories of homeless. For the categories of capable of working, the study suggests a job matching program, where the job offer can be packaged together with short-term financial support and a takaful scheme. The takaful scheme can either be automatically deducted from the salary or subsidized by the government temporarily. A rapid re-housing scheme may be offered at the secondary stage, and then permanent supportive housing can be offered for the exit strategy. Likewise, a similar strategy is also proposed for the other two categories.

However, the homeless center must possess the capacity to implement income-generating projects, such as agricultural activities, handicrafts, or other non-technical pursuits. Implementations of Islamic social finance are necessary to address inequities. Collectively, social Islamic finance tools like zakat, waqf, and sadaqah can effectively combat marginalization and vulnerability. This can be achieved by channeling these resources into locally led initiatives that aim to foster social and economic inclusion. Existing legislation in a way is denying the fundamental rights of the homeless, especially to those who lack social finance status.

5. Conclusion and Recommendations

A comprehensive public-private-sector initiative is urgently needed in Malaysia to align with Article 25 of the Universal Declaration of Human Rights. This article states that everyone has the right to a sufficient standard of living for their health and well-being, as well as that of their family, including access to food. The study provides valuable insights into the ongoing issue of homelessness, emphasizing the need for it to be recognized as a national priority. Given the current economic uncertainties and growing social problems, it is reasonable to anticipate a rise in homelessness.

To address this issue, it is necessary to revise the policies, particularly the legislation related to the Data Protection Acts (DPA). Attention should be focused on the integration of poverty and health concerns into law, while concurrently addressing the problem of homelessness. We propose that the Ministry of Women, Family, and Community Development, along with other relevant organizations, shift their attention from actively

seeking and capturing individuals suspected of being impoverished, to instead concentrate on developing and adjusting policies and programs within their authority to effectively address the underlying causes and effects of homelessness. This approach should give priority to upholding the dignity and autonomy of every individual. Additionally, it is imperative to establish a synergistic collaboration among key ministries, including the Ministry of Home Affairs, Ministry of Health, Ministry of Finance, and Ministry of Higher Education, to effectively address this issue.

To tackle the notable discrepancies in health that are evident among the homeless population, we must view homelessness (as well as other types of severe socioeconomic hardship) as a comprehensive issue that encompasses both medical and social aspects. Addressing homelessness is an essential component of healthcare, rather than being seen as a separate issue that is not connected to health. We should embrace a more innovative strategy for tackling the issue of homelessness, departing from the traditional compartmentalized approach. The Ministry of Health may implement specialized mobile health services or use a distinct approach to cater to the homeless population. This is significant because it involves a dual approach where contagious diseases may be managed, and socioeconomic inequalities can be addressed. If we can effectively apply the suggested framework for healthcare affordability, it could have significant ramifications on life expectancy and improve the overall quality of life in Malaysia, ultimately contributing to its progress.

This study may be more complex due to the multitude of components present in multiracial Malaysia, prompting scholars to investigate new and more intricate aspects to enhance the framework.

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Appendix

Table 1: A Selection of Homeless Narratives Featured in the Local News

No.	Title	Publisher	Health Issues	Causes of Homelessness
1	A homeless military retiree in Kedah who has been living in his car for 17 years shows how he cooks his meals	News'nav 18-Jan-24	Unknown	Personal preference
2	Family of five forced to live in a car for 10 months	New Straits Times June 22, 2023	Breadwinner suffers growth on his neck	Loss of their job due to the Covid-19 pandemic
3	Man lives in a car, uses 90 percent of salary to pay off RM1 million debt	Sinar Daily 26 Sep 2023	Unknown	Debt issues
4	Family evicted and forced to live in rundown car needs help.	Free Malaysia Today 17-Jul-22	Breadwinner was involved in an accident. Mother suffers from multiple chronic disease	Financial problem
	Malaysians are touched by the story of a homeless man living in his car with a stray cat as a pet who helps him with donations.	Malay Mail 21-Jun-21	Unknown	Unable to secure jobs
6	When home is a car and a public toilet	Free Malaysia Today 24-Dec-20	Breadwinner was involved in an accident last year, which left him with a broken left leg	i. Their house was on fire ii. Estranged from family some five years ago
7	Homeless family forced to sleep in car.	New Straits Times August 17, 2018	Unknown	Financial problem
8	A Homeless Family Was Living in A Car For 2 Months at The Sungai Buloh R&R	SAYS 23 Feb 2018	Unknown	i. Poverty since childhood ii. Laid off from work

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The nature of the relationship between service quality and customer satisfaction among mobile users: Experience from Malaysia

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Abstract: This paper aims to investigate the impact of service quality on customer satisfaction for mobile users in Malaysia. Specifically, this paper examined the impact of service quality dimensions (tangibility, reliability, responsiveness, assurance, empathy) on customer satisfaction in the post-COVID era. The data were collected by using a self-administered questionnaire to the sample of Kuala Lumpur and Selangor states mobile users. Overall, 117 responses were gathered and five hypotheses were tested using hierarchical regression analyses. The results are mixed. Out of five hypotheses, only two were accepted. Reliability and responsiveness were found significantly positive relation to customer satisfaction whereas tangibility, assurance, and empathy were shown otherwise. Lastly, the discussion part will deliberate on the conflicting results. The limitations and suggestions for future research are also presented.

Keywords: *Service Quality, Customer Satisfaction, User Mobile.*

1. Introduction and Background

Telecommunication has now become part and parcel of the life of the general population. With the advancement of technology and, the vast ~~of~~ smartphones offered, telecommunication is now a must for everyone to have in catching up with lifestyle. One of the leading components in attracting customers is their service quality and this plays an important role in attracting a pool of customers to use the service apart from attractive offers in the service package. Product differentiation is somehow difficult as all the telecommunication operators use the same technology or spectrum. Implementing a price reduction or offering an affordable package with the phones may not yield a significant impact, as it would likely be promptly emulated by other telecommunications companies. However, what truly sets the telco company apart is its commitment to delivering superior service quality, and ensuring customer satisfaction. The relationship between service quality dimensions and customer satisfaction in the telecommunication sector is deep-rooted. In the case where switching of network occurs, the cost is negligible and service quality will be deemed as the most significant factor in the retention of customers (Shafei and Tabaa, 2016; Izogo, 2017). The fact that organizations are starting to implement the service standards, has led to part of the corporate culture to allow the organization to a continuous effective approach to its development and implementation.

With the escalating interest in technology, researching this topic becomes imperative to ascertain whether, particularly in the post-COVID era, users of telecommunication services still prioritize service quality as the main determinant of their satisfaction. Unfortunately, the concept of customer satisfaction continues to interest many, with various inexplicable factors drawing attention in certain areas up to this point. Examining how various aspects of service quality influence the overall outcome and identifying which aspect has a greater impact on customer satisfaction is essential. It appears that these influences may vary from year to year, as observed through casual conversations with users. Customer from various backgrounds have become more educated, better informed and more internalized, their demand for better service quality can differ as well based on the priority of the service quality dimensions such as tangibility, reliability, empathy, assurance and responsiveness. Therefore, the focus of this paper is to assess the key service quality dimensions that significantly impact user satisfaction, as users are essential to the success of any organization. Without them, a firm would lack revenues, profits, and ultimately market value.

The remainder of this paper is organized as follows. Firstly, we discuss the literature review on customer satisfaction, service quality and the relationship between service quality on customer satisfaction. The section then followed with the research methodology and findings. We also present the discussion on the hypotheses results and highlight the contributions, limitations and recommendations for future research.

2. Literature Review

Customer Satisfaction: Ensuring customer satisfaction through understanding and meeting their needs and wants is crucial for the survival of businesses. Customer satisfaction is a result of cognitive and affective evaluations, where perceived performance is compared to a set standard (Kotler, 1997). Dissatisfaction arises when perceived performance falls short of expectations, while satisfaction occurs when performance exceeds expectations. Meeting expectations leads to a neutral response from customers. Ultimately, enhancing customer satisfaction enhances customer retention and repurchase behavior, contributing to increased firm profitability.

Lovelock et al. (2001) define customer satisfaction as the emotional response experienced by an individual when evaluating the perceived performance of a product in relation to their expectations. In general, there are two general conceptualizations of satisfaction, namely, transaction-specific satisfaction and cumulative satisfaction (Jones and Suh, 2000; Yi and La, 2004). According to Boshoff and Gray (2004), transaction-specific satisfaction is the assessment made by a customer regarding their experience and response to a specific service encounter, whereas cumulative satisfaction pertains to the overall evaluation of the customer's consumption experience up to the present moment (Cook, 2008).

Retaining customer satisfaction with a company’s products or services is a key to long-term competitiveness. Research has shown that customer satisfaction is a fundamental element in relationship marketing, used to measure and manage activities. It is considered a temporary emotional response stemming from a comparison between a customer's expectations and their assessment of a specific product or service interaction (Muhammad et al., 2023).

Customer satisfaction is contingent upon the perceived performance of a product in comparison to the expectations of the buyer. In instances where the product's performance fails to meet expectations, the customer is likely to experience dissatisfaction. Conversely, when performance aligns with expectations, the primary outcome is customer retention (Tapha and Yogi, 2024). Satisfied customers are more inclined to make repeat purchases and share positive feedback about their experiences with the product. The key factor lies in aligning customer expectations with company performance. Successful businesses strive to exceed customer expectations by delivering on promises and surpassing initial commitments. It is important to note that a dissatisfied customer is likely to share their negative experience with seven to 20 individuals, while a satisfied customer may only share their positive experience with three to five individuals (Ojo, 2010)

Service Quality: The concept of quality is subjective and may differ based on the individual and context. Definitions of service quality exhibit minor variations in language but generally revolve around assessing whether perceived service provision aligns with, surpasses, or falls below customer expectations (Zeithaml et al., 1996). Service quality is widely recognized as a crucial factor in establishing and maintaining satisfying relationships with customers, thus contributing to competitiveness. Research has shown that service quality is a significant indicator of customer satisfaction (Spreng and Machoy, 1996) and can differentiate an organization from its competitors, leading to a lasting competitive advantage (Boshoff and Gray, 2004). Consumers value service quality even when other pricing factors remain constant (Turban, 2002), making it an essential aspect of a company's product and service offerings (Caruana, 2002). According to Brady and Robertson (2001), service quality plays a key role in creating a competitive advantage by serving as a distinguishing factor.

The concept of service quality emerged as a global phenomenon in the 1980s, when marketers recognized the importance of delivering a quality product to gain and sustain a competitive edge (Boshoff and Gray, 2004). According to Parasuraman et al. (1985), service quality is determined by the comparison of a consumer's expectations with the performance of the service. They proposed that service quality is influenced by pre-

purchase customer expectations, perceived process quality, and perceived output quality. In their 1985 study, they suggested that service quality is measured by the gap between customers' expectations and their perceptions of the service experience. Parasuraman et al. (1988) further define service quality as the extent to which a service either meets or surpasses customer expectations by comparing their perceptions with expectations. The consistency of a service in meeting customers' expectations is crucial in determining its quality (Meyvis and Janiszewski, 2002). Parasuraman et al. (1990) projected a service quality model that identified perceived service quality into five dimensions: tangibility, reliability, responsiveness, assurance, and empathy. The brief explanations for each dimension are as follows;

a) Tangibility aspects involve the appearance of physical facilities, including the equipment, personnel, and communication materials
b) Reliability involves the ability to perform the promised service dependably and accurately
c) Responsiveness is associated with the willingness to help customers.
d) Assurance involves the knowledge and courtesy of employees and their ability to convey trust and confidence. This assurance includes competence, courtesy, credibility and security.
e) Empathy elucidates involves the provision of caring, individualized attention to customers. This empathy includes access, communication, and understanding of the customer

It is indisputable that customers exhibit a preference for superior service over discounted prices, as evidenced by their willingness to pay a premium for enhanced or more effective assistance. Companies that prioritize offering additional service benefits in such instances are likely to emerge as successful entities. The expectations and demands of customers for improved services necessitate that all telecommunications firms strive to provide a personalized experience, resulting in customer perceptions surpassing initial expectations and heightened satisfaction levels. Implementing proactive measures, including a thorough understanding of guest history, concerns, and preferences, stands as a crucial strategies in impressing customers and cultivating repeat business.

Relationship between Service Quality and Customer Satisfaction: Temba (2013) argues that customer satisfaction should be perceived as a multidimensional concept similar to service quality, manifesting at various organizational levels and requiring the same factors for operationalization. Parasuraman et al. (1985) also assert that high perceived service quality will result in increased customer satisfaction, indicating that service quality significantly influences customer satisfaction based on the quality of service provided. Fen and Lian (2005) demonstrate that both service quality and customer satisfaction positively impact customers' intentions to re-patronize, underscoring their critical roles in enhancing business success in a competitive market. Temba (2013) further supports this relationship, highlighting the interdependency of these constructs and their potential to mutually reinforce each other. Moreover, the authors suggest that service quality is a more abstract concept compared to customer satisfaction, attributing this difference to the former being influenced by perceptions of value and external experiences beyond individual encounters with the service firm. In that vein, we suggest the following hypotheses;

H^1: There is a significant positive relationship between service tangibility and customer satisfaction in the telecommunication industry
H^2: There is a significant positive relationship between service reliability and customer satisfaction in the telecommunication industry
H^3: There is a significant positive relationship between service responsiveness and customer satisfaction in the telecommunication industry
H^4: There is a significant positive relationship between service assurance and customer satisfaction in the telecommunication industry
H^5: There is a significant positive relationship between service empathy and customer satisfaction in the service telecommunication industry

3. Methodology

This study focused on residents who reside in Kuala Lumpur and Selangor States. These two states are also considered the Klang Valley area with a population is almost 8.8 million people (Department of Statistics

Malaysia, 2023). Due to the lack of a comprehensive population frame obtained, Convenience sampling was chosen for this study due to its expediency, cost-effectiveness, and ease of access, allowing researchers to easily recruit participants who are readily available at the time (Sekaran and Bougie, 2016). Within 2 months of data collection, the 117 responses were gathered in both areas. This study utilizes a face-to-face self-administered questionnaire to obtain the data. Before the real questionnaire was distributed, a set of questionnaires were validated by three experts in the marketing area. Some of the vague wordings were adjusted and the outlook of the questionnaire is well-presented again. The questionnaire then was distributed as a pilot study among the citizens around Shah Alam. Two districts were chosen for the final data collection. Those districts are Bangi for Selangor and Cheras District for Kuala Lumpur. These districts were chosen due to the higher population (Election Commission of Malaysia, 2023).

The scales used followed the prior research. The items measuring responsiveness, tangibility, reliability, assurance and empathy were adapted from Loke et al. (2011) meanwhile the items for customer satisfaction were adapted from Ojok (2017). All variables used the 5-scale Likert scale, with 1 representing strongly disagree 5 representing strongly disagree, then 1 representing very dissatisfied and 5 very satisfied towards the statement. In analyzing the hypotheses, this study employs the hierarchical multiple regression method. This method was conducted by entering the independent variables into the block and the customer satisfaction into the dependent variable block in the SPSS software.

4. Findings

Descriptive Analyses: Table 1 presents all 117 respondents' profiles. In total, male respondents comprised 59 percent of the total respondents, while female respondents made up slightly less than half (41%) as shown in Table 1. The majority of the respondents are aged 30 to 39 years old representing 65 percent with the lowest percentage coming from the group of age above 50 years old with only 1.7 percent. The table also shows that 68.4 percent of respondents are working in the private sector, 14.5 percent are in the government sector, and the remaining occupations of the respondents are self-employed. The remaining 11.29 and three percent were students and other occupations. The data also shows that 32.5 percent of the respondents are using the Celcom network, followed by Digi users with 30.8 percent, Maxis (19.7%), Umobile, and another network each comprising 8.5 percent.

Table 1: Respondents' Profiles

ITEMS	FREQUENCY	PERCENTAGE
GENDER		
Males	48	41%
Females	69	59%
Total	**117**	**100%**
AGE		
29 and below	33	28.2%
30-39	76	65%
40-49	6	5.1%
Above 49	2	1.7%
Total	**117**	**100%**
OCCUPATION		
Government Servant	17	14.5%
Private Sector	80	68.4%
Self-employed	14	12%
Students	3	2.6%
Others	3	2.6%
Total	**117**	**100%**
MOBILE NETWORK USED		
DIGI	36	30.8%
Celcom	38	32.5%
Maxis	23	19.7%
Umobile	10	8.5%

Other	10	8.5%
Total	**117**	**100%**

The mean, standard deviations, skewness and kurtosis values for the total sample are presented in Table 2. Among the variables understudy, tangibility means reported higher mean values compared to another variable with 3.87 (0.64 standard deviations). The other variables show the mean values exceeding the threshold of 3 whilst responsiveness portrays the lowest value (3.15). The skewness shows the normal distribution of the data where the values are less than ± 3. The kurtosis values are also distributed normally where the value is not exceeding ±7. Those values are not violated by the normality assumption (Kline, 2015).

Table 2: Mean, Standard Deviation, Skewness and Kurtosis

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Tangibility	3.87	.64	-.06	-.47
Reliability	3.55	.75	0.00	-.42
Responsiveness	3.15	.57	-0.48	.19
Assurance	3.75	.70	-.35	-.15
Empathy	3.66	.74	-.33	.00
Customer Satisfaction	3.72	.67	-.04	-.22

The Cronbach's Alpha test was done to assess the internal consistency of the scales. The values exceeded the proposed minimum threshold of 0.70 which has been proposed by Nunnally (1978). Those reliability values for all variables were shown in Table 3 in which tangibility is .864, reliability of service (.841), responsiveness (.944), assurance (.939), empathy (.927) and customer satisfaction (.896). Therefore, all variables are valid for further analyses.

Table 3: Reliability Test

Variable and its items	Cronbach Alpha Value
Tangibility	.864
The staff are well-dressed and appear neat.	
The website is user-friendly.	
The customer service counter is well-equipped with up-to-date facilities e.g. Reload/top-up machine, free WIFI	
The physical layout of equipment and furniture is comfortable for customers interacting with staff.	
Information associated with the service (e.g. promotional brochure) is visually appealing at the customer service counter	
Reliability	.841
The network quality signals are clear.	
The network coverage in urban areas meets my expectations.	
The network coverage in rural areas meets my expectations.	
The telecommunication company provides network services at the promised time.	
Keeps its packages and services up to date.	
Responsiveness	
The customer service staff are professional.	.944
The staff are willing to solve the queries faced by customers.	
The staff are helping in the service provided	
The staff can perform professional service	
The staff can handle the urgent request.	
The staff are ready to provide the service.	
Assurance	.939

Courteousness and problem-solving ability.	
Comfortable interacting with the staff.	
Ability to keep customers updated and safe.	
Politeness and friendly staff.	
Explanation given to customers on the problems & process to solve it.	
Empathy	
Employees show care and concern while talking to me.	.927
The employees give individual attention to my problems and interests.	
Services personnel always carefully listen to my complaints and requests.	
The complaints process is convenient to use.	
Customer complaints are resolved within time.	
Customers get an immediate response to his/her complaints.	
Customer Satisfaction	.896
I am satisfied with the overall service quality offered by this service provider.	
I am satisfied with the variety of service plans provided by this network that meet my needs.	
This service provider meets my expectations.	
I am happy enough with the service of this service provider.	

The bivariate correlations between the variables have been presented in Table 4. The value of the correlations is more than 0.5 whereas the highest been recorded is .894 which the link between assurance and responsiveness. All variables have a significant value of less than 0.01.

Table 4: Bivariate Correlation

Variable	1	2	3	4	5	6
1. Tangibility	1					
2. Reliability	.581**	1				
3. Responsiveness	.690**	.711**	1			
4. Assurance	.733**	.665**	.894**	1		
5. Empathy	.710**	.723**	.892**	.867**	1	
6. Customer Satisfaction	.677**	.731**	.872**	.797**	.835**	1

Note: ** p< 0.01 (1-tailed test)

Table 5: Hierarchical Regression Analyses

Research Hypotheses	Beta	T value
Tangibility	.110	1.437
Reliability	.180	2.182**
Responsiveness	.572	5.002**
Assurance	-.054	-.502
Empathy	.175	1.651
Model Fit Summary		
R2	.796	
Adjusted R2	.787	
Change Statistics		
F Change	86.41	

Note: ** p-value is less than 0.01 (1-tailed test)

Based on the hierarchical regression analysis, there are only two hypotheses are supported, whereas the

remaining hypotheses are not as what we predicted (Table 5). The relationship between reliability and responsiveness is found significant with customer satisfaction (p value< .05). Those three variables (tangibility, assurance and empathy) were found insignificant (p>.05). The adjusted R2 indicates 78.7 percent of the overall variance of customer satisfaction was explained by the independent variables.

5. Discussion, Limitations and Future Research

The purpose of this study was to determine the predictors of customer satisfaction among mobile telecommunication users. It is vital to know the factors that influence the usage of network telecommunication, especially the post-COVID problem. Consequently, the current research investigates the relationship between the dimension of service quality (tangibility, reliability, responsiveness, assurance and empathy) on customer satisfaction in Malaysia. The findings of this study may contribute to the body of knowledge and also be a reminder to the service provider to improve their service quality.

Firstly, we found that the tangibility aspect has no impact on customer satisfaction. This result provides some meaningful insight into the relationship between these variables as prior results indicate a positive impact (Shava, 2021). Our research setting focuses on Klang Valley where people population is almost 8.9 million with up-to-date technologies. It is found that with the recent technologies adopted by telecommunication operators, customers have to deal directly with customer service without entering the telecommunication facilities. Unlike the service provider in the hotel industry, the tangible aspect is not the main factor in predicting customer satisfaction (Alaa and Mat Som, 2012).

Secondly, the hypothesis to examine the relationship between the reliability of service on customer satisfaction is supported. This finding corroborated with earlier findings (Abd-Elrahman, 2023; Wang and Lo, 2002). Malaysia's telecommunication market has become more intense whereby only certain giant service providers are willing to enter into this oligopoly market, especially after the COVID epidemic. Therefore, the sustainability of the telecommunication firms in the market depends on how well the service is offered.

Thirdly, the responsiveness to customer satisfaction is also found supported. This implies that the capability of the workers to perform their duties. This result aligns with the previous findings that prove the action of employees' telecommunication firms in providing excellent service with the additional responsiveness concepts such as knowing market segmentation, being friendly, and becoming a problem solver (Lee, 2010). Fourthly, the prediction of a positive relationship between service assurance on customer satisfaction is non-supportive. It contradicts past studies (Alnsour et al., 2014; Wang and Lo, 2002). Telecommunication firms should be selective in the employee recruitment process. The employees should be given the training so that their capability to "ensure" the promising service (Alnsour et al., 2014).

Lastly, the un-supportive hypothesis was gaining on the relationship between empathy on customer satisfaction. Scholars have found that service empathy will lead positively the customer satisfaction (Shava, 2021). However, the result of the current study shows otherwise and is in line with previous findings (Anjum et al., 2016; Wang and Lo, 2002). The plausible explanation is due to the huge number of complaints regarding the communication service, the possibilities to fix the problems immediately by the telecommunication company might be difficult. Apart from that, it is advisable to include the 'relational' element in the training for the customer service agents so that they potentially understand customer needs (Loke et al., 2011).

This paper contributes to the existing literature, especially for the service quality theme in the following two ways. First, the projection of the linear relationship between the dimensions of service quality (tangibility, assurance, empathy) is not always consistent. This has been proven by the rejected hypotheses associated with these three dimensions. Secondly, the findings from post post-COVID era show some discrepancies findings with Abd-Elrahman's (2023) view. During a pandemic, those four dimensions except assurance are significant in predicting customer satisfaction. However, the affirmation of the results did not prolong post-COVID. Therefore, these results were meaningful to the telecommunication firms to have the signals on leveraging their service quality and thus retaining customer loyalty (Dhasan et al., 2021; Omar et al., 2021).

Although this paper has contributed to the body of knowledge especially within the service quality theme, some

limitations should be addressed. The results from this study cannot be generalized to the whole mobile users in Malaysia due to the usage of convenience sampling. Next, the purpose of network usage is also not in our range of discussion. It could be the difference usage of business or personal purposes. Lastly, we did not incorporate geographic borders and the current study focuses on the telecommunication users in the big cities.

For future research directions, it is recommended to delve into the understanding of service quality concepts, particularly among telecommunication users in rural areas. This study predominantly focused on users in urban settings, highlighting a need to explore how rural populations perceive service quality. Additionally, future studies should consider employing larger sample sizes encompassing various regions within a country to enhance the generalizability of the results.

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The Impact of Foreign Direct Investment, Green Technology Innovation and GDP on CO_2 Emissions in Western China: A Static Panel Data Analysis

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Abstract: This study investigates the impact of FDI, green technology innovation and GDP on CO_2 emissions in the western region of China. This study applies the extended STIRPAT model, selects the relevant data of nine provinces in western China from 2000 to 2019, applies the static panel data analysis method, compares and analyses the estimation methods of Pooled OLS, fixed effect and random effect, and finally adopts the robust standard error estimation method of fixed effect. The results of the robust standard error estimation indicate that, in addition to the negative impact of green technology innovation on CO_2 emissions, CO_2 emissions are positively impacted by FDI, GDP, population, and the proportion of the secondary and tertiary industries. Therefore, reasonable introduction of FDI and improving green technology innovation levels are crucial in reducing CO_2 emissions in the western region of China.

Keywords: *Foreign Direct Investment, Greem Technology Innovation, GDP, CO_2 Emissions, Western China*

1. Introduction and Background

Globalization has facilitated the world economy's growth, but it has also caused negative environmental impacts, such as ecological damage, the greenhouse effect, and increased CO_2 emissions. The latter has been identified as a significant contributor to climate change and global warming (Ahmed et al.， 2019). This issue has attracted widespread attention from scholars and policymakers around the world. There are many factors contributing to the increase in CO_2 emissions. Human activity, mainly fossil fuel burning, was identified as the main cause of global warming and greenhouse gases, particularly CO_2, have increased due to human activity (the IPCC Sixth Assessment Report, AR6, 2021). International treaty agreements have been reached by countries worldwide to reduce global CO_2 emissions. These include the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement. Since 2005, China, as a developing country, has surpassed the United States as the largest emitter of CO_2 (World Bank database, 2022). China's CO_2 emissions have increased every year over the past two decades accounting for approximately one-third of the global total annual CO_2 emissions.

Foreign Direct Investment (FDI) is a crucial component of globalization activities worldwide (Doytch, 2020). FDI facilitates the global movement of factors of production and contributes to economic development, technology transfer, and the mobility of people (Gan & Yin, 2016; Qi & Vilaiphorn, 2019; Doytch, 2020; Hu et al., 2021). At the same time, it also brings many negative impacts on the environment of the host country particularly developing countries, such as the increase in CO_2 emissions. There are two contradictory arguments on the nexus of FDI and environment quality – pollution haven and pollution halo hypotheses. The pollution halo hypothesis claims that foreign direct investments result in a decrease in emissions, while the pollution haven hypothesis holds that foreign direct investments cause emissions to rise.

To improve the increasing environmental degradation problems, governments worldwide are taking various measures to reduce CO_2 emissions, including improving recyclable and green technology innovation and promoting green consumption. Green technology innovation refers to technologies, processes and products that reduce environmental pollution and lessen energy use (Braun & Wield, 1994). Green technology innovation is essential for achieving a low-carbon economy (Xu et al., 2022). Current research on green technology innovation concentrates on energy conservation, environmental optimization, and low-carbon development, with a focus on technological advancements that contribute to energy conservation and emission reduction (Long et al. 2017; Sellitto et al. 2020; M. Wang et al. 2021).

China has 34 provincial administrative regions (which are referred to as provinces) that can be divided into the Eastern Region (12), the Central Region (9), the Western Region (10), and Hong Kong, Macao and Taiwan

(3). The National Development and Reform Commission (NDRC) of China reports that the coastal opening policy was first implemented in the eastern region, which is more economically developed. In contrast, the central region is less developed, and the western region is economically underdeveloped. There are clear disparities between China's regions in terms of FDI, economic growth, and CO_2 emissions. FDI is distributed unevenly across regions (B. Zhou & Shao, 2020), in which most of the FDI inflows mainly focus on the eastern coastal region, comparatively FDI inflows to central and western regions are relatively low. Since 2000, China has implemented several policies to stimulate economic growth in the central and western regions.

The "Western Development" strategy implemented in 2000 has resulted in significant economic growth, increased FDI, and green technology innovation in the Western region. This has increased significant FDI inflows to western regions and increased CO2 emissions. Western China's CO2 emissions climbed from 2158 million tonnes in 2010 to 3140 million tonnes in 2019, accounting for a rise in the country's overall CO2 emissions from 25.8% in 2010 to 28.6% in 2019 (Yang et al, 2023). However, variations in the utilization of foreign investment, capacity for green technology innovation, and economic growth among the western provinces of China are due to variations in regional investment promotion policies and environmental regulations. There is limited study on the nexus of FDI and CO2 emissions in the western region of China. Thus, this study aims to examine the impact of FDI, green technology innovation, and economic growth on CO_2 emissions in the western provinces of China.

2. Literature Review

Theoretical Framework

There are two theories about the relationship between FDI and environmental pollution. The first theory is the Pollution Haven Hypothesis (Walter & Ugelow, 1979; Baumol & Oates, 1988). FDI can increase CO_2 emissions in developing countries when their economic development is in the early stages. Increased CO_2 emissions mean more environmental pollution. Many scholars agree with this view, such as S. Wang et al. (2017), K. Zhang (2019), Do & Dinh (2020), Nadeem et al. (2020), Abdo et al. (2020), etc. The second theory is the Pollution Halo Hypothesis. It is believed that FDI can lead to a reduction in CO_2 emissions in host countries and contribute to environmental improvement. This view is also supported and endorsed by many scholars, such as Sapkota & Bastola (2017), Pazienza (2019), Zubair et al. (2020), Long et al., (2020), etc.

Furthermore, the STIRPAT model (Grossman & Krueger, 1995; York et al., 2003; Dietz & Rosa, 1994) is an extension of the IPAT model (Ehrlich & Holdren, 1971) and examines the factors that influence CO_2 emissions. It considers the effects of population, affluence, technology, and other factors on CO_2 emissions. Many scholars (Ghazali & Ali, 2019; Kong et al., 2022; etc.) use the STIRPAT model to examine the impact of population, affluence, technology, and other factors on CO_2 emissions. They arrive at different research conclusions due to differences in research subjects, time, etc. (Oladunni et al., 2022; Wen et al., 2022; Udeagha & Ngepah, 2022; etc.). Many scholars have also used the model to study China's CO_2 emissions from different perspectives, such as from the perspective of a single province in China (Du, 2020; Song & Xu, 2021), from the perspective of several provinces in China (Liu & Han, 2021; Guo & Zhao, 2022), from the perspective of a city or province in China (Xu & Ren, 2018), from the perspective of many cities in China (Huangfu et al., 2020; Tang & Hu, 2021; Zhao & Xi, 2022), from the perspective of transportation industry (Zhu et al., 2022).

FDI and CO_2 Emissions

There are contradictory arguments on the impact of FDI on CO_2 emissions as there are significant differences in the scale effect, the structural effect and the technology effect of FDI on CO_2 emissions. Some scholars found FDI can reduce CO_2 emissions in China from a different perspective. Dang (2018) and Wen (2021) studied FDI in various provinces. Dang (2018) selected panel data from 29 provinces in China from 1990 to 2016 and built an Autoregressive Distributed Lag (ARDL) panel model to investigate the impact of trade and FDI on CO_2 emissions in China. Wen (2021) used a threshold model and a fixed effect model to investigate the impact of FDI and industrial structure on CO_2 emissions in 30 provinces in China from 2004 to 2018. They all found that FDI inhibited the growth of CO_2 emissions. Elliott et al. (2013) studied FDI in various cities. He used the panel data of 206 of the largest prefecture-level cities in China from 2005 to 2008 and suggested that FDI could help reduce CO_2 emissions in inflowing countries. Xu (2016) and Cao et al. (2020) focused on FDI in a specific province. Xu (2016) studied the impact of FDI on CO_2 emissions in Shandong Province from 1995 to 2012. Cao

et al. (2020) chose the data of Zhejiang province from 2005 to 2016 for the study. Both of them found that FDI could significantly reduce CO_2 emissions.

On the other hand, Su et al. (2021) studied FDI in 31 provinces in China from 2000 to 2019 and found FDI was associated with increasing CO_2 emissions. Yang & Wang (2022) used panel data from 30 provinces in China from 2003 to 2019 to construct the spatial Durbin model and found FDI contributed to increase CO_2 emissions in the eastern and western regions of China but had little impact after that according to the study. FDI intensity in 283 Chinese cities from 1992 to 2013 was the primary factor contributing to the increase in CO_2 emissions (Wang et al., 2019). Wu & Liu (2021) also found that FDI in 281 cities in China from 2008 to 2017 was associated with an increase in CO_2 emissions. However, FDI had different impacts on CO_2 emissions based on the region. While FDI contributed to the increase in CO_2 emissions in the Bohai Rim Economic Circle, the opposite was true in the Yangtze River Delta and Pearl River Delta regions (Zhu & Wei, 2018).

Moreover, some scholars have even found that there is a threshold effect in the impact of FDI on CO_2 emissions in China, such as Huang (2017), Wang (2019), etc. For instance, Wang (2019) selected panel data from 2003 to 2016 in 29 provinces in China and applied the panel threshold model to analyze the impact of financial development and two-way foreign direct investment (FDI) on China's CO_2 emissions. According to the study, there was a financial development threshold identified for the carbon emission effect of two-way FDI. CO_2 emissions were significantly reduced when financial development reached a high level, and outward DFI and inward FDI were significant contributors to this carbon emission reduction.

Green Technology Innovation and CO_2 Emissions

There is limited literature on the impact of green technology innovation on CO_2 emissions, and most of it focuses on the impact of technology innovation on CO_2 emissions. Similarly, there are fewer studies on the impact of green technology innovation on CO_2 emissions in China. The conclusions of China's CO_2 emissions differ slightly due to differences in the research objects. There is less empirical evidence on the role of green technology innovation in economic growth and CO_2 emission reduction in China (Hu & Shi, 2022). However, green technology innovation can effectively reduce CO_2 emissions in China (Qian & Li, 2017; Wu & Zhao, 2021). Qian & Li (2017) combined green technology innovation with carbon emission intensity at the industrial level to develop a model and found green technology innovation had become an increasingly significant factor in reducing CO_2 emissions. Furthermore, Wu & Zhao (2021) selected panel data from 2004 to 2018 in 30 provinces in China, decomposed green technology innovation into green product innovation and green process innovation, and used the generalized spatial panel model to study the impact of green technology innovation on the reduction of CO_2 emissions and energy conservation. According to the study, green technology innovations could reduce CO_2 emissions and contribute to energy conservation and carbon emission reduction.

Economic Growth and CO2 Emissions

The Environmental Kuznets Curve (EKC) provides a good representation of the "inverted U-shaped" relationship between economic growth and CO_2 emissions. However, there is no consensus on the relationship between economic growth and CO_2 emissions. In China, their relationships exhibit "inverted U-shaped" (J. Wang & Zhen, 2018; B. Jiang & Ma, 2020; etc.), "U-shaped" (Zhou et al., 2015), "inverted N-shaped" (Liu et al., 2018) or linear characteristics (Yuan & Sun, 2020), even maybe unrelated (Zhao et al., 2021), due to differences in research objects, areas and time. For instance, Wang & Zhen (2018) chose data from nine provinces and two cities in China's Yangtze River Economic Belt from 2000 to 2015, and Jiang & Ma (2020) used China's three northeastern provinces (Liaoning, Jilin, and Heilongjiang) from 1998 to 2018 to examine the relationship between economic growth and CO_2 emissions are "inverted U-shaped". Zhou et al. (2015) found the relationship between the two is "U-shaped" in China from 1978 to 2012. However, in nine provinces in China with GDP per capita over US $10,000 from 1995 to 2015, the relationship between the two is "inverted N-shaped" (Liu et al., 2018). Dividing 30 provincial-level data from 2002 to 2016 into four levels according to their economic development, those provinces with higher income levels had already experienced significant reductions in CO_2 emissions, whereas economically underdeveloped areas were still in the process of urbanization which would accelerate CO_2 emissions (Yuan & Sun, 2020). However, several provinces in China had obvious deviations from the Environmental Kuznets Curve (EKC) theory. Despite this, China's economic growth has been driven largely by energy consumption over the past 50 years (Zhao et al., 2021).

The main reason for the linear relationship between economic growth and CO_2 emissions is that most scholars directly assume a linear relationship in their studies. Some scholars have found that economic growth increases China's CO_2 emissions (Hao & Cao, 2021), while no scholars have found that economic growth reduces China's CO_2 emissions. Economic growth has a greater impact on CO_2 emissions in low-income areas than in high-income areas (Cai & Ye, 2017).

3. Research Methodology

The STIRPAT (Stochastic Impacts by Regression on Population, Affluence, and Technology) model (Dietz & Rosa, 1994) is an extension of the IPAT model (Ehrlich & Holdren, 1971). The model is used to analyze the stochastic effects of population, affluence technology and other drivers on the environment. The STIRPAT model is therefore the basis for the construction of the research model in this study. The STIRPAT model is as follows: $I_i = aP_i^b A_i^c \quad {}_i^d e_i$

where, the expression meanings of I, P, A and T are consistent with the IPAT model. a is the model parameter, b, c and d are the driving force index of population, affluence and technology factors respectively, also known as exponents, and e is the random error term. i indicates that these quantities (I, P, A, T, and e) vary with the units of observation.

This study examines the impact of FDI, green technology innovation, and economic growth on CO_2 emissions. FDI, green technology innovation, and economic growth are the core explanatory variables, while population, and the proportion of the secondary industry, as the control variables. The basic static panel data model in this study is shown in equation (1).

$$CO_{2it} = \alpha + \beta_1 FDI_{it} + \beta_2 GTI_{it} + \beta_3 GDP_{it} + \beta_4 POP_{it} + \beta_5 PSI_{it} + \beta_6 PTI_{it} + \varepsilon_{it} \quad (1)$$

where, CO_{2it} equals CO_2 emissions for the province i at time t, a proxy for the environment, FDI_{it} equals the amount of foreign capital actually utilized for the province i at time t, a proxy for foreign direct investment, GTI_{it} equals the number of green patent filings for the province i at time t, a proxy for green technology innovation, GDP_{it} equals GDP per capita for the province i at time t, a proxy for affluence, POP_{it} equals the number of permanent residents at the end of the year for the province i at time t, a proxy for population, PSI_{it} equals the proportion of the added value of the secondary industry in GDP for the province i at time t, a proxy for the proportion of secondary industry, PTI_{it} equals the proportion of the added value of the tertiary industry in GDP for the province i at time t, a proxy for the proportion of tertiary industry. The parameters β_1, β_2, β_3, β_4 and β_5 represent the coefficients for the independent variables, and ε indicates the error term. Furthermore, t stands for the period from 2000 to 2019, and iintendsrovince index in western CChna i = 1,2, … ,9.

This study uses the data from 9 provinces in the western region of China (as shown in Table 1), excluding Tibet due to the unavailability of the data. The description of the data is presented in Table 2.

Table 1: List of Provinces in the western region of China (except Tibet)

Xinjiang	Qinghai	Ningxia
Gansu	Shaanxi	Sichuan
Chongqing	Guizhou	Yunnan

Source: Standards Issued by China's National Bureau of Statistics in 2003

The specific variables and data sources are shown in Table 1.

Table 2: Summary of Variables

VARIABLES		SYMBOL	MEASUREMENT	UNIT	DATA SOURCES	EXPECTED SIGN
Dependent variable	CO_2 emissions	CO_2	CO_2 emissions	million tons	China Emission Accounts and Datasets (CEADs)	-
Explanatory Variables	Foreign Direct Investment	FDI	Actual utilization of foreign capital	million US$	China Statistical Yearbook	Positive
	Green Technology Innovation	GTI	Green patent filing	piece	OECD & the Patent Search and Analysis System of the State Intellectual Property Office of China	Negative
	Economic Growth	GDP	GDP per capita	US$	China Statistical Yearbook & the People's Bank of China	Positive
Control Variables	Population	P	permanent resident population at the end of the year	people	China Statistical Yearbook	Positive
	The Proportion of Secondary Industry	PSI	The proportion of the added value of the secondary industry in GDP	%	China Statistical Yearbook & the People's Bank of China	Positive
	The Proportion of Tertiary Industry	PTI	The proportion of the added value of the tertiary industry in GDP	%	China Statistical Yearbook & the People's Bank of China	Positive

This study employs the method of static panel approaches. The model can be tested simply using a pooled ordinary least square (POLS) test in equation (1). This model is assumed to have a similar intercept and slope across provinces and time. However, the result of regressing may lead to heterogeneity bias.

The model assumes a similar intercept and slope across provinces and time by the regressing equation (1). However, this assumption may lead to heterogeneity bias. Heterogeneity refers to individual-specific effects, which means that all provinces are heterogeneous. Therefore, the slope and intercept should be different for each province. To accommodate this individual-specific effect, the model is used as shown in equation (2).

$$CO_{2it} = \alpha + \beta_1 FDI_{it} + \beta_2 GTI_{it} + \beta_3 GDP_{it} + \beta_4 POP_{it} + \beta_5 PSI_{it} + \beta_6 PTI_{it} + \lambda_i + \mu_{it} \quad (2)$$

where, ε_{it} is decomposed into an individual-specific effect λ_i, indicating the specific unobservable factors of each province, and a random error term μ_{it}. This study could use two aotherstaticpanel approaches to regress equation (2), namely the random effects (RE) and fixed effects (FE) approaches, considering different sslopeandintercept. The iindividual-specificeffectlambdatlambdatlambdatλ_i doesn't change across time. The RE approach considers individual-specific effects as part of the error term and is independently derived from a probability distribution. The FE approach can control unobserved individual-specific fixed effects that are

time-invariant and treat individual-specific effects as constant or fixed. Thus, the individual-specific effect is included in the error term in the RE model and the constant term in the FE model, as shown in equations (3) and (4).

$$CO_{2it} = \alpha + \beta_1 FDI_{it} + \beta_2 GTI_{it} + \beta_3 GDP_{it} + \beta_4 POP_{it} + \beta_5 PSI_{it} + \beta_6 PTI_{it} + \lambda_i + \mu_{it} \quad (3)$$

$$CO_{2it} = \alpha + \beta_1 FDI_{it} + \beta_2 GTI_{it} + \beta_3 GDP_{it} + \beta_4 POP_{it} + \beta_5 PSI_{it} + \beta_6 PTI_{it} + \mu_{it} \quad (4)$$

This study uses Breusch Pagan LMs (BPLMs) developed by Breusch and Pagan (1980) and Hausman tests developed by Hausman (1978) to select the research model. If the null hypothesis is rejected, the BP-LM test indicates a preference for the RE model over the POLS model, while the Hausman test indicates a preference for the FE model over the RE model.

4. Results

Descriptive statistics for the dependent and independent variables, using untransformed data, are shown in Table 3. The statistics show a significant imbalance in CO_2 emissions in the western region of China, with a maximum of 455.2746 and a minimum of only 0.8144065. There are also significant differences in FDI, green technology innovation and GDP per capita.

Table 3: Descriptive Statistics

VARIABLES	UNIT	OBS	MEAN	STANDARD DEVIATION	MIN	MAX
CO_2 emissions (CO_2)	million tons	180	151.991	94.501	0.814	455.275
FDI	million US$	180	1334.697	2337.818	4.460	10287.640
Green Technology Innovation (GTI)	piece	180	930.6167	1543.762	3.000	9220.000
GDP per Capita (GDP)	US$	180	3536.271	2685.833	321.506	10994.820
Population (POP)	thousand people	180	32263.740	21754.960	5165.000	83510.000
PSI	%	180	0.446	0.0526	0.328	0.584
PTI	%	180	0.416	0.052	0.323	0.551

The correlation matrix is presented in Table 4 for both dependent and independent variables. All variables are positively correlated with CO_2 emissions, except for the proportion of the secondary industry. The correlation coefficients among all independent variables are not greater than 0.7. Several of the correlation coefficients in the table are statistically significant at 0.01.

Table 4: Correlation Matrix

	CO2	FDI	GTI	GDP	POP	PSI	PTI
CO2	1.000						
FDI	0.585***	1.000					
GTI	0.568***	0.787***	1.000				
GDP	0.578***	0.450***	0.612***	1.000			
POP	0.537***	0.600***	0.469***	-0.023	1.000		
PSI	-0.117	0.202***	-0.102	0.124*	-0.212***	1.000	
PTI	0.212***	0.038	0.386***	0.424***	-0.076	-0.659***	1.000

Notes: * p<0.1, **p<0.05, *** p<0.01.

Next, this study will conduct various regression analyses. The full regression results are shown in Table 5. Table 5 shows the positive impact of FDI and GDP on CO_2 emissions, as well as the negative impact of green technology innovation on CO_2 emissions.

Table 5: Results of FDI, Green Technology Innovation and Economic Growth on CO_2 Emissions Using Static Approaches, 2000-2019

	POLS	*FIXED EFFECT*	*RANDOM EFFECT*	*FE ROBUST STANDARD ERROR*
FDI	0.0111*** (0.0040)	0.0140** (0.0026)	0.0115*** (0.0029)	0.0140*** (0.0035)
GTI	-0.0095*** (0.0034)	-0.0122*** (0.0022)	-0.0106*** (0.0025)	-0.0122** (0.0050)
GDP	0.0266887*** (0.0024637)	0.0088*** (0.0021)	0.0173*** (0.0020)	0.0088* (0.0046)
POP	0.0018*** (0.0003)	0.0209*** (0.0031)	0.0030*** (0.0006)	0.0209* (0.0128)
PSI	-619.1162*** (168.5338)	854.0271*** (159.5066)	494.5532*** (172.9059)	854.0271*** (194.7089)
PTI	-386.1408*** (166.2390)	1040.4830*** (150.1000)	639.7635*** (163.2289)	1040.4830*** (233.7663)
cons	433.4994*** (137.8742)	-1368.8740*** (173.3938)	-513.6415*** (141.8579)	*-1368.8740** *(443.9727)*
$\bar{R}^2$	0.6610			
RMSE	55.024			
Poolability test		*37.91 (0.0000)*		
BPLM test	*215.10 (0.0000)*			
Hausman test		*37.62 (0.0000)*		
Heteroscedasticity test		*586.41 (0.0000)*		
CSD test			*-0.730 (1.5344)*	
Wooldridge test		*19.789 (0.0021)*		
VIF test	4.12			
Number of groups		9	9	9
Number of observations	*180*	*180*	*180*	*180*

*Notes: Figures in the parentheses are standard errors. $\bar{R}^2$ indicates adjusted R-squared, RMSE indicates root mean square error, Poolability test indicates the mixed effects of panel data, BPLM indicates Breusch–Pagan LM test, CSD test indicates cross-sectional dependence, Wooldridge test indicates serial correlation, and VIF test indicates multi-collinearity test. Figures in the parentheses for the F-test, BPLM test, Hausman test, Heteroscedasticity test, CSD test,and Wooldridge test are p-values. *, **, and *** indicate the respective 10%, 5%, and 1% significance levels.*

As shown in Table 5, all independent variables of the POLS model have a significant impact on CO_2 emissions at the 1% level of significance. Ir indicates that FDI, GDP and POP are significantly increasing the emissions of CO_2, while GTI, PSI and PTI can reduce CO_2 emissions. However, the impact of PSI and PTI on CO_2 emissions is inconsistent with the expected results. The results of the RE model are comparable to those of the FE model. All independent variables examined in the study have a significant impact on CO_2 emissions at the 1% or 5% significance levels. Moreover, the study revealed that apart from the negative impact of green technology innovation on CO_2 emissions, other factors such as an increase in FDI, GDP, population, the proportion of the secondary industry, and the proportion of the tertiary industry also contribute to an increase in CO_2 emissions. These findings align with the expected results, indicating that changes in all independent variables have a consistent impact on CO_2 emissions.

BPLM testing is required to select the best estimation model between the POLS model and the RE model. As the

p-value is less than 0.05, the null hypothesis is rejected, therefore the RE model is superior to the POLS model. Additionally, the Poolability F-test was conducted with a p-value less than 0.05, rejecting the null hypothesis that the FE model is superior to the POLS model. These support the validity of panel data analysis. To select between the RE and FE models, a Hausman test is necessary. Based on the Hausman test results, it is evident that the FE model outperforms the RE model. Furthermore, a series of diagnostic tests are conducted, including the CSD test, serial correlation test, heteroscedasticity test, and multicollinearity test. The result of the CSD test indicates acceptance of the null hypothesis and no correlation with cross-sectional data. The VIF test yields a value of 4.12, indicating no multicollinearity. The results of the Wooldridge and Heteroscedasticity tests both indicate the presence of serial correlation and heteroscedasticity, as their p-values are less than 0.05.

To address issues of serial correlation and heteroscedasticity, this study employs robust standard error estimation for the FE model as shown in column 5, Table 5. The results of the robust standard error estimation indicate that FDI positively significantly increases CO_2 emissions at a 5% significance level. An increase of 1 million US$ in FDI leads to a rise of 0.014 million tons of CO_2 emissions. Green technology was found to hurt CO_2 emissions at a 5% significance level. This indicates greener technology innovation is effective in reducing CO_2 emissions. An increase of 1 unit in green technology innovation results in a decrease of 0.0122 units in CO_2 emissions. Results indicate a significant positive impact of GDP on CO_2 emissions at a 10% significance level implying higher economic growth leading to greater CO_2 emissions. An increase of 1 US$ in GDP per capita results in a rise of 0.00877 million CO_2 emissions. Population, secondary industry, and tertiary industry were found to have significantly impacted CO_2 emissions at 10% and 5% significance levels, respectively. An increase of 1000 people in the population leads to a rise in CO_2 emissions of 0.0209 million tons; a 1% increase in the secondary industry will increase CO_2 emissions by 854.027 million tons; a 1% increase in the tertiary industry will increase CO_2 emissions by 1040.483million tons. overall.

The estimation results show that FDI, GDP, and green technology innovation have a significant positive impact on CO_2 emissions. This suggests that FDI in the western region of China is mainly directed towards industries with high energy consumption and pollution, which in turn increases the pressure to reduce CO_2 emissions. Additionally, GDP growth in the western region contributes to the deterioration of environmental quality by increasing CO_2 emissions. The green technology innovation has reduced CO_2 emissions to some extent, thereby improving the environmental quality of the western region. The western region of China has experienced slower GDP growth and attracts less FDI compared to the central and eastern regions. As a result, regional governments have limited support for green technology innovation, leading to a smaller impact on CO_2 emissions, which is closely linked to regional development.

5. Discussion

This study examines the influence of FDI, green technology innovation, and GDP on CO_2 emissions in nine provinces in the western region of China. This study employs static panel data analysis methods. To begin with, the fixed effects (FE) model was chosen after conducting the Poolability test. Additionally, the random effects (RE) model was selected based on the BPLM test. To determine the most appropriate model, this study employs the Hausman test, which leads to the selection of the fixed effects model. To address potential issues related to serial correlation and heteroscedasticity, a fixed effects model with robust standard error estimation is utilized. This approach helps to ensure the reliability and accuracy of the estimation results. Overall, the estimation results obtained from this study are statistically significant, indicating that the variables under investigation (FDI, green technology innovation, and GDP) have a significant impact on CO_2 emissions in the nine provinces of western China.

The results of the estimation show that introducing FDI and improving green technology innovation levels are crucial in reducing CO_2 emissions in the western region of China. Local governments in the relatively underdeveloped western region of China have neglected the CO_2 emissions caused by GDP growth during the development process. The rise in population and the increase in output value of the secondary and tertiary industries about GDP will inevitably result in a rise in CO_2 emissions in the western region, leading to environmental degradation.

Therefore, the western region of China should focus on attracting high-quality investments, introducing low-

energy and low-pollution industries, promoting green technology innovation, improving production processes, reducing CO_2 emissions, and prioritizing intensive economic growth. This will lead to high-quality and low-carbon economic development, ultimately improving environmental quality.

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Unlocking the Potential Research Directions in Effective Teaching: Insights from Bibliometric Analysis

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Abstract: Effective teaching is considered one of the dominant and emerging topics in education. Hence, there are two objectives of the study. The first objective is to bibliometricaly analyze the performance in terms of citations and publications of Effective Teaching studies. The second objective is to analyze the research themes of Effective Teaching studies. The motivation to conduct this study is based on the gaps in previous studies on effective teaching. This study mainly uses bibliometric analysis, whereby 986 documents were analyzed through two stages – descriptive analysis and keyword network analysis. Selected findings indicated that since 1941, effective teaching studies displayed a growing trend in publications and citation performances. In addition, five research themes dominate effective teaching - 1) effective teaching in higher education, 2) enhancing curriculum with blended teaching, 3) pedagogical professional development, 4) medical education effectiveness, and 5) teacher training for classroom effectiveness. The authors also suggested six potential future research questions in terms of mixed theories, practical and methodology aspects. Hence, the significance of the study is to inspire potential scholars to explore potential holes available in effective teaching.

Keywords: *Effective teaching, bibliometric analysis, network analysis, future research*

1. Introduction and Background

The field of effective teaching studies investigates the qualities, practices, and strategies that contribute to the highest possible student learning outcomes in various educational contexts. These research studies explore the intricate relationship between pedagogy, curriculum development, instructional methods, and classroom management techniques teachers implement. At the core of this investigation lies the acknowledgment that effective pedagogy encompasses not only the transmission of information but also the development of a nurturing educational atmosphere, the application of inventive pedagogical methods, and the ongoing assessment and improvement of pedagogical procedures. Academic research on effective teaching considers students' varied backgrounds and requirements while recognizing the significance of individualized instruction, student involvement, and motivation.

All professionals must comprehend the prerequisites for effective teaching, irrespective of their job title or experience level. However, staying updated on best practices can be challenging when managing the daily pressures and demands of the role. Understanding the significance of excellent teaching should not be challenging. Experimenting with new and flashy strategies may distract from the fundamental aspects of effective teaching, which are typically straightforward to implement and utilize in the classroom. **Effective teaching** involves the knowledge, techniques, methods, and actions that lead to exceptional student results. Proficient educators positively influence pupils and utilize their skills to enhance learning. Positive results may be accurately measured, often through a comprehensive evaluation process. It is important to recognize that not all qualities of effective teaching are readily apparent or quantifiable. Competent educators establish constructive relationships with pupils in secure and courteous environments. **Effective education** transcends beyond annual data; it is ongoing. Effective teaching helps students achieve their personal and academic goals. Furthermore, proficient teachers will profoundly impact numerous adolescents by providing them with clarity and assurance. Children who have a sense of security, recognition, and involvement in the school environment do better academically and help foster a healthy culture by promoting constructive attitudes and actions. This reflective practice needs to be adapted and tailored to suit the needs of the students.

The term 'effectiveness' is a topic of discussion that can provoke intense emotions since it is linked to concepts of professional competence and high-stakes accountability in some organizations. It may challenge individual teachers' assumptions regarding their professional independence. This research aims to conduct a bibliometric analysis of effective teaching as it is expected to yield numerous advantages. Effective teaching enhances

students' academic, physical, social, socioemotional, and behavioral welfare. Effective teaching flourishes when all education stakeholders, such as parents, policymakers, community members, and educators, together assume responsibility for ongoing enhancement and student success.

Hence, there are two objectives of this study. The first objective is to bibliometricaly analyze the performance in terms of citations and publications of Effective Teaching studies. The second objective is to analyze the research themes of Effective Teaching studies. The need for this study is motivated by the opportunity to conduct this study based on the gaps from previous research conducted on review on Chinese context' effective teaching research (Liu et al., 2022), a systematic review on empathy toward effective teaching (Aldrup et al., 2022), empirical studies related to online teaching and learning (Ithnin et al., 2023), a scoping review of effective teaching on surface anatomy (Abu Bakar et al., 2022) and Malaysian-Australian education system (Dinham et al., 2021), and scoping review of effective teaching on sustainable development and global citizenship (Chiba et al., 2021). Hence, the authors fill the gaps by focusing on the bibliometric analysis of effective teaching studies in general.

The bibliometric findings on effective teaching benefit researchers, educators, and policymakers by providing insights into descriptive findings and research themes. These analyses help to identify the gaps and potential future research directions. In addition, the analysis can enhance the understanding of the impact of various determinants on educational outcomes. Readers can gain valuable information on the research themes, and publication and citation performances in the field of education. Hence, effective teaching studies significantly contribute to education studies.

The paper is structured as follows. Section 2 explains the method conducted by the authors and its protocol. Then section 3 describes the bibliometric findings in terms of performance. Section 4 describes the research themes of effective teaching studies. Section 5 provides suggestions for future research directions. Finally, the final section concludes the entire paper.

3. Method

The primary method approach of this study is a mix of quantitative and qualitative. For the quantitative aspects, this study measures descriptive bibliometric studies through publications and citation performances, top author contributions, top productive countries, top productive affiliations, top productive journals, and top cited articles. On the other hand, the qualitative aspects explore the research trends associated with effective teaching. In addition, content analysis will be added to propose the potential future research questions in effective teaching studies.

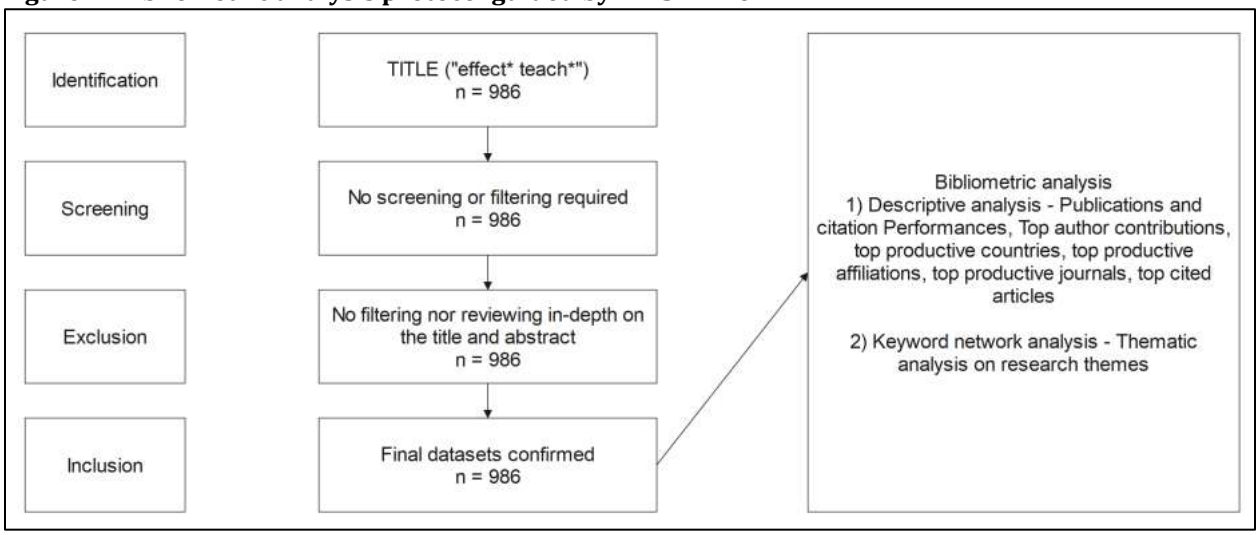
Methodology and Protocol

Bibliometric analysis is applied as the main analysis tool in this study. This analysis procedure was guided through partial Preferred Reporting Items in Systematic Review and Meta-Analysis (PRISMA) protocol. The original PRISMA protocol contains four main phases: identification, screening, exclusion, and inclusion. However, the author only applied the identification stage since it produces larger datasets that suit bibliometric analysis. It is noted by other scholars that the screening, exclusion, and inclusion stage best suits either systematic literature review or meta-analysis studies.

Data Collection

The bibliometric metadata sets are obtained and collected mainly from the Scopus database. This data collection only involves the identification phase in the PRISMA protocol. To conduct the identification phase, the author only uses a search string from the field code "TITLE" instead of "TITLE-ABS-KEY. The author performs a command search using the Boolean Operator of "Effect* Teach*". The symbol "*" is applied because of the wildcard function that asks the search string to come out with possible different terms due to different spelling, such as effective teaching, effect teacher, effective teacher, etc. In addition, the author searches through field code titles instead of titles, abstracts, and keywords because the title is more centric and concentrated on studies. As a result, 986 documents were retrieved through the identification stage, as per Figure 2.

Figure 2: Bibliometric analysis protocol guided by PRISMA flow



4. Results and Findings

This section presents and describes the bibliometric findings in Effective Teaching studies regarding publication and citation performances, top author contributions, top productive countries, top productive affiliation, top productive journals, and top cited articles.

Publication and Citation Performances

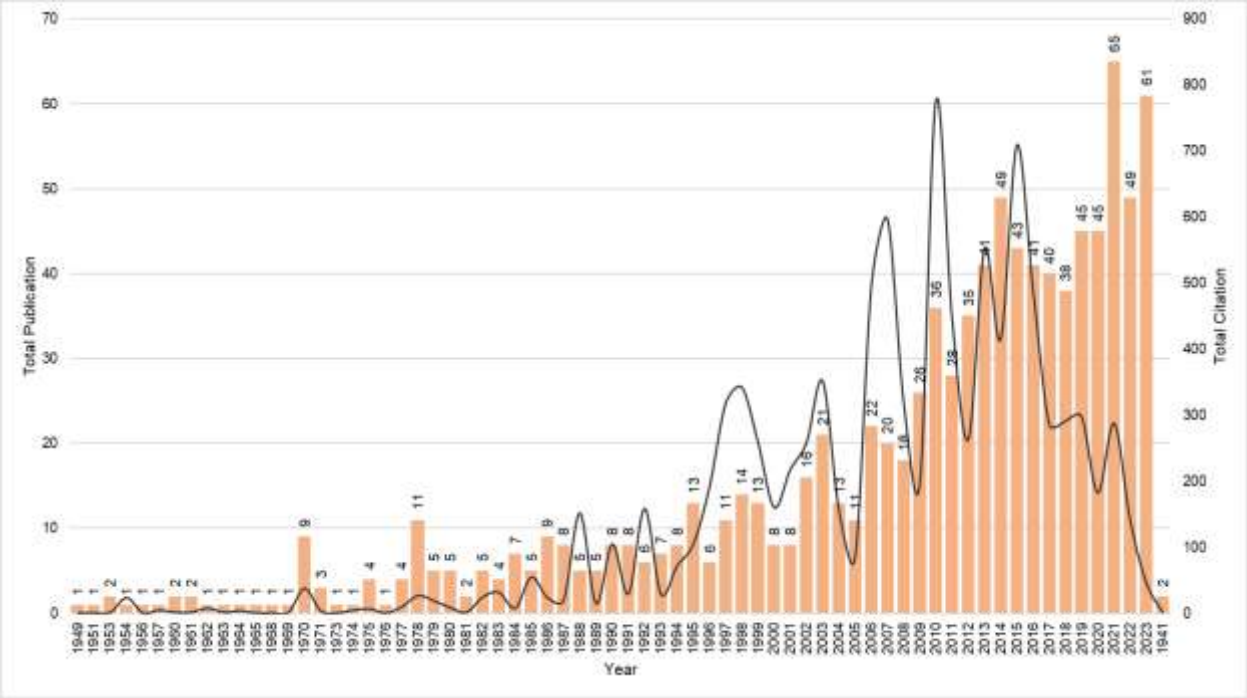
Effective teaching studies began in 1941 when two documents were published. Those two published documents were Doyle's (1941) article "A Program for More Effective Teaching of Modern Foreign Languages in the United States" and another published document were Melrose's (1941) article on "Effective Teaching of Science in the Elementary School." Since then, Effective Teaching studies have shown a growing trend in publications and citation performances, as shown in Figure 3. It is expected to continue increasing publication and citation performances in Effective Teaching studies for many years to come.

Table 2 summarizes overall publications and citation performances in effective teaching studies for 83 years from 1941 to 2023. Overall, 986 documents were published, and 10,089 citations were received about effective teaching studies. The average statistic shows an impressive record, with 121.55 citations per year, 10.23 average citations per document, and 5114.42 citations per author. The h-index and g-index also performed well, with 45 and 72, respectively.

Table 2: Summary of Overall Publications and Citation Performances in Effective Teaching Studies

Papers	986
Citations	10089
Years	83
Average citations per year	121.55
Average citations per document	10.23
Average citations per author	5114.42
Number of papers per author	574.94
Number of authors per paper	2.42
h_index	45
g_index	72

Figure 3: Publication and Citation Performances in Effective Teaching Studies (1949 – 2023)



Source: Visualization by authors from Scopus database

Top Author Contributions

Based on Table 3, Helms-Lorenz and Maulana shared the most publications in Effective Teaching studies by publishing 9 documents, equivalent to 0.91%. Then, it follows by Jordan with 6 publications or 0.61% and Kyriakides with 5 or 0.51%. The other 5 authors shared the rank with 4 publications or 0.41%.

Table 3: Top 9 author contributions with more than 4 publications in Effective Teaching studies

Author Name	TP	%
Helms-Lorenz, M.	9	0.91%
Maulana, R.	9	0.91%
Jordan, A.	6	0.61%
Kyriakides, L.	5	0.51%
Brent, R.	4	0.41%
Chittawadigi, R.G.	4	0.41%
Felder, R.M.	4	0.41%
Meng, L.	4	0.41%
Schuck, R.F.	4	0.41%

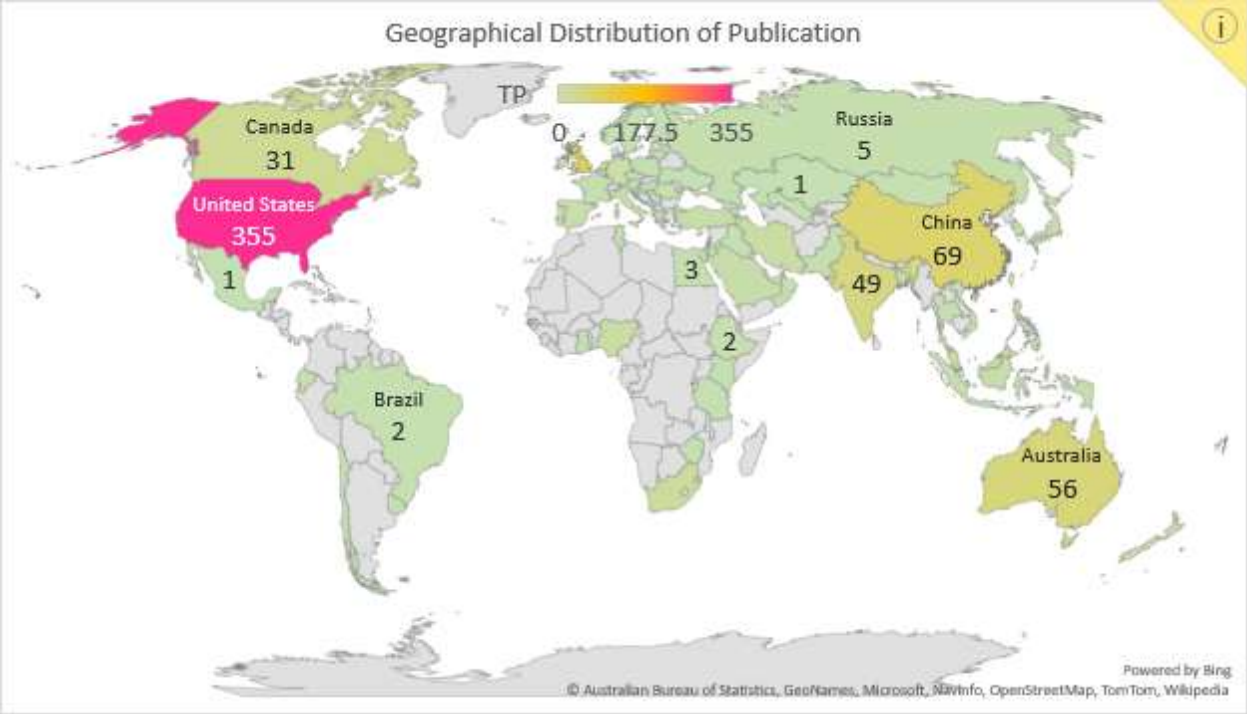
Top Productive Countries

Concerning the top productive countries with more than 10 publications in Effective Teaching studies, as per Table 4, the United States is the most productive country with a total of 355 publications, equal to 36%. Then, the United Kingdom, with 88 published documents or 8.92%, and China, with 69 published documents or 7%, completed the top three. Notable productive countries within the top 10 ranks are honored in significant publications in Effective Teaching studies, such as Australia, India, Canada, Malaysia, South Africa, Netherlands, New Zealand, etc. On the other hand, Figure 3 illustrates the geographical distributions of publications in Effective Teaching studies. As a result, most countries in Africa and South America are the least productive in publications regarding effective teaching studies.

Table 4: Top 17 Productive Countries with more than 10 publications in Effective Teaching Studies

Country	TP	%
United States	355	36.00%
United Kingdom	88	8.92%
China	69	7.00%
Australia	56	5.68%
India	49	4.97%
Canada	31	3.14%
Malaysia	28	2.84%
South Africa	24	2.43%
Netherlands	19	1.93%
New Zealand	18	1.83%
Iran	16	1.62%
Nigeria	16	1.62%
Germany	12	1.22%
Hong Kong	12	1.22%
Italy	10	1.01%
Saudi Arabia	10	1.01%
Turkey	10	1.01%

Figure 4: Geographical Distribution of Effective Teaching Studies around the World



Top Productive Affiliation

There are top 10 productive affiliations in Effective Teaching studies with more than 6 publications per Table 5. As a result, Rijksuniversiteit Groningen from the Netherlands is the most productive affiliation with 14 publications (1.42%). Then it was followed by North Carolina (NC) State University with 10 publications

(1.01%), and The University of Auckland with 9 publications (0.91%), which completes the top 3. Notable institutions that complete the top 10 are also mentioned in Table 5.

Table 5: Top 10 Productive Affiliation in Effective Teaching studies with more than 6 publications

Institution	TP	%
Rijksuniversiteit Groningen	14	1.42%
NC State University	10	1.01%
The University of Auckland	9	0.91%
The University of Texas at Austin	7	0.71%
University of Michigan, Ann Arbor	7	0.71%
University of Cyprus	7	0.71%
Purdue University	6	0.61%
Universiti Teknologi Malaysia	6	0.61%
University of California, Los Angeles	6	0.61%
University of Minnesota Twin Cities	6	0.61%

Top Productive Journals

The top productive journal exhibits the most documents published in a particular home journal or conference proceedings. Based on Table 6, ASEE Annual Conference and Exposition Conference Proceedings are the most productive journals with 20 publications (2.03%). Then, it was followed by the ACM International Conference Proceedings Series, which had 13 publications (1.32%). ASEE Annual Conference Proceedings and Journal of Engineering Education Transformation share the third place among productive journals with 12 publications (1.22%). It shows that most documents were published in conference proceedings, rather than individual journal articles.

Table 6: Top journal contributions on Effective Teaching studies with more than 9 documents

Source Title	TP	%
ASEE Annual Conference and Exposition Conference Proceedings	20	2.03%
ACM International Conference Proceeding Series	13	1.32%
ASEE Annual Conference Proceedings	12	1.22%
Journal of Engineering Education Transformations	12	1.22%
Teaching and Teacher Education	10	1.01%
Effective Teaching Around the World Theoretical Empirical Methodological and Practical Insights	9	0.91%
Journal of Economic Education	9	0.91%
Nln Publications	9	0.91%
Proceedings Frontiers in Education Conference Fie	9	0.91%

Top cited articles

Top cited articles explain the article that receives the highest citations. The top 20 cited articles performed well, between 81 and 199 citations. Based on Table 7, the top cited article belongs to Devlin & Samarawickrema's (2010) article on "The criteria of effective teaching in a changing higher education context". This article received 199 citations, an average of 14.21 per year. The second most cited article belongs to Goldhaber & Anthony's (2007) article on "Can teacher quality be effectively assessed? National board certification as a signal of effective teaching". This article received 197 citations with an average of 11.59 citations per year. The third most cited article belongs to Friedman et al. (2011) article on "Effective Teaching Strategies and Methods of Delivery for patient education: A systematic review and practice guideline recommendations". This article received 195 citations, an average of 15 per year. Even though Xu et al. (2015) article on "An effective teaching-learning-based optimization algorithm for the flexible job-shop scheduling problem with fuzzy processing

time" is in sixth place in terms of most cited article, this article produced the highest average citation per year with 18.22.

Table 7: Top 20 cited articles in Green Human Resource Management studies

No.	Author(s)	Title	TC	C/Y
1	Devlin & Samarawickrema (2010)	The criteria of effective teaching in a changing higher education context	199	14.21
2	Goldhaber & Anthony (2007)	Can teacher quality be effectively assessed? national board certification as a signal of effective teaching	197	11.59
3	Friedman et al. (2011)	Effective teaching strategies and methods of delivery for patient education: A systematic review and practice guideline recommendations	195	15
4	Khan & Coomarasamy (2006)	A Hierarchy of Effective Teaching and Learning to Acquire Competence in evidenced-based Medicine	168	9.33
5	Ng et al. (2010)	School experience influences pre-service teachers' evolving beliefs about effective teaching	167	11.93
6	Xu et al. (2015)	An effective teaching-learning-based optimization algorithm for the flexible job-shop scheduling problem with fuzzy processing time	164	18.22
7	Kyriakides et al. (2013)	What matters for student learning outcomes: A meta-analysis of studies exploring factors of effective teaching	142	12.91
8	Stanovich & Jordan (1998)	Canadian Teachers' and Principals' Beliefs About Inclusive Education as Predictors of Effective Teaching in Heterogeneous Classrooms	137	5.27
9	Ferenchick et al. (1997)	Strategies for efficient and effective teaching in the ambulatory care setting	137	5.07
10	Pratt et al. (1999)	Chinese Conceptions of 'effective teaching' in Hong Kong: Towards the culturally sensitive evaluation of Teaching	135	5.4
11	Hoyt et al. (1988)	Video recording trauma resuscitations: An effective teaching technique	129	3.58
12	Jordan et al. (2010)	The Supporting Effective Teaching (SET) project: The relationship of inclusive teaching practices to teachers' beliefs about disability and ability, and their roles as teachers	128	9.14
13	Bliss et al. (1996)	Effective teaching and learning: Scaffolding revisited	116	4.14
14	Hativa et al. (2001)	Exemplary university teachers: Knowledge and beliefs regarding effective teaching dimensions and strategies	107	4.65
15	Howes et al. (1992)	Teacher characteristics and effective teaching in child care: Findings from the national child care staffing study	105	3.28
16	Huang et al. (2015)	An effective teaching-learning-based cuckoo search algorithm for parameter optimization problems in structure designing and machining processes	100	11.11
17	Harbour et al. (2015)	A brief review of effective teaching practices that maximize student engagement	86	9.56
18	Kuyini & Desai (2007)	Principals' and teachers' attitudes and knowledge of inclusive education as predictors of effective teaching practices in Ghana	86	5.06
19	Howes et al. (2003)	Pathways to Effective Teaching	83	3.95
20	Ditcher (2001)	Effective Teaching and Learning in Higher Education, with Particular Reference to the Undergraduate Education of Professional Engineers	81	3.52

Research Themes on Effective Teaching Studies

This section explains research themes about Effective Teaching studies. Figure 4 displays research mapping on Effective Teaching studies. The research themes of effective teaching encompass various key aspects that contribute to the successful teaching approach or practices. Five different colors indicate five research themes on Effective Teaching studies, which will be discussed later. Table 8 below exhibits five research themes on Effective Teaching studies. The research themes were analyzed through network analysis using VosViewer software, and each theme was based on the top five keywords associated with each theme.

Figure 5: Research Mapping on Effective Teaching Studies

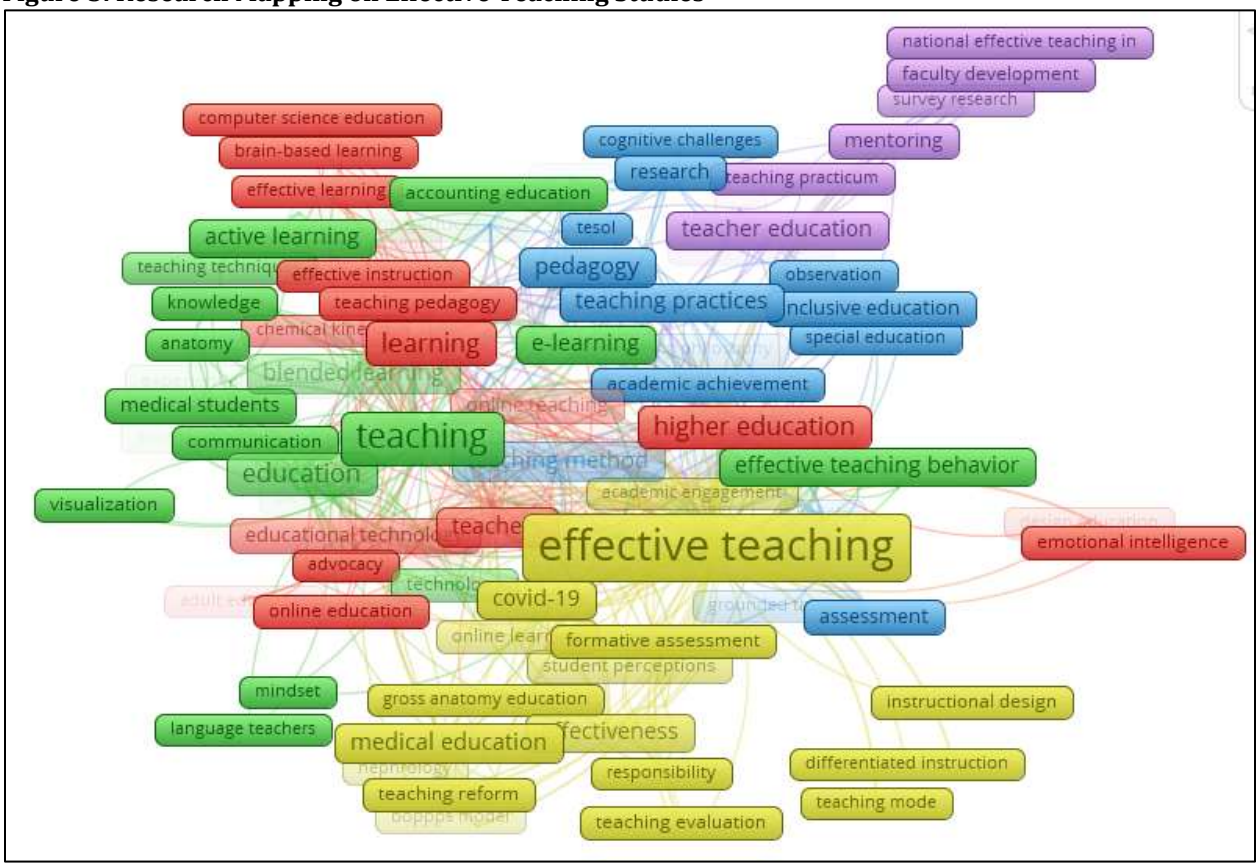


Table 8: Summary of Research Mapping

No	Theme	Top 5 keywords
1	Effective teaching in higher education	Learning, Higher Education, Teachers, Teaching Strategies, Students
2	Enhancing Curriculum with Blended Teaching	Teaching, Education, Curriculum Development, Blended Learning, Perception
3	Pedagogical Professional Development	Professional Development, Teaching Method, Pedagogy, Teaching Practices, Motivation
4	Medical Education Effectiveness	Effective Teaching, Medical Education, Teaching Quality, COVID-19, effectiveness
5	Teacher Training for Classroom Effectiveness	Training, classroom management, teacher education, teacher evaluation, teacher quality

Theme 1 - Effective teaching in higher education

The first theme is called "Effective teaching in higher Education". This theme is represented by red color. This theme contains the top 5 keywords: learning, higher education, teachers, teaching strategies, and students. Some topics discussed under this theme are effective teaching strategies and methods of delivery for patient

education (Friedman et al., 2011; Valiee et al., 2016), effective teaching for sustainable development (Lai & Peng, 2020), effective learning and improvement (Patlins, 2018), and challenges in teaching chemistry (Edomwonyi-Otu & Avaa, 2011).

Theme 2 - Enhancing Curriculum with Blended Teaching

The second theme is named "Enhancing Curriculum with blended teaching." This theme is represented by the green color. This theme contains the top 5 keywords – teaching, education, curriculum development, blended learning, and perceptions. Some research work that has been done under this theme is on multimedia tools for effective teaching and learning (Kapi et al., 2017), promoting effective teaching and learning for hospital needs (Gibson & Campbell, 2000), computer networking laboratory for efficient manageability and effective teaching (Caicedo & Cerroni, 2009), blended learning in clinical medicine (Makhdoom et al., 2013), interactive lectures (Wessels et al., 2007), Phygital Learning (Chaturvedi et al., 2021), and student views on the effective teaching of physical examination skills (Martens et al., 2009).

Theme 3 - Pedagogical Professional Development

The third theme is named "pedagogical professional development", represented by blue. The top five keywords associated with this theme are professional development, teaching method, pedagogy, teaching practices, and motivation. This theme discussed several related issues, such as intensive training programs for effective teaching (Dragisich et al., 2016; Kuijpers et al., 2010), the impact of effective teaching characteristics (Azigwe et al., 2016), pedagogy in teaching (Crabtree & Sapp, 2004), cognitive challenges in effective teaching (Chew & Cerbin, 2021), and effective teaching through self-directed professional development (Lopes & Cunha, 2017). Those elements are requirements for professional development in pedagogy teaching.

Theme 4 - Medical Education Effectiveness

The fourth theme is called "medical education effectiveness." Represented by a yellow color, the top five keywords associated with this theme are effective teaching, medical education, teaching quality, COVID-19, and effectiveness. This theme discussed several related issues, such as pathways to effective teaching (Howes et al., 2003), model of effective teaching behavior (Inda-Caro et al., 2019), micro-teaching as an effective technique (Remesh, 2013), simulation models to teach the young junior doctor (Hutton et al., 2008), criteria of effective teaching (Devlin & Samarawickrema, 2010), and developing instruments for teacher feedback via the Rasch Model (der Lans et al., 2018).

Theme 5 - Teacher Training for Classroom Effectiveness

The fifth theme is named "Teacher Training for Classroom Effectiveness." Represented by purple color, the top five keywords associated with this theme are training, classroom management, teacher education, teacher evaluation, and teacher quality. Several related discussions under this theme were highlighted, such as teachers' perceptions and student achievement (Muñoz et al., 2013), video-based assessment in effective teaching (Wiens et al., 2013), effective teaching dispositions (Altan et al., 2019), clinical practice and mentor teacher perspective in effective teaching (Goodwin et al., 2016; Meng & Muñoz, 2016), classroom practices that support student achievement (Blazar, 2015), and effective teaching and the TALIS method (Berkovich & Benoliel, 2020).

5. Future Research Directions

Even though 986 documents about Effective Teaching studies were published and deemed mature, there is still room for future research directions. After the content analysis by the authors based on top cited 2023 articles on Effective Teaching, the authors divided future research directions based on three criteria – theory, practical and methodology. In terms of theory, two future research questions recommended by the authors are theories related to additional factors beyond teaching strategies that influence effective teaching (Margallo et al., 2023), and the exploration of teaching and learning theories in inclusive settings that contribute to Effective teaching (Sabayleh & Sakarneh, 2023). In addition, practical aspects of future research directions focus on two items – effective training programs in embarking on effective teaching (Namaziandost et al., 2023), and mandatory inclusion of Mentoring for Effective Teaching Practice Instrument (METPI) in resolving mentor-mentee relationships (Ploj Virtič et al., 2023). The third and final aspect of the future research question is on methodology, whereby two directions are recommended – mixed method studies in effective teaching

(Namaziandost et al., 2023), and analysis of qualitative studies through students' comments on teachers' effective teaching (Tharapos et al., 2023). Hence, this list of future research questions can help other scholars in conducting further studies on effective teaching.

Table 9: Future Research Questions about Effective Teaching

	Future Research Questions	Source
Theory	1) What additional factors beyond teaching strategies could influence the effectiveness and engagement of nursing pharmacology YouTube videos, and how can these criteria be identified and studied in future research?	Margallo et al. (2023)
	2) How does the exploration of teaching and learning theories in inclusive settings, with a specific focus on constructivism-based strategies, contribute to understanding effective instructional practices for students with learning disabilities in inclusive classrooms?	Sabayleh & Sakarneh (2023)
Practical	1) How effective are training programs focused on reflective teaching and emotion regulation in pre-service and in-service teacher training programs for enhancing teaching effectiveness and well-being?	Namaziandost et al. (2023)
	2) How does the mandatory inclusion of the Mentoring for Effective Teaching Practice Instrument (METPI), including conversations with both students and mentors, impact the identification and resolution of issues that may arise during mentorship programs in teacher education?	Ploj Virtič et al. (2023)
Methodology	1) How do mixed-methods studies provide a comprehensive understanding of the causal links among reflective teaching, emotion regulation, and work engagement in higher education contexts?	Namaziandost et al. (2023)
	2) How do qualitative comments from students in undergraduate programs in prior and subsequent semesters, as well as in other disciplines, compare in terms of perceptions of teaching effectiveness, engagement, and satisfaction?	Tharapos et al. (2023)

Conclusion

Effective teaching is considered one of the dominant and emerging topics in education. Hence, there are two objectives of the study. The first objective is to bibliometrically analyze the performance in terms of citations and publications of Effective Teaching studies. The second objective is to analyze the research themes of Effective Teaching studies. The motivation to conduct this study is based on the gaps in previous studies on effective teaching. This study mainly uses bibliometric analysis, whereby 986 documents from 1941 to 2023 were analyzed through two stages – descriptive analysis and keyword network analysis.

Selective findings indicated that in terms of citations and publications shows an increasing trend between 1941 and 2023. In addition, Helms-Lorenz and Maulana are the top 2 productive authors with 9 publications. Then, the United States, the United Kingdom, and China are the top 3 productive countries in effective teaching studies. In terms of affiliation, Rijksuniversiteit Groningen from the Netherlands is the most productive affiliation with 14 publications. There are five research themes associated with effective teaching –1) effective teaching in higher education, 2) enhancing curriculum with blended teaching, 3) pedagogical professional development, 4) medical education effectiveness, and 5) teacher training for classroom effectiveness.

The authors also suggested 6 future research questions, divided into three categories – theory, practical and methodology. Those research questions provide significant contributions by helping and inspiring scholars to pursue and embark on future exploration in effective teaching.

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Determinants of Smallholder Farmers' Awareness of Crop Insurance in Kedah, Malaysia

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Abstract: Agriculture is a major source of income for humans and has become an agro-food commodity. However, this industry is vulnerable to a wide range of dangers, including climate change, natural disasters, illnesses, and pests. Crop insurance is not a new concept in advanced economies since it has been recognized as an efficient instrument for mitigating agricultural risks and encouraging farmers to employ modern technology and innovation. This research investigates the determinants of smallholder farmers' awareness of crop insurance in the agricultural landscape of Kedah, Malaysia. Therefore, this study examines the relationship between knowledge, risk attitude and farm size on the farmers' awareness of crop insurance. The study, based on a sample of 100 farmers, utilizes a non-probability sampling technique to collect data through structured questionnaires. The research employs reliability analysis, correlation analysis, and regression analysis to evaluate the raw data and uncover the factors influencing farmers' awareness of crop insurance. The study conclusion shows a strong correlation between farmers' knowledge levels and farm size as important indicators of crop insurance awareness. The analysis emphasizes how crucial it is to increase farmers' understanding through focused educational programs and customized awareness campaigns that take farm size dynamics into account. Policymakers and agricultural extension services can enable smallholder farmers to make well-informed decisions about using crop insurance as a strategy to manage agricultural risks and guarantee financial stability by making information and resources easily accessible.

Keywords: *Crop Insurance, Agricultural Insurance, Risk Management, Risk Attitude*

1. Introduction and Background

Agriculture accounts for over 7.4% of Malaysia's GDP, and at least one-third of the country's population relies on it for a living (Wahab et al., 2023), with nearly 16% employed on farms and plantations (Abidin et al., 2022). Climate change will have an impact on output, the social and economic conditions of farmers, and the country's overall economy. Climate change impacts crop production, causing variability, physical damage, harvest loss, and decreased output. According to the report, the 2006-2007 floods in Malaysia (Johor) displaced 110,000 people, damaged an estimated RM 0.35 billion in infrastructure, caused RM 2.4 billion in economic losses, and damaged or lost an estimated RM 84 million in agricultural produce, affecting approximately 7,000 farmers (Austin & Baharuddin, 2012). Further, Deputy Agriculture and Food Security Minister Chan Foong Hin stated that the 2021 floods caused the agricultural, fisheries and livestock sectors losses of more than RM90 mil, affecting some 7,578 agro-food industry players (Gerard Gimino et al., 2023). Natural disasters affecting Malaysia's agriculture sector include floods, landslides, droughts, typhoons, hurricanes, and seasonal diseases.

Climate change poses a significant threat, causing crop variability, physical damage, and economic losses. Aside from that, farmers require financial support, particularly for food and income crops. Crop insurance is crucial for managing losses and assisting small farmers in coping with financial risks associated with weather conditions affecting crop yields in Malaysia. Further, it is a cost-effective way to cope with the financial impacts of climate and weather-related hazards, supports climate change adaptation by covering residual risks not covered by other risk reduction mechanisms like irrigation systems and best management practices, and stabilizes rural incomes, reducing the negative effects of income fluctuation and socio-economic deprivation (Afroz et al., 2017). Nonetheless, in Malaysia, crop insurance is a crucial aspect of risk management for agricultural activities, particularly in countries like Malaysia, where the agricultural sector plays a significant role in the economy. Despite neighboring countries like Thailand, the Philippines, and Indonesia having national crop insurance schemes in place, Malaysia has yet to implement such a system (Salleh et al., 2021).

Concerning the insurance industry in Malaysia, crop insurance has been offered by private insurance companies. According to Prabhakar et al. (2013), among the insurance company that offers crop insurance are LONPAC Insurance Bhd and Syarikat Takaful Malaysia Berhad. However, this insurance policy has been emerging and more insurance companies are providing crop insurance in recent years. In 2022, the establishment of Agro-Food Takaful Insurance by the Malaysia government, in collaboration with the Ministry of Agriculture and Food Industries (MAFI), is set to bring significant benefits to approximately 189,500 rice farmers (*Agro-Food Takaful Insurance Scheme Gives New Hope to Malaysian Farmers*, 2022). This insurance initiative aims to provide coverage in stages, extending its reach to various sectors such as fisheries and other sub-sectors within the food industry. The comprehensive coverage is expected to fortify and support the agricultural and food sectors, fostering resilience and security for those involved in these vital industries.

Recent research has highlighted the vulnerability of Malaysian farmers to various natural disasters and challenges such as drought, crop diseases, flooding, hail, climate change, pest outbreaks, and windstorms. These factors significantly impact agricultural productivity and the livelihoods of farmers in Malaysia. For instance, studies have shown that climate change-induced drought has adverse effects on crop production, leading to significant economic losses (Muralikrishnan et al., 2021). Furthermore, the impact of weather fluctuations on fungal disease incidence in rice fields has been noted, affecting farmers' net income (Chiu et al., 2022). To ensure crop safety and prevent natural disasters, it is necessary to understand the fundamentals of crop insurance and identify factors that influence farmers' awareness of crop insurance (Prabhakar et al., 2013).

Further, a current study has been conducted to assess farmers' awareness of crop insurance schemes and their satisfaction with these schemes(Vashisht & Singh, 2020). The study focused on understanding the extent to which farmers are informed about available crop insurance options and their perceptions of these risk management tools, highlighting the importance of educating farmers about crop insurance schemes to enhance their understanding and encourage participation in such programs(Vashisht & Singh, 2020). However, to the best of my knowledge, the studies on the determinants of farmer awareness in the context of Malaysia are limited. Realizing this, this study tested additional variables such as knowledge, risk attitude, and farm size. Hence, it enriches more literature on crop insurance and expands knowledge by enriching the determinants that caused the farmer's awareness of crop insurance.

2. Literature Review

Smallholder Farmers' Awareness of Crop Insurance: Global natural disasters induced by extreme weather events like droughts, floods, and frosts have been occurring more frequently according to Alimonti et al. (2022), all of these natural disasters contribute to various risk exposures. Risk is the potential for negative outcomes resulting from vulnerabilities, which proactive actions can mitigate. Risk consists of uncertainty and exposure. If both are absent, there is no risk. Risk can be categorized as systematic, non-systematic, or disastrous. Systematic risk is linked to recurring incidents that may be measured and predicted. It can be assessed to determine the probability of different events (Johari et al., 2024). Furthermore, most dangers encountered by farmers were related to output. This result aligns with the research by Salimonu and Falusi (2009), which identified price fluctuation, drought, pest and disease attacks, and irregular rainfall as the primary risks encountered by farmers. Crop insurance serves as a crucial formal document for rural farmers in developing economic systems to mitigate alternative risks associated with production disruptions caused by climate variability (Patt et al., 2010). Socioeconomic factors such as education, money, farm size, and natural disasters like drought, hail, and flood influence farmers in protecting their farms. Farm-specific variables like cultivated area size and socioeconomic variables like age and household size positively impact the demand for crop insurance(Sarris, 2002).

Knowledge: Farmers' knowledge significantly impacts the successful adoption and usage of crop insurance. Research indicates that farmers who are knowledgeable about crop insurance are more inclined to utilize it as a risk mitigation strategy(Fadhliani et al., 2019). It is understood that farmers with knowledge of crop insurance would comprehend the advantages of crop insurance in safeguarding their investments and ensuring revenue stability under unexpected circumstances. Knowledgeable farmers can also make better judgments regarding insurance coverage, rates, and claims, resulting in more successful risk management techniques (Johari et al., 2024). Furthermore**,** Education and expertise are crucial for farmers to promptly recognize the

potential risks associated with hesitating to purchase crop insurance. Treerattanapun (2011) suggested that education increases risk awareness and promotes financial stability, aiding in the comprehension of insurance advantages. Park and Lemaire (2012) concur and showed a direct correlation between education levels and the demand for non-life insurance across 82 countries over a decade. Therefore, it is theorized that:
H1: There is a relationship between knowledge and smallholder farmers' awareness.

Risk Attitude: Farmers' risk attitudes significantly influence their decisions on whether to adopt crop insurance. A farmer's decision to obtain insurance coverage can be strongly affected by their level of risk aversion, risk neutrality, or risk-seeking behavior (Johari et al., 2024). Farmers and the government have implemented various management strategies to reduce or alleviate the risks linked to production. These strategies include informal practices like avoiding high-risk crops and diversifying incomes, as well as formal measures such as insurance (Abdullah et al., 2015). However, individuals who are risk-neutral or risk-seeking may be less likely to invest in insurance due to their increased tolerance for uncertainty and perception of insurance premiums as an unnecessary expense (Johari et al., 2024). Therefore, comprehending the varied risk attitudes in farming communities is crucial for designing insurance programs and marketing tactics. Customized strategies that cater to the distinct requirements and preferences of various risk profiles can lead to increased acceptance rates and improved agricultural risk mitigation (Johari et al., 2024). Hence, it is hypothesized that:
H2: There is a relationship between risk attitude and smallholder farmers' awareness.

Farm Size: Farmers with bigger average acres face greater risk exposure and are more inclined to utilize crop insurance, as indicated by Enjolras et al. (2012). Farmers with larger land holdings have higher yield targets and increasing debt obligations. Large farms have significant investments that boost the rate of return to cover costs and rates due to the heightened risk exposure. This is the reason they must either transfer or diminish the risk. Farmers operating larger farms face increased risks and are, therefore, more inclined to purchase insurance (Enjolras et al., 2012). Brånstrand and Wester (2014) revealed that Swedish farmers who own larger farms are more inclined to get insurance. Due to the substantial investments and increased production expectations associated with larger farms, farmers often seek methods to mitigate the impacts of crop failure. Larger farmers are also more likely to pay for insurance than smaller, less wealthy farmers due to the different risks they confront. They are so more inclined to concentrate on insurance(Afroz et al., 2017). Thus, it is hypothesized that:
H3: There is a relationship between farm size and smallholder farmers' awareness.

3. Research Methodology

Sekaran and Bougie (2016) define a population as a collection of individuals, occasions, or objects that researchers hope to study. This group of people is essential to the study since they must complete the offered questionnaire to submit an answer. A survey design was used to accomplish the study's goals. Convenience sampling is a non-probability sampling technique that depends on the judgment of the researcher(Saunders et al., 2019), and it was utilized in this study. Using this selection technique, a set of responders with similar traits is chosen to determine the smallholder farmers' awareness of crop insurance in agriculture. This study focuses on paddy farmers in Kodiang, Kedah. The sample size was 100, and a list of paddy farmers' names was obtained from PPK (Pertubuhan Perladangan Kawasan). The study used the smallholder farmers' awareness of crop insurance as the dependent variable, with knowledge, risk attitude, and farm size as independent variables. The survey employed a five-part questionnaire. Respondents' questionnaire responses used a Likert-typed scale ranging from 1 (strongly disagree) to 5 (strongly agree). The data from the questionnaire are statistically analyzed using the Statistical Package for Social Science (SPSS v. 27). To address each objective, the respondent's knowledge, risk attitude, and farm size were determined using correlation, multiple linear regression, and ANOVA analysis.

4. Results

This result summarises an analysis that included descriptive analysis, reliability analysis, correlation analysis, and regression analysis. This section presents sets of results relating to the profile of respondents' awareness of crop insurance, the characteristics of the overall sample, and the comparison of respondents' experiences

based on demographic and geographic characteristics (gender, age, level of education, level of income and farm size). Table 1 displays the frequency of socioeconomic factors among respondents that were researched to understand how they affect farmers' awareness of crop insurance. It shows that 82% of respondents were men and 18% were women. Males are predicted to perform better than females since men are more capable of performing strenuous tasks than women, and rice production requires more energy. The age range recorded is between 30 and 70 years old. The majority, 51%, are farmers between the ages of 41 and 50, with the minority being farmers aged 61 to 70. Most farmers only study at the SPM (Sijil Pelajaran Malaysia) level, which accounts for 65% of their education, indicating that farmers do not have a high level of education, such as a diploma or degree, while just 8% of 100 farmers graduate from university. This degree of education will demonstrate how many farmers understand and are aware of crop insurance.

According to Sani and Haruna (2011), the socioeconomic features of farmers contribute to improving their public presentation when adopting techniques for danger identification. They assist farmers in developing entrepreneurial skills in their decision-making processes for risk management, particularly in the agricultural enterprise system. Only 42%, or 15 nations, in East Asia and the Pacific have agriculture insurance. The two low-income countries are the Democratic People's Republic of Korea and Vietnam. Countries with low average incomes include China, Indonesia, Mongolia, the Philippines, and Thailand. Malaysia is an upper middle-income country, while the seven high-income countries are Australia, French Polynesia, Guam, Hong Kong SAR (China), Japan, the Republic of Korea, and New Zealand(World Bank, 2010).

This study was carried out in the Muda Agricultural Development Authority (MADA) district of Kedah, Malaysia. MADA is located under the Muda Irrigation Scheme. The Muda irrigation scheme covers roughly 125,155 hectares. In this area, rice farming accounts for around 56% of the land, or 2,658 acres. This neighborhood is home to an estimated 1,505 families. This area accounts for 15% of Malaysia's total rice production (MADA, 2015). Approximately 55% of respondents own paddy fields ranging in size from 3 to 4 hectares, the largest rate among all respondents.

Profile of Respondents: Table 1 displays a summary of the characteristics of a total sample of smallholder farmers who participated in the study.

Table 1: Demographic and Geographic Information About Smallholder Farmers

VARIABLES	FREQUENCY	PERCENTAGE (%)
GENDER		
MALE	82	**82**
FEMALE	18	**18**
AGE (YEARS)		
30 – 40	21	**21**
41 – 50	51	**51**
51 – 60	21	**21**
61 – 70	7	**7**
EDUCATION		
PMR	27	**27**
SPM	65	**65**
UNIVERSITY	8	**8**
INCOME (MYR)		
1 – 1,500	4	**4**
1,501 – 2,000	30	**30**
2,000 – 3,000	53	**53**
3,001 – 4,000	15	**15**

FARM SIZE (HA)		
1 – 2	28	**28**
3 – 4	55	**55**
5 – 6	13	**13**
7 AND ABOVE	**4**	**4**

Descriptive Statistics: According to Sekaran and Bougie (2016), descriptive analysis is a statistic that uses frequency, mean, and standard deviation to provide descriptive information about a set of data. The mean is used to calculate the central tendency, which provides an overall picture of the data. The standard deviation is a measure of data distribution or variability.

Table 2 describes the mean scores and standard deviations for each variable included in the study. The means scores and standard deviations refer to farmers' awareness about crop insurance due to factors such as knowledge, risk attitude, and farm size. All the means scores are within the range of 3 and 4. It indicates that the independent variables of risk attitude have the highest mean (ɱ=4.2525, sd=.90975), followed by knowledge (ɱ=4.1675, sd=.81731) and farm size (ɱ=4.1200, sd=.88512). For the dependent variable, farmer's awareness (ɱ=3.8614, sd=.81888). Most of the respondents nearly agreed that risk attitude is the dominant factor that determines the smallholder farmers' awareness of crop insurance. The standard deviation results suggest that risk attitude has the greatest score (0.90) when compared to other factors. Meanwhile, smallholder farmers' awareness had the lowest standard deviation score, at 0.82. All the variables in this study had a standard deviation value smaller than one, indicating that they were more in agreement with each other.

Table 2: Descriptive Statistics

Variables	Mean	Std. Dev.
Knowledge	4.1675	.81731
Risk Attitude	4.2525	.90975
Farm Size	4.1200	.88512
Smallholder Farmers' Awareness	3.8614	.81888

Reliability Analysis:
Cronbach's alpha is a reliability coefficient that measures how effectively elements in a collection correlate positively with one another(Sekaran & Bougie, 2016). In this study, a reliability test is required because it will determine whether the instrument used is appropriate or not. The closer the Cronbach alpha is to one, the more consistent the inner reliability (Sekaran & Bougie, 2016). Nunnally (1994) claimed that variables can only be considered acceptable if Cronbach's alpha value is more than 0.60. Cronbach's alpha was used to determine the dependability of the scale utilized. As shown in Table 3, risk attitude had high Cronbach's Alpha values (0.945), indicating that the items in the variables have strong internal consistency. The farm size, knowledge, and smallholder farmers' awareness items also demonstrated rather strong internal consistency, with scores of 0.887, 0.884, and 0.865, respectively.

Table 3: Reliability Analysis

Variables	Number of Items	Item Deleted	Cronbach's Alpha
Knowledge	4	-	**.884**
Risk Attitude	4	-	**.945**
Farm Size	4	-	**.887**
Smallholder Farmers' Awareness	**7**	**-**	**.865**

Correlation Analysis:
The correlation analysis analyses how strong a relationship exists between two or more quantifiable variables. It measures the strength of the link between the dependent and independent variables. Pearson's correlation will show the direction, strength, and significance of the bivariate relationship between all variables assessed

at the interval or ratio level. The coefficient can take any value between plus and minus one. The sign of the correlation coefficient, positive (+) or negative (-), determines the direction of the link. Table 4 displays that all variables exhibited a moderate correlation coefficient with smallholder farmers' awareness. Knowledge has a correlation coefficient of 0.518, risk attitude has a correlation coefficient of 0.639, and farm size has a correlation coefficient of 0.606. All factors showed a positive correlation score, indicating a favorable relationship with smallholder farmers' awareness. Thus, as one variable grows, the other variable also increases. This is consistent with a study done by Johari et al. (2024) which discovered that farmers' awareness of purchasing crop insurance is significantly influenced by their risk attitude, particularly their level of risk aversion. Also, a study conducted by Gouraram et al. (2022) suggested that farmers are more inclined to get crop insurance when they are well-informed about its advantages compared to those who are not.

Table 4: Correlation Analysis

	Knowledge	Risk Attitude	Farm Size	Smallholder Awareness	Farmer's
Knowledge	1				
Risk Attitude	.639**	1			
Farm Size	.621**	.689**	1		
Smallholder Farmers' Awareness	.518**	.639**	.606**	1	

Analysis of Variance (ANOVA): Table 5 indicates that the p-value of the F-test is 0.000, which is below the significance level of 0.05. This indicates that the whole model is statistically significant in smallholder farmers' awareness. The F-test is significant with a value of 32.401, indicating that the combination of knowledge, risk attitude, and farm size strongly explains the difference in smallholder farmers' awareness.

Table 5: Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	33.400	3	11.133	32.401	**.000[b]**
	Residual	32.986	96	.344		
	Total	**66.386**	**99**			

Regression Analysis:

According to Sekaran and Bougie (2016), regression analysis is a statistical technique for determining the relationship between variables. It is also developed because of the correlation coefficient measurement. According to Malhotra et al. (2017), regression is a powerful and versatile tool for analyzing relationships between independent and dependent variables. This research was carried out to determine which independent variable contributes the most to the dependent variable. In this study, the independent variables were knowledge, risk attitude, and farm size, which were used to see if they had any link with the dependent variable, smallholder farmers' awareness, using simple regression analysis. The results of a multiple regression analysis in Table 6 demonstrate the association between knowledge, risk attitude, and farm size toward smallholder farmers' awareness. R^2, the square root of the R-squared value, indicates the correlation between the observed and anticipated values of the dependent variable. The coefficient of determination is 0.503. 50.3% of the difference in smallholder farmers' awareness can be attributed to knowledge, risk attitude, and farm size. Approximately 40.7% of the variation remains unexplained by the parameters examined in this study.

Table 6: Multiple Regression-Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**.709[a]**	**.503**	**.488**	**.58618**

According to Saunders et al. (2019), based on the unstandardized coefficient beta, a 1-unit increase in the independent variable will result in a 1-unit increase in smallholder farmers' awareness as the dependent variable. Table 7 indicates that the knowledge variable received a beta coefficient of .085 and a t-value of .923. This indicates that knowledge did not have a substantial impact on smallholder farmers' awareness, as the p-value was .358, which is above the 0.05 significance level (95%). The results align with prior research where

Wąs and Kobus (2018) discovered that education level or knowledge does not play a significant role in the decision to obtain crop insurance in Poland. It is also consistent with research by Johari et al. (2024) found that knowledge is negatively correlated with farmers' intention to pay for crop insurance. The risk attitude coefficient is β = .423 with a t-value of 4.789. The value was highly significant at .000. Therefore, risk attitude greatly influenced smallholder farmers' awareness. A study conducted by Johari et al. (2024) emphasized that more risk-averse farmers are more likely to buy crop insurance because they see it as an effective way to deal with the uncertainty they encounter. Meanwhile, the scores for farm size were β = .281 and t = 2.849. This indicates that farm size has a substantial impact on smallholder farmers' awareness. Brånstrand and Wester (2014) discovered that Swedish farmers with larger farms are more likely to purchase insurance. Further, farm size was found to be one of the determinants of farmers' willingness to adopt crop insurance(Ngango et al., 2022).

Table 7: Multiple Regressions – Coefficients

Model	Unstandardised Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.577	.343		1.683	**.096**
Knowledge	.085	.092	.094	.923	**.358**
Risk Attitude	.423	.088	.423	4.789	**.000**
Farm Size	.281	.099	.304	2.849	**.005**

a. Dependent Variable: Smallholder Farmers' Awareness

(*p<0.05; **p<0.001)

Discussion

This study aims to determine the factors that impact smallholder farmers' awareness. The analysis of the study, which included reviewing journals and publications and collecting questionnaires, revealed that risk attitude and farm size are significant predictors of smallholder farmers' awareness. Hypothesis 2 and hypothesis 3 are supported, whereas hypothesis 1 is rejected due to lack of significance. The study finds that risk attitude is a significant independent variable in determining smallholder farmers' awareness (Johari et al., 2024). The study also revealed a significant correlation between farm size and smallholder farmers' awareness (Johari et al., 2024). This aligns with research conducted by Ngango et al. (2022), which indicated that the size of the farm would influence the farmers' willingness to pay for crop insurance; thus, shows that the farmers are aware of the importance of crop insurance. However, no significant correlation was discovered between knowledge and smallholder farmers' awareness in this study, which is similar to research conducted by Johari et al. (2024).

5. Managerial Implications and Recommendations

Policymakers should develop and implement crop insurance policies that better align with farmers' requirements and preferences. This may result in higher engagement in crop insurance programs. Furthermore, policymakers may also create specialized educational programs to educate farmers on crop insurance and its benefits. It will motivate less educated farmers to support the implementation of crop insurance. As for financing purposes, banks should come out with a comprehensive crop financing scheme. This is because, according to Johari et al. (2024), banks are only providing information about crop insurance to farmers who take agricultural loans. However, farmers who do not take loans from banks are unable to access this benefit. Therefore, banks can find ways to help small and poor farmers as their influence and willingness to pay for crop insurance grows. Crop insurance is important in helping smallholder farmers. Agricultural economics expert, Prof Datuk Dr. M Nasir Shamsudin concurs and suggests that the government should introduce crop insurance and early warning systems to strengthen the agriculture industry (NST, 2023).

Conclusion

This article aimed to investigate the relationship between knowledge, risk attitude and farm size on the farmers' awareness of crop insurance. This study demonstrated a robust and favorable correlation between risk attitude and farm size with the farmers' awareness of crop insurance as the dependent variable. Knowledge did not exhibit a significant correlation with ethical behavioral intention. The regression study showed that

farmers' risk attitude is a strong predictor of their awareness of crop insurance, as it may influence their decision-making and conduct. Therefore, purchasing crop insurance is a crucial element of the agricultural industry. Crop insurance is essential for mitigating losses and supporting small farmers in dealing with financial risks caused by weather conditions impacting crop production in Malaysia.

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The Effect of Liquidity M3 and Exchange Rate on Sukuk Market Size in Malaysia in Short-Term and Long-Term

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Abstract: The increase in the size of the sukuk market has become large with time and takes its place among the important topics that need to be studied and developed. This study focuses on the impact of some financial factors on the size of the sukuk market in Malaysia, as it is a leader in the Islamic financial industry, especially the sukuk sector. This study attempts to reveal the relationship between the factors of exchange rate and liquidity M3 as independent variables, and the size of the sukuk market as a dependent variable. This study uses the model of Autoregressive Distributed Lag (ARDL) as well as the test of cointegration to know the relationship between the variables of the study in both short-term and long-term. By examining monthly time series data starting from 04/2011 till 12/2020. The findings appear that the variables of the study have a cointegration relationship in the long run. In the short run, the exchange rate affects the size of the sukuk market significantly negatively, while liquidity M3 influences the sukuk market size positively insignificant. In the long run, the exchange rate has a positive significant effect on the sukuk market size, while the impact of liquidity M3 on the market size of Sukuk is non-significant.

Keywords: *Sukuk Market Size, Liquidity M3, Exchange Rate, Short-Term, and Long-Term*

1. Introduction and Background

The Sukuk market maintains its positive growth as well as a good reputation that continues to rise. This is evident by looking at the increase in the total number of sukuk issuances globally in both the short term and long term during the current period. At the end of 2021, the international sukuk issuance closed at around $49.427 billion. The volume of international short-term sukuk issuances in 2021 amounted to $14.120 billion, which means that issuances of longer-term sukuk reached $35.307 billion (IIFM, 2022). Moreover, regarding the local sukuk markets, sukuk issuances during the year 2021 amounted to USD 138.693 billion. Malaysia maintained the largest share in terms of volume and value, as well as it remains the largest local issuer of sukuk with 44.01 percent with US$61.045 billion (IIFM, 2022).

Hence, Sukuk as an important financial instrument continues to maintain its importance as a primary driver for the growth of the Islamic financial industry as a whole. This is due to the previous investors and issuers as well as the new participants in the Sukuk issuance. The Sukuk has maintained its gradual path across all Sukuk issuance areas and has not been affected by the COVID-19 pandemic according to Sukuk issuances up to 2022. One of the positive improvements in the sukuk market is the issuance of sukuk related to Environmental, Social and Governance (ESG), which has exceeded $20 billion by mid-2022 (IIFM, 2022).

Malaysia is the leading country in the Islamic industry particularly in sukuk issuance (Al-Fakih et al., 2022). On a cumulative basis from 2001 to 2021, Malaysia continued to maintain its number one sukuk position with combined domestic and international issuances of around $877 billion (IIFM, 2022). Malaysia, given the strength of its capital market, continues to maintain its leadership over its peers in other countries that issue sukuk. However, the increase in issuance from Indonesia, Saudi Arabia, Turkey, Bahrain, UAE and others has led to a decrease in Malaysia's share in the global sukuk market in recent years.

Recently, the sukuk market in Malaysia has been facing many challenges despite being a leader and pioneer in the industry of world Islamic finance. One of these challenges is the limited investor base. For the further growth of the Malaysian market size, it is crucial to attract new sorts of investors, such as insurance companies, pension funds, and managers of funds and assets, as well as keep the foreign investors. Moreover, the effect of the exchange rate on foreign investors. This means if the country's currency decreases against other currencies, any foreign investor will go to invest in the other countries because of decrease in the currency means a decrease in the value of the sukuk and the underlying assets. Moreover, exchange rate instability will reflect

the uncertainty in the country.

Given the substantial attention that the sukuk instruments obtained from the systems of Islamic financial markets, there is too little scholarly literature on the factors that influence the sukuk market size enhancement (Boukhatem, 2022). The present study will try to reveal the relationship between (liquidity M3 with exchange rate) and sukuk market size in both short and long runs in Malaysia. The next section will list the literature review.

2. Literature Review

Sukuk: Some of the definitions of sukuk provided by organizations and earlier studies will be reviewed in this study. Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) defined sukuk as an equal value certificate for non-divided shares of services, usufructs, and tangible assets, or, as owners of special investing or certain projects activities Syaichoni & Suminto, 2021). According to Fauziah et al. (2021), Sukuk is a bond which compatible with Sharia'ah. In this study the author will present the size of the Sukuk market in Malaysia. Therefore, the sukuk market size stands for the volume of sukuk issuance for a period. Consequently, the sukuk market size in the current study shows the volume of sukuk issuances in Malaysia from the fourth month of 2011 to the end of 2020.

Exchange Rate: Due to increased globalization, investors are now searching for investment possibilities around the world. As a result, the expansion of the bond market is significantly influenced by the foreign rate of exchange (Al-Fakih et al., 2022). The rate of exchange is the cost of one currency to another. In addition, the general definition of the exchange rate is a reflection of the strength of a domestic currency when it is compared to the strength of a currency for another country (the country of the investor). However, exchange risk refers to the possibility of receiving less of a local currency while investing in bonds that make payments through another currency (Taghizadeh-Hesary et al.,2021; Rauf & Lebbe, 2018).

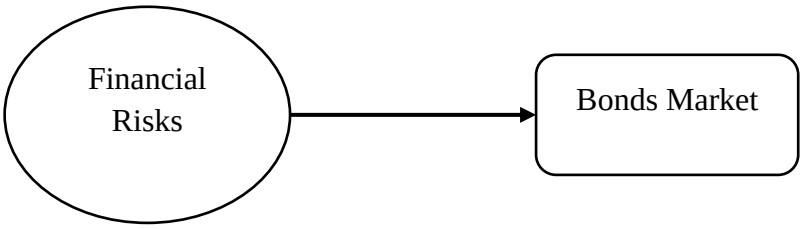
Some previous studies examine the relationship between sukuk market size and exchange rate risk, whose findings will be discussed in the discussion of this study, such as Juaris et al. (2018) studied the impact of monetary indicators on Governmental sukuk (SBSN) using series data started from 2010–2016 in Indonesia. In another study, Ahmad & Radzi (2011) studied the relationship between sukuk issuance and three variables, which are exchange rate, GDP and market liquidity in the market during 1990-2009 in Malaysia. The study also examined the trends of conventional bonds and sukuk issuance during financial crises, especially the financial crisis of 1997–1998 in Asia and the subprime crisis in 2007. Furthermore, Ahmad (2016) examined the relationship between the exchange rates of currency and sukuk issuance using aggregate data from 2008 to 2014 in Malaysia. Moreover, Syamni & Sulaiman (2010) examined the impact of the exchange rate on Sukuk. The present study will apply the exchange rate in Malaysia during the period of the study.

Liquidity M3: Money supply is divided into many types (Dritsaki & Dritsaki, 2022). M3 is the broadest sense of money supply that involves the other types of M1 and M2 as well as funds in the market, long-run deposits, and some other deposits. Moreover, M3 represents the stock value which contains the individual's savings and non-liquid stock (Agarwal et al., 2018; Dritsaki & Dritsaki, 2022). Therefore, Money supply M3 as a type of liquidity factor can impact the size of the Sukuk market.

Many studies have focused on the relationship between liquidity and Sukuk issuance. Ahmad & Radzi (2011) used yearly data from 20 observations from 1990 to 2009 to test the impact of liquidity (reserves without gold) on the sukuk market size. Another study by Sudarsono & Saputri (2018) used the Autoregressive Distributed Lag (ARDL) method to examine the effect of liquidity as the ratio of finance to deposit on sukuk Mudharabah in both the short run and long run using monthly time series data during the period from January 2011 until October 2017 in Indonesia. In addition, Doktoralina & Nisha (2020) examined the impact of liquidity and other factors on the sukuk mudharabah deposit. The data was from 8 Islamic banks with Bank Indonesia from 2013-2017. In terms of money supply, Al-Fakih et al., 2023 investigated the relationship between money supply M2 and sukuk market size in Malaysia using data from 2011–2020. Therefore, the current study will contribute to the existing literature by examining the relationship between liquidity M3 and sukuk market size.

Theoretical Framework: To investigate the effect of financial risk on sukuk growth evidence is required as theory and previous studies to prove that the financial risks are associated with sukuk investment. Financially, all investments are impacted by different factors of economic. In the context of Sukuk, Fabozzi and Dattatreya (2005) demonstrate that several environmental factors affect the sukuk performance. As a part of these investments, the markets of bonds are influenced. Fabozzi's theory (2007) mentioned that the risks linked with investing as bonds included namely sovereign risk, event risk, inflation risk, volatility risk, exchange risk, liquidity risk, credit risk, reinvestment risk, yield risk, prepayment risk and interest rate risks. Therefore, Fabozzi's theory is a suitable theory to be applied in the current study because the theory proves that financial risks relate to the bonds market. According to the Fabozzi theory, the market factors may determine sukuk growth by liquidity risk, exchange rate, inflation rate, and interest rate.

Figure 1: Fabozzi's theory's diagram



3. Research Methodology

The Source's Types of Study Data: In terms of the literature the present study used data from journals, books, theses and others. This study has two independent variables which are liquidity M3 (LM3) and exchange rate (EXCH), while the dependent variable is the size of the sukuk market (SMS). The data of the present study was obtained for ten years as monthly data for 117 observations between 04/2011 and 12/2020 From the Thomson Reuters database. Therefore, the present study is highly relying on the secondary data of the variables.

The Analysis Method of the Study: In the current study will use the E-views 12 as analysis software to process the method of this study which will use the Cointegration test as well as Autoregressive Distributed Lag (ARDL) to reveal the effect of LM3 and EXCH on SMS in short and long terms. Therefore, this study will apply the multiple linear regression method.

Test of Econometric Criteria: According to the multiple linear regression model, many assumptions have to be fully supported due to the resulting estimator fulfilling the Best Linear Unbiased Estimator (BLUE) criteria. The assumptions tests include common tests called classic assumption tests such as a Stationarity Test, an autocorrelation test, a multicollinearity test, and a heteroscedasticity test.

Stationarity Test: The realization of time series used to know inference on the process of underlying stochastic. A stationary test is the first step of doing the regression of time series to avoid a spurious regression and know whether the data of all dependent and independent variables are stationary at the level, first difference or second difference. Unit root tests have been the most popular over the years. In the present research, the Augmented Dickey-Fuller (ADF) test will be used for unit root estimation.

The Augmented Dickey-Fuller (ADF) Test for the Unit Root: The value of the Augmented Dickey-Fuller test (ADF) is less than the critical value that appears in the time series of the study variables and is non-stationary. on the contrary, when the value of ADF is bigger than the critical value the time series of the study variables are stationary.

Lag Length test: The test of lag length is required to know the suitable lag applied in the current study. The optimal lag length for every variable can be shown by an asterisk (*) on Schwarz Information Criteria (SC) which is the most popular used criterion and can use Akaike Information Criteria (AIC) and others.

Cointegration Test: The use of a cointegration test will determine the long-term relationship between dependent and independent variables. The present study will apply that through conducting Bound Test Cointegration.

Autocorrelation Test: Autocorrelation relates to many types of data, but it is more related to time series data. Autocorrelation means a disturbance in regression function within a correlation form among disturbance factors. Based on the nature of time series data, it shows that data are strongly affected by previous times data. A model decides there is autocorrelation if the errors from various times are correlated. The autocorrelation in this case will lead to an ineffective model, although the model is still inconsistent and unbiased. The autocorrelation test is needed for detecting autocorrelation symptoms using the Godfrey Serial Correlation Lagrange Multiplier and Breusch tests with hypotheses.

Heteroscedasticity Test: The linear regression model must have the same variance. The heteroscedasticity problem happens when it cannot meet the assumptions. The test of heteroscedasticity aims to examine whether, in the regression models, there is a variance of residual unevenness for known independent variables or not. The heteroscedasticity test result is the possibility of drawing an incorrect conclusion from the F-test because the significance level test is within a medium strength.

The Applying Model in this Study: The current study uses the Autoregressive Distributed Lag (ARDL) method. This method was introduced by Pesaran et al in 1997 and described as a dynamic regression model that gathers two models. The distributed lag model includes current and past values of variables and the autoregressive model includes dependent variable lagged values among explanatory variables. ARDL model can distinguish between short and long-term responses in the dependent variable into one unit of independent variables change. (Boukhatem, 2022; Juaris et al., 2018).

This study applies ARDL due to that it may distinguish between short and long-term responses of SMS to every unit of LM3 and EXCH changing. As a result, the applying model in this study can be constructed as follows:

$$\Delta SMS_t = \beta_0 + \beta_1 \Delta SMS_{t-i} + \beta_2 \Delta LM3_{t-i} + \beta_3 \Delta EXCH_{t-i} + \theta_1 SMS_{t-i+} \theta_2 LM3_{t-i} + \theta_3 EXCH_{t-i} + \varepsilon_t \text{ ----------(Equation 1)}$$

whereas:

SMS_t: Malaysian sukuk market size is at the same level.
SMS_{t-i}: Malaysian sukuk market size lag.
$LM3_{t-i}$: Malaysian liquidity M3 lag.
$EXCH_{t-i}$: Malaysian exchange rate lag.
ε_t stands for error terms which reflect some variables that aren't part of the current study model.
β_1, β_2 & β_3: stand for short-term coefficients of study variables.
θ_1 θ_2 θ_3: stand for long-term coefficients of study variables.
β_0: stands for the Constant.
k: stands for Lag length.
i: stands for Lag order.

4. Results

Data Graphs of Variables: To begin analyzing data using an econometric technique, the researcher must first look at the data. The following graphs show the data for research variables over the course of the present investigation. The first graph depicts the Malaysian sukuk market size between 4/2011 and 12/2020 and the direction with time. the second graph depicts data of EXCH within the identical time. Whereas the third graph depicts data from Malaysian LM3.

Figure 2: Sukuk Market Size Graph

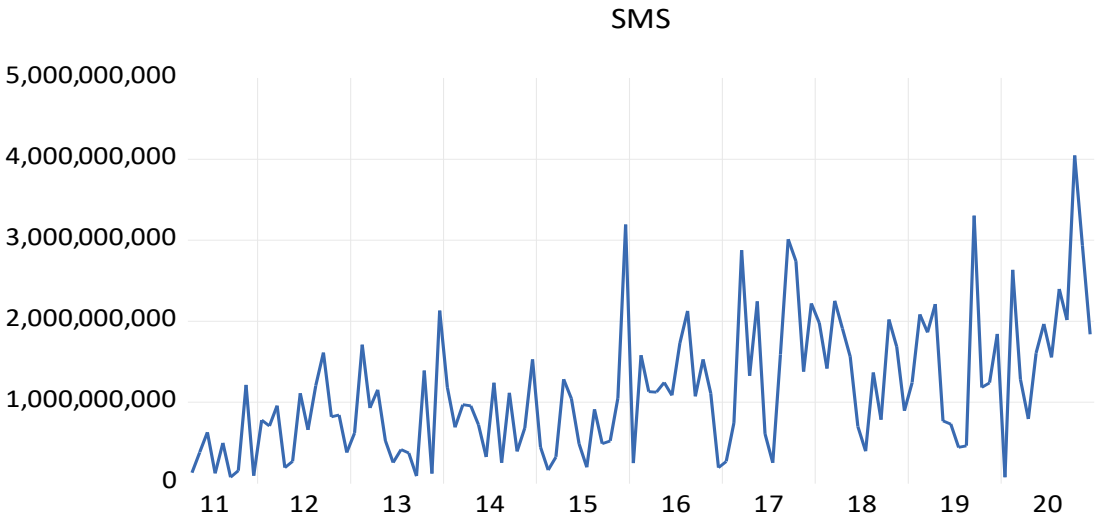


Figure 3: Exchange Rate Graph

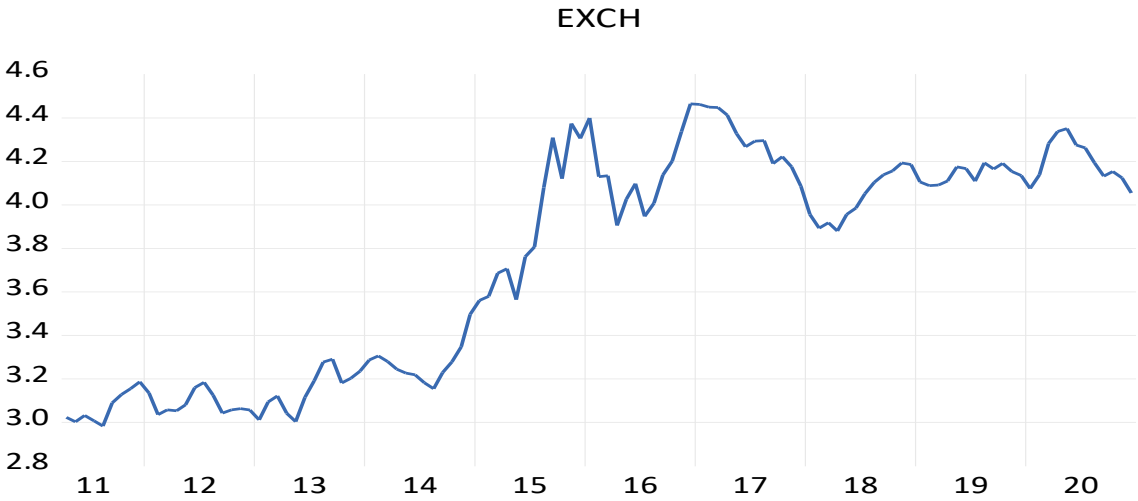
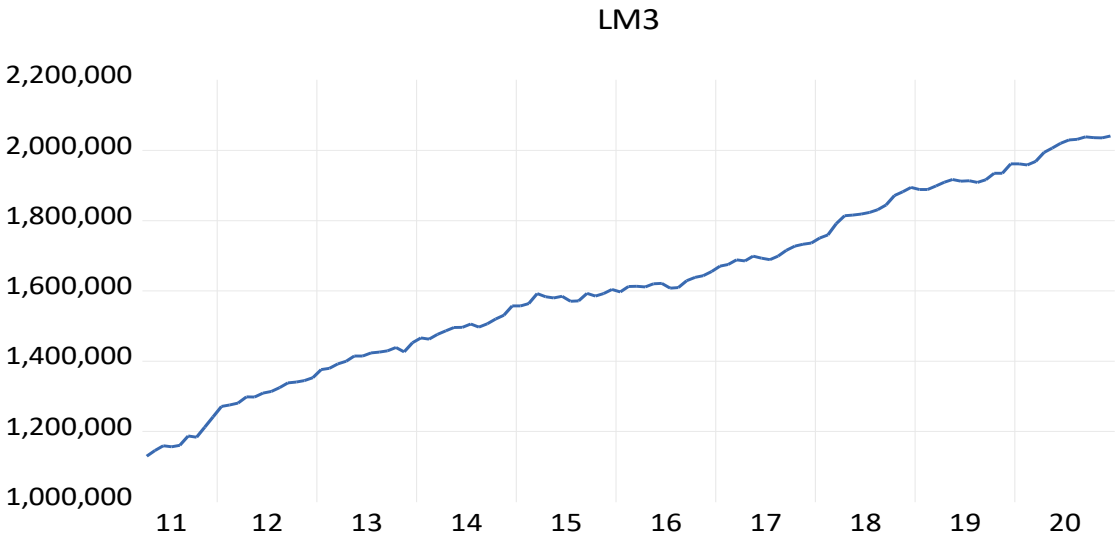


Figure 4: Liquidity M3 Graph



Test of Stationarity Result: The next stage is to determine whether variable data are stationary at level I (0), first difference I (1), or second difference I (2) after the stage of the graphs. By applying the test of Augmented Dickey-Fuller (ADF) the result will be as follows:

Table 1: Stationary Test Results

	At Level			
		SMS	LM3	EXCH
With Constant	t-Statistic	-7.6204	-1.3191	-1.3710
	Prob.	***0.0000***	***0.6190***	***0.5942***
		***	n0	n0
With Constant & Trend	t-Statistic	-9.7089	-2.7190	-1.3655
	Prob.	***0.0000***	***0.2311***	***0.8659***
		***	n0	n0
Without Constant & Trend	t-Statistic	-0.1171	8.0043	0.9295
	Prob.	***0.6412***	***1.0000***	***0.9053***
		n0	n0	n0
	At First Difference			
		d(SMS)	d(LM3)	d(EXCH)
With Constant	t-Statistic	-9.8289	-10.7117	-10.5606
	Prob.	***0.0000***	***0.0000***	***0.0000***
		***	***	***
With Constant & Trend	t-Statistic	-9.7976	-10.7405	-10.5800
	Prob.	***0.0000***	***0.0000***	***0.0000***
		***	***	***
Without Constant & Trend	t-Statistic	-9.8126	-2.9653	-10.4872
	Prob.	***0.0000***	***0.0033***	***0.0000***
		***	***	***

The result of ADF showed that the three variables are stationary at I (0) and I (1). Therefore, can apply the method of ARDL Because no variable is stationary at I (2). As a result, the sukuk market size is stationary at this level. Whereas the stationarity of exchange rate and liquidity M3 are at I (1).

The Finding of Optimal Lag Length: To reveal the optimal lag length of the study can look at the result as follows:

Table 2: The Optimal Lag Length Finding

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-3893.836	NA	2.27e+27	71.50157	71.57565	71.53161
1	-3412.258	927.8101*	3.89e+23*	62.83043*	63.12672*	62.95058*
2	-3404.355	14.79100	3.97e+23	62.85055	63.36907	63.06083
3	-3397.278	12.85489	4.11e+23	62.88584	63.62658	63.18624
4	-3389.305	14.04534	4.20e+23	62.90468	63.86763	63.29519
5	-3384.550	8.113450	4.55e+23	62.98257	64.16775	63.46321
6	-3380.927	5.982739	5.05e+23	63.08123	64.48864	63.65199
7	-3375.695	8.351710	5.44e+23	63.15038	64.78000	63.81125
8	-3369.937	8.875805	5.82e+23	63.20985	65.06169	63.96084

Based on the above table the optimal lag length obtained by E-Views 12 software, all criteria indicate that the length of optimal lag is lag (1) in the present study.

ARDL Estimation Finding: To reveal the relationship between the independent variables LM3 and EXCH

towards the dependent variable SMS the present study will apply the model of ARDL. The finding based on Akaike Information Criterion (4,4,3) will show as follows:

Table 3: ARDL Estimation Finding

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
SMS(-1)	0.079990	0.093774	0.853009	0.3957
SMS(-2)	-0.122732	0.095196	-1.289251	0.2003
SMS(-3)	-0.030946	0.096315	-0.321303	0.7487
SMS(-4)	-0.195828	0.094714	-2.067579	0.0413
LM3	18541.92	6279.316	2.952857	0.0039
LM3(-1)	-25827.93	9032.438	-2.859464	0.0052
LM3(-2)	15904.43	9216.851	1.725582	0.0875
LM3(-3)	-21853.36	9382.928	-2.329055	0.0219
LM3(-4)	14704.94	6570.445	2.238044	0.0275
EXCH	-1.96E+09	7.70E+08	-2.548127	0.0124
EXCH(-1)	7.49E+08	1.07E+09	0.697700	0.4870
EXCH(-2)	-9.90E+08	1.08E+09	-0.915707	0.3620
EXCH(-3)	2.48E+09	8.07E+08	3.073798	0.0027
C	-1.92E+09	5.76E+08	-3.335124	0.0012

R-squared	0.948936	Mean dependent var	1.17E+09
Adjusted R-squared	0.886574	S.D. dependent var	8.15E+08
S.E. of regression	6.43E+08	Akaike info criterion	43.51745
Sum squared resid	4.10E+19	Schwarz criterion	43.85535
Log-likelihood	-2444.736	Hannan-Quinn critter.	43.65456
F-statistic	6.204027	Durbin-Watson stat	2.051346
Prob(F-statistic)	0.000000		

The most important results in the above table are the results of R-squared, F-statistic, and Durbin Watson. Thus, the R=squared value is 94.89% which means that the independent variables such as LM3 and EXCH illustrate a large percentage of Sukuk market size SMS total changing in this study. Whereas F-statistic result is 6.204027 with a probability value of 0.000000 which means that the current study model is perfect for the selected variables. In addition, the result of Durbin Watson is 2.051346 which proves that the series of this study's variables do not correlate because this value exists between 2 critical values 1.38 and 2.62.

The Finding of Autocorrelation Test: The test of autocorrelation can discover if the present study variables' series include a correlation of the data or not. Therefore, the result of this test will be as follows:

Table 4: Finding of Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.319730	Prob. F(2,97)	0.7271
Obs*R-squared	0.740060	Prob. Chi-Square(2)	0.6907

As the finding in the above table, both probability values of Obs*R-squared and F-statistic are bigger than 0.05. As a result, the author cannot reject the null hypothesis which indicates that the study has no serial autocorrelation.

The Finding of Heteroskedasticity Test: To know this study variables' variance homogeneity, the heteroskedasticity test applies and the finding shows as follows:

Table 5: Finding of Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.181970	Prob. F(13,99)	0.3037
Obs*R-squared	15.18214	Prob. Chi-Square(13)	0.2961
Scaled explained SS	19.98842	Prob. Chi-Square(13)	0.0955

Based on the table above, all values of Obs*R-squared, F-statistic, and Scaled explained SS are bigger than 0.05. Consequently, the author cannot reject the null hypothesis. Therefore, the present study has no heteroskedasticity.

The Finding of Cointegration Test: The author applied this test to discover the relationship between LM3 and EXCH towards SMS in the long run. Therefore, the result of this test will be presented as follows:

Table 6: Long Run Finding of Cointegration Test

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LM3	-1157.927	370.9090	3.121863	0.2524
EXCH	2.17E+08	1.80E+08	1.207632	0.0581
C	1.51E+09	4.05E+08	-3.733145	0.0003

EC = SMS - (- 1157.9270*LM3 - 217270110.6005*EXCH + 1512664841.8973)

Belong to the table the coefficients of the independent variables and the constant has been revealed. The coefficient of LM3 is – 1157.9270 with a P value of 0.2524. Therefore, the LM3's impact on SMS in the long-term is non-significant negative at 25.24%. Whereas the coefficient of EXCH is 217270110.6005 with a P value of 0.0581. As a result, the EXCH's effect on SMS long-term is significant at 10% and positive. Furthermore, the coefficient of constant (C) is 1512664841.8973 with a P value of 0.0003.

The Finding of Short-Run Relationship: The finding of LM3 and EXCH's effect on SMS within the short term can be revealed through the Model of Error Correction of ARDL. The findings will be shown as follows:

Table 7: **Finding of Short-Run Relationship**

ECM Regression				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LM3)	18541.92	5786.083	3.204573	0.0018
D(EXCH)	-1.96E+09	7.37E+08	0.000000	0.0000
CointEq(-1)*	-0.869516	0.178408	-7.115784	0.0000
R-squared	0. 942859	Mean dependent var		15192068
Adjusted R-squared	0.925657	S.D. dependent var		9.56E+08
S.E. of regression	6.34E+08	Akaike info criterion		43.46435
Sum squared resid	4.10E+19	Schwarz criterion		43.72985
Log-likelihood	-2444.736	Hannan-Quinn criteria.		43.57208
Durbin-Watson stat	2.051346			

Cointegrating Equation:
D(SMS) = -0.869516267998*(SMS(-1) - (1157.92704002*LM3(-1) + 217270110.60051665*EXCH(-1) + 1512664841.89732003))

The table shows the finding of a relationship between the variables of the study in the short term. The D(LM3)' coefficient is 18541.9235757 with P. value at 0.0018. Consequently, LM3's impact on SMS is positive and significant at less than 0.01 in the short term. Moreover, D(EXCH), - 1962381758.56 with P. value at 0.0000.

Therefore, EXCH's effect on SMS in the short term is so significant and negative in Malaysia based on the present study. In addition, CiontEq (-1)' coefficient is -0.869516267998 with a P value of 0.0000. As a result, the relationship between independent and dependent variables in this study is so perfect based on the significant probability value. Furthermore, the signal of the error term is negative, and this signal refers to the errors of short-term convergence to adjust to the equilibrium in the long term at a speed of 86.95%.

The Finding of Bounds Test: From this test can know whether there is a cointegration relationship over the long-term between independent and dependent variables in this study or not. The findings of the test will be as follows:

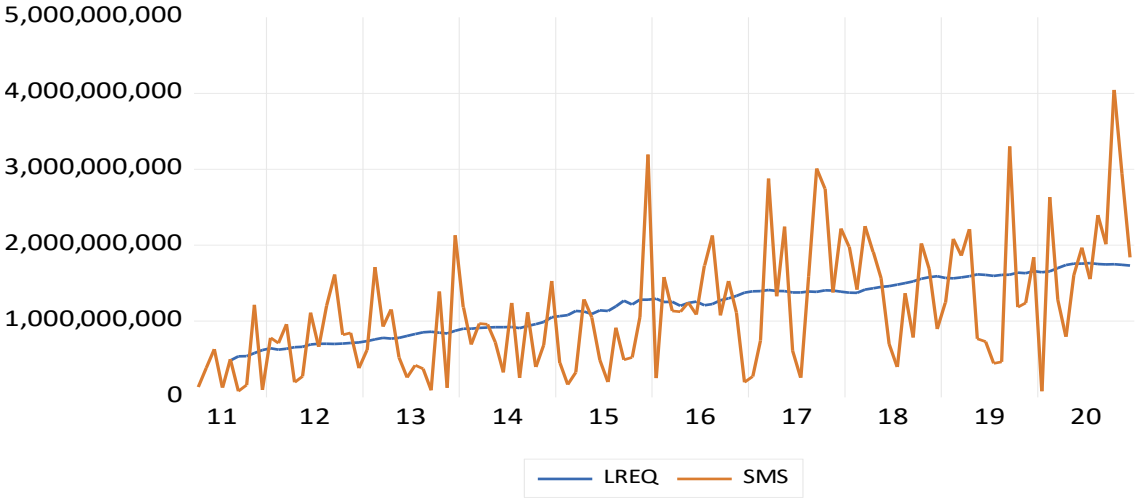
Table 8: Cointegration (bounds test) results

F-Bounds Test		**Null Hypothesis: No levels of relationship**		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	7.28628	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5
			Finite Sample:	
Actual Sample Size	113		n=80	
		10%	2.713	3.453
		5%	3.235	4.053
		1%	4.358	5.393

Based on the finding of the bounds test in the table, the real sample size in this test is 113. Whereas K stands for independent variables (IV) number in this study which are 2 variables LM3 as well as EXCH. The most significant figure in this test is the F-statistic result which is 7.28628. As a result, when comparing the bounds result with the critical values between I (0) and I (1). Thus, 7.28628 is bigger than the largest critical value (5). This means that the variables in this study have a high relationship in the long term.

Visualizing Fit of SMS and Long-Term Equation: Here will visualize the sukuk market size as well as the equation in the long term by ECT not including the sukuk market size. As a result, the line in the long term is represented through ECT after subtracting SMS. Consequently, this visualization is presented following:

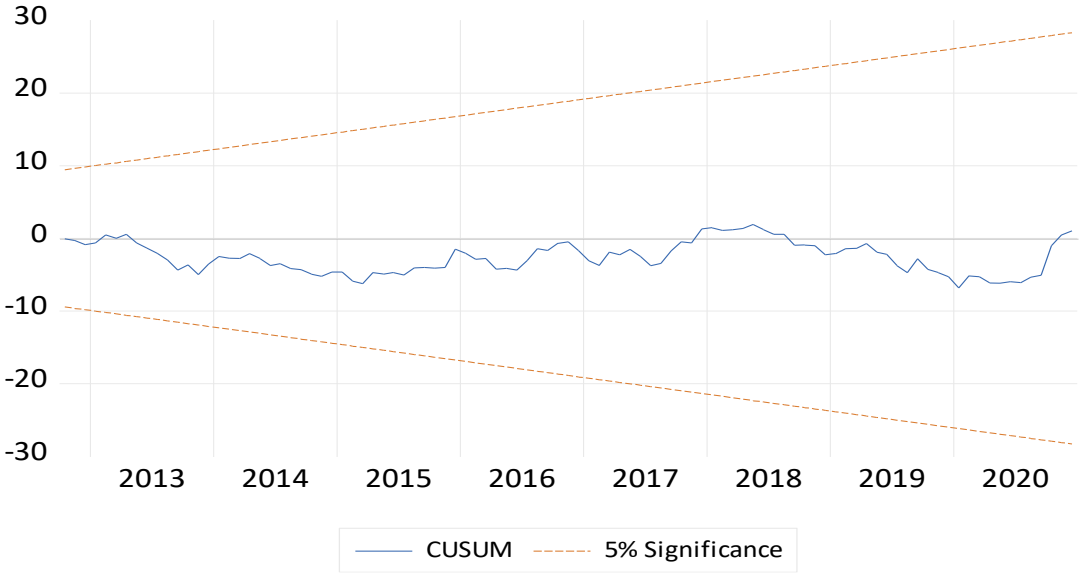
Figure 5: The Visualizing Fit of SMS and Long Run Equation



The figure presents the cointegration relation in the long-term between the SMS and the long-term equation of this study without SMS. Therefore, both of them go together in one direction. As in the figure, SMS is within blue color but the equation in the long-term of the variables without SMS is within brown color. To clarify that, the regression of this study was used to investigate the adjustment rate.

The Finding Stability Test: For checking the stability of the model this study will use the test of Cumulative Sum (CUSUM). Thus, the findings of this test are as follows:

Figure 6: The Finding of CUSUM's Test



This figure clarifies the findings of the CUSUM test. As a result, the model of the study's stability is at 0.05. This means that the present study model consistent with time. As can be seen in the figure, recursive depicted residual values lie within the specified reliable range that is between 2 red critical lines. Therefore, this clarifies that factors in the current study have a long-term relation as well as the values stability of Parameters.

Discussion

In this part of the study discussion, the author will converse about the study findings and list the studies conducted in the past in the same area. As already referred to the independent variables are LM3 and EXCH, while the dependent variable is represented by SMS. Some studies attempted to reveal the effect of liquidity on SMS. However, the present study selects LM3 as one type of liquidity for attempting to know the impact of LM3 on SMS. As a result, the key contribution of this study is to discover this relationship. Relying on some studies in the former period those conducted to reveal the impact of liquidity on the sukuk market size. Doktoralina and Nisha (2020) examined the relationship between the type of liquidity but not LM3 and SMS. The result showed a positive relationship in Indonesia only in the short term. Sudarsono and Saputri (2018) investigated the relationship between financial ratio to the deposit on SMS in both short and long terms. The finding of short-term revealed a significant positive impact, whereas the finding of long-term did not significant negative effect. Another study made by Ahmad and Radzi (2011) attempted to know the relationship between reserves (except gold) and sukuk market size. The finding found that the relationship is positive and significant in the short term. However, the result in this study for the effect of LM3 on SMS is shown in two tables (table 6 & table 7) in both terms long and short. From Table 6 the LM3 has no significant impact on SMS in the long-term with negative signal. This result shows that LM3 does not affect the SMS in the long term. As a result, this result matches with the study result of Sudarsono and Saputri (2018) for the effect of liquidity on SMS but with different types of liquidity. The reason for this result may be that most of LM3 just invested in long-term investments which reflects the non-significant of the relationship. For Table 7 the LM3 has a high significance positive impact on SMS in the short-term. This means that when LM3 is high in the short term the size of the sukuk market increases and vice versa. Therefore, this finding matches the study result of Sudarasono and Saputri (2018) in

the short run for the effect of liquidity on SMS with different types of liquidity. The reason for this relationship is that the investors in Malaysia prefer the investment of LM3 in Islamic securities in the short term. Consequently, when their LM3 is high they push up the size of the Sukuk market.

In terms of the second independent variable which is EXCH, there are some studies conducted in the past to reveal the relation between ECXH and SMS. The study by Syamni & Sulaiman (2010) was conducted in Malaysia to know the effect of EXCH on SMS. The Syamni & Sulaiman finding showed that EXCH does not affect SMS. Another study by Ahmad (2016) in Malaysia. Ahmad's (2016) result found that EXCH does affect SMS positively significantly. In addition, Ahmad and Radzi (2011) investigated the relationship between EXCH and SMS in Malaysia. Ahmad and Radzi's (2011) results showed that EXCH has a significant impact on SMS in Malaysia. One of the previous studies that focused on the impact of EXCH on SMS in Indonesia was conducted to find the relationship in both long and short terms which done through Juaris et al. (2018) and their result revealed that EXCH has a non-significant negative impact of SMS in the short run. Moreover, EXCH has a positive significant impact on SMS in the long term in Indonesia. On the other hand, the findings of the current study are shown in both tables (table 6 & table 7) around the impact of EXCH on SMS in Malaysia in both the long and short terms. The finding in the long-term of Table 6 presents that EXCH has a positive impact on SMS with significance at more than 0.05. Therefore, the EXCH's impact is significant on SMS at 0.10. This finding matches with Juaris' study at ten percent significance. This finding shows that when the rate of exchange is high the size of the sukuk market increases and vice versa. The reason for this finding is that most of the investors in the Malaysian sukuk market are local and they are not influenced by the changing of EXCH in the long term. On the contrary, the finding in the short-term of Table 7 shows that EXCH has a negative significant impact on SMS in Malaysia. This finding shows that when the rate of exchange is high the size of the sukuk market decreases in the short-term and vice versa. The reason for this finding is that foreign investors prefer to invest in the short-term when the rate of exchange is low and do not invest when the EXCH is high. Therefore, they can affect the size of the Sukuk market. This finding matches with Juaris' finding in the short-term with a significance of less than 0.01 but Juaris' result is non-significant.

5. Managerial Implications and Recommendations

Malaysia is widely regarded as one of the world's leading countries in Islamic finance with a strong agenda for investments in the Islamic financial market. However, Malaysia didn't get there overnight. This required many actors including the country's capital market regulators, government agencies, and the private sector. These parties have greatly helped in the development of the Sukuk market in Malaysia, and the current study can be applied to enhance its position in the Islamic financial market as well as export the successful experience to the rest of the Islamic countries particularly those who need to rebuild their country after the devastation of war. The researcher believes that after identifying the relationship between the financial risks and Sukuk growth the policymakers, financial institutions, organizations and government join hands to reduce these risks and make the optimal decisions to enhance the issuance and the growth of the Sukuk market.

Conclusion

Depending on the findings in this study, some conclusions be obtained from analyzing the SMS data in Malaysia between 4/2011 and 12/2020. The size of the sukuk market in Malaysia still growing time by time. The methodology in this study demonstrates a high cointegration relation in the long term between SMS as dependent variable and independent variables (EXCH & LM3) and figure (4) shows the moving path of all variables throughout the study data. In conclusion in this study's findings, LM3 influences SMS significantly positively in the short term, while EXCH affects SMS negatively significantly. The finding long-term showed that LM3 had a negative impact but was non-significant on SMS in Malaysia during the data period, while EXCH had a positive significant effect on SMS in the long-term in Malaysia for the same data period of this study.

Moreover, this study contributes to the current literature by studying the effect of the liquidity type M3 on the size of the sukuk market in Malaysia by using the econometric approach to reveal this effect in both the long and short terms. Therefore, can apply this study to other areas that have a perfect market for Sukuk. Malaysia has the largest portion of the global sukuk market, and it is a director in the industry of Islamic finance (Al-Fakih et al., 2022). Moreover, the authors suggest that any other author can apply this model in other countries to add knowledge to the area gap.

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Financial Risk: Case Study Analysis

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Abstract: This study explores the complex context of real-life financial risks. Using a thorough analysis of real case studies to reveal its varied nature and practical implications. Beginning with observations in the Age of Exploration and International Trade, the Financial Crisis of the 17th and 18th Centuries, and the Financial Crises of the 21st Century, this paper highlights the lessons learned for the current organization as well as individual contexts on how financial risk can affect the stability of financial conditions. This article, by deconstructing noteworthy instances of market crashes, corporate scandals, and regulatory failures, could also be used as guidance to emphasize the importance of strong risk management frameworks and tactics in limiting possible threats and improving resilience. Finally, this article serves as an insightful reminder of the importance of case studies in exposing real-world financial risks, providing significant insights for practitioners, researchers, and policymakers navigating the complicated environment of risk management.

Keywords: *Real-World, Financial Risks, Case Studies.*

1. Introduction and Background

According to Barges (1963), financial risk refers to the increased uncertainty in the net cash flows of equity owners due to the fixed financial obligation that comes with debt financing and cash leasing. Financial risk encompasses several forms of risk that are linked to financial transactions. This can be further elucidated as the scenario in which investors incur financial losses when they invest in a company that lacks sufficient cash flows to fulfill its maturing obligations (Arif et al., 2015).

The history of global financial risk began when trade and banking started to develop thousands of years ago. During the medieval period, occasionally referred to as the Dark Ages, trade and commerce flourished, and financial risk began to emerge as a crucial aspect of economic life (Dyer, 2005; Lopez, 1976). Business and trade involve the risks of transportation and supply chain, loss of goods, and price fluctuations that impact income and expenses. Currently, merchants and entrepreneurs utilize contracts or written agreements to manage business risks. In the modern era, financial risk has emerged as a crucial aspect in the evolving realm of trade and commerce. During the Middle Ages, international trade encompassed the transportation of products over both maritime and terrestrial routes (Hugill, 1993). The primary financial peril currently resides in the potential loss or impairment of possessions throughout the expedition. Maritime vessels frequently encounter perils posed by pirates and turbulent sea conditions, whilst terrestrial transportation entails the potential hazards of peril and instances of theft (Murphy, 2013). During that period, global commerce involved the use of several currencies, and fluctuations in currency exchange rates had the potential to result in either financial losses or gains in the worth of assets and liabilities (Koradia et al., 2022).

Likewise, credit transactions or trade have become commonplace. Credit risk occurs when borrowers fail to return their obligations, affecting the liquidity and financial stability of traders or enterprises. Next, financial risk arises when the price of traded goods or commodities fluctuates. The price of items can fluctuate quickly and cannot be forecast with great accuracy, affecting profit or loss. This is frequently associated with elements of doubt and ambiguity regarding the pricing, terms, and conditions of the contract. This risk stems from excessive uncertainty and a lack of correct information, as well as market speculation, which frequently affects the stability of the financial market (Martin and Papadimitriou, 2022). This scenario is compounded by the economic crisis and political unrest. An unstable administration or government will have an impact on financial stability and limit access to credit and capital acquisition while also lowering the degree of investment, which is not encouraging. War conflicts also have an impact on economic circumstances and financial stability by disrupting trade and destroying infrastructure, as well as destroying a country's overall economic development (Izzeldin et al. 2023).

During the Middle Ages, merchants and entrepreneurs employed a variety of tools and strategies to mitigate financial risk, including marine insurance to safeguard ships and cargo, written contracts to control company risk, and prudent credit trading (Hunt & Murray, 1999). Although these strategies are different from those employed now, they demonstrate the relevance of risk management in financial and business activity from ancient times.

2. Literature Review

The Age of Exploration and International Trade

In the era of exploration and international trade, financial risks escalated with global exploration and trade. The transportation of goods across seas involved the risk of ship and cargo loss, leading to the development of insurance policies and maritime derivatives. During the age of exploration and international trade, financial risks became increasingly complex due to the heightened activities involving trade and shipping across various countries and continents.

Risk of Maritime Transportation

The age of exploration involved long-distance voyages for international trade purposes. Risks of maritime transportation included the possibility of ships being lost due to storms, pirate attacks, or technical failures (Gou & Lam, 2019). Loss of ships and cargo due to maritime incidents posed risks that traders and explorer fleets had to face during that era. Financial risks in maritime transportation during the colonial era included potential losses due to damaged or lost cargo, fluctuating fuel prices, uncertainties in shipping tariffs and associated costs, foreign exchange rate changes, shifts in policies and regulations, credit and payment risks, and disruptions caused by strikes or labor issue (Stopford, 2008). Effective risk management, incorporating insurance, suitable contracts, and market understanding, was crucial to mitigate financial impacts. For instance, the risk of cargo loss and attacks in international trade is a significant concern. Several factors contribute to this risk, including geopolitical instability, piracy, and natural disasters. To mitigate these risks, traders often rely on insurance, secure transportation routes, and collaboration with local authorities and security experts. However, despite precautions, the ever-changing nature of global trade demands ongoing vigilance and adaptation to ensure the safe passage of goods. The international trade industry faces various challenges related to cargo risk and security. In the realm of international trade, one of the major challenges faced by traders and explorers is the risk of cargo loss and attacks during their journeys through unknown and sometimes hazardous territories (Reason, 2016). The risk of cargo loss and attacks in international trade directly relates to financial risk and crises. Cargo loss can lead to financial losses for traders, affecting their bottom line and disrupting supply chains. In the event of attacks or geopolitical instability, financial markets can be affected, leading to broader economic crises. Additionally, insurance costs may rise, impacting the financial health of trading companies. Therefore, these risks can contribute to or exacerbate financial crises, highlighting the interconnected nature of global trade, security, and financial stability.

Exchange Rate and Foreign Currency Risk

Exchange rate and foreign currency risk play a vital role in real-world financial crises. Fluctuations in exchange rates can impact the profitability of international trade, leading to financial instability for companies and even entire economies. When a country's currency depreciates significantly, it can lead to challenges for businesses with foreign currency-denominated debt, affecting their ability to repay loans (Saibene & Sicouri, 2012). This, in turn, can trigger a domino effect on financial markets, potentially contributing to broader economic crises. Therefore, exchange rate and foreign currency risks are closely intertwined with real-world financial crises, requiring careful management and hedging strategies by businesses and policymakers alike (Wanga, 2017; Barton et al., 2002). International trading requires the use of a variety of currencies and exchange rates. Currency exchange rate fluctuations can cause volatility in asset and debt prices, affecting trade earnings. In a broader sense, exchange rate swings have an impact on the economy through changes in net exports, often known as the trade channel, and valuation changes in assets and liabilities denominated in foreign currencies or the finance channel. The impact of exchange rates on financial crises is significant. Fluctuations in exchange rates can affect international trade, leading to financial instability for companies (Zakari, 2017; Pyeman et al., 2019). Currency depreciation can create challenges in repaying foreign currency-denominated debt, potentially causing a domino effect in financial markets and contributing to broader economic crises. Therefore, managing exchange rate risks and implementing effective hedging strategies are crucial for

businesses and policymakers to mitigate these impacts (Figure 1).

Figure 1: Analysis of Currency Risk Impact and the Need for Hedging Strategies

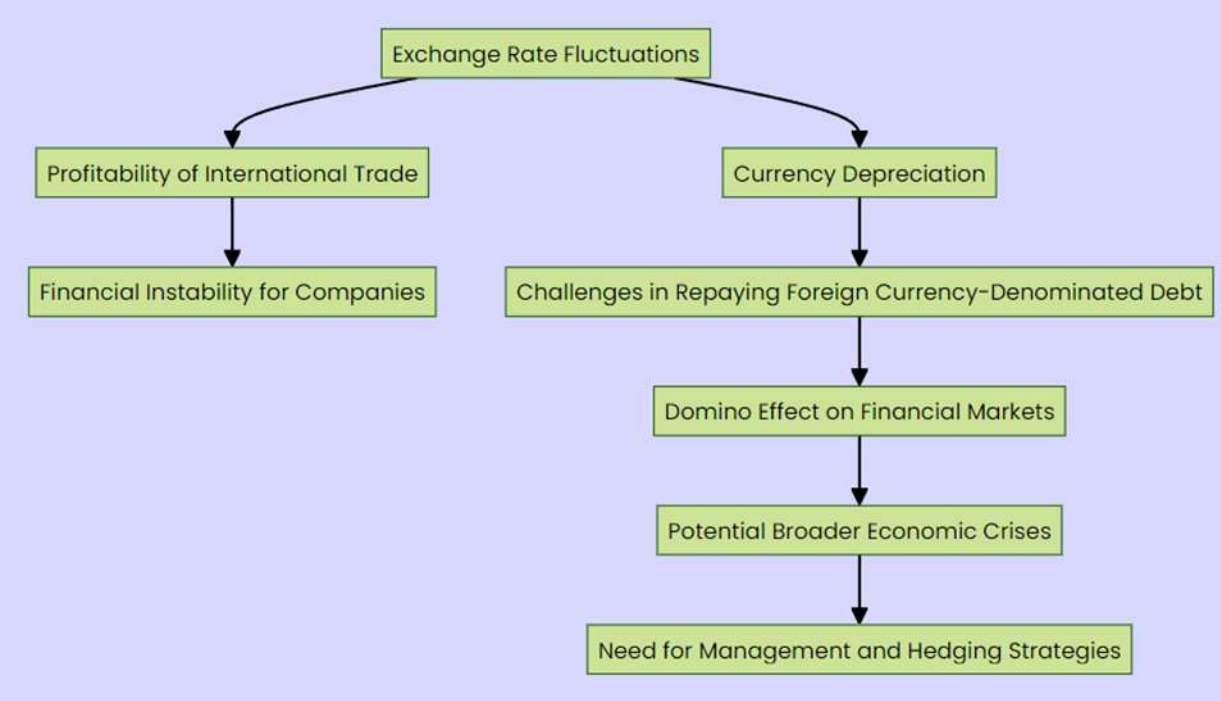


Figure 1 emphasizes the necessity of hedging due to the unpredictable nature of forex markets and the potential for big and unexpected fluctuations in foreign currency values. Hedging can safeguard a company's investments and assets, offer a safety measure, and increase the probability of consistent profits. It can also facilitate riskier investments. Although hedging has benefits, it also has certain drawbacks. Hedging typically incurs costs due to the requirement of dealing with extra assets. Businesses practicing hedging should evaluate if the expense of a hedge is justified by potential profits. One notable example is Argentina, which has experienced currency depreciation leading to financial crises. Another example is Turkey, where fluctuations in exchange rates have impacted the economy, leading to challenges for businesses with foreign currency-denominated debt and contributing to broader economic instability. These instances illustrate the real-world impact of exchange rate fluctuations on financial crises in specific countries. In the context of the Association of Southeast Asian Nations (ASEAN) countries, exchange rate fluctuations have historically influenced economies within the region. For instance, during the Asian financial crisis of the late 1990s, countries like Thailand, Indonesia, South Korea, and Malaysia experienced significant currency depreciations, leading to broader economic challenges (Hui, 2022; Vatsa et al., 2010). These events demonstrated the interconnectedness of exchange rates and financial crises within the ASEAN region, emphasizing the importance of managing exchange rate risks for economic stability.

Risk in International Business

International trade during the Age of Exploration was frequently fraught with political instability and inter-nation strife. Political risks, like as war or changes in government policy, have the potential to disrupt trade and earnings. Furthermore, during the era of the Age of Exploration, international business faced significant risks related to long and perilous sea voyages. These risks included shipwrecks, piracy, geopolitical uncertainties, and the challenge of navigating unknown territories. Additionally, cultural and language barriers presented obstacles to trade. Merchants had to contend with the uncertainty of return on investments due to the lengthy durations of voyages. Despite these risks, the Age of Exploration fostered cross-cultural trade and the exchange of goods, ideas, and technologies between distant regions, laying the foundation for modern global commerce. Several countries were involved in international trade and exploration, including Portugal, Spain, France, England, the Netherlands, Denmark, and Sweden. These explorations led to the establishment of trade routes, colonies, and global trading networks, despite the significant risks associated with long sea voyages,

geopolitical uncertainties, and cultural barriers. In addition, underdeveloped nations also faced various challenges in international trade. Many indigenous societies in Africa, the Americas, and Asia had limited exposure to global trade and were often at a disadvantage when engaging with more technologically advanced and militarily powerful European nations (Rodney, 2018). The arrival of European explorers and traders brought significant disruptions, including the exploitation of resources, forced labor, and the spread of diseases, leading to detrimental impacts on indigenous populations and their economies. The Age of Exploration, therefore, marked a period of immense challenges and upheaval for underdeveloped nations as they navigated the complexities of international trade with more powerful and advanced foreign entities.

Duration (Time) Risk

During the Age of Exploration, duration risk was a central concern for explorers, investors, and governments funding expeditions into unknown territories. These risks stemmed from the lengthy voyages that explorers undertook, often lasting for months or even years. The uncertainty surrounding the duration of these journeys was exacerbated by limited navigation technology, as explorers relied on rudimentary tools like compasses and astrolabes. Furthermore, venturing into uncharted waters meant that explorers faced the unknown, encountering unexpected obstacles such as adverse weather conditions, treacherous reefs, and hostile indigenous populations, all of which could prolong the voyage. This uncertainty had economic implications, as investors faced the risk of delayed or nonexistent returns on their investments. Moreover, enduring a lengthy voyage took a psychological toll on crew members, leading to morale issues and even mutinies. In summary, duration risk during the Age of Exploration encompassed logistical, technological, financial, and psychological factors, posing significant challenges to the success of expeditions and the exploration of new lands. In the realm of international exploration and commercial expeditions, time emerges as a critical factor intertwined with various risks that traders encounter. These ventures span considerable durations and are susceptible to fluctuations in political climates, market dynamics, and meteorological conditions, all of which can significantly influence commodity pricing and market conditions. Time risk, therefore, encapsulates the exposure foreign traders face due to the volatility of prices and market circumstances throughout a voyage. Market fluctuations represent one facet of time risk, as shifts in supply and demand, consumer preferences, and geopolitical events can trigger unpredictable changes in commodity prices, impacting trade profitability. Political instability further compounds this risk, with unrest, conflicts, and policy shifts potentially disrupting trade routes, altering market conditions, and introducing additional uncertainties for traders (Weiss & McMichael, 2004).

Gharar (Uncertainty)

Within the Islamic framework, financial risk is controlled using ethical investment principles, observance of Sharia law, asset-backed financing, risk-sharing, and the proscription of interest and speculative transactions (gharar). Through the encouragement of justice, openness, and moral conduct, this strategy seeks to establish a financial system that is more stable and equitable. While these principles may offer some resilience to certain risks, Islamic finance is not immune to financial crises, though its emphasis on fairness and transparency may contribute to a more stable financial system (Kayed & Hassan, 2011).

In those days, international trade was characterized by uncertainty in agreements, prices, and terms of trade. Gharar risk occurs as a result of high uncertainty in transactions and a lack of correct information. Merchants and explorers employ a variety of risk management strategies and practices to mitigate financial risk during exploration and international trade, including marine insurance to protect ships and cargo, trade diversification to reduce the risk of single losses, and the use of written contracts to manage business risks. Financial risk is currently driving the development of risk management approaches in modern commerce and companies. During the Age of Exploration, Gharar risk, characterized by uncertainty or ambiguity in contracts, transactions, and investments, permeated the landscape of trade and exploration (Arefin & Muhammad, 2021). This uncertainty stemmed from various factors inherent to the era. For example, trade agreements formed the backbone of exploration ventures, but the lack of reliable information about distant lands, cultures, and market conditions introduced uncertainty. Traders couldn't accurately assess the risks associated with trading in unknown territories, leading to ambiguity in their contracts. In addition to that, the action of investing in expeditions was inherently risky due to uncertainties about potential returns on investment. Investors faced uncertainty as they couldn't predict the success of expeditions, the profitability of trade routes, or the discovery of valuable resources. This uncertainty made it challenging to determine fair terms for investment agreements. Furthermore, navigating unknown waters posed significant challenges, with uncertainties regarding accurate

maps, reliable navigation techniques, and the presence of hazards such as reefs, storms, or hostile encounters. This increased the risk of maritime voyages and added uncertainty to trading ventures. Furthermore, the absence of standardized legal frameworks and regulatory institutions across different regions compounded Gharar risk (Kammer et al., 2015). Merchants and explorers faced uncertainties regarding property rights, contract enforcement, and dispute resolution mechanisms when operating in unfamiliar territories with varying legal systems. Managing Gharar risk required adaptability, risk assessment skills, and reliance on trust and personal relationships (Peker et al., 2023). Traders and explorers navigated uncertainties by seeking information, forming alliances, and leveraging their networks. Despite the challenges, the Age of Exploration spurred global trade, cultural exchange, and the expansion of knowledge, laying the foundation for the interconnected world we inhabit today.

From the perspective of Islam, the prohibition of Gharar (uncertainty or ambiguity) remained a significant ethical and legal consideration for Muslim traders (Bouslama & Lahrichi, 2017). They avoided contracts involving excessive uncertainty, prioritized risk management, and upheld ethical principles in trade. Legal frameworks based on Shariah principles regulated trade and resolved disputes, ensuring adherence to Islamic ethical standards. Overall, Gharar's prohibition influenced trade practices by emphasizing transparency, risk management, and ethical considerations in business dealings among Muslim traders.

Financial Crisis of the 17th and 18th Centuries

This period saw several financial crises, including the South Sea crisis (1719-1720) in Britain and the Tulip crisis (1637) in the Netherlands. These crises occur as a result of excessive speculation and burst asset price bubbles. The financial crisis in the 17th and 18th centuries included several significant events that had a major impact on the economy and financial system at the time. Some of the most famous financial crises of this period are discussed in this paper.

Tulip Crisis (Tulip Mania) in the Netherlands (1637)
The Tulip Crisis, also known as Tulip Mania, unfolded in the Netherlands during the early 17th century and remains one of the most infamous episodes in financial history. Originating from the popularity of tulip bulbs, which were imported from the Ottoman Empire and highly prized for their exotic beauty, the crisis escalated into a speculative bubble characterized by frenzied trading and skyrocketing prices. At the height of Tulip Mania in February 1637, tulip bulb prices reached absurd levels, with some rare varieties fetching astronomical sums, making fortunes for early investors (Hardaway, 2011). However, the market soon reached its peak, and fears of a collapse triggered panic selling, leading to a sharp downturn in prices. The bubble burst, leaving many investors bankrupt and causing significant economic fallout in the Netherlands. Despite being a localized event, the Tulip Crisis has had a lasting impact on global economic thought and financial markets. It serves as a cautionary tale about the dangers of speculative bubbles and irrational exuberance, highlighting the role of investor psychology, risk perception, and herd behavior in driving market booms and busts. Economists and investors have extensively studied the Tulip Crisis, drawing lessons about the need for regulation, investor protection, and risk management in financial markets. It has influenced modern theories of behavioral finance, market psychology, and financial regulation, prompting governments and regulators worldwide to implement measures to prevent market manipulation and safeguard investors. Moreover, the Tulip Crisis has spurred innovation in financial instruments and derivatives markets, leading to the development of futures contracts and options trading as mechanisms for hedging against price volatility and managing risk in agricultural commodities (Natanelov, 2014). Beyond its economic impact, the Tulip Crisis has also left a cultural legacy, inspiring numerous literary works, paintings, and cultural references. It has become a symbol of folly, excess, and the unpredictability of financial markets in popular culture, resonating with audiences worldwide.

Lesson learned, the Tulip Crisis, or Tulip Mania, serves as a cautionary tale about the dangers of speculative bubbles in financial markets (Baldini, 2023). It underscores the role of investor psychology, the importance of regulation and investor protection, and the need for diversification and risk management. By learning from the mistakes of the past, investors can make more informed decisions and avoid succumbing to irrational exuberance or panic. In summary, while the Tulip Crisis was a localized event in the Netherlands, its lessons and legacy have reverberated throughout the world, shaping economic theory, financial markets, and cultural perceptions of speculation and investment.

South Sea Bubble in Britain (1719-1720)

The South Sea Bubble was a speculative bubble in Britain between 1719 and 1720, centered around the South Sea Company's scheme to take over a portion of the national debt. Investors were lured by promises of high returns, leading to a speculative frenzy and soaring share prices. However, the bubble burst in 1720 as doubts about the company's profitability emerged, causing share prices to plummet and widespread financial ruin. The episode serves as a cautionary tale about the dangers of speculative manias and the importance of prudent financial regulation (Johannessen & Johannessen, 2017). The case highlighted the hazards of speculative bubbles and irrational exuberance in financial markets, emphasizing the huge market risk that comes with unbridled speculation. The aftermath caused enhanced regulatory monitoring and control, emphasizing the significance of good risk management methods in maintaining market stability and protecting investors from future crises.

Scottish Banking Crisis (1772)

The Scottish Banking Crisis of 1772 unfolded against the backdrop of Scotland's economic expansion during the 18th century, driven by burgeoning trade, industry, and agriculture. This growth spurred the proliferation of banks across Scotland, each issuing its banknotes to support the burgeoning economy. However, alongside this economic boom came speculative lending practices, particularly in financing land speculation and colonial ventures (Brown, 2011). As the 1770s dawned, a series of economic challenges emerged, including poor harvests, declining trade, and setbacks in colonial ventures. These factors precipitated an economic downturn, causing borrowers to struggle with repayments on their loans. The speculative lending practices of Scottish banks became increasingly unsustainable, as the circulation of banknotes outstripped the tangible assets backing them. The crisis reached a tipping point when several Scottish banks, unable to meet their financial obligations, collapsed or suspended payments. The collapse of these banks triggered a crisis of confidence in the banking system, sparking widespread panic among depositors and leading to runs on banks across Scotland.

In response to the crisis, the Scottish government took decisive action to stabilize the banking system. Measures were implemented to provide financial support to troubled banks and restore confidence among depositors. Additionally, regulatory reforms were introduced to address the underlying vulnerabilities in the banking sector and improve its resilience to future crises. One significant outcome of the crisis was the establishment of the Royal Bank of Scotland, which played a pivotal role in stabilizing the Scottish banking system and restoring confidence among depositors. The crisis also prompted increased scrutiny of banking practices and the adoption of stricter regulations aimed at safeguarding the stability of the banking sector. The Scottish Banking Crisis of 1772 had far-reaching consequences for Scotland's economy and banking system. It served as a watershed moment in Scottish financial history, shaping the development of banking regulation and policy in the years that followed. Ultimately, the crisis underscored the importance of prudent banking practices, effective regulatory oversight, and financial stability in maintaining the health of the banking system (White, 1991).

The French Revolution Financial Crisis (1797-1799)

The Financial Crisis of the French Revolution (1797-1799) occurred amidst the political upheaval and economic strain of one of history's most transformative periods. The crisis stemmed from severe fiscal pressures exacerbated by war, extravagant spending, and ineffective financial policies. The issuance of assignats, corruption, speculation, and economic instability further fueled the crisis (Motadel, 2021). Despite attempts to address the crisis through various measures, its resolution remained elusive. The legacy of the crisis shaped French politics and economic policy for years to come, underscoring the challenges of governing during revolutionary turmoil. To address the Financial Crisis of the French Revolution, strategies included fiscal reforms, monetary policies like issuing assignats, crackdowns on corruption and speculation, economic controls such as price regulations, and achieving political stability under Napoleon Bonaparte. Despite these efforts, the crisis persisted due to its multifaceted nature, requiring a comprehensive approach to resolve its underlying causes and consequences.

The Financial Crisis of the French Revolution ultimately came to an end with the rise of Napoleon Bonaparte to power in 1799 (McPhee, 2001). Napoleon implemented a series of reforms aimed at stabilizing the economy and restoring public confidence. These reforms included measures to address government finances, stabilize

the currency, and promote economic growth. Under Napoleon's leadership, stability returned to France, and the economy began to recover from the turmoil of the revolutionary period (McPhee, 2001). The crisis gradually subsided as the government implemented effective policies to address its underlying causes and restore economic stability. However, it's essential to note that while Napoleon's rise to power marked the end of the crisis, its legacy continued to shape French politics and economic policy for years to come. The events of the French Revolution and its aftermath had a profound impact on the trajectory of French history, influencing subsequent political developments and economic reforms in the country.

The Introduction of the Central Bank

During the 19th and 20th centuries, central banks were established across Europe and in various other countries in response to financial crises and the need for monetary stability. The Bank of France was established in 1800, followed by the Bank of Russia in 1860 and the Reichsbank in Germany in 1876. In the 20th century, central banks were also established in many other countries, including Japan (Bank of Japan, 1882), Canada (Bank of Canada, 1934), and Australia (Reserve Bank of Australia, 1960). These central banks were tasked with managing monetary policy, regulating the banking system, and stabilizing the economy, particularly during times of financial crisis (Cukierman, 2013).

Central banks control monetary policy through various tools like setting interest rates, conducting open market operations, regulating reserve requirements, providing forward guidance, and implementing quantitative easing (Bernanke, 2020). These measures influence the money supply, interest rates, and economic activity to achieve policy objectives such as price stability and sustainable growth. Central banks in the 19th and 20th centuries generally succeeded in maintaining monetary stability, managing financial crises, and influencing economic conditions through various policy tools. Despite facing challenges and limitations, their efforts contributed to overall stability and economic growth during this period.

The Stock Market Crash (1929) and the Introduction of Financial Regulation

The 1929 Stock Market Crash, famously known as Black Tuesday, stands as one of the most significant events in economic history, marking the beginning of the Great Depression. The crash was the culmination of various factors, including rampant speculation, overvaluation of stocks, excessive borrowing, and underlying economic instability. On October 29, 1929, stock prices plummeted, triggering panic selling and leading to widespread financial devastation (Blumenthal, 2013). The fallout from the crash reverberated globally, plunging economies into turmoil, and triggering mass unemployment, poverty, and deflation. Governments were compelled to take drastic measures to address the crisis and restore confidence in the financial system. In the United States, a series of landmark reforms were implemented to regulate the securities industry and protect investors from fraud and manipulation. The Securities Act of 1933 and the Securities Exchange Act of 1934 were introduced to establish transparency and accountability in the securities market. The creation of the Securities and Exchange Commission (SEC) in 1934 provided oversight and enforcement of securities laws, ensuring fair and orderly markets (Karmel, 2009).

Furthermore, banking regulation was overhauled with the enactment of the Banking Act of 1933, also known as the Glass-Steagall Act (Bexley, 2014). This legislation aimed to separate commercial banking from investment banking activities, reducing conflicts of interest and preventing excessive risk-taking. The establishment of the Federal Deposit Insurance Corporation (FDIC) provided deposit insurance, instilling confidence in the banking system and preventing bank runs (Chapman et al., 1949). These regulatory reforms fundamentally reshaped the financial landscape, ushering in an era of greater transparency, oversight, and investor protection. While the Great Depression left a profound mark on the global economy, the reforms introduced in its aftermath laid the groundwork for modern financial regulation. They helped to prevent similar crises in the decades that followed and underscored the importance of proactive government intervention in stabilizing the financial system and safeguarding against future economic catastrophes.

Despite these regulatory measures, subsequent financial crises, such as the 2008 global financial crisis, underscored the need for further reforms to address systemic risks and strengthen financial regulation. Proposed measures include enhanced oversight of financial institutions, regulation of derivatives and complex financial products, consumer protection regulations, systemic risk regulation, international coordination and cooperation, cybersecurity regulations, and promoting ethical standards and corporate governance within

financial institutions. By implementing a comprehensive approach to financial regulation, policymakers can mitigate the likelihood and severity of future financial crises, protect consumers, promote market integrity, and maintain financial stability. These regulatory reforms build upon the lessons learned from past crises and aim to create a more resilient and stable financial system for the future. As a response to this devastating crisis, many countries introduced various financial regulations and laws to control financial risks and prevent similar crises from recurring.

3. Innovation in Financial Instruments

In the 19th and 20th centuries, significant innovations in financial instruments transformed the landscape of global finance and paved the way for modern financial markets. For instance, in the 19th century, the expansion of railroads across continents led to the creation of railroad bonds. These bonds provided financing for railroad construction projects and were secured by the revenue generated from the railroads' operations (Johnson & Supple, 1967). Railroad bonds were among the earliest examples of corporate bonds and played a crucial role in financing infrastructure development. Another innovation is through the issuing of bonds as a means of financing public spending and infrastructure projects. Government bonds offered investors a safe and reliable investment option, backed by the creditworthiness of the issuing government. The development of government bond markets helped standardize debt instruments and provided liquidity to financial markets. Despite that, the 19th century saw the rise of modern stock markets, where shares of publicly traded companies were bought and sold. The issuance of stocks allowed companies to raise capital from investors in exchange for partial ownership of the company. Stock markets provided liquidity to investors and facilitated the growth of corporations by enabling them to access capital markets (Ngugi et al., 2006).

Furthermore, commercial paper emerged as a popular short-term financing instrument for corporations in the early 20th century (Silvia & Silvia, 2021). These unsecured promissory notes were issued by corporations to raise funds for short-term operational needs, such as inventory purchases, payroll, or accounts receivable financing. Commercial paper typically has a maturity of less than 270 days and is issued at a discount to its face value, providing investors with a return in the form of interest when the paper matures. This financing option offered corporations a flexible and cost-effective alternative to traditional bank loans, allowing them to meet their short-term funding requirements efficiently. Additionally, commercial paper provided investors with an opportunity to earn returns on short-term investments while diversifying their portfolios beyond stocks and bonds. The emergence of commercial paper facilitated the growth of corporate finance and contributed to the development of modern financial markets. While in the late 20th century, securitization emerged as a significant innovation in financial markets. Securitization involves pooling together various financial assets, such as mortgages or loans, and packaging them into securities that can be bought and sold by investors. This process allowed financial institutions to transfer risk off their balance sheets and create new investment opportunities for investors. This also involved derivative instruments such as futures, options, and swaps, which became increasingly popular in the late 20th century. Derivatives are financial contracts whose value is derived from the value of an underlying asset, index, or rate. These instruments allow investors to hedge against price fluctuations, speculate on future market movements, and manage risk in their investment portfolios. Last but not least, exchange-traded Funds (ETFs) also emerged as a popular investment vehicle in the late 20th century, offering investors exposure to diversified portfolios of assets, such as stocks, bonds, or commodities (Deville, 2008). ETFs trade on stock exchanges like individual stocks, providing investors with liquidity and flexibility in managing their investments. One prominent example of a country that introduced Exchange-Traded Funds (ETFs) is the United States. The first ETF, known as the SPDR S&P 500 ETF (SPY), was launched by State Street Global Advisors in 1993. SPY tracks the performance of the S&P 500 index and allows investors to gain exposure to a diversified portfolio of large-cap U.S. stocks. Since then, the ETF market in the United States has grown significantly, with a wide range of ETFs offering exposure to various asset classes, sectors, and investment strategies. The introduction of ETFs revolutionized the investment landscape by providing investors with a cost-effective and efficient way to access diversified investment portfolios while offering liquidity and flexibility in trading on stock exchanges.

Overall, these innovations in financial instruments revolutionized global finance, enabling corporations to access capital, investors to diversify their portfolios, and financial markets to become more efficient and liquid. However, they also introduced new complexities and risks to the financial system, highlighting the importance

of effective regulation and risk management practices.

4. The Financial Crises in the 21st Century

The 21st century has been marked by several significant financial crises that have had profound effects on the global economy. Here are some notable crises.

i. Dot-com Bubble Burst (2000)
The dot-com bubble burst in the early 2000s, resulting in a sharp decline in stock prices of many internet-related companies. The bubble was fueled by speculation in internet stocks, many of which were trading at highly inflated valuations. When the bubble burst, investors suffered significant losses, leading to a recession in some countries and a slowdown in global economic growth. The necessity of diversity is one of the lessons learned from the crisis. Even though portfolio diversification does not guarantee a profit or protect against loss, it could also be unable to take pride in your impressive score (Miller & Lessard, 2001). However, with time and a consistent flow of funds into your account, you should be able to expand your portfolio and experience fewer heartbreaking setbacks.

ii. Global Financial Crisis (2007-2008)
The collapse of the United States subprime mortgage industry sparked the worldwide financial crisis, often known as the Great Recession. Subprime mortgages, or loans made to borrowers with weak credit records, were bundled into complicated financial products known as mortgage-backed securities (MBS) and marketed to investors. When the housing market collapsed and borrowers defaulted on their mortgages, the value of MBS fell dramatically, causing widespread financial panic and a liquidity crisis in global financial markets. The global financial crisis brought down numerous major financial institutions, triggered a global recession, and had far-reaching economic and social consequences around the world (Sikorski, 2011).

iii. European Sovereign Debt Crisis (2010-2012)
The European sovereign debt crisis began in 2010 when several European countries, including Greece, Ireland, Portugal, and Spain, faced severe financial difficulties due to high levels of public debt and fiscal imbalances (Beker, 2014). The crisis was exacerbated by concerns over the sustainability of government debt, banking sector weaknesses, and a lack of confidence in the eurozone's ability to address the crisis effectively (Beker, 2014). The debt crisis led to bailouts for several countries, austerity measures, and economic reforms aimed at restoring fiscal sustainability and stability in the eurozone.

iv. COVID-19 Pandemic (2020)
The COVID-19 pandemic, caused by the spread of the novel coronavirus, resulted in one of the most severe global economic downturns in history. Lockdown measures implemented to contain the virus led to widespread business closures, disruptions in supply chains, and a sharp decline in consumer spending. Governments and central banks around the world responded with unprecedented fiscal stimulus measures and monetary policy interventions to support economies and stabilize financial markets. While these measures helped mitigate the immediate impact of the pandemic, the long-term economic consequences remain uncertain (Barman et al., 2021; Guan et al., 2020).

These financial crises highlight the interconnectedness and vulnerabilities of the global financial system and underscore the importance of effective regulation, risk management, and crisis preparedness in safeguarding financial stability and promoting sustainable economic growth. Various countries have successfully implemented measures to mitigate the effects of financial crises. Examples include the United States during the Global Financial Crisis, Germany during the European Sovereign Debt Crisis, South Korea during the Asian Financial Crisis, and China during the Global Financial Crisis. These measures typically involve a combination of fiscal, monetary, and structural policies tailored to each country's specific circumstances. Additionally, international cooperation and coordination often play a crucial role in managing and resolving financial crises.

5. Conclusion

In conclusion, this study emphasizes the significance and relevance of using case studies to fully understand

and handle real-world financial difficulties. An analysis of numerous eras and economic conditions reveals that financial risks span a wide range, from market swings to operational failures. The importance of learning from past occurrences to foresee and manage future risks is highlighted, as is the critical role of openness, accountability, and regulatory supervision in ensuring financial stability and investor trust. The events described in this article are crucial to be evaluated by all stakeholders to maintain smooth functioning at every operational level and to prevent a country from experiencing unregulated adverse consequences. Future scholars have the opportunity to analyze the consequences of each example examined in this study and provide empirical evidence that more accurately illustrates the influence of financial crises. Finally, this study serves as an upsetting reminder of the essential insights that case studies offer to practitioners, researchers, and policymakers as they navigate the complexity of financial risk management in today's dynamic market as a whole.

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Trust, Social Influence and Perceived Usefulness: Examining Online Purchase Intentions among Gen Z

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Abstract: The growing popularity of online shopping collides with user reservations related to trust, social influence, and perceived purchase usefulness, with such concerns acutely observable among Gen Z populations. As digital natives and prolific online users, Gen Z's purchasing patterns offer valuable insights for marketers adjusting their online strategies. This study extends the body of knowledge by examining the determinants of online purchase intentions among Gen Z thereby guiding university administrators, educators, and online retailers in crafting improved online shopping experiences. Utilizing a non-intrusive, naturalistic research setting, the study harnesses an anonymous survey methodology, and data is rigorously analyzed using Statistical Package for Social Science (SPSS). Findings indicate that trust and perceived usefulness are significantly connected to students' online purchasing decisions. This study enhances the theory of online buying habits by emphasizing trust and value in e-commerce. It advises adding trust cues and functional benefits to online portals, the key to influencing Gen Z buyers and boosting market expansion and e-shopper satisfaction.

Keywords: *Online purchasing intention, trust, social influence, perceived usefulness, Gen Z*

1. Introduction and Background

Online purchases have increased in popularity in recent years, completely changing how people look for goods and services. Gen Z, who are early adopters of technology and actively participate in online activities, is the group among whom this tendency is most noticeable (Pending, 2023). To effectively target this group and adjust their online marketing tactics, firms and marketers must have a thorough understanding of the elements that influence Gen Z's online purchasing behavior.

While a significant amount of research has been conducted on purchasing behavior, little focus has been placed particularly on the variables influencing online buying among Gen Z (Ozen & Engizek, 2014). Previous research that has been conducted by Ahmed et al. (2018) has mostly focused on the general or particular age groups, ignoring specific characteristics and preferences of Gen Z as internet users. As a result, research into the specific factors influencing students' decisions to make online purchases is necessary. Several studies have examined the variables impacting online shopping intention in various contexts. Online shopping decisions are influenced by several important factors including trust, perceived usefulness, and social influence.

2. Literature Review

Online purchase intention: Intention defined by Akhbar et al. (2014), reflects people's conscious attempt to rationalize their actions and is a driving factor behind the behavior. Specifically, purchase intention refers to an individual's desire to acquire a specific product or service, particularly in the realm of e-commerce, where the preference for online shopping has grown due to factors such as increased digitization and convenience (Time Trade, 2017). This transformation is reflected in the reduction of physical store patronage and the rise of online shoppers (Chang et al., 2016). Consumer perceptions and attitudes determine purchase intention, which is critical in brand selection (Mirabi et al., 2015; Shah et al., 2012). Furthermore, the COVID-19 epidemic has accelerated the transition to online shopping, driven by concerns about in-store limitations and supply shortages (Nguyen et al., 2020; Zwanka & Buff, 2020). Gallego et al. (2016) found that online merchants' trustworthiness and ethical conduct had a substantial influence on purchase intention, emphasizing the need for firms to prioritize ethical issues to preserve consumer confidence and reduce turnover.

Trust: Trust plays a pivotal role in the consumer decision-making process, whether shopping online or in a

physical store, as Goddu (2021) points out. But in the online world, trust works a bit differently. Instead of trusting a person directly, we rely on trusting the website itself because we are interacting through technology. If we do not trust the website, it's like not trusting the store in the real world; we probably won't buy anything. When we shop online, trust becomes crucial because we worry about risks like our financial info getting stolen or the product not being what we expected (Bach et al., 2020).

Rahimnia and Hassanzadeh (2013) describe trust as a feeling we get even when we are not sure about something. Trust is a big deal in online shopping research because it helps us feel more comfortable and surer about what we are buying. When there is a lot of uncertainty online, trust becomes even more important because it helps us feel safer (Soleimani, 2021). Trust is an emotional response that affects how we judge things and what decisions we make. So, when we're shopping online, we're thinking about whether we trust the online community and if they're being honest with us.

When we're online shopping, we have to trust that our private info, like our payment details, will be kept safe. Trust is a big challenge for online businesses, and it can make or break their success. Sometimes, people do not shop online simply because they do not trust the websites (Hongsuchon et al., 2022). Trust is super important for us shoppers because it helps us feel confident about our decisions when we're buying online (Krishnamurthy & Kucuk, 2009). Researchers like Lui et al. (2005) and Kuan & Bock (2007) have found that trust is closely linked to whether we intend to buy something online. So, when we trust a website, we're more likely to buy from it. From the above arguments, this study proposes the following hypothesis:
H1: There is a relationship between trust and online purchase intention.

Social Influence: Social influence is a big deal when it comes to how people behave and make decisions, as explained by Myers & Twenge (2019). It means that we are often influenced by the people around us when we decide what to buy or how to act. Marketers know this and try to use social influence to get us to make unplanned purchases.

Social influence can take different shapes. At times, our beliefs or behaviors might shift to align with what we observe others doing (Ratner and Kahn, 2002). For instance, if we see our friends using a particular product, we might want to try it too. Social influence can happen without us even realizing it, unlike persuasion, which is more intentional and requires awareness. Businesses use various strategies to tap into social influence to encourage us to buy more, like making us feel indebted or showing us that other people are buying the same thing (Van Den Bulte & Stremersch, 2004).

In addition, social influence occurs in several forms, potentially leading us to adapt our views and actions based on the observed behavior of others, as explained by Mcleod et. al (2022). Conformity is when we change our beliefs or behaviors to fit in with what most people are doing. Obedience is when we follow orders from someone in authority, and compliance is when we agree to something because we feel pressured. Minority influence is when a small group manages to change the opinion of a much larger group, which can happen if the minority group behaves in certain ways. So, social influence is all about how we're influenced by others, whether we realize it or not, and it can affect what we buy and how we behave. Based on the above discourse, this study hypothesizes the following:
H2: There is a relationship between social influence and online purchase intention.

Perceived usefulness: Perceived usefulness, as defined by Worthington (2021), refers to how much someone believes that using a particular system or technology will improve their performance or help them achieve their goals. In the context of social media and online shopping, it is about whether users think that using a specific platform or website will help them accomplish what they want, such as making purchases. A past study by Slamet et al. (2022) has found a positive connection between perceived usefulness and online purchase intention. This means that when people believe that using online platforms will enhance their shopping experience or make things easier for them, they are more likely to intend to make purchases online.

Furthermore, the younger people's perceptions, as highlighted by Edward et al. (2021), play a significant role in shaping their attitudes towards technology and online shopping. For younger generations, perceived usefulness strongly influences their intentions to buy online. Studies by Nasidi et al. (2021) and Lim et al.

(2021) also emphasize the importance of perceived usefulness in consumers' acceptance of online stores and banking services. This suggests that when consumers believe that online shopping offers value and improves their shopping routines, they are more likely to embrace e-commerce and intend to shop online.

Research by Nguyen (2020), Oentario, Harianto, & Irawati (2017), and Rahmiati & Yuannita (2019) further confirms the positive impact of perceived usefulness on online shopping attitudes and intentions. Perceived usefulness is crucial because it influences how customers judge their shopping experiences online. If customers perceive that online platforms add value and make their shopping tasks easier, they are more likely to have favorable attitudes toward e-commerce and intend to make purchases online. Overall, the consistent findings from past research underline the significance of perceived usefulness in shaping online purchase intentions and highlight its role in influencing consumer behavior in the online shopping environment hence, this study proposed the below hypothesis.
H3: There is a relationship between perceived usefulness and online purchase intention.

3. Research Methodology

This article forms part of a major study to investigate the relationship between trust, social influence and perceived usefulness with online purchase intention among Gen Z. The type of research design used in this research is correlational study. This is because several independent variables go hand in hand with online purchase intention. This type of research design assesses the extent to which changes in one variable are connected to changes in another.

The unit of analysis of this study focuses on the individual level that is Gen Z. The population consists of 154 respondents from a specific social science program. Given the mentioned population, the sample size of 108 was determined based on Krejcie and Morgan (1970). The data was collected using the survey method through questionnaires. A non-probability approach of a convenient sampling technique was employed to distribute the survey among respondents.

The questionnaire consists of 19 questions. Four questions about online shopping intention were adopted from Dharmesti et al. (2021) including *I like to shop online,* and *I have a strong intention to purchase online in the future*. Next, three questions regarding trust were adopted from Cheung and Lee (2001), including the *There are many reliable third-party certification bodies (entities) available or ensuring the trustworthiness of internet stores* and *I think third-party certification bodies (entities) such as e-trust are doing a good job.* Then, four questions about social influence were adopted from Sin et al. (2012), which include *My family members influencing me to make an online purchase,* and *People that I care about and believe advise me to purchase online.* Lastly, eight questions related to perceived usefulness were adopted from Rehman et al. (2019), encompassing *I perceive that using online shopping improves my performance in shopping activities,* and *I perceived that using online shopping gives me greater control over my shopping activities.* These items' questions were ensured to have acceptable reliability value and then validated in terms of construct and content.

4. Results

Respondents' Profile

This section outlines the demographic details of the participants, covering gender, age, class, and residence. Additionally, it explores their experiences with network providers, preference for online shopping platforms, monthly online spending averages, and shopping frequency. Based on Table 1, 71.8% of the respondents were female while 28.2% were male. Following, 91.3% of the respondents, totaling 94 individuals, were aged 22-25 years old, followed by 5.8% totaling 6 individuals who were aged 18-21 years old, and 2.9% totaling 3 individuals who were 26-30 years old. Furthermore, 78.6% of the respondents with a total of 81 individuals are from Selangor whereas 21.4% of the respondents with a total of 22 individuals are not from Selangor.

In addition, most respondents preferred Shopee as an online shopping platform with a percentage of 63.1%, totaling 65 individuals, followed by Tiktok Shop with 33% totaling 34 individuals and lastly, Lazada, with 3.9% of 4 respondents. Next, for the average spending for online shopping per month, month respondents spend around RM51- RM100 with a percentage of 39.8%, totaling 41 individuals and only less than 10 percent of

respondents spend above RM151 per month for online shopping. In the same manner, most respondents, totaling 69 persons with 67% of respondents, spend 1 to 3 times per month for online shopping, while 21.4% totaling 22 individuals spend 4 to 6 times per month for online shopping.

Table 1: Respondents' Profile

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	29	28.2%
Females	74	71.8%
Total	**103**	**100%**
AGE		
18 - 21	6	5.8%
22-25	94	91.3%
26-30	3	2.9%
Total	**103**	**100%**
GEN Z'S HOMETOWN		
Selangor	81	78.6%
Outside Selangor	22	21.4%
Total	**103**	**100%**
PREFERENCES OF ONLINE SHOPPING PLATFORM		
Tiktok Shop	34	33%
Lazada	4	3.9%
Shopee	65	63.1%
Total	**103**	**100%**
AVERAGE SPENDING FOR ONLINE SHOPPING PLATFORM		
Less than RM50	37	35.9%
RM51 - RM100	41	39.8%
RM101 - RM 150	15	14.6%
Above 151	10	9.7%
Total	**103**	**100%**
FREQUENCY OF ONLINE SHOPPING PER MONTH		
Never	1	1%
1-3 times	69	67%
4-6 times	22	21.4%
7-10 times	7	6.8%
greater than 10 times	4	3.9%
Total	**103**	**100%**

Descriptive Analysis

Table 2 shows the descriptive analysis of the constructs in this study that consists of the mean, standard deviation, minimum and maximum values. The highest mean is scored by online purchasing intention (Mean = 4.50, SD = 0.80). followed by perceived usefulness (Mean = 4.45, SD = 0.78), trust (Mean = 4.28, SD = 0.93), and social influence (Mean = 4.18, SD = 0.90).

Table 2: Descriptive Statistics

Constructs	Mean	Std. Deviation	Minimum	Maximum
Online Purchase Intention	4.50	0.80	1	5
Trust	4.28	0.93	1	5
Social Influence	4.18	0.90	1	5
Perceived Usefulness	4.45	0.78	1	5

Reliability Analysis

The internal reliability of the data from the online survey was examined to some extent using the reliability analysis. The Cronbach's Alpha test, which determines how closely linked a group of items is to one another, was used in this study to assess the reliability of the scale. Besides, it helps to provide reliable evidence for (i) trust, (ii) social influence, and (iii) perceived usefulness with online purchase intention. According to Nunally (1978), a Cronbach's Alpha reading of 0.70 is considered a standard guideline in research, and the statistics in this article corroborate this. Based on the statistics in Table 3, all constructs show dependable reliability values encompassing online purchasing intention (α = 0.759), trust (α = 0.796), social influence (α = 0.779), and perceived usefulness (α= 0.830).

Table 3: Reliability Analysis

Constructs	No of items	No item deleted	Cronbach's Alpha
Online Purchasing Intention	4	-	0.759
Trust	3	-	0.796
Social Influence	4	-	0.779
Perceived Usefulness	8	-	0.830

Correlation Analysis

Correlation analysis was conducted to ascertain the nature of the relationship between two variables. The correlation coefficient indicates the direction (positive or negative) and magnitude of the relationship, defining whether the association is direct or inverse. The coefficient also provides insights into the strength and statistical significance of the relationship, summarizing the degree of association between the examined variables. The coefficient's value itself serves as a quantitative measure of the relationship's intensity.

Table 4 presents the findings from a correlation analysis. The analysis revealed a moderate positive correlation between Trust and Online Purchase Intention, with r = 0.641 and P < 0.01, indicating a substantial relationship. This suggests that higher levels of trust among the students are associated with stronger intentions to purchase online. Furthermore, the analysis of the relationship between Social Influence and Online Purchase Intention yielded a moderate positive correlation, with r = 0.574 and P < 0.01, confirming a significant association. This means that greater social influence correlates with increased online purchase intentions among students. Finally, examining Perceived Usefulness and Online Purchase Intention, a positive moderate uphill relationship was noted, at r = 0.694, P < 0.01, indicating a significant connection. This implies that when students perceive higher usefulness, their online purchase intentions tend to rise.

Table 4: Correlation Analysis

Constructs	1	2	3	4
Online Purchasing Intention	1	0.641**	0.574**	0.694**
Trust		1	0.665**	0.530**
Social Influence			1	0.590**
Perceived Usefulness				1

Regression Analysis

Regression analysis is aimed to identify which independent variables significantly impact the dependent variable. Accordingly, Table 5 below illustrates the outcomes of the regression analysis, showcasing the influence of the independent variables on the dependent variables pertinent to this study. The R2 of 0.588 implies that all the independent variables (trust, social influence and perceived usefulness) explain 58.8% of the variance in the dependent variable, online purchase intention. Meanwhile, 41.2% of the variance in online purchase intention is not explained by trust, social influence and perceived usefulness in this study. This indicates that other independent variables are not included in this study and could further strengthen the regression equation. Adjusted R2 (0.575) is used to compare the goodness-of-fit for regression models that contain differing numbers of independent variables. Adjusted R2 penalizes the addition of independent variables to the model.

The F-test yields an F-value of 47.027 with a p-value < .001, which is under the 0.05 threshold, confirming the

overall validity of the linear model. Regarding the significance of parameters (t-test), the results indicate that the variables trust, and perceived usefulness are significant, as their p-values are < .001, falling below the 5% significance level. Thus, trust and perceived usefulness are positively associated with online purchase intention. Conversely, the variable for social influence is not significant, with a p-value of .491 (49.1%), which exceeds the 5% significance level, suggesting no relation between social influence and online purchase intention.

Table 5: **Regression Analysis**

Model	**Unstandardized coefficients**		**Standardized coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(constant)	2.089	1.393		1.500	0.137
Trust	0.398	0.101	.349	3.932	<0.001
Social Influence	0.062	0.909	.064	.691	.491
Perceived Usefulness	0.274	0.048	.471	5.738	<0.001
F-Value	47.027				
Sig.	<.001				
Adjusted R2	.575				
R-square	.588				

Discussion

Our study assessed the effect of three primary factors on online purchase intention. Firstly, trust was confirmed as a significant predictor, supporting Hypothesis 1 (H1), consistent with findings by Jian et al. (2022). This highlights the critical role trust has in the decision-making process for online purchases, underpinning the necessity for websites to establish credibility and ensure product quality to foster consumer confidence. Consumers rely on trust to navigate the uncertainty of online shopping – evaluating the security of transactional processes and the reliability of product descriptions.

Trust gains further importance due to the plethora of reviews and recommendations available online. When Gen Z places trust in the authenticity of these reviews, it significantly sways their purchasing decisions. Conversely, skepticism regarding the legitimacy of reviews or the credibility of those who write them can deter potential purchases. Therefore, trust functions as a pivotal factor in fostering a sense of security during online shopping and powerfully dictates whether a consumer proceeds with a transaction.

Contrary to expectations, social influence was not found to have a significant effect on online purchase intentions, conflicting with Hypothesis 2 (H2) and differing from the findings of Gunawan et al.(2023). This outcome suggests that the extensive array of online information, including reviews and expert opinions, may diminish the relative impact of social influence. Therefore, factors such as product quality and cost may take precedence over social recommendations in consumer decision-making processes.

The efficacy of social influence in online environments is further complicated by the nature of virtual interactions, which differ significantly from in-person encounters. In the digital space, the overwhelming presence of opinions and purportedly informational content complicates the ability of consumers to discern which sources are credible. Thus, the traditional impact of social influence is challenged by the impersonal and, at times, ambiguous nature of online communication. Additionally, individual variances and demographic factors contribute to the diverse responses to online social influence. Factors such as cultural background, age, and personal preferences can influence the degree to which social factors affect purchasing decisions. Recognizing these nuances is crucial for researchers aiming to understand the multifaceted role of social influence in the realm of e-commerce.

Finally, perceived usefulness showed a noteworthy effect on online purchase intention, confirming Hypothesis 3 (H3) and resonating with the outcomes identified by Moslehpour et al.(2018). This emphasizes the value that consumers place on the tangible benefits derived from online shopping, such as convenience and efficacy. The subjective assessment of how a product may satisfy a need or improve one's quality of life directly influences a

consumer's readiness to purchase.

Building on this concept, the assessment of perceived usefulness is a critical element driving consumer behavior. It reflects cognitive judgments about whether a product's features will meet expectations and provide the desired enhancement to daily life. This judgment, inherent in consumer decision-making, stresses the importance of perceived usefulness in e-commerce settings. Understanding perceived usefulness aids businesses in tailoring their offerings to better meet consumer needs and perceptions. This insight is essential for enhancing product development and forming targeted marketing strategies, ultimately leading to more successful conversions from browsing to purchasing in the online domain.

5. Managerial Implications and Recommendations

To capitalize on the determinants of online purchasing intentions, particularly trust and perceived usefulness, online sellers should institute transparent policies. Establishing clear communication about returns, refunds, and customer service is essential for building trust among university students in Malaysia who participate in online shopping. A lucid returns policy should specify the conditions under which items can be returned, outline the return window, and describe the return process in detail (Callarman, 2023). Similarly, a well-defined refund policy is crucial. Sellers should clearly state the conditions for refunds, expected timelines for refund processing, and the methods used, ensuring all conditions and exceptions are openly communicated to prevent confusion among customers (Creator, 2023).

Moreover, providing comprehensive information about customer support—including contact channels, response times, and operational hours—enhances the reliability and accessibility of the business (Srinivasan, 2023). Through the adoption of such transparent and customer-centric practices, businesses can foster a trustworthy online environment that not only encourages purchase intentions but also enhances customer satisfaction and loyalty, contributing to a sustained increase in the customer base for online purchasing.

Online sellers can also leverage influencer partnerships as a strategic approach to amplify their brand's visibility and credibility. Influencers, due to their substantial social media following and the perceived authenticity of their endorsements, can drive interest and enhance trust in a brand's offerings (Feng et al., 2023). Their close-knit relationship with their audience often translates to more impactful recommendations than traditional advertisements, as their endorsements are regarded as genuine and trustworthy (Cauville, 2022).

When influencers genuinely advocate for a product or service, their recommendations are more likely to resonate with their followers and inspire actual purchase intentions. This type of marketing transcends the reach of conventional advertisements and engages audiences through interaction and social endorsement (Marcyes, 2023). Influencers encourage followers to comment and interact, creating an engaged community around the brand (Thomas et al., 2023).

Crafting a user-friendly website is essential, as perceived ease of use is intricately linked to perceived usefulness, both critical determinants of online shopping behavior. The usability of a website significantly impacts its perceived utility, influencing customers' willingness to engage in online transactions (Din et al., 2023). A website that is easily navigable allows customers to locate products or information efficiently, reducing the effort required and enhancing user experience (Kasinphila, 2023). This enhanced user experience can lead to increased perceptions of the website's usefulness, as customers value swift and seamless navigation. Additionally, clear and concise website content, including detailed product descriptions, pricing, and policy information further contributes to the site's overall utility (Jeannot et al., 2022). A well-organized and informative website can thus be an indispensable tool in the customer's decision-making process. Lastly, prioritizing website design to foster ease of use not only streamlines the online shopping experience but also amplifies the perceived usefulness of the website as a source for information and transactions. These components play a pivotal role in fortifying the consumer's intention to purchase online.

Conclusion

In summary, this research aimed to dissect the elements affecting online purchase intentions among Gen Z in Selangor. The study identified trust, social influence, and perceived usefulness as significant factors influencing Gen Z's online buying behavior. Trust emerged as a critical determinant, highlighting the need for transparent business practices and policies to foster a secure shopping environment. Social influence, while observed to be less significant than anticipated, points to the nuanced efficacy of influencer partnerships in shaping purchase intent. The sheer volume of online information requires influencers to resonate genuinely with audiences to be persuasive. Perceived usefulness, underscored by the design of user-friendly websites, remains paramount in facilitating a positive online shopping experience.

These findings offer a foundation for future research and practical implications for students to better understand the dynamics of online shopping. Moreover, the insights serve as a moral compass, encouraging the youth to make informed and responsible decisions while engaging in the digital marketplace. It is hoped that this research contributes to shaping more judicious and savvy consumer behavior among the younger generations.

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The Impact of Workplace Spirituality on Employee Performance

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Abstract: The contemporary workplace, characterized by its rapid pace and dynamism, acknowledges the profound impact of work spirituality on employee productivity. This research explores the influence of spirituality in the workplace on employee performance through the examination of meaningful work, a sense of community, and organizational trust. Utilizing a quantitative approach with questionnaire distribution among academicians from business and management faculty at a local university in Selangor was conducted. Based on Pearson Correlation analysis, the result reveals a significant positive correlation between meaningful work, a sense of community, organizational trust, and employee performance. All hypotheses were accepted, indicating their positive influence. Moreover, Multiple Regression analysis highlights the substantial impact of workplace spirituality on employee performance. Practically, the study emphasizes aligning efforts for employee development with the recognized factors of workplace spirituality. In conclusion, organizations are urged to acknowledge and integrate spiritual elements in the workplace for a positive impact on employee performance**.**

Keywords: *Workplace Spirituality. Employee Performance, Meaningful Work. Organizational Trust*

1. Introduction and Background

Workplaces in the twenty-first century are fast-paced and dynamic, and businesses are realizing the significant influence work spirituality can have on workers' productivity. Beyond traditional management techniques, work spirituality embraces the deeper aspects of human experience and connection to create an environment that encourages meaning, purpose, and engagement (Petchsawang & Duchon,2009). This case study investigates how work spirituality affects worker productivity and advances an organization's overall success. According to Suleiman, et al. (2012), the idea of meaningful work is central to work spirituality. When workers perceive meaning and purpose in their work, job satisfaction follows suit. When personal values and organizational missions and values coincide, employees feel fulfilled and are motivated to put their all into their work. As a result, increased dedication and commitment are correlated with higher job satisfaction, improving employee performance overall. Workplace spirituality and engagement are closely related. Workers who feel that their job has more meaning for them than just money are frequently more intrinsically motivated. People are motivated by this inner force to go above and beyond their basic duties, which makes the workforce more proactive and engaged. Workplace spirituality provides a source of motivation that can be used to achieve excellence in performance over time (Güçer & Şerif, 2014). Workplace spirituality influences organizational culture as well, forming a helpful and encouraging atmosphere. Collaborative work environments that foster empathy, compassion, and moral decision-making foster a climate of mutual respect and cooperation. This culture of positivity not only raises staff morale but also creates an environment that is better for collaboration and communication, which leads to high-performance results. Additionally, workplace spirituality plays a vital role in stress reduction and enhances employees' overall well-being. Spiritual practices that incorporate self-reflection and mindfulness give workers the skills they need to handle stress and keep their emotional and mental balance (Albuquerque et al., 2014). Lower stress levels correlate with increased resilience, focus, and concentration, all of which enhance a person's capacity to carry out their job duties successfully (Fares & Noordin, 2016). Not to be overlooked is the effect that work spirituality has on team dynamics. The stronger the bonds that employees have with one another, the more cohesive the team becomes. A feeling of belonging and a common goal surface, encouraging teamwork and efficient communication. Improved team dynamics not only result in higher-quality work but also create a supportive and upbeat work atmosphere that supports optimal performance.

Workplace spirituality stimulates creative and innovative thinking by encouraging expansive thinking. Employees who work for companies that value creativity and open-mindedness frequently feel more confident

to voice their opinions without worrying about being judged. This creative freedom fosters original ideas, better problem-solving techniques, and an inventive and flexible work environment that all contribute to higher performance levels. Organizations prioritizing work spirituality are characterized by decreased turnover and increased loyalty (Fares & Noordin,2016). Long-term commitment is higher among workers who have a strong sense of purpose and belonging to the company. The workforce stability that results not only reduces the expenses related to hiring and training new employees but also helps to maintain institutional knowledge and experience over time. Essentially, work spirituality redefines the conventional measures of employee performance and becomes a transformative force in the modern workplace (Hunsaker & Ding, 2022). Through fostering an atmosphere that prioritizes purpose, relationship, and wellness, companies enable their staff to reach their maximum potential. With its emphasis on balancing personal and professional objectives, work spirituality not only improves motivation, teamwork, and job satisfaction but also encourages creativity and innovation (Fares & Noordin, 2016). Organizations that embrace and integrate work spirituality are likely to witness a significant and positive impact on the productivity and success of their workforce as they continue to evolve in the twenty-first century.

The modern workplace is marked by dynamic changes in organizational structures, employee expectations, and societal values (Tlemissov et al., 2020). As such, a critical area that needs more research is the relationship between workplace spirituality; especially in the areas of meaningful work, a sense of community, organizational trust; and employee performance. There is a noticeable lack of thorough research that systematically examines the influence of meaningful work, a sense of community, and organizational trust on employee performance, despite the growing interest in creating a spiritually aware workplace. The literature currently in publication recognizes the potential benefits of these spiritual dimensions, including heightened motivation, engagement, and job satisfaction; however, the precise mechanisms and interactions among meaningful work, community, and organizational trust in influencing performance outcomes are not well understood.

One of the most important factors influencing employee commitment and satisfaction is the idea of meaningful work, which includes having a sense of significance and purpose in everyday tasks (Gorenak et al.,2020). But there's a knowledge vacuum regarding how meaningful work boosts productivity and performance metrics when it's incorporated into the organizational culture. Additionally, to fully comprehend the combined impact of meaningful work and other spiritual dimensions, like a sense of community and organizational trust, a thorough investigation of their complex relationship is necessary. It is widely acknowledged that a strong sense of community at work is essential to encouraging cooperation, candid communication, and support among coworkers. Focused research is necessary to determine how a strong sense of community affects both individual and group performance metrics. For organizations looking to maximize worker performance, it is critical to comprehend how a feeling of community and shared purpose within the workplace supports task completion, creativity, and overall effectiveness.

The functioning of a spiritually aware workplace is contingent upon the establishment of organizational trust, which is based on transparency, integrity, and ethical leadership. The literature recognizes the role that trust plays in employee engagement and commitment, but it is important to look more closely at the precise ways that organizational trust affects performance indicators. Furthermore, a comprehensive understanding of the combined influence of the other spiritual dimensions and organizational trust on employee performance necessitates investigating the mutual relationship between these elements. Organizations looking for evidence-based methods to foster a spiritually informed workplace that enhances employee performance must fill in these knowledge gaps. By examining the complex relationships between meaningful work, a sense of community, organizational trust, and employee performance, this research seeks to close the current knowledge gap and offer useful guidance to human resource professionals and organizational leaders as they navigate the constantly changing landscape of modern work environments. Thus, this research is conducted to enhance empirical evidence of workplace spirituality's impact on employee performance.

2. Literature Review

Employee Performance

The post-COVID-19 modern workplace is changing, and one revolutionary element that is redefining employee performance is the influence of workplace spirituality (Sapra, et al. (2021), Hunsaker & Ding, (2022). Beyond conventional measurements, adopting spiritual values into company culture has sparked improved flexibility, teamwork, and general well-being, creating a new standard for success. With its emphasis on meaning and purpose, workplace spirituality has emerged as a key component of employee adaptability. Employees with a strong sense of purpose navigate challenges with resilience in an uncertain world. Performance is more than just finishing a task; it's a representation of a person's capacity to connect their work with a larger sense of meaning, which promotes a flexible culture (Hunsaker & Ding, 2022). In the workplace, spirituality promotes a sense of belonging and interconnectedness (Jena, 2022). Employee performance is now defined by group efforts in addition to individual accomplishments (Fares & Noordin, 2016). Employees make synergistic contributions that enhance the overall effect because they are motivated by common values and a sense of belonging. The contemporary workplace understands that the strength of the collaborative community is intrinsically linked to performance. A source of resilience in the post-COVID-19 era of uncertainty is workplace spirituality. Workers with a stronger sense of purpose find inspiration in trying situations. The contemporary definition of performance recognizes that building a resilient workforce and maintaining a steadfast commitment to a purpose-driven journey are more important components of true success than simply accomplishing goals (Gorenak, et al. 2020).

With the increasing reliance of the modern workplace on technology, spirituality's integration enhances the digital environment (Van der Walt & Steyn, 2019). Workers with a strong spiritual foundation exhibit tech-savvy flexibility, utilizing digital tools to improve their work without sacrificing a sense of human connection (Tlemissov, et al. 2021). It is now considered a performance to be able to combine technology and spirituality harmoniously. In conclusion, in the post-COVID-19 modern workplace, workplace spirituality has become a significant factor influencing employee performance (Nimmi et al.,2022). It changes the perception of success by putting the focus on flexibility, teamwork, resilience, holistic well-being, and a goal-oriented methodology. Integrating spirituality becomes essential for developing a workforce that not only performs well on tasks but also flourishes in the pursuit of shared values and meaningful contributions as organizations navigate the complexity of the new normal.

Workplace Spirituality

In the post-COVID-19 modern workplace, workplace spirituality has become a critical factor affecting worker performance. Workplace spirituality, which is based on the ideas of meaningful work, community, and organizational trust, changes the dynamics of the modern workplace. Workplace spirituality emphasizes the value of meaningful work, which redefines performance (Nimmi et al.,2022). Employees in the modern workplace are looking for jobs that fulfill their values and advance a larger goal, not just mundane tasks. Work performance is now closely linked to the sense of fulfillment that comes from assignments that connect with workers on a deeper level (Suleiman et al., 2012). The transition to a post-pandemic workplace emphasizes how crucial a feeling of community is. Workplace spirituality acknowledges that a community of support and connections fosters individual performance (Petchsawang & Duchon, 2009). Increased performance is sparked by teamwork, common objectives, and a feeling of belonging, which reflects the interconnectedness of the modern workplace. The foundation of workplace spirituality, trust, has an important influence on worker performance (Güçer & Şerif, 2014). Employees who have faith in their organization's leadership feel safe and appreciated in an uncertain world. Performance is now more than just finishing a task; it's a sign of trust that reflects the organization's moral behavior and openness (Hunsaker & Ding, 2022). Gorenak et al. (2020) mentioned that employee performance is positively impacted in a synergistic way when meaningful work, a sense of community, and organizational trust are all integrated. A culture of transparency is supported by organizational trust, meaningful work connects individual goals with organizational objectives, and a sense of community encourages collaborative efforts. Employees thrive as a team thanks to this synergy, exceeding traditional success metrics. After COVID-19, workplace spirituality easily adjusts to the needs of the contemporary workplace. It recognizes that work is changing and that remote and hybrid models are now common. Workers who are rooted in workplace spirituality exhibit technological agility, resilience, and a dedication to common values, revolutionizing what it means to be productive in today's work environment.

Following COVID-19, a new narrative for employee performance is shaped by workplace spirituality, which emphasizes meaningful work, a sense of community, and organizational trust (Iqbal, et al., 2020). It goes beyond conventional standards, creating an environment at work where people have a sense of direction, collaborate with ease, and have faith in the moral core of their company's culture. Workplace spirituality serves as a compass, directing performance toward a purposeful and holistic future as the modern workplace develops.

Meaningful Work

The first step towards meaningful work in HRM is for professional obligations to be in line with personal values. When their work demonstrates moral principles, social responsibility, and a dedication to creating a positive workplace culture, HR professionals find fulfillment. Their sense of purpose and authenticity in their roles is enhanced by this alignment. The influence of workplace spirituality has become a transformative force in the ever-changing academic landscape, reshaping the traditional understanding of academic performance (Muavia et al.,2022). This industry places a high value on knowledge sharing and intellectual endeavors, so it makes sense to redefine performance from a workplace spirituality perspective. In the past, quantitative measures like grant acquisition, citation indexes, and publication counts have been used to assess academic performance. However, by highlighting the inherent worth of meaningful work, workplace spirituality brings about a paradigm change. Employees in the academic sector are encouraged to look for positions that complement their values and advance knowledge and societal betterment, rather than just being given routine tasks (Sapra et al., 2021). Modern academicians aspire to roles that align with their ethical and philosophical convictions rather than just fulfilling job duties. This desire is acknowledged by workplace spirituality, which also emphasizes how crucial it is to match academic roles with personal values. It recognizes that academic professionals are more likely to find profound satisfaction in their roles and improve overall performance if they are motivated by a sense of purpose and personal values. A study by (You et al; 2021) identified three main themes in conceptualizing meaningful work, namely, positivity; significance and purpose; and human fulfillment.

Additionally, Sapra et al. (2021) have shown that workplace spirituality fosters the growth of a collaborative academic community and that academic excellence is centered on collaboration. Based on Milliman et al. (2003) and Pawar (2009), it is hypothesized that meaningful work influences employee performance. When employees find their work meaningful, they are likely to experience higher job satisfaction, commitment, and involvement, which positively influence their overall performance. Therefore Hypothesis 1 is developed.
H1: Meaningful work influences employee performance.

Sense of Community

In HRM, fostering a sense of community entails establishing a setting where workers are engaged, connected, and valued (Iqbal, et al.,2020). It includes social connection, open communication, cooperative decision-making, shared identity, employee engagement, and supportive organizational policies. Through the prioritization and cultivation of these components, human resources professionals foster the growth of a strong and cohesive workplace community, thereby augmenting the well-being of both individuals and the group. The shift to a post-pandemic work environment for academics highlights how crucial it is to promote a sense of community. Workplace spirituality in academia acknowledges that the true strength of academic professionals lies in their ability to thrive within a supportive and interconnected community, in contrast to traditional notions of academic performance that frequently focus solely on individual achievements. In academia, teamwork becomes essential for improved performance. Because academic disciplines are so complex, interdisciplinary collaboration, where different areas of expertise come together to tackle challenging problems; is frequently required. Workplace spirituality recognizes the interdependence of knowledge and the benefits that result from scholarly professionals working together (Sapra et al.,2021). Individuals elevate the academic community as a whole by contributing to the collective advancement of knowledge and their personal growth through shared goals and cooperative endeavors. Academic success is sparked by community and acceptance (Pawar, 2017). With a foundation in workplace spirituality, academic professionals experience a strong bond with the larger academic community. This sense of community cuts across departmental lines and hierarchies, fostering an inclusive atmosphere that values the perspectives of all people (Aboobaker,2022). A positive feedback loop is created by the collaborative spirit that workplace spirituality fosters; people who have a sense of belonging are more likely to make meaningful contributions, which further emphasizes how interconnected academic performance is. Furthermore, academic workplace spirituality recognizes the value

of support systems and mentorship (Hassan, et al..2016). Senior faculty members mentor junior colleagues in a community-driven setting, promoting a culture of professional development and knowledge transfer. In addition to improving individual performance, this mentorship helps maintain and advance academic excellence in the community.

Performance now encompasses group commitment to the academic mission, collaborative research projects, and interdisciplinary efforts rather than just individual accomplishments. Hunsaker & Ding (2022) have demonstrated that workplace spirituality fosters a sense of community among academic professionals, which, in turn, cultivates mutual support and collective contributions to the academic enterprise.

Essentially, workplace spirituality in the academic sector redefines performance by acknowledging academic professionals as essential members of a vibrant, interconnected community rather than as lone contributors. Mentorship, teamwork, common objectives, and a sense of community become essential components that enhance both individual and group academic accomplishments. The academic community, led by workplace spirituality, flourishes in this post-pandemic era as a nurturing ecosystem where the interconnectedness of academic performance blossoms (Sapra et al.,2021). Following Milliman et al. (2003) findings, it is hypothesized that a sense of community influences employee performance. A strong sense of community fosters positive job attitudes, leading to increased commitment, satisfaction, and performance among employees. Thus hypothesis 2 is developed.
H2: *Sense of community influences employee performance.*

Organizational Trust
According to Woo (2020) and Aboobaker (2022), organizational trust in human resource management is a complex concept that encompasses responsive conflict resolution, ethical leadership, open communication, fair practices, employee involvement, and credibility. By giving priority to these components, HR professionals help to foster an environment at work where trust is valued, which raises employee morale, engagement, and loyalty. Following the COVID-19 pandemic, institutional trust in academia has become even more important, providing the basis for the success of academic performance. In academic settings, transparent and flexible leadership nurtures organizational trust. Following the pandemic, trust is fostered by academic leaders who address uncertainties, communicate candidly about institutional decisions, and modify plans of action in response to changing circumstances. Academic staff members feel more confident in the institution's capacity to overcome obstacles as a result of this transparency. Moreover, employee well-being and organizational policies that facilitate remote work are closely linked to trust (Hunsaker & Ding, 2022). Academic professionals have faith in organizations that prioritize mental health, offer flexible work schedules, and have policies in place that recognize the special difficulties brought about by the new normal. Academic achievement is influenced by trust in these encouraging policies. Incorporating academic professionals into decision-making processes enhances trust (Sapra et al.,2021). Institutions that are committed to inclusivity actively solicit feedback from their faculty and staff about modifications to academic policies, instructional strategies, and research priorities. Academic professionals who use this participatory approach feel more trusted and have a sense of ownership.

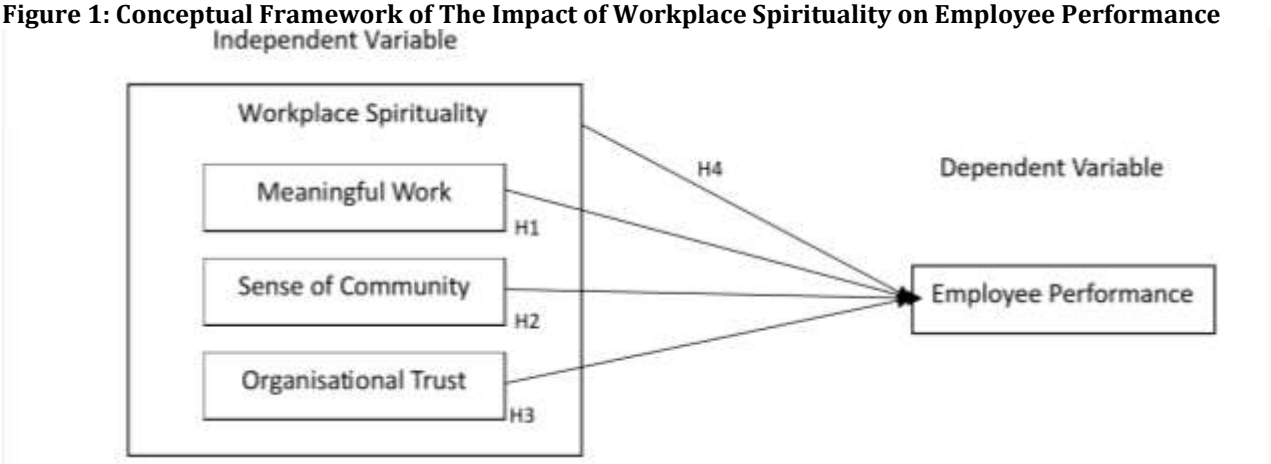
In alignment with the underpinning theories from Milliman et al. (2003) and the broader organizational literature, it is hypothesized that organizational trust influences employee performance. When employees trust their organization, they are likely to feel more committed, engaged, and satisfied, ultimately contributing to improved performance. Thus, Hypothesis 3 is developed.
H3: Organizational trust influences employee performance.

Hypothesis 4 is then developed to suggest that cultivating a work environment infused with spiritual values, characterized by attributes such as meaningful work, a sense of community, and organizational trust, plays a pivotal role in influencing employee performance at the local public university in Selangor. Building on foundational theories, workplace spirituality is perceived as a unifying force that positively shapes various facets of employee attitudes and behaviors, leading to heightened job performance, commitment, involvement, and overall effectiveness in job tasks and collaborative team efforts (Pawar, 2009; Milliman et al., 2003). This hypothesis draws upon insights from previous studies and underscores the practical implications of incorporating spirituality in the workplace within an academic setting, highlighting its potential to yield positive outcomes in terms of academic productivity, collaboration, and job performance.

H4: There is a significant influence of workplace spirituality on employee performance.

The study establishes a conceptual framework that illuminates the impact of workplace spirituality on employee performance. The research will encompass the essential components and variables that will be investigated. The conceptual framework in Figure 1, illustrates that the presence of a positive workplace spirituality, which encompasses meaningful work, a sense of community, and organizational trust, is positively associated with increased levels of work performance among academicians.

Figure 1: Conceptual Framework of The Impact of Workplace Spirituality on Employee Performance



3. Research Methodology

This section delineates the research methodology employed in the study, utilizing SPSS version 23.00 for data analysis. five-point Likert scale questionnaire was employed to assess the sigma value, and a confidence level of 99.9% was chosen, specifically focusing on the population sample from the faculty of business and management at a public university in Selangor, totaling N=250 academicians. The determination of the minimum sample size utilized the Krejcie and Morgan (1970) sampling table, resulting in a calculated minimum of s=152 responders. This rigorous approach to sample size determination ensures a robust representation of the target population, enhancing the reliability and generalizability of the study's findings. Descriptive analysis follows, utilizing SPSS 23.00 to generate summary statistics such as mean and standard deviation. Reliability testing is then undertaken to evaluate the consistency and stability of the research instruments, providing insights into the overall quality of data collection tools. This study outlines the methodological considerations for determining the sample size in the study. These measures offer a comprehensive overview of the main features of the dataset. Finally, Pearson Correlation and Multiple Regression analysis is employed to explore and quantify linear relationships between variables.

4. Results

The survey conducted with a targeted sample size of 152, based on Krejcie & Morgan's (1970) recommendation for a total population of 250, yielded a response rate of 36.18%. Out of the intended sample, 55 participants completed the survey within the one-month duration given. This corresponds to approximately 63.82% of the surveys going unanswered. The completion rate provides insight into the level of engagement and participation in the survey, while the unanswered surveys represent an opportunity for further exploration or potential improvements in survey design or outreach strategies. These findings collectively contribute to understanding the effectiveness of the survey dissemination process and provide context for interpreting subsequent analyses based on the responses received.

Table1: Reliability Test

Reliability Statistics		
Factors	Cronbach's Alpha	N of Items
Meaningful Work	0.963	7
Sense of Community	0.965	7
Organizational Trust	0.983	7
Performance	0.945	7

Reliability Analysis

The reliability analysis, as depicted in Table 1, underscores the internal consistency of the measurement scales associated with the key factors in the study: "Meaningful Work," "Sense of Community," "Organizational Trust," and "Performance." The calculated Cronbach's Alpha values, which serve as indicators of the reliability of each factor, reveal a notable and robust internal consistency among the respective items. In particular, "Organizational Trust" stands out with an exceptionally high Cronbach's Alpha of 0.983, closely followed by "Sense of Community" at 0.965, "Meaningful Work" at 0.963, and "Performance" at 0.945. These elevated Cronbach's Alpha values suggest that the items within each factor consistently measure the intended construct. Researchers can have confidence in the reliability of the measurement scales, affirming that the survey instruments employed in the study yield consistent and dependable results for the assessment of meaningful work, a sense of community, organizational trust, and performance. These findings align with the works of Thanasegaran (2009), and Cronbach (1947), offering substantial support for the notion that the research instruments utilized in this study are reliable and contribute to the overall validity and trustworthiness of the research outcomes.

Correlation Analysis

The correlation coefficients adhere to the rule of thumb proposed by Hair et al. (2003). These findings substantiate the interconnectedness of Meaningful Work, a Sense of Community, Organizational Trust, and Performance in the workplace, contributing valuable insights into the influence of spirituality on employee performance.

Table 2: Correlations Analysis

Correlations

		Meaningful Work	Sense of Community	Organizational Trust	Performance
Meaningful Work	Pearson Correlation	1	.783**	.715**	.805**
	Sig. (2-tailed)		.000	.000	.000
	N	55	55	55	55
Sense of Community	Pearson Correlation	.783**	1	.900**	.745**
	Sig. (2-tailed)	.000		.000	.000
	N	55	55	55	55
Organizational Trust	Pearson Correlation	.715**	.900**	1	.754**
	Sig. (2-tailed)	.000	.000		.000
	N	55	55	55	55
Performance	Pearson Correlation	.805**	.745**	.754**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	55	55	55	55

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

Meaningful Work and Performance, a robust positive correlation is observed between Meaningful Work and Performance ($r = 0.805$, $p < 0.01$), signifying that individuals who find their work meaningful tend to exhibit higher levels of performance. Sense of Community and Performance, there is a high positive correlation between a Sense of Community and Performance ($r = 0.745$, $p < 0.01$), indicating that individuals who feel a strong sense of community are likely to perform well. Organizational Trust and Performance, a substantial positive correlation is found between Organizational Trust and Performance ($r = 0.754$, $p < 0.01$), emphasizing that higher levels of organizational trust are associated with enhanced employee performance (see **Table 2**).

Multiple Regression Analysis

The regression model is statistically significant ($p < 0.05$). This means that at least one of the predictors significantly predicts the dependent variable (employee performance).

Table 3: Model Summary and R Square

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.845[a]	.714	.697	.39463	2.224	

a. Predictors: (Constant), Organizational Trust, Meaningful Work, Sense of Community

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.782	3	6.594	42.341	.000[a]
	Residual	7.942	51	.156		
	Total	27.724	54			

a. Predictors: (Constant), Organizational Trust, Meaningful Work, Sense of Community

R Square (Coefficient of Determination): The model explains approximately 71.4% of the variance in employee performance, indicating that the included predictors (Organizational Trust, Meaningful Work, Sense of Community) collectively contribute to explaining the variation in performance. Adjusted R Square: Adjusted for the number of predictors, the adjusted R Square is 69.7%, suggesting a good fit for the model. Std. Error of the Estimate: This is the standard deviation of the residuals (the differences between observed and predicted values). A lower value (0.39463) indicates a better fit of the model.

Discussion

The primary objective of this study is to determine the influence of meaningful work and employee performance. The Pearson Correlation Coefficient was employed to examine the probable association between the variables. The results of the initial objective indicate a statistically significant positive correlation between meaningful work and performance ($r=.805$, $p=0.000$, $p<0.05$). Based on the data, it is evident that an increase in meaningful work has a positive impact on academician performance. This finding aligns with prior research indicating that employee performance is also influenced by the existence of meaningful work among them. (You et al; 2021)

The second objective of this study is to examine the correlation between a sense of community and employee performance among academicians. A favorable and significant correlation was observed between the element of sense and community and academician performance. A correlation analysis was conducted to examine the potential relationship between these variables. Based on the findings, a statistically significant positive correlation has been observed between the sense of community among academicians and their performance ($r= .745$, $p=0.00$, $p<0.05$) This finding further supports the notion that the sense of community affects employee

performance [(Milliman et al; (2003), Hunsaker & Ding (2020)]. The third purpose of this study is to investigate the influence of organizational trust spirituality on employee performance among academicians. Based on the findings, the results indicate a p-value of .000 which is less than 0.05 which may be concluded that there is a statistically significant association between organizational trust and academician performance. The obtained data revealed a correlation coefficient of r = .754, with a p-value of 0.000, indicating statistical significance at the $p < 0.05$ level. The findings provided evidence for a significant positive correlation between organizational trust and employee performance. The results of this study are consistent with the prior research that confirms the association between organizational trust and business performance with organizational ambidexterity mediate the relationship [Chams-Anturi et al; (2020), Gorenak et al; (2020)]

Data analysis yields key insights into the relationships between workplace spirituality elements and employee performance. Notably, employees who find their work meaningful (Meaningful Work) and have trust in the organization (Organizational Trust) tend to exhibit higher performance levels. A strong sense of community (Sense of Community) also positively influences performance and is statistically significant. Furthermore, the regression analysis affirms these associations, emphasizing the significant impact of Workplace Spirituality on employee performance. This aligns with the principles of workplace spirituality, suggesting that fostering meaningfulness and trust contributes substantially to enhanced performance. The results of this study are consistent with prior research, indicating that workplace spirituality in an organizational environment is considerably connected to employee performance (Mousa, 2020).

5. Managerial Implications and Recommendations

Managerial Implications

The study has practical implications for decision-makers, human resource practitioners, and organizational leaders in addition to its scholarly contributions. The research's conclusions may provide direction for developing and putting into practice policies that foster a spiritually conscious workplace, thereby maximizing worker performance. A deeper comprehension of how workplace spirituality promotes employee happiness and well-being would be beneficial for human resource professionals. HR procedures can become more sensitive to the holistic needs of workers by developing strategies that put meaningful work, community building, and trust first. This will boost job satisfaction and, in turn, improve performance. Organizational leaders have the opportunity to acquire significant knowledge about how to cultivate and mold workplace spirituality. Leaders who understand the importance of fostering a positive and spiritually conscious culture can implement strategies that encourage and inspire their teams. The study's recommendations for effective leadership practices may result in increased employee commitment and engagement. In conclusion, this study has a wide range of significance. It goes beyond the confines of scholarly research to influence and change the organizational management field's practical environment. Through an exploration of workplace spirituality, the research seeks to illuminate the complex interrelationships that lead to improved worker performance and provide organizations with a road map for cultivating work environments that recognize and capitalize on the spiritual aspects of the workplace for the good of workers and the organization as a whole.

Recommendations

The study's findings are based on a specific sample size, which may limit the generalizability of the results to the entire academic community at the local university. Future studies with larger and more diverse samples are recommended to enhance the external validity of the findings. The cross-sectional design of the study captures a snapshot of the relationships at a specific point in time. Longitudinal studies tracking changes over time would provide a more dynamic understanding of the factors influencing academic performance. The reliance on self-reported data introduces the potential for common method bias, where participants may provide responses influenced by social desirability or consistency. Future research could incorporate objective measures or multiple data sources to mitigate this limitation. The study did not extensively explore external contextual factors that may influence workplace spirituality and academic performance. Investigating additional contextual variables, such as institutional policies or external events, would provide a more comprehensive understanding. Future research should replicate the study with a more extensive and diverse sample from academic institutions and potentially different departments. This would enhance the generalizability of the findings and capture a broader range of perspectives. Employing a longitudinal research design would allow for tracking changes in workplace spirituality, sense of community, and performance over

an extended period. This approach would provide valuable insights into the dynamic nature of these relationships. Combining quantitative findings with qualitative data could offer a richer understanding of the factors influencing workplace spirituality in academia. Qualitative methods, such as interviews or focus groups, could capture in-depth narratives and nuances that quantitative measures may miss.

Future studies should investigate the impact of external factors, such as changes in leadership, institutional policies, or global events, on workplace spirituality and academic performance. Understanding how these variables interact can contribute to a more comprehensive analysis. Organizations can consider implementing training and development programs that focus on enhancing workplace spirituality, community-building, and trust among academicians. Workshops or seminars could provide practical tools for fostering a positive and meaningful work environment. To promote workplace spirituality, organizations may explore initiatives that foster diversity and inclusion. Creating an environment that values diverse perspectives and experiences contributes to a sense of community and meaningful collaboration. Institutions may also enhance communication channels and establish regular feedback mechanisms to facilitate open dialogue between faculty members and leadership. This approach fosters trust, promotes a sense of community, and allows for continuous improvement. Implementing mentorship programs within FBM can support junior faculty members in their professional development. Mentorship fosters a sense of community, promotes knowledge transfer, and contributes to both individual and collective academic accomplishments. The institutions should consider regular evaluations of their academic environment and policies. This ongoing assessment allows for the identification of areas that require improvement, ensuring that the faculty remains responsive to the evolving needs of its academicians.

Conclusion

This study conducted at one of the local public universities in Selangor explores the intricate connections between workplace spirituality and performance among academicians. Through quantitative analysis, the study unveils key findings that hold significant implications for fostering a conducive academic spirituality environment. The study reveals a robust positive correlation between meaningful work and employee performance, emphasizing the transformative impact of aligning tasks with personal values. Additionally, a strong positive correlation between a sense of community and performance underscores the importance of interconnectedness in academic success. The study also highlights the pivotal role of organizational trust, indicating that higher trust levels are associated with enhanced employee performance. The implications for the institution include the development of meaningful work, nurturing a sense of community, building organizational trust, and integrating workplace spirituality practices. Future directions suggest longitudinal studies, contextual investigations, qualitative exploration, and ongoing evaluation for a comprehensive understanding and continuous improvement of the academic environment. This study contributes valuable insights to academia and institutions aiming to enhance workplace spirituality and well-being among their academic community.

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Are Male Muslim Leaders More Effective Than Female Muslim Leaders in Maldives Regardless of Their Religiousness

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Abstract: This study explores the moderating role of gender on the relationship between religiosity and effective leadership among leaders of both genders in Maldives. Maldives is a hundred percent Muslim nation, and Islamic Shariah is the law. While women reserve the privilege to hold public office and to practice public functions statistical data indicates a notable underrepresentation of females in leadership positions due to the rigid perception of gender roles embedded in society. Earlier studies conducted in the Maldivian setting suggested that the conservative interpretation of Islam disadvantaged women. Thus, the first objective of this study was to investigate the relationship between religiosity and effective leadership and secondly to identify the moderating role of gender on the relationship between religiosity and effective leadership. To achieve these objectives, a sample of 157 useful data was collected from 250 questionnaires distributed to leaders across various domains in the Maldives. The study employed a purposive sampling method from both genders, aged between 30 to 70 years. Out of the two hypotheses tested, results indicated the acceptance of the first hypothesis, establishing a significant relationship between religiosity and leadership. However, the second hypothesis was not supported where gender moderates the relationship between religiosity and effective leadership. This suggests the importance of religiosity in the effectiveness of leadership. Regardless of gender, adherence to a higher level of religiosity contributes positively to leadership effectiveness. Thus, for leaders in Maldives, if they want to be effective leaders, they must be religious regardless of their gender.

Keywords: *Muslim Leader, religiosity, Effective Leadership, Maldives*

1. Introduction and Background

The scholars defined a good leader as someone who is self-aware, proactive, influential in improving others, and ethical. O'Toole and Mayer (2010) assert that effective leadership generates enduring and favorable outcomes by leveraging its personnel to drive high performance inside the organization. Leadership theories examine how actions, qualities, attributes, situations, and power influence are utilized by leaders to affect their subordinates. Leaders can also influence others inside the business who are not under their direct supervision (Yukl, 2013). Good leadership requires innovation in the organization as leaders prioritize experimentation, leading to the production of additional ideas and better organizational performance. (Espedal, 2008; Schyns & Schilling, 2013). Several studies have examined the characteristics of leaders (Hunt, 1991; Northouse, 2013; Rost, 1993; Yukl, 2013) and the obstacles women encounter in leadership roles (Adler, 1986; Davidson, 2012; Davidson & Burke, 2004; Foschi, 1996; Gipson, Pfaff, Mendelsohn, Catenacci, & Burke, 2017; Schueller-Weidekamm & Kautzky-Willer, 2012; Yukongdi & Benson, 2005). Multiple studies have emphasized the difference in gender roles and the salary inequality that continues to exist (McCauslan & Kleiner, 1992; Oakley, 2000). The research has overlooked the impact of religiosity and good leadership, as well as the Islamic values of leaders. Leadership is not solely based on gender, as indicated by various studies (Conlin, 2003; Ely, Ibarra, & Kolb, 2011; Heilman, 2001; Oakley, 2000; Paustian-Underdahl, Walker, & Woehr, 2014; Vecchio, 2002). Many studies have shown that women are increasingly proficient in interpersonal skills (Cooke, 2005; Gipson et al., 2017; McCauslan & Kleiner, 1992; Shaya & Abu Khait, 2017; Yukongdi & Benson, 2005).

Maldives has reached gender parity in education, with women making up the majority of alumni and high achievers in secondary schools and universities. However, they are underrepresented in national, political, and economic domains. The study conducted by the World Economic Forum (WEF) indicated that Maldives was ranked number 113 out of 145 nations based on their economic investment prospect, educational achievement, healthiness and life expectancy as well as political encouragement. The country scored 0.652 on the equality scale, where 1 represents equality and 0 represents inequality (WEF, 2015). Women face restricted prospects

in both local and national government, particularly in strategic decision-making roles (ADB, 2014). Men experience greater advantages compared to women in the labor market (Profeta, Aliberti, Casarico, D'Amico & Puccio, 2014) and women's engagement in the workforce has decreased (Sulejmani, 2023; Farmer, 2013). Islam is the official religion in the Maldives, and Islamic Sharia law governs the constitution. Both genders have the right to perform their work in whatever post in the organization. El-Horr and Pande (2016) conducted a study that showed that the gender imbalance in Maldives is influenced by the proliferation of a stricter interpretation of Islam that places women in a weak position. The question here is does the insufficiency of women in the top management in Maldives denote that women are less effective managers or leaders?

Since 2008, the government has been the main employer, with a somewhat larger proportion of female employees compared to males (Department of National Planning, 2010). The data collected by the Civil Service Commission (CSC) indicates that there is a limited representation of female workers in professional and senior positions across occupational categories. Representation is more prevalent at the support officer level compared to middle management. Some individuals in this group also work as administrators, teachers, and nurses (HRCM, 2015). While there are no explicit legal discriminations, women encounter significant social and cultural obstacles and stigmatization while seeking public office. The data from multiple sources indicates that men predominantly hold leadership roles in Maldives (HRCM, 2015; Department of National Planning, 2010; WEF, 2015). The study aims to investigate the connection between religiosity and leadership, as well as the influence of gender as a moderator, especially in an Islamic country where Islam is the sole religion and gender equality is established, particularly in terms of socioeconomic status.

The current emphasis on leadership studies in Western contexts is seen as insufficient for comprehending leadership in Muslim communities, namely in the Maldives, where Islam is the sole religion and Islamic Shariah is dominant. The cultural discrepancies in the literature between Western and Muslim countries are mostly influenced by their respective religious beliefs. Jogulu, Uma & Wood, and Glenice (2008) argue that women leaders in Malaysia and Australia are more affected by societal expectations rooted in religious beliefs than their skills at work, in contrast to previous studies on problems encountered by Western women leaders. This emphasizes the importance of studying effective leadership in Muslim communities, where religious devotion ensures gender equality, particularly focusing on understanding leadership dynamics in non-western environments. Research on leadership has primarily concentrated on Western contexts, which may not be directly applicable to the Muslim population in the Maldives, where Islam is the sole religion and Islamic Shariah is the governing legislation.

Western communities have significant differences in the literature compared to Muslim countries. The research focused on the obstacles encountered by female leaders in Western countries (Jones & Solomon, 2019; Schueller-Weidekamm & Kautzky-Willer, 2012; Thorn, 2012). Jogulu, Uma, Wood, & Glenice (2008) suggested that the different perceptions of women business leaders in Malaysia and Australia are not because of their competence at work, but rather of their rooted beliefs on the traditional characters and culture of women workers. Therefore, the remark above has led to an examination of successful leadership in Muslim societies, as religiosity grants equal rights to both men and women. This study intends to provide guidance and understanding of leadership dynamics, especially in non-western contexts. Hage and Posner (2015) in their study on religion and leadership, presented that religion and beliefs have a major impact on leadership behavior and decision-making. The findings indicated that religiosity has a limited impact on leadership practices. Therefore, they proposed further investigation on factors such as demographic factors and macro factors to better comprehend how these traits affect the connection between religious affiliation and leadership. Hence, this research particularly highlights the need to explore gender moderation and assess whether religiosity has any impact, whether positive or negative. On the other hand, Dhawan and Sachdeva (2023), in their study found that individual spiritual beliefs of top management managers also will have an impact on their decision-making, and it is influenced by their progression, meta-beliefs as well as the organizational setting.

2. Literature Review

Effective Leadership

According to many authors of management (Pardey, 2007; Rost 1991; Pendleton, 2012) leadership is defined as personalities, characters, behaviors, qualities, influence, communication style, role relationships and managerial positions. The best explanations on leadership are "Leadership is something that people see or experience personally; more specifically it is the relationship between the leader and the people being led" (Pardey, 2007, p. 9); "Leadership is an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes" (Rost, 1991, p. 102); "Leadership is to create the conditions for people to thrive, individually and collectively, and achieve significant goals" (Pendleton, 2012, p. 2). All the above definitions suggest that leadership focuses on their actions and conduct that are to give inspiration and impact to their worker. Several definitions exist for leadership, although there is no single acknowledged definition of leadership that can cover the various scenarios that are evident in organizations (Pedler, 2010). Supporting the above, McClelland and Burnham (1995) proposed that leaders are only moderate in their requirement for accomplishment and high in their requirement for power to influence others to achieve organizational goals. Therefore, effective leadership refers to the effective ways leaders lead to achieve the desired goals. Key characteristics of effective leaders as identified by (Pedler, 2010 & Pendleton, 2012), are well-defined interaction, sureness and self-confidence, commanding through example, conducting the operations together with the staff, keeping a positive approach, dedicated transparency as well as endeavors good ethics and integrity.

From an Islamic viewpoint, Beekun and Badawi (1999) suggest that effective leadership can be portrayed when the leader looks for deliberate sustenance from the worker with the ultimate goal of arriving at specific purposes. This meaning recommends that effective leadership is a fundamental procedure where the leader monitors their workers and cannot compel others to do things against their will. Allah says in the Quran (2:256), "There is no compulsion in Faith" […]. In the Islamic leadership model, leaders take up an apparition of generating a society that is welfare-oriented, democratic, and liberated from judgment, manipulation, and cruelty (Mir, 2010). By referring to the definition of Islamic leadership provided by Mir (2010) and Beekun and Badawi (1999), the definitions seem to describe effective leadership characteristics. Thus, if a leader is Islamic, he or she has the characteristics of effective leaders.

Islam views servant-leader and guardian-leader as the primary roles of a leader (Beekun & Badawi, 1999). Gardner and Avolio (1998) stated that Islam promotes the concept of believers becoming servant-leaders and guardians. According to Beekun and Badawi (1999), Islam views leaders as servants or guardians, and Muslim leaders might utilize specific power bases to be effective. McClelland (1975 as referenced in Klenke, 2011) argues that effective leadership should begin with the power motive, as power is a key aspect of political interactions and may be obtained through resources, knowledge, and skill. Islam acknowledges authority but recommends self-control (Beekun & Badawi, 1999). Power, defined as the capacity to exert influence, is associated with effective leadership, as stated by Northouse (2007). Greenleaf (2002) and Northouse (2007) describe servant leadership as promoting communal ideals, interdependence, respect, trust, and personal growth. According to Northouse (2007), effective servant leaders prioritize conceptualizing, emotionally remedial, prioritizing their followers, serving and developing people, acting or showing the right behavior or ethically, and producing a useful community. In the Quran, Allah commands leaders to have mercy and leniency towards their followers and promote a collective approach to problem-solving. Allay says in the Quran: It is out Allah's mercy that you 'O Prophet' have been lenient with them. Had you been cruel or hard-hearted, they would have certainly abandoned you. So pardon them, ask Allah's forgiveness for them, and consult with them in conducting matters. Once you make a decision, put your trust in Allah. Surely Allah loves those who trust him (Quran 3:159).

Servant leaders are transparent, truthful, and just with their followers and do not sacrifice their morals to achieve success (Northouse, 2007). Abu Huraira Narrated: Allah messenger said, if a judge gives a verdict according to the best of his knowledge and his verdict is correct, he will receive double reward and he gives a verdict according to the best of his knowledge and his verdict is wrong, even then he will get a reward (Khan,1986). The hadith emphasizes the sincerity and intention in leadership and an Islamic leader must focus on the intention to uphold justice and make decisions based on the best of their knowledge. Team members are

more inclined to adhere to ethical standards and surmount challenges when they have faith in their leaders (Hoyt, Price, & Poatsy, 2013). When followers view leaders as unethical, it can cause them to feel anxious, pressured, and demotivated at work, which can result in engaging in unproductive behaviors such as cheating on tasks and achieving lower work performance (Gino & Ariely, 2012).

Religiosity

Various definitions of the term "religion" have diverse meanings and interpretations. The first concept is defined as a belief in Allah SWT combined with a dedication to adhere to values thought to be established by Allah SWT (McDaniel & Burnett, 1990, p. 110). Next, a collective system of values and behaviors that pertain to authenticity that is unable to be proven via empirical evidence but is thought to influence the course of nature and human occurrences (Terpstra, 1991, p. 73). It can be described as a structured system of trusts, performs, and practices that aim to enable a connection to the blessed or excellent (such as Allah SWT or ultimate truth) and promote a sympathetic of one's relationship and obligations to others within a society (Koenig, McCullough, & Larson, 2004, p. 18). Furthermore, it can be described as a social structure created to collectively address the uncertainties and mysteries of human existence, including life, death, and moral dilemmas.

Religion is seen as a universal aspect of human society, encompassing beliefs, symbols, values, and rituals that individuals use to make sense of their existence. Islam is the predominant religion in the nation where this study was conducted. Shah (2015) defines Islam as a major international religion that emphasizes devotion to Allah SWT's will and command, including both spiritual and daily aspects of life. It guides people and groups on how to navigate life in this world, outlining their rights and responsibilities towards self and society, as well as how to earn favor from Allah SWT in this life and the afterlife.

According to a study by Wan Ahmad et al. (2008), Islamic religiosity is influenced by factors such as faith (iman), actions ('amal), fear and awe (taqwa), and the practice of ibadah and other religious duties as taught in Islamic teachings, especially in terms of moral behavior (akhlaq). According to Beekun and Badawi (1999), a Muslim leader must follow the commands of Allah SWT and his Prophet (SAW) to serve Allah SWT and acquire a good and strong Islamic ethical personality. That particular individual's ethical charm will be demonstrated in his or her unwavering confidence in Allah SWT as he evolvements through four phases of spiritual development, which are Iman (faith), Islam, Taqwa (Allah SWT-consciousness), and Ihsan (excellence) (AlSarhi, Salleh, Mohamed, & Amini, 2014; Beekun & Badawi, 1999). Beekun and Badawi (1999) state that a leader with strong faith will view themselves and their belongings as belonging to Allah SWT. They also mention that a strong faith leader will be accountable for all their actions and will consistently prioritize beneficial activities. This argument emphasizes the connection between faith (religiosity) and successful leadership. The current study is founded on proposing a direct correlation between religion and the successful leadership of Muslim leaders.

Maudoodi (1976) asserts that Islam, or a'mal is the tangible manifestation of man. He compares the relationship between iman and Islam to that of a seed and a plant, where iman is considered as the seed and Islam is considered as its fruition (Wan Ahmad, Ab Rahman, Ali & Che Seman, 2008). A leader who totally practices and follows Islam will never think that he, himself is a superior due to his iman (Beekun & Badawi, 1999). On the other hand, he will hold a position as a Khalifah of Allah SWT. Taqwa is defined as a person who surrenders to Allah SWT within the context of Islam and cultivates a profound reverence for Allah SWT. Taqwa is the inner realization of one's obligation towards Allah SWT and the sense of accountability to Allah SWT. Taqwa prevents Muslims from acting unfairly and unreasonably. Muslims must adhere to Islamic teachings, including their virtues and vices, which are influenced by terror and a sense of awe (taqwa), leading them to do the required ibadah and conduct as described in the teachings (Wan Ahmad et al., 2008).

Religiosity and Leadership

Many leadership materials are now incorporating religious themes and models into workplace contexts. A study by Ayranci, Evren & Semercioöz, and Fatih (2011) found a statistically significant but extremely modest association between religion and spiritual leadership. Fry (2003) suggested that spiritual leaders use spiritual resources in social situations to adhere to divine or higher rules in their daily lives, following Allah SWT's plan. Green, Chavez, Lopez & Gonzalez (2011) found the connections between leaders' virtues and religiosity. Religiosity was found to have a strong negative connection with transformative leadership in a multiple-regression study. The study found a strong negative correlation between followers' perception of leaders as

transformational and their maturity and religiosity. Results may vary for Muslims because of differing measurements of religion. Non-Muslims' religiosity is different as going to church once a day is considered pious and their religious aspect is a separate entity. Hence, the results indicating the negative correlation are not surprising. This study has established a path to investigate the correlation between servant leadership style and religiosity in Islam.

Hage and Posner (2015) inspected the correlation between a leader's religious affiliation and religiosity. They found that leadership practices among Christian and Muslim organizational leaders in Lebanon, a non-western nation. The study runs multiple regression analyses using transformational leadership to find the impact of religious membership and religiosity on leadership behaviors. Religious affiliation and religiosity explained 21 percent of the variance in transformational leadership behaviors in the sample. The religious affiliation of the respondent had a greater influence on leadership behaviors rather than the level of their religiosity. The results align with findings that religion shows a crucial role in effective leadership and religious beliefs impact leadership style by influencing how individuals process information and decision making. Although troubling, the study's findings indicate that religiosity had a minimal impact on explaining leadership practices. This prompts the question of how religious affiliation might impact leadership behavior without affecting one's commitment to the beliefs and values of that faith. The previous study did not specifically examine the correlation between religiosity and successful leadership in Muslims. However, it laid the groundwork for further research on religiosity and effective leadership.

Islamic excellent character requires leaders to uphold principles. In their 2008 study, Wan Ahmad et al. uniquely assessed religiosity by examining various aspects of Islam and exploring the different stages of hukum, which include obligation (wajib), recommendation (sunnah), and prohibition (haram) according to Shariah laws. The investigation noted the differences in taklif (strictly mandatory) requirements between males and females for their obligations such as paying zakat and fitrah as well as going to the mosque for congregational prayer. The Quran instructs leaders to uphold ethics, morality, and lessons to serve Allah sincerely. Islam's religiosity is founded on faith, akhlaq, and Shariah (Wan Ahmad et al, 2008). These factors are believed to be correlated with leadership.
H1: There is a relationship between religiosity and leadership.

The moderating role of gender on the relationship between Religiosity and Leadership
Islamic worldview emphasizes that good leadership is not solely based on gender. In Islam, leadership does not discriminate based on gender. Religion plays a significant role in influencing women's job paths. Studies have shown that religion tends to support traditional gender roles, where women are expected to focus on home duties rather than professional pursuits. Gender-based roles are prevalent in various religions, including Catholicism, Protestantism, Islam, Buddhism, and Hinduism. Different interpretations of women's societal roles can be found within these religions.

Islam instructs Muslim women, like males, to be involved in community matters. Women are allowed and supported to participate in politics as long as it does not interfere with their main responsibilities as spouses and mothers. Women are not allowed to occupy leadership roles such as Khalifa, Mu'awin, Wali, 'Amil, or any other role related to ruling. Jawad et al. (2009) assert that this hadith implies that women are less equipped intellectually and emotionally to manage public duties. Some experts explain that this hadith does not imply that women are inferior or unable to take on leadership roles in Islam. Identifying a deficit in one woman does not imply that it is common. Some women have talents and abilities that surpass those of men (Muhibbu-Din, 2019). The Islamic rules explicitly forbid women from holding ruling positions (Muhibbu-Din, 2019). Literature from the global perspective emphasizes progressing issues such as gender bias in leadership. Women in leadership face numerous, significant, and challenging obstacles, however, there are women in various sectors who successfully overcome these problems daily (Lord, 2003). Afkhami, Eisenberg, and Vaziri (2001) argue that women have varying degrees of problems globally, with stereotypes being prevalent worldwide and women often being perceived primarily as family caretakers. Davidson and Burke (2004) discovered that obstacles such as limited access to professional networks, longer work hours, heightened parenting responsibilities, and lingering prejudice and discrimination can impede women's career advancement.

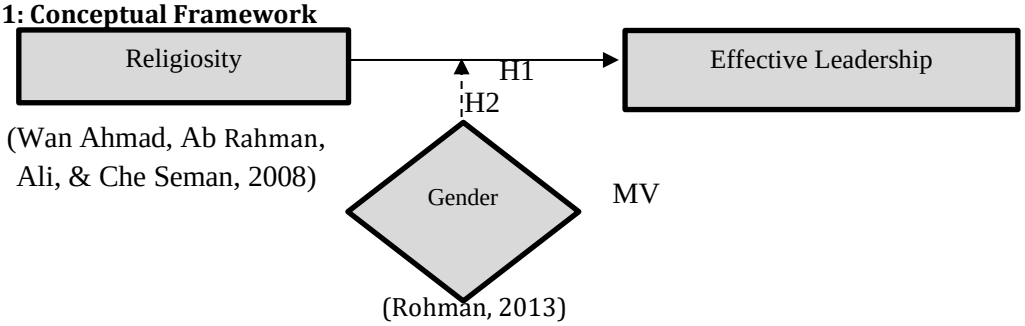
Women are perceived to have a gender edge in contemporary businesses due to their possession of leadership

skills linked to success (Conlin, 2003; Riggio, 2010). It was expected that as women's educational attainment increased and societal attitudes towards gender equality evolved, women would transition into leadership roles. Data suggests that women's advancement in management has been gradual and inconsistent (Yukongdi & Benson, 2005). The reason why the number of women holding a high position in the organization is due to women's leadership abilities are not valued as highly as men's (Paustian-Underdahl et al., 2014). According to Fondas (1997), in administrative settings, feminine attributes involve exerting control, sharing responsibility, assisting others, and establishing a network of relationships, all of which are consistent with women's conduct.

Religious literature commonly highlights the concept that women tend to be more religious and obey Allah's commands than men (Mohomed, 2023; Francis, 1997; Thompson, 1991). Feltey and Poloma (1991) discovered that women indicated higher rates of church attendance. It is reported that Muslim women feel closer to Allah SWT. They enjoy their life with their husbands, children, and family as well as their higher status in Islam. Additionally, the equality rights in their duties compared to Western women (Amin, 2023). Rohman (2013) suggested that female researchers believe that the oppression of women in Muslim society is due to a patriarchal interpretation by males rather than Islam itself. The study emphasized authors who acknowledge that gender inequality in Islam was evident during the Abasiyah era (750-1258 AD), characterized by a male-centered and sexist society.

Based on the research, the following conceptual framework is suggested. Religiosity is the independent variable (IV) and effective leadership is the dependent variable (DV) in this conceptual framework. Islam's religiosity is founded on faith, Akhlaaq, and Shariah according to Wan Ahmad et al. (2008). These factors are believed to be correlated with the dependent variable, leadership. Leadership is associated with conceptualizing, emotional healing, prioritizing followers, fostering their growth and success, acting morally, empowering, and generating value for society (Liden, Wayne, Zhao, & Henderson, 2008; Northouse, 2007). The moderating variable gender, as stated in the literature by Rohman (2013), suggests that in Muslim culture, women face obstacles in leadership positions due to interpretations by men rather than inherent to Islam.

Figure 1: Conceptual Framework



3. Research Methodology

This is a quantitative and cross-sectioned research. The sample for this study was Maldivian leaders from various sectors including leaders from political, public, and private organizations who are in supervisory positions and above and between the age of 30 -70 years. The age category is chosen because workers above this age category are mature (Oshagbemi, 2004). The business leaders were selected based on publicly recognized leading business organizations, especially the media and social platforms. Therefore, the sample for this study includes leaders above the supervisory level in both public and private sector organizations. Purposive convenience sampling was employed to gather information quickly and efficiently from reflective members of the community such as leaders who are willing to contribute their knowledge to this study. Quota sampling was not chosen because the present study did not aim to compare different leaders from different sectors.

Since the population size was hardly determined, G* Power 3.1.9.7 was utilized (Faul, Erdfelder, Lang, & Buchner, 2013). The parameters used for this software were as follows; effect size index f2 =0.15,α=0.05, and the number of predictors is 4 (Leadership, Religiosity, Gender, Religiosity and Leadership x Gender) and the power was set at 95%. Accordingly, the sample size required for this model is 129.

Instrumentation

The survey questionnaire was derived from previous studies to assess the factors. This study included closed-ended questions. The questionnaire in section A was created to collect demographic information from the respondents that are considered to have an impact on leadership. This section includes the control variables: age, education, and organization tenure. Religiosity, the independent variable, is assessed in section B. This study employed the instrument to assess the religiosity of leaders (Wan Ahmad et al., 2008). This instrument was used for the study since it covers all facets of Islam. The Muslim participants in the study were requested to rate their level of religiosity using a Likert scale ranging from 1 to 5, with options from "never" to "always" for the Islamic Shariah and akhlaq issues (issues 1-15). The respondents were asked to indicate the extent to which they agreed with the statements on faith. Items 16-22 were rated on a scale from "1" (Strongly Disagree) to "5" (Strongly Agree).

Effective leadership, the dependent variable in section C, is assessed using the instrument created and confirmed by Liden et al. (2008). The questionnaire uses Likert scales ranging from 1 to 6 to evaluate the leadership effectiveness of respondents based on their level of agreement or disagreement. The Likert scale of 1-6 was chosen instead of the usual 1-7 scale because the questionnaire was originally designed using a Likert scale of 1-7. 4 = Undecided, 5 = Partially Agree, 6 = Agree 7 = Strongly Agree. The option "Undecided" has been eliminated from the scale. There are two causes. Leaders in nature are typically decisive, a trait strongly linked to leadership according to Northouse (2007). It is expected that leaders will react to each issue. Morgan (2017) states that the typical method for constructing a scale from Likert-scored items involves evaluating their reliability through Cronbach's alpha, which relies on correlations. The number of response points researchers have, or how the variables are scored, does not impact the capacity to calculate correlations. The questionnaire consists of 28 items that assess seven key elements of effective leadership that are conceptualization, emotional healing, prioritizing followers, fostering the growth of followers and success, ethical behavior, empowerment, and producing value for the community.

4. Results

To fulfill the survey criteria of collecting 129 data points, 250 questionnaires were given to leaders across all sectors in the Maldives, anticipating a 50% response rate. A Google survey was sent over social media, and data gathering lasted for two weeks. Overall, 168 responses were obtained, and the rate of responses was 67.2%, which exceeded the expected 50%. Out of all the questionnaires received, 157 were deemed suitable for analysis, while 11 were incomplete and invalid, making it 22% of the total. The final response rate for this study is 45.2%, which is considered sufficient for the research as it exceeded the recommended sample size.

In this study, respondents' age, education level, and organization tenure were considered control factors. It was crucial to control these variables to adequately study the links between predictors and the dependent variable without any interference from control variables. The study accounted for age, education level, and organization tenure using a careful sample selection process. Table 1.0 indicates that these variables had no impact on effective leadership or religiosity. The chart indicated that age, education level, and organization tenure did not correlate with religiosity or leadership. This section provides results on respondents' experiences with network operators, the characteristics of the total sample, and a comparison of participants based on demographic such as gender, age, education level and geographic factors that is region.

Demographic Profile

Out of the respondents, 53.5% were male (N=84), while 46.5% were female (N=73). The majority of respondents fell within the age range of thirty to thirty-nine years old comprising 72% (N= 113), followed by forty to forty-nine years old at 21.7% (N=80). The least number of respondents were in the age group of fifty to fifty-nine age group with 6.4% (N=10). The respondents from the age group of sixty to sixty-nine and seventy years and above age group above were nil. The education level of respondents shows that most of the respondents were bachelor's certificate holders 38.9% (N=61), followed by master's degree holders34.4% (N= 54). Among the respondents, 16.6%, (N=26) have acquired higher secondary education and only 10.2% of respondents (N=16) have accomplished secondary education. In terms of Organization tenure respondents 45.9%(N=72) had more than ten years of service. The second most significant was 4-6 years of service with respondents 17.2% (N=27). The third was 6-10 years of service with 16.6% (N=26), followed by

respondents 12.1%(N=19) worked for 2-4 years of service, and 8.3% (N=13) worked for 1-2 years of service.

Descriptive Analysis

For effective leadership, the mean score was interpreted using the researcher's scale which was determined by 3 divisions of 6 (2, 4, 6), the levels of the mean score below 2 are considered low, 2.1 - 4 as moderate above 4 as high. Table 1 shows the mean and standard deviations of religiosity and leadership. The mean score for religiosity is 4.1141(SD = 0.40213), this indicates that the religiosity level of respondents is in the high range. The mean score for effective leadership is 5.0307 (SD= 0.49417), showing that the leadership among respondents is also at a high level.

Table 1: Mean and Standard Deviations

	N	Mean	Std. Deviation
Religiosity	157	4.1141	0.40213
Effective Leadership	157	5.0307	0.49417
Valid N (listwise)	157		

Table 2 shows the mean scores compared for the moderating variable, that is gender. The mean scores indicated that effective leadership level is higher in both males and females. The mean score of males is 5.0344 (SD = 0.51851) while the mean score of females is 5.0264 (SD= 0.46812).

Table 2: Mean Scores for both genders in terms of Effective leadership

Gender	N	Mean	Std. Deviation
Male	84	5.0344	.51851
Female	73	5.0264	.46812
Total	157	5.0307	.49417

Normality Test

This normality test is to test the normality for all the variables that were examined based on skewness, kurtosis, and their respective standardized values. For a sample that was normally distributed, the reading of the value of skewness and kurtosis (z-value) should be in the range of -1.96 to +1.96 and the value of the mean should be the same as the value of its median (Cain, Zhang, & Yuan, 2017). The findings below showed that for religiosity skewness of -0.499 (SE 0.194) and a kurtosis of 0.904 (SE 0.385) and for effective leadership a skewness of -0.342(SE = 0.194) and kurtosis of 0.148 (SE 0.385). This indicates that the z-value of skewness and kurtosis for religiosity is in the span of -2.57 to + 2.34 and the value of the mean was the same as the value of its median.

Table 3: Normality test

		Religiosity	Effective Leadership
Mean		4.1141	5.0307
Median		4.1364	5.0357
Skewness		-.499	-.342
Std. Error of Skewness		.194	.194
Kurtosis		.904	.148
Std. Error of Kurtosis		.385	.385
N	Valid	157	157
	Missing	0	0

Upon evaluating for gender, Table 4 shows males with a skewness of -0.471 (SE 0.263) and a kurtosis of 0.440 (SE 0.520) and for females a skewness of -0.152 (SE = 0.281) and kurtosis of -0.319 (SE 0.555), this indicates that the sample was normally distributed. Furthermore, the value of skewness and kurtosis. Both are in the span of -1.96 to +1.96. On the other hand, the value of the mean was the same as the value of its median (Cain et al., 2017).

Table 4: Skewness and Kurtosis for Gender

Gender			Statistic	Std. Error
Effective Leadership	Male	Mean	5.0344	0.05657
		Median	5.0000	
		Skewness	-0.471	0.263
		Kurtosis	0.440	0.520
	Female	Mean	5.0264	0.05479
		Median	5.0714	
		Skewness	-0.152	0.281
		Kurtosis	-0.319	0.555

Multicollinearity

This test is to detect whether multicollinearity exists. The variance-inflation factor (VIF) and tolerance of each variable were calculated. The result of variance-inflation factor (VIF) values above 10 indicates that this research has a multicollinearity problem. Table 5 indicated no major issue of multicollinearity.

Table 5: Multicollinearity

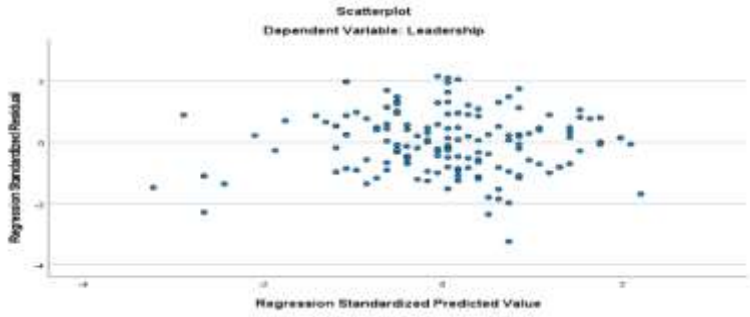
Model		Tolerance >.10	VIF <10
1	(Constant)		
	Obligations	0.724	1.381
	Recommendations	0.794	1.26
	Prohibitions	0.869	1.151
	Akhlaq	0.812	1.232
	Faith	0.91	1.099

Dependent Variable: Effective Leadership

Homoscedasticity

The homoscedasticity test will test the means that the variance of the outcome variable should be stable at all levels of the predictor variable (Field, 2013). If the scores cluster around the regression line between each variable, it is considered homoscedasticity violated. Based on Figure 1 the scatterplot distribution for regression analysis is homoscedastic.

Figure 2*:* Homoscedasticity assumption between religiosity and Effective Leadership



Autocorrelation

To detect the presence of autocorrelation in the data, this study tests the error term in the regression equation for the serial relationship. This test is done by employing the Durbin–Watson test. It will test whether the residuals in the model are correlated or otherwise (Field, 2013). The value must be in the range of 0 and 4, where the value of 2 indicates that the residuals are uncorrelated. If the value is more than 2, it shows that the residuals have a negative correlation. On the other hand, if the value is less than 2, it implies that the residuals have a positive correlation. In this study, Durbin Watson has a value of 2.027, and it reveals that there is no autocorrelation problem exists in this model. It can be shown in the table below:

Table 6: Durbin Watson Test (Regression between Individual Variable with Leadership)

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.408[a]	.166	.161	.45266	2.027

a. Predictors: (Constant), Religiosity
b. Dependent Variable: Effective Leadership

Homogeneity of variance

Homogeneity of variance is the test to analyze the variances of two samples or groups, whether they are approximately equal or homogeneous. Therefore, the test for equality of variance named Levene's Test is conducted. This test analyses whether the two variances, that are males and females have the same nature, or whether the groups have the same kind of variability. Levene's result shows that P > 0.05, hence, it is not significant. It denotes that the variances are not significantly different, and therefore, the variances are assumed to be equal and homogeneity of variance has been met. These results are indicated in table 7.

Table 7: Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Effective Leadership	Based on Mean	.021	1	155	.886
	Based on Median	.023	1	155	.881
	Based on the Median and with adjusted df	.023	1	146.651	.881
	Based on trimmed mean	.035	1	155	.851

Regression Analysis

A simple linear regression analysis was conducted to measure the relationship between religiosity and leadership. To answer the first research question(Q1) Is there a relationship between effective leadership and religiosity in Maldives? The first hypothesis (*H_1: There is a significant relationship between religiosity and effective leadership*) was tested using linear regression analysis to find out whether it was accepted or rejected. Table 8 shows the results of a linear regression performed between religiosity and leadership. The relationship between variables illustrated a moderate positive linear relationship between religiosity and effective leadership, r=.496, p (2-tailed) < .000.

Table 8: Linear regression performed between religiosity and leadership

	Standardized Coefficients			Collinearity Statistics	
	Beta	t	Sig.	Tolerance	VIF
(Constant)		6.982	.000		
Religiosity	0.496	7.107	.000	1.000	1.000
R		0.496[a]			
Adjusted R Square	241				
R Square Change	0.246				
F	50.515				
Sig.	.000[b]				

a. Predictors: (Constant), Religiosity
b. Dependent Variable: Effective Leadership

The table above shows that the value of R^2 is 0.246, which signifies that religiosity explained 24.6% of the variation in leadership. It also signifies that another 75.4% of the variation in effective leadership is being explained by other variables. Although R^2 is low for this study, it could be the best-fit model for leadership Frost (2019). This is because of several reasons such as a larger volume of unexplainable variation and in those areas or the studies attempting to enlighten the human behavior that generally the value of R^2 is bound to be lower or it is less than 50%. It is very difficult to predict human behavior compared to other things such as physical processes. (Frost, 2019). The data shows F-ratio is 50.515, which is significant at p < .001. According to Field

(2013) a good model should have a value of more than 1.

To answer research question 2, the research hypothesis was: ***H2:*** *Gender moderates the relationship between religiosity and Effective leadership.* Hypothesis 2 was tested using hierarchical regression analysis to test whether the hypothesis was accepted or rejected. This hypothesis was confirmed by hierarchical regression using Hayes Process Macro for SPSS 27. Model 1 was selected in the Process Macro to show the interaction between religiosity and gender (Hayes, 2012). The statistical interaction effect of both variables on another variable is known as the moderation effect (Field, 2013). Since the p-value is P <0. 9042, thus, the results indicate that the interaction is not significant. Table 9 shows the Hayes Process Macro result.

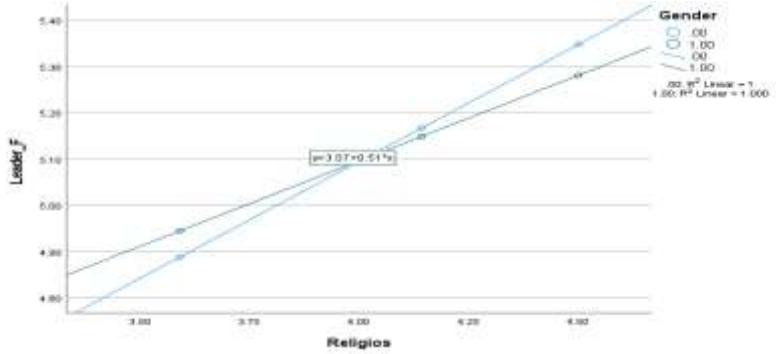
Table 9: Test of Highest Order Unconditional Interaction (Hayes Process Macro)

	R2-chng	F	df1	df2	p
X*W	0.0001	0.0151	1	153	0.9024

Focal prediction: Religiosity (X)
Moderating variable: Gender (W)

To visualize the conditional effect on the predictor, a graph was plotted. Interestingly, even though the test of moderation indicates no significant results, Figure 6 shows a slight difference between genders on who is more effective when both are religious. Figure 3 displays the Gender moderating relationship between religiosity and effective leadership. It is found that the relationship between religiosity and effective leadership is stronger among males as the slope is steeper for males. Therefore, when male leaders are religious, they turn to show a more effective leadership style than female leaders if they are religious.

Figure 3: Gender moderating relationship between religiosity and effective leadership



Discussion

The analysis shows a moderate positive linear relationship between religiosity and effective leadership. The results have supported the study done by Beekun and Badawi (1999) and McDaniel and Burnett (1990). Both of the studies found that a leader (*Khalifah*) who has a very strong and firm *iman* towards Allah SWT, will take care and be responsible for all their saying and action because they know that Allah is looking at them at all times no matter where they are. Hence, they will continuously (*istiqomah*) do good things and promote good behavior. Moreover, the finding supported the analysts who have deduced that a faithful and pious Muslim has good character which is good conduct, very ethical, good morals and values (Fernando & Jackson, 2006). Literature suggests that individuals' conduct and behavior conform to their religious beliefs (Gardner & Avolio, 1998). Besides, individuals who hold strong Islamic values are better servant leaders as those leaders emphasize that through trust-based attributes the leader becomes a role model in values and behavior (effective leadership). Thus, the high mean score of religiosity values held by Maldivian leaders in the present study indicated that their style towards their followers which is to achieve frame alignment and develop trust to behave as a role model, constitutes the importance given by Maldivian leaders following effective leadership style. Many authors stated that effective leadership hold great ethical behavior, are very honest and become good followers. Furthermore, effective leaders are not going to compromise especially on their ethical principles even though to achieve victory (Hoyt et al., 2013; Northouse, 2007, 2013). A good and ethical leader

will produce good and ethical followers (Albdareen, Al-Gharaibeh, Alraqqad & Maswadeh 2024). For them, Allah is the virtue and the utmost important thing in their life.

The item of honesty over profits had the highest mean score among effective leadership items. Those leaders who value honesty over profits would not wait for others to remind them about what is right or what is proper to impress others. An honest person will always value truthfulness and believe that others will trust him or her (including his or her actions). Therefore, he or she would be proactive in telling the truth about anything. Besides, this indicates the link between Akhlaq and the conduct of Muslim leaders which determines the way they behave in their daily lives. This also has been supported by authors as they state that Muslim entrepreneurs should hold good behaviour including being ethical and honest in whatever they are doing (Akbar Ahmed, 1985; Wilson, 2006). According to Wilson (2006), In Islamic teaching, Allah will give His blessings to those who are practicing good behavior. When they practice this, they are indirectly showing the non-Muslims that Muslims have good values and therefore, the community will be harmonious and peaceful. In this kind of environment, the Muslim entrepreneur can do business better and thus, will improve the Muslim's economy. For this reason, it was not an amazement to find honesty to be a common value among all respondents who were all Muslims in a community like Maldives. In addition to this, high mean scores of Shariah items indicated that Islamic Shariah has been practiced in the Maldives and Islamic Shariah has been given the utmost importance in the country. Islamic Shariah is the law and the constitution of the country is guided by the standards of Islam. Although prohibitions fall under shariah in Islam, these items contributed to high mean scores such as the items 'I have taken interest or riba'. The reason for the above is assumed to be in the high end due to the lack of Islamic banks that conduct trade and banking activities in line with the principles of Islamic Shariah. To summarize, the level of religiosity is high among the leaders and most of the attributes of effective leadership are followed by Maldivian leaders. Thus, many authors supported the positive link between religiosity and effective leadership that has been found in this study. Besides Islamic Shariah is given utmost importance in the Maldivian community.

This result of the hypothesis tested using multiple regression analysis indicated that gender has no significant relationship between religiosity and effective leadership and it is not moderating that relationship as well. The regression results showed that there is no significant relationship between gender and the interaction between religiosity and effective leadership. With regards to the negative link shown by the moderating variable, gender, this denies the findings from the research conducted by El-Horr and Pande (2016) as the authors suggested that a key factor in women's underrepresentation in Maldives is the spread of an increasing conservative interpretation of Islam that consigns women to the sphere of the family, suggesting that gender-unequal social norms that disadvantage women. However, the empirical evidence of the findings stated that religiosity is not significant and did not play an important character for women in lower echelons of the workplace and the community.

Moreover, this study has contrasted with the views presumed by Jogulu and Wood (2008) who claimed that the perception of Mulim women leaders is different for Malaysians and Australians. This is not because they are relatively adequate in the working environment, but it is because of their strong religious beliefs in them. However, the above findings do not support this study. The common attributes followed in Maldives as well as in Malaysia, since the majority of the religion is Muslim in both countries. Therefore, in conjunction with the findings of this study, indicate that neither gender nor religiosity moderates the relationship between religiosity and leadership. It indicates that if a leader is religious, he or she is an effective leader. Moreover, this research addressed the concern for further research that was raised by Hage and Posner (2015) who indicated that it would be useful to comprehend other characteristics such as age, gender and sectors or industries that have influenced or moderated the impact of religious affiliation. Thus, the above statement opens up for further investigations, which provides empirical evidence for the concern of gender moderating religiosity and leadership. The findings of the research supported the views of (Conlin, 2003; Ely et al., 2011; Heilman, 2001; Oakley, 2000; Paustian-Underdahl et al., 2014; Vecchio, 2002) who claimed that effective leadership is not exclusively founded on gender. However, the authors state that women are progressively effective in interpersonal skills and past investigations have accentuated the interpersonal skills of women which are inborn qualities (Cooke, 2005; Gipson et al., 2017; McCauslan & Kleiner, 1992; Shaya & Abu Khait, 2017; Yukongdi & Benson, 2005). The graph showed that the relationship between religiosity and leadership is stronger among males as the slope is steeper for males. Therefore, when male leaders are religious, they turn

up to show more effective leaders than female leaders if they are religious. For this reason, organizations need to consider including religiosity awareness and teachings in a training module so that leaders are becoming more religious to be effective.

5. Managerial Implications and Recommendations

Based on the finding religiosity has a significant relationship with leadership, this indicates that a leader utilizes a variety of the dimensions of religiosity to specific situations in everyday life. Roccas (2005) in his study concluded that religiosity and values have a high correlation. To develop this characteristic he should focus on moral development, in the context of the school environment to enhance the development at an early stage. Besides, the school environment or its programs should surrogate social and moral development, a behavior includes helping others, sharing with someone and other apparently intentional and positive behaviors for which the purpose is unknown and unspecified.

The most interesting finding of this study lies in the items of the mean score for prohibitions. While the reason believed is due to the lack of Islamic Banks in the country, it is recommended to introduce banks that adhere to Islamic law. At an organization level, training can be offered in the field of religiosity that could improve the values of a person holding onto. It is recommended to offer the element of religiosity and its benefits must be included. That means the understanding of Islamic principles or the right knowledge of Islam should be emphasized so that employees will be committed to doing work for the sake of Allah S.W.T. The leadership training can be integrated with Islamic settings and values with stories of historical role models that tone for the best example, guided by Islamic beliefs and practices. In other words, the training must be implemented in a way to make sense of the present by tightfitting the past. The stories of successful Muslim leaders could encourage future leaders to be and it becomes role models and occupy the minds and hearts of many followers Cultural awareness is of utmost importance in the community. Although the whole community is Muslim, leaders need to be aware of the multicultural individuals who work in an organization. Many of the workers are expatriates who do not follow Islam. According to Faris and Abdalla (2018), social awareness will diminish vagueness and it can improve leaders' and followers' ability to achieve their objectives. Therefore, it is very difficult to build interaction between the leaders and followers as well as understand the culture of one organization. The leader has to plan, organize, lead, and empower cross-cultural followers.

Conclusion

The purpose of this research is to gain insight into the relationship between religiosity and effective leadership and the moderating role of gender. This study is based in the Maldives. The author endeavors to explore the current issues of religiosity and effective leadership in Maldives and the moderating role of gender.

This study employed a purposive convenience sampling technique and a total of 168 responses were received from the expected 250 questionnaires that were initially distributed. After checking all the returned questionnaires, the total usable responses for further analysis was 157. This study addressed many of the author's recommendations for future research, which is to include gender as a moderator. Second, the findings of this study rejected the views of authors El-Horr and Pande (2016) claiming that women are underrepresented due to extreme religious beliefs held in the country. Overall, the findings have given a useful insight that gender does not moderate the relationship between religiosity and effective leadership. Thus, paving the way for future research to explore the issue further. The results have fulfilled both research objectives. Based on the finding religiosity has a significant relationship with effective leadership, this indicates that a leader utilizes a variety of the dimensions of religiosity in specific situations in everyday life.

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A Conceptual Model for Factors Influencing Purchase Intention of Cosmetic Products

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Abstract: This paper proposes a conceptual model for factors influencing intention to purchase cosmetic products. Globalization is increasing the intensity of rivalry among cosmetic sector participants. In these instances, business practitioners must devise the best strategies to increase market share. One of the elements that can be concentrated on is consumer behavior. Understanding consumer behavior is one of the most important factors to consider when developing strategies. The primary goal of this study is to investigate the factors that influence customers' purchasing intentions for cosmetic products in Malaysia. Theory of Reasoned Action (TRA) served as a basis for the study, with four additional variables added on. As a result, the study explores six independent variables that influence purchase intention for cosmetic products. The results of this research could contribute to the current body of literature and provide industry stakeholders with insights into how the factors examined in this study impact customer purchase intent. This knowledge empowers them to craft more impactful business strategies.

Keywords: *Conceptual Model, Purchase Intention, Cosmetic Products.*

1. Introduction and Background

Over the past few years, the cosmetics industry has grown significantly on a global scale. The cosmetics market is expanding quickly as a result of consumers being more aware of their personal care and beauty needs (Researchdive, 2023). The global cosmetics sector has proven to be durable throughout time. As of 2023, the global cosmetics market was estimated to be worth USD 426.4 billion (Spherical-insights, 2023). The women's segment of the worldwide cosmetics industry is predicted to develop at the highest rate, while the skincare category currently holds the largest market share. Given that older consumers are using anti-aging treatments more frequently, the cosmetics business is predicted to expand (Shanbhag et al., 2019). Malaysia's cosmetics exports in 2022 reached a total of USD 140.73 million, representing an almost ten million rise compared to the previous year (Statista, 2023). The primary exports consisted of cosmetics and makeup, which had a total value of RM513 million, accounting for 40.9 percent of the total exports (MATRADE, 2017). The COVID-19 pandemic in Asia has exerted a substantial influence on the global cosmetic industry, particularly the cosmetics sector. Despite recent reports indicating a modest rebound in certain market categories such as personal care, hair care, body care, and skin care, the cosmetics sector continues to exhibit underwhelming performance, hence impeding the overall speed of recovery within the cosmetic market (Chow, 2020).

Building upon the aforementioned concepts, McKinsey conducted a study in May 2020 entitled "The Impact of Covid-19 on the Beauty Industry." According to Gerstell et al. (2020), it has been found that consumers in China, Japan, the United Kingdom, and the United States of America intend to reduce their expenditure on skincare and makeup products in the foreseeable future. This matter would be worrisome, especially for marketers, as it would pose a challenge in motivating customers to make purchases. One challenge that arises is the misalignment between corporate aims and customer objectives, which calls for a shift in viewpoint and a greater emphasis on consumer-oriented products (Tavares et al., 2021). The issue of how marketers may convert this challenge into product-specific characteristics remains unresolved, as this approach seems to be diminishing in its effectiveness or popularity in product design and marketing (Tavares et al., 2021). Tavares et al. (2021) emphasized the necessity for improved predictive models to comprehend the significant indicator of product features and forecast customers' purchasing intention and purchase decisions. Hence, the study aims to construct a conceptual model that identifies the key factors that significantly influence consumers' intention to purchase cosmetic items, particularly within the Malaysian context. Understanding these factors within the Malaysian context is crucial for the development of effective marketing strategies tailored to the unique preferences and behaviors of Malaysian consumers.

2. Literature Review

Purchase Intention: The concept of purchase intention remains a significant subject of investigation in the field of marketing research, owing to its adaptability (Alalwan, 2018; Sreen et al., 2018) and its expansive nature, encompassing diverse definitions and conceptualizations (Morwitz, 2007). The concept of purchase intention pertains to the inclination of customers to actively seek out pertinent information and make choices regarding their preferred products or services (Wang et al., 2015). Purchase intention refers to the likelihood that an individual will engage in a particular behavior (Ajzen and Fishbein, 1975). The current investigation has defined purchase intention as the potential for a consumer to engage in future purchases and advocate a particular cosmetics brand to others (Chen, Chen and Lin, 2011). According to Greggianin et al. (2018), marketers engage in the development of products that effectively cater to consumer wants and preferences by including elements of style and visual appeal, while also enhancing utility. While scholars investigate the impact of cosmetic product design and features on consumer purchasing behavior, the available empirical evidence is limited, suggesting that the study may be superficial (Sung, 2021). When customers are shopping for a product, they not only analyze the product's qualities but also consider other indications (Landwehr, Wentzel and Herrmann, 2012).

Customers often depend on brand information to distinguish a product from its competitors when making purchasing choices (Keller, 2003). Research in marketing has undergone a paradigm change, shifting its focus from tangible resources to intangible resources. This movement emphasizes the importance of intangible resource aspects that enhance value, the collaborative generation of value, and connections (Vargo and Lusch, 2004). Typically, consumers consider a range of external factors or extrinsic indicators when assessing a product or brand (Yan et al., 2019). To attain a competitive edge, marketers endeavor to offer clients a novel experience that distinctly captivates them. One prevalent marketing method in modern times entails the creation of brands that incorporate actual individuals, a concept commonly known as human branding. Human branding is classified by scholars into three distinct dimensions: personal branding, internal branding, and celebrity branding. Personal branding refers to individuals, while internal branding pertains to employees. Celebrity branding, on the other hand, involves celebrities, public figures, or businessmen as brands (Eagar and Dann, 2018). The concept of personal branding is commonly employed to enhance one's prospects of securing employment (Zamudio et al., 2013) and to explore avenues for professional progression (Speed et al., 2015).

Specifically, there is a growing focus on celebrity CEOs in the field of management and marketing research. Numerous words and conceptualizations pertaining to famous CEOs have been presented by scholars, including CEO brands, personal brands, and the CEO's image. CEO brand image refers to the distinct notion that is inherent in CEO brands, with human brands serving as the foundation of this concept (Fetscherin, Veloutsou, and Guzman, 2021). According to Bendisch, Larsen, and Trueman (2013), there exists a close association between CEO brands and CEO brand image, as it is challenging to disentangle the brand image from the individual responsible for its creation. Hence, this study adopts a CEO brand image framework, akin to the one proposed by Andreini, Fetscherin, and Zarantonello (2021), which encompasses personality, leadership, and performance. This approach aligns more closely with Thomson's (2006) definition of celebrity branding, making it a more suitable fit for the study's setting. The significance of CEOs' branding in establishing corporate branding, reputation, and overall business performance has been emphasized in several academic and industrial studies, particularly in a saturated marketplace with limitless choices (Le, 2023). According to Thomson (2006), marketing literature supports the notion that human brands have the ability to cultivate strong emotional connections and improve the overall quality of consumer relationships.

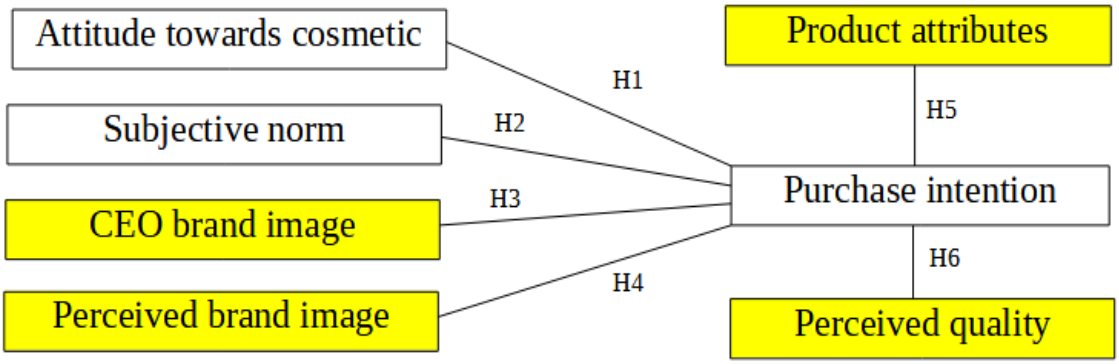
In the beginning, chief executive officers (CEOs) are acknowledged as prominent figures within their respective businesses and are therefore seen as brands due to their ability to shape consumers' impressions of the products and services promoted by the company (Keller, 2003). According to Fleck, Michel, and Zeitoun (2013), CEOs are frequently regarded as spokespersons and endorsers, with a credibility edge in advertising due to their comprehensive understanding of their products and organization. Nevertheless, customers' viewpoints give rise to biases and mistrust due to the uncertain impartiality, integrity, and honesty of CEOs. The CEO's brand image and customers' purchase intention are impacted by this situation (Mao et al., 2020). The absence of adequate information is a challenge for chief executive officers (CEOs) in their efforts to convince customers and establish confidence. Although the CEO brand phenomenon has been extensively studied and is highly

relevant, marketers and managers remain uncertain about whether CEO brand image positively influences the purchase intention of beauty businesses due to a lack of research in this area. The examination of these interactions holds significant importance for both academia and practitioners, including marketers and managers, since it provides valuable insights into the purchasing intentions of customers towards makeup brands. This study will yield excellent insights for research purposes and hold significant implications for the development of brand strategies and positioning. The primary objective of this study is to examine the correlation between product features, CEO brand image, and purchase intention.

3. Conceptual Model of Purchase Intention of Cosmetic Products

This section is dedicated to establishing the foundational framework for this study, utilizing the TRA model tailored to Malaysian consumers. This model sets the stage for testing six empirically verifiable hypotheses pertinent to the study. Figure 1 illustrates the research framework, outlining the interplay between exogenous (independent) variables and endogenous (dependent) variables. In this study, product attributes and CEO brand image serve as the key determinants of purchase intention for makeup brands.

Figure 1: Conceptual Model of Purchase Intention of Cosmetic Products



Hypotheses Development

Attitude Towards Cosmetic and Purchase Intention: Several previous studies have explored the link between attitude and purchase intention across a range of products. In the Malaysian context, several studies have specifically focused on purchase intentions regarding cosmetic products. Meng (2014) conducted research among female students at Universiti Utara Malaysia (UUM) and affirmed that attitude is a factor influencing purchase intention toward halal cosmetic products. Al Mamun et al. (2020), in their study on cosmetic products, also concluded that attitude is related to consumer purchase intention, particularly among Malaysian consumers. Consistent with other research findings, Zhang et al. (2018) and Rachbini (2018) both support the positive influence of attitude on consumers' purchase intentions across various product categories based on the evidence in the literature, it is fair to conclude the following hypothesis:
H1: Attitude towards cosmetic has a significant relationship with purchase intention.

Subjective Norm and Purchase Intention: Festinger (1954) described subjective norms defined as interactions with others that significantly shape and alter an individual's thoughts and emotions regarding certain behaviors. This assertion is corroborated by Kim and Chung (2011), who conducted a survey on organic personal care products. They highlight that consumers' subjective norms positively impact their intention to purchase organic products. Similarly, Zhang et al. (2018) support this notion, concluding that subjective norms positively influence consumers' intention to purchase greenhouses in China. Rachbini (2018) echoes these findings in the context of halal food purchasing behavior in Jakarta, emphasizing the importance of subjective norms in influencing consumers' purchase intentions, particularly within the Indonesian context based on the evidence in the literature, it is fair to conclude the following hypothesis:
H2: Subjective norm has a significant relationship with purchase intention.

CEO Brand Image and Purchase Intention: Compared to traditional advertisements, human branding for product advertisements has a higher chance of customer purchase intentions. The purchase intention may decrease if a human brand has low image appeal (Seo, Chae and Lee, 2012), and negative information about a CEO will unfavorably affect a public's behavioral intentions (employment, word-of-mouth, and purchase intentions) (Sohn, Weaver Lariscy and Tinkham, 2009). For instance, Chae and Lee (2013) conclude that "human brand appears to influence customers' decision-making process by reducing their cognitive effort as they depend on heuristics that will lead to a satisfying decision rather than applying an analytical decision rule to optimize their decisions. In an airline setting, Kim and Jang (2021) reveal that quality, personality, and outward characteristics of CEO image significantly affect behavioral intention. In a more general context, Seo, Chae and Lee (2012) discover a significant effect between human brand image appeal. Based on the evidence in the literature, it is fair to conclude the following hypothesis:
H3: CEO brand image has a significant relationship with purchase intention.

Perceived Brand Image and Purchase Intention: Previous studies have demonstrated that customer perception of the brand image they conceive in their memory is an antecedent of their intentions (Kim and Ko, 2012). Several studies in the past discovered that perceived brand image has a positive correlation with purchase intention. For instance, Sultan and Wong (2019) examine how perceived service quality affects university brand performance, university brand image and behavioral intention in a higher education context. Similarly, in a different setting, Mehra, Rajput and Paul (2022) explore how smartphone addicts decide to adopt a smartphone brand with the related variables of product attributes, brand image, customer perceived value, and purchase intention. The result indicates a positive correlation between brand image and purchase intention. Therefore, based on the justifications above, the following hypothesis is derived: H4: Perceived brand image has a significant relationship with purchase intention.

Product Attributes and Purchase Intention: Scholars have proven that product attributes have positive effects on purchase intention. More recent research assessed customer liking and purchase intention as fundamentally based on attributes (Delgado et al., 2013). For instance, Sung (2021) examines cosmetic container design and customer purchasing intention, particularly product design, shapes, and materials. Packaging design elements are one of the most essential for the customers' purchase intention. Also, Kobayashi and de Benassi (2015) analyze the impact of packaging characteristics on purchase intention. Similarly, attributes like breathable, quick-dry, lightweight, waterproof, and durable cosmetics or makeup products are essential (Chan and Mansori, 2016). Specifically, based on literature reviews, clear indications suggested the relationship between product attributes and purchase intention. Therefore, such a conclusion seems acceptable, and the present study assumes the following hypotheses: H5: Product attributes have a significant relationship with purchase intention.

Perceived Quality and Purchase Intention: Scholars have reported that purchase intention is a critical consequence of brand-perceived quality. For instance, Yan et al. (2019) investigate both direct and mediating effects of perceived quality on the relationships between category characteristics and purchase intention for private labels. The correlation result of perceived quality on purchase intention is significant. The scholars suggest that retailers need to put as much objective information about product ingredients as possible on the package label and induce the perception of quality they will experience on consumption. There is a positive correlation between perceived quality and purchase intention (Colamatteo, Cassia, and Sansone, 2022). In addition, Horng et al. (2012) also validate that perceived quality is positively related to behavioral intention in culinary tourism. Thus, the present study deduces that perceived quality has a significant influence on purchase intention and postulates the following hypothesis: H6: Perceived quality has a significant relationship with purchase intention.

4. Conclusion and Recommendations

In summary, this study presents a conceptual framework designed to comprehend the determinants that impact the inclination to acquire cosmetic products, notably within the context of Malaysia's market dynamics. Given the increasing rivalry in the cosmetic industry due to globalization, businesses must develop efficient tactics to increase their market share. At the core of this undertaking lies the understanding of consumer behavior, which plays a fundamental role in the development of strategic plans. This study builds upon the

Theory of Reasoned Action (TRA) as a theoretical framework and broadens its focus by incorporating four supplementary variables. Consequently, it investigates six distinct factors that influence individuals' intentions to purchase cosmetic items. By examining these aspects, the research not only adds to the current body of knowledge but also provides industry professionals with a useful understanding of the factors that influence customer buying patterns. Furthermore, this study has significant contributions beyond academic conversation, providing practical advice for organizations aiming to customize their strategies to the specific preferences of consumers in the Malaysian cosmetic sector. In doing so, it helps bridge the gap between theoretical understanding and practical application in the industry.

Policy Implications: The findings of this study hold important policy implications for businesses operating in the Malaysian cosmetic sector. Understanding the factors that influence consumer behavior can inform the development of targeted marketing strategies tailored to Malaysian consumers' preferences. This can lead to more effective resource allocation and investment decisions within the industry. Moreover, policymakers can utilize the insights from this study to formulate regulations and policies that promote consumer welfare and fair competition within the cosmetic market. For instance, regulations related to product labeling, advertising standards, and consumer protection can be designed based on an understanding of consumer behavior and preferences as revealed by the study. In a nutshell, through a comprehensive comprehension and strategic utilization of these variables, enterprises can develop more efficient marketing strategies, consequently augmenting their competitiveness and placement within the dynamic global cosmetic industry while policymakers can create an enabling environment for consumer welfare and fair competition within the Malaysian cosmetic market.

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Exploring Rewards Systems and Turnover Intention among Malaysian Private University Academics: The Role of Continuance Commitment as a Mediator

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Abstract: This research employed an empirical approach in overviewing the relationship between five independent variables namely, remuneration, work-life balance, supervisor support, and employee recognition and the intention of turnover by means of employees' continuance commitment. The study comprises a total of 331 academics from the four private universities that were selected. This study utilized a structured survey to collect data, drawing on publicly available literature to inform the survey's design. Building upon a comprehensive review of existing literature, the survey instrument was tailored to address the specific research objectives of this study, incorporating modifications as deemed necessary. The analysis presented in this chapter offers a detailed examination of both the measurement and structural models employed in the study. The measurement model rigorously assessed the reliability and validity of the measurement instruments, ensuring that indicators met established criteria for accuracy and precision. Subsequent Structural Equation Modeling (SEM) analyses revealed that neither direct nor mediated paths achieved statistical significance, indicating a lack of empirical support for the hypothesized relationships among the variables under investigation. This comprehensive evaluation provides valuable insights into the methodological rigor of the study and highlights avenues for future research exploration.

Keywords: *Turnover intention, Academics, Continuance Commitment, Rewards System, Malaysian Private Universities.*

1. Introduction and Problem Statement

In this day and age of professionalism, reward programs have been demonstrated to be highly effective in raising employees' commitment and job satisfaction across the board. Employee needs and desires for ego and self-actualization may be satisfied by a number of non-financial incentives in addition to monetary compensation. Even though the number of students attending private universities in Malaysia has increased over time, it has been observed that most of these institutions continue to struggle with dwindling levels of academic satisfaction and enthusiasm because of the inadequate rewards provided, which drives up attrition rates (Zhou and Xie, 2019). Despite earning excellent financial rewards, workers continue to consider other important factors that can protect them. Therefore, companies must create and maintain settings that can support desired results. Financial rewards must also be connected to other intrinsic components to foster employee happiness, which will also help them deepen their emotional bonds with the business. According to Paul and Kee (2020), the educational system in Malaysia has experienced a notable decrease in the number of tenured faculty members. Due to an increased rate of academic staff turnover, most departments at Malaysian universities are experiencing a labor shortage (Nguyen et al., 2020).

Private universities in Malaysia have a significantly higher turnover rate than public universities (GuiXia and Rashid, 2019). Approximately 26% of academic staff members at private universities depart annually, while only 11% do so at public universities. Similarly, Badiozaman (2021) found that private universities had academic staff turnover rates that were more than twice as high as those of public universities. Furthermore, the average turnover rate for academic staff at private universities was reported to be 25% by the Malaysian Ministry of Higher Education (MOHE) in 2019. Furthermore, fewer academic staff members are employed by private universities than by public universities, according to data from the Ministry of Higher Education Malaysia Statistics (2019). Since higher education is one of the most significant industries in the world, there is a great deal of urgency for this research. Within five years, there has been a nearly seventy percent increase in the number of students enrolling in Malaysian universities (Policy Planning and Research Division, Ministry of Higher Education Malaysia, 2022). The rising enrolment rate over time indicates that universities have an even bigger task ahead of them. Salwa (2022) states that among the factors used to determine a university's success rank in the QS World University Ranking, academic reputation, employer reputation, and teacher-

student ratio add up to 70%. Thus, the time has come to take into account the fundamental importance of academic turnover intention for the prosperity of universities.

Furthermore, of the 104 private universities registered in Malaysia, only four were included in the ranking. Therefore, by examining the impact of reward systems on academic turnover intention, this study aims to make a substantial contribution to the literature already available in the Malaysian higher education sector. The research aims to investigate the intricate relationship between various types of reward systems and turnover intention among academicians within Malaysian Higher Learning Institutions. Furthermore, the study seeks to ascertain the mediating role of employees' continuance commitment in the relationship between different types of reward systems and turnover intention among academicians in Malaysian Higher Learning Institutions. Through empirical analysis and exploration, the study endeavors to shed light on the dynamics of reward systems, turnover intention, and continuance commitment within the context of Malaysian Higher Learning Institutions, offering insights that contribute to the understanding of organizational behavior and human resource management in academic settings.

Research Questions

i. What are the relationships between extrinsic and intrinsic rewards used in Malaysian Higher Learning Institutions and turnover intention among academicians?
ii. How does an employee's continuance commitment mediate the relationship between reward systems and turnover intention?

2. Literature Review

Rewards System: Total rewards is a reward management strategy that emphasizes the importance of considering all aspects of the work experience—rather than just a few, such as salary and benefits—that are valuable to employees. It aims to create a cohesive whole by fusing the material and immaterial aspects of reward (Armstrong & Brown, 2007). The following figure illustrates the various components of reward systems in accordance with the previously defined concept of reward systems.

Figure 2: The Components of Total Reward System (Armstrong & Brown, 2007)



Remuneration: As stated by Martono et al. 2018 has a great deal of attention focused on an organization's reward management system as a defining characteristic of exceptional employee welfare and performance; nevertheless, compensation has been demonstrated to have a positive impact on employees' intentions to leave. Additionally, research by Bibi et al. (2020), which sought to investigate how compensation affected workers' commitment, clearly indicated that compensation positively affects workers' commitment and, consequently, has an impact on turnover intentions.

Work-Life Balance: As per Kakar et al. (2022) A person's job fit is greatly enhanced by work-life balance which reduces the likelihood of academic turnover intention. Additionally, according to Berber et al. (2022) to attract, motivate, and retain employees in such conditions, businesses need to create work environments by 2022. One possible strategy is to offer employees Flexible Working Arrangements (FWAs) as an additional means of preserving work-life balance. Also, within the framework of a university, Sajuyigbe et al. (2021) work-life balance and turnover intention in the framework of private universities were found to be significantly correlated.

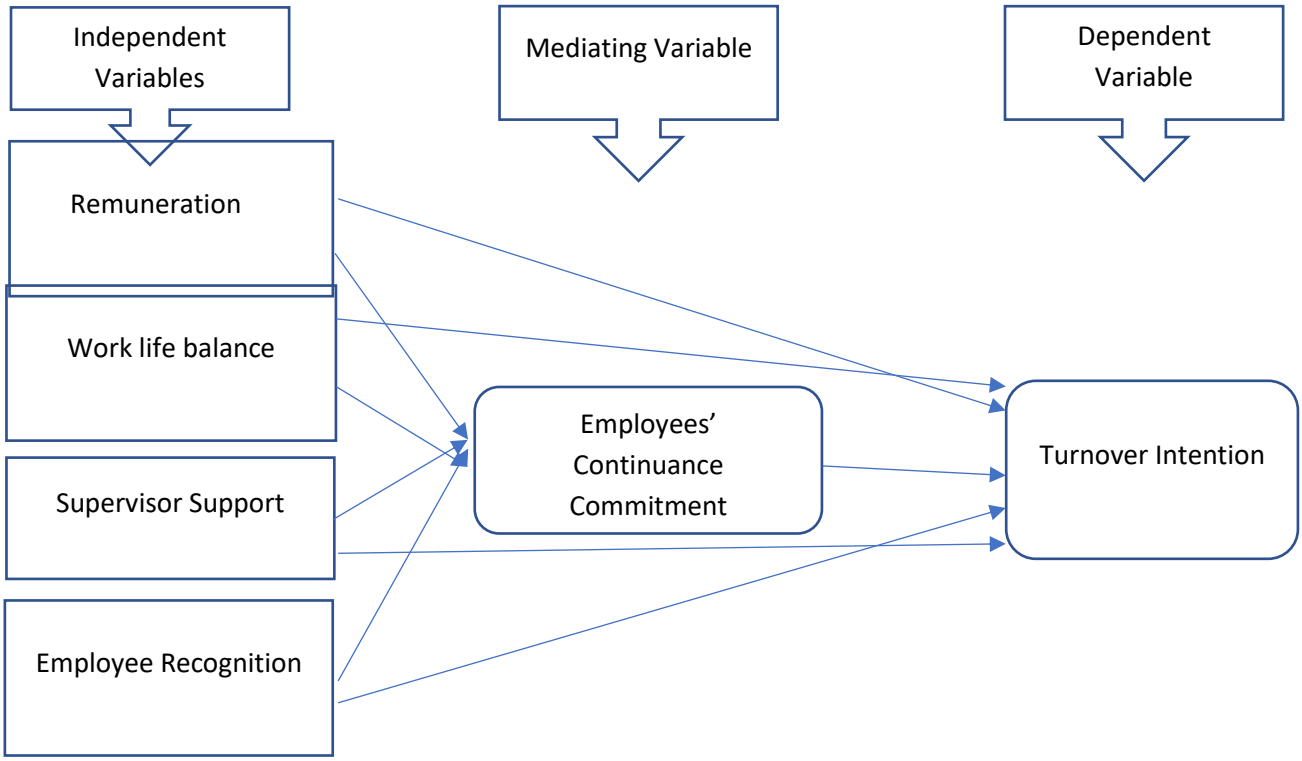
Supervisor Support: Ong, Khan, and Adib (2022), on the other hand, concluded that when it comes to lowering teachers' stress levels, supporting colleagues outperforms supervisor support. Additionally, Ong et al. (2022) found a direct correlation between the teachers' stress levels and their intention to leave. All the same, Jabeen et al. (2022) research aimed at improving comprehension of sustainable employability indicates that attaining sustainable employment can be accomplished through specific personal and social support networks. Jabeen et al. (2022) instigate that some examples of personal resources include career competencies, psychological capital, mindfulness, basic self-evaluations, and emotional intelligence. Support from co-workers and supervisors is another type of resource that is shown as a social cue to start long-term employability.

Employee Recognition: Ng et al. (2020) also made the case that the relationship between employee recognition and financial compensation can have a big influence on the intention to leave and the level of ethical leadership. Furthermore, Koundinya et al. (2019) held that one of the components of job satisfaction is employee recognition, which also has a strong positive correlation with organizational commitment, reducing the likelihood that employees will leave. However, Balasingam et al. (2019) thought that role overload, support from workgroups, and employee recognition all had a significant influence on academics' intentions to leave their positions in the setting of private higher education institutions.

Continuance Commitment: Kasogela (2019) posits that a higher level of motivational factors results in a higher level of continuance commitment, which in turn produces high-performing human capital. Based on Gilbert et al. (2020) turnover intentions are significantly influenced by employees' commitment to their work, so management should consider improving the organization's reward system to mimic greater employee commitment. According to Meyer and Allen (1991), workers whose primary bond with the company is a continuance commitment do so out of obligation. This demonstrates how affective commitment and continuance are not the same. In the latter case, the employee must remain employed by the company purely out of self-interest. Continuance commitment may be viewed as an instrumental attachment to the business, in which a person's decision to remain affiliated with the organization is determined by how well they are compensated and treated. Employees are considered to stay with their organization not only when they feel an emotional attachment to it, but also when they perceive a cost associated with leaving (Humayra and Mahendra, 2019). As a result, there is a significant correlation between continuance commitment and turnover intentions.

Turnover Intention: Due to the element of emotional attachment and its contributing factors, such as the organization's facilities, the workplace building infrastructure, and conflicts at work, previous literature in the context of organizational commitment primarily focused on the affective commitment when predicting turnover intentions (Kuhal et al., 2018). The components of both the intrinsic and extrinsic reward systems are established in this study, which sets it apart in terms of forecasting turnover intention. According to prior research, turnover intentions can be predicted by maintaining commitment, which is based on social and economic factors (Alzamel et al., 2020). Furthermore, studies conducted over the past ten years in Malaysia's various education-related industries, especially in the private sector, have shown a sharp increase in intentions to leave. According to Laulié and Morgeson (2021), employee turnover intention can be ascertained by calculating the probability of employees quitting the company. Hence, when employees' experiences at work don't live up to their expectations, Park and Johnson (2019) suggest that they may become more inclined to consider leaving their jobs.

Figure 3: Conceptual Framework



Hypothesis: This study is geared towards answering the following hypotheses:
H1: There is a positive relationship between remuneration and turnover intention.
H2: There is a positive relationship between WLB and turnover intention.
H3: There is a positive relationship between supervisor support and turnover intention.
H4: There is a positive relationship between employee recognition and turnover intention.
H5: There is a positive relationship between employees' continuance commitment towards turnover intention.
H6: Employees' continuance commitment negatively mediates the relationship between remuneration and turnover intention.
H7: Employees' continuance commitment negatively mediates the relationship between WLB and turnover intention.
H8: Employees' continuance commitment negatively mediates the relationship between supervisor support and turnover intention.
H9: Employees' continuance commitment negatively mediates the relationship between employee recognition and turnover intention.

3. Methodology

The study aims to investigate the impact of reward system variables on academicians' intentions to leave their positions within Malaysian private universities, with continuance commitment serving as a mediating factor. The examination considers both extrinsic and intrinsic rewards. Drawing from Mar et al. (2020), understanding how intrinsic and extrinsic rewards influence turnover intention significantly shapes human resource management strategies within organizations. Moreover, the interplay between reward systems and turnover intention is mediated by continuance commitment. This study is structured to empirically test hypotheses derived from these established relationships. Furthermore, given its core objective of assessing the relationship between variables and the role of the mediating factor, this research is characterized as correlational in nature. Data collection employs naturalistic observation to obtain insights from the sample populations. Online questionnaires are distributed to participants, allowing them to respond within their natural environments without researcher intervention.

In terms of research design, the time horizon delineates the relevant period during which the investigator observes the population (Alamgeer, 2022). Due to its short duration and observational approach, this research is categorized as cross-sectional. Consequently, exposures and outcomes are measured concurrently in a cross-sectional study (Wang and Cheng, 2020). In this study, demographic information will be gathered through the administration of a questionnaire consisting of five questions. These questions will inquire about respondents' gender, age, position grade, monthly salary, and length of service with their current institution. The distribution of 370 questionnaires will be facilitated through Google Forms, inviting potential participants to engage in the online survey. It is anticipated that a total of over 300 respondents will complete the questionnaires, indicating a favorable response rate. Each participant will receive one set of questionnaires accompanied by a cover letter delineating the study's objectives and providing instructions for completing the questionnaire.

Table 3: Total Population of Academician in Malaysian Private Universities

Institution	Taylor's University	UCSI University (University College Sedaya International)	Management and Science University (MSU)	Sunway University	TOTAL
No. of Academicians	590	500	700	516	2306

In the selected Malaysian Private Universities, a total of 2306 academics constitute the academic total population. In determining the appropriate sample size for the study, the researcher employed the methodology presented by Krecie and Morgan (1970), utilizing their prescribed table for sample size calculation. According to the referenced table, a sample size of 331 was identified as suitable for a population of 2400 academics. Consequently, this investigation adopted the specified sample size for its research endeavors. A structured survey was developed and used to collect data. Publicly available literature served as the model for the survey's questions. In addition, understandable question ordering, a clear layout, and simple questions are necessary for a questionnaire survey to be successful. The questionnaire should also be able to convey the required information in an interesting way to prevent the respondent from becoming bored. In the end, it must strive to reduce response errors. A thorough evaluation of the literature provided the basis for the questionnaire created specifically for this study. Thus, to meet the purpose of the research interest, some modifications were made to the questionnaire used in this study. A five-sectioned, structured questionnaire served as the study instrument. Part A gathered information regarding the demographic profile, while Part B focused on the independent variables, Part C addressed the mediator, and Part D addressed the dependent variable.

This research used a five-point Likert scale to evaluate all of its components. Strongly Disagree (Likert scale: 1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). Data analysis involved summarizing, applying statistical inferences, and dividing the raw data into digestible portions. The following procedures were followed to analyze the data for the analysis. Following the administration of questionnaires, all data were carefully cleaned and then coded using a five-point Likert scale, except the demographic information. For a response that was strongly agreed upon, the respondent scored five points. Additionally, a strongly disagree response receives a response intensity of 1 point. After that, three different levels of data analysis will be conducted. The initial level of analysis for the respondents' demographic information was conducted using a simple frequency distribution table. Employing descriptive analysis as a method for data analysis provides valuable insights into the characteristics, patterns, and trends present within the dataset. Through graphical representations like frequency distributions, this approach visualizes the distribution of variables and discerns any notable trends or outliers present within the dataset. These visual representations facilitate the identification of key insights and aid in the interpretation of the data.

4. Findings and Discussion

Demographic Profile of Respondents: Most of the respondents of this study were female (62.7%) and male 37.3%. A significant majority (74.2%) fell within the 20-30 years age range while 13.6% of respondents aged 31-40 years and 12.1% of respondents age was 41-50 years old.

Table 4: Demographic Profile

Demography	Frequency	Percent
Gender		
male	123	37.3
female	207	62.7
Age		
20-30	245	74.2
31-40	45	13.6
41-50	40	12.1
Academic Rank		
Lecturer	219	66.4
Senior Lecturer	53	16.1
Associate Professor	13	3.9
Assistant Professor	22	6.7
Professor	23	7.0
Salary		
Rm1800-Rm3000	134	40.6
Rm3000-Rm4500	105	31.8
Rm4500-Rm6000	26	7.9
Rm6000-Rm8000	37	11.2
Rm8000 and above	28	8.5
Experience		
2-5 years	223	67.6
6-10 years	47	14.2
11-15years	43	13.0
16-20years	17	5.2

The demographic composition of respondents, delineated by academic rank, unveils a heterogeneous representation across the academic landscape. Predominantly, the cadre of respondents occupies the position of Lecturer, embodying 66.4% of the total cohort, underscoring a substantial presence of nascent academics entrenched in pedagogy and scholarly pursuits. Following this, Senior Lecturers emerge as the next conspicuous segment, encompassing 16.1% of the participants, while Associate Professors, Assistant Professors, and Professors collectively comprise the residual respondents, constituting 3.9%, 6.7%, and 7.0%, respectively. A noteworthy proportion of respondents quantified at 40.6%, disclosed salaries within the RM1800 to RM3000 bracket, implying a substantial contingent occupying the lower echelons of the income spectrum. After this, 31.8% of participants reported salaries ranging from RM3000 to RM4500, while a discernible but smaller cohort, comprising 7.9% of respondents, declared earnings within the RM4500 to RM6000 range. Moreover, 11.2% of participants revealed incomes between RM6000 and RM8000, with an additional 8.5% indicating salaries exceeding RM8000, underscoring a minority garnering higher pay within the academic domain. Regarding tenure, the preponderance of respondents, constituting 67.6%, cited experience spanning 2 to 5 years. After this, 14.2% of participants reported tenure ranging from 6 to 10 years, while 13.0% disclosed involvement in academic pursuits for 11 to 15 years. A lesser contingent, comprising 5.2% of respondents, indicated a tenure of 16 to 20 years.

Descriptive Statistics: Descriptive analysis was undertaken to scrutinize the attributes of the dataset. Mean values were stratified into three tiers: 1-2.33 designated as low, 2.34-3.67 as moderate, and 3.68-5.00 as high. The findings reveal that five constructs manifested a moderate degree of concordance: namely, remuneration, cash incentives, employee recognition, continuance commitment, and turnover intention. Conversely, the remaining two constructs evinced a high level of consensus: work-life balance, and supervisor support.

Table 5: Mean and Standard Deviation Result

Construct	Mean	Standard Deviation
Remuneration	3.43	1.12
Cash Incentives	3.45	1.11
Work-life balance	3.75	1.02
Supervisor Support	3.68	1.00
Employee Recognition	3.53	0.85
Continuance Commitment	3.62	1.01
Turnover Intention	3.49	1.10

Variance Inflation Factor: The Variance Inflation Factor (VIF) serves as a valuable instrument in discerning multicollinearity, a scenario characterized by high correlations among two or more predictor variables, as delineated by Thompson, Laible, Padilla-Walker, and Carlo (2019), and Senaviratna & Cooray (2019). In the presence of multicollinearity, disentangling the individual impact of each variable on the dependent variable becomes arduous, as underscored by Zhang (2020). VIF quantifies the extent to which the variance of the estimated regression coefficient for a predictor variable is inflated owing to multicollinearity, as posited by Bayman & Dexter (2021). Consequently, VIF is derived by juxtaposing the variance of the estimated regression coefficient against the actual regression coefficient variance, assuming all other predictor variables are encompassed in the model. As advocated by Ramayah et al. (2018), the VIF value should fall below 3.3.

Table 6: Assessment of inner Variance Inflation Factor (VIF)

Construct	CC	TI
CC		2.148
ER	1.216	1.871
RE	2.429	2.646
SS	3.581	3.686
WB	2.935	3.017

The term "coefficient of determination" explicates the manner in which independent factors contribute to latent dependent variables. Represented as R^2, the coefficient of determination functions as an indicator of the predictive accuracy of the model and encapsulates the cumulative influence of exogenous variables on endogenous variables. In simpler terms, R-squared denotes the proportion of variance in the endogenous construct that can be elucidated by all connected exogenous constructs. This measure ranges from 0 to 1, with higher values indicative of heightened predictive accuracy. Following the interpretation delineated by Pandey and Pandey (2021), values of 0.75, 0.50, and 0.25 are regarded as substantial, moderate, and weak, respectively. The findings presented in Table 7 unveil that the Coefficient of Determination (R^2) for CC and TI are 0.534 (moderate) and 0.385 (weak), respectively.

Table 7: Assessment of Coefficient of Determination (r^2)

Construct	R-Square	R-Square Adjusted
CC	0.534	0.529
TI	0.385	0.375

This chapter comprehensively examines the analyses conducted on both the measurement and structural models. Initially, the measurement model meticulously evaluates the accuracy and precision of the measurement instruments employed in the study. The loadings for all indicators are carefully scrutinized to ensure they do not exceed 0.7, while the Average Variance Extracted (AVE) values surpass the acceptable threshold of 0.5. Additionally, all constructs meet the established criterion of 0.7 for both Cronbach's alpha and composite reliability, affirming the measurements' reliability. Subsequently, the chapter transitions into the testing of hypotheses within the structural model framework. The findings derived from Structural Equation Modeling (SEM) analyses reveal that neither the direct nor the mediated paths attain statistical significance, indicating a lack of empirical support for the proposed relationships among the variables under investigation.

5. Conclusion and Recommendations

Based on the findings presented it can be concluded that the measurement instruments utilized in this study demonstrate adequate reliability and validity. The loadings for all indicators, although not exceeding 0.7, suggest satisfactory levels of accuracy and precision in measurement. Moreover, the Average Variance Extracted (AVE) values exceeding 0.5 and the satisfactory levels of Cronbach's alpha and composite reliability (both above 0.7) further confirm the reliability of the measurements employed. However, upon the examination of the structural model and testing of hypotheses, the results from the Structural Equation Modeling (SEM) analysis indicate that the direct and mediated paths are not statistically significant. This implies that the hypothesized relationships between the variables under investigation were not supported by the data. Based on these findings, several recommendations can be made for future research endeavors. Firstly, researchers should consider exploring alternative models or variables that may better explain the phenomena under study. Additionally, future studies could benefit from employing different methodologies or data collection techniques to gain deeper insights into the relationships among the constructs examined in this study. Furthermore, it may be valuable for researchers to replicate this study using larger and more diverse samples to enhance the generalizability of the findings. Finally, researchers should continue to refine and validate measurement instruments to ensure the robustness of their studies' findings. In conclusion, while the present study provides valuable insights into the reliability of measurement instruments, the lack of significant findings in the structural model suggests avenues for further exploration and refinement in future research efforts.

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Trends in Digital and Critical Thinking Skills Research in Millennials Accountant Profession: A Bibliometric Analysis

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Abstract: The accounting profession faces numerous challenges in the era of digitalization. With the constant evolution of technology, the skill of critical thinking is becoming increasingly valuable. Accounting professionals are responsible for making critical choices using financial data, predictions, and analytical techniques. The capacity for critical thinking is of utmost importance in the digital age due to the abundance and complexity of data. Therefore, this paper aims to analyze the trends in articles published on digital and critical thinking skills in the millennial accountant profession by using bibliometric analysis and VOS viewer software. The data were collected from the Scopus database from 2014 to February 2024, with 456 published papers with the keywords "Millennial", "accountant profession", "digital skills", and "critical thinking". The finding shows that higher education remains the predominant author keyword in academic writing over the previous decade, with accounting education ranking second rather than critical thinking abilities. The top ten articles do not directly correspond to the digital and critical thinking abilities of Millennial accountants. This study contributes to the literature on the Millennial accountant profession by providing interdisciplinary approaches incorporating technology-enhanced learning methods, case studies, and real-world simulations to develop holistic skill sets among aspiring accountants.

Keywords: *Digital skills, critical thinking skills, accountant profession, Millennial, bibliometric analysis.*

1. Introduction

The outlook for accounting professionals is often closely linked to the economic well-being of a country. When the economy improves, there is typically an increased demand for accountants, auditors, and other financial professionals to handle and oversee financial records. Globalization heightened regulations, digital innovation, international tension, and an unprecedented pandemic will impact the demand for accountants in the future. It is crucial for accountants belonging to the Millennial generation to possess essential skills like critical thinking and digital skills to meet the current demand effectively. The role of Millennial professionals in the accounting field is set to undergo a significant transformation as they are increasingly recognized for their expertise and contributions. This shift will elevate their position within organizations and open new avenues for them to create value (Noor et al., 2021). The changes are moving towards using information and communication technologies in their professional activities, which include reporting and changing their function to add artificial intelligence to accounting operations (Noor et al., 2021; Gulin et al., 2019). Twenge et al. (2012) state that Millennials were born in the 1980s and 1990s. Millennials are often called the "Digital Natives" because they were born during the peak of the Internet and its associated technologies (Hershatter & Epstein, 2010; Jone et al., 2010).

By looking at the years of birth of millennials in the 1980s and 1990s (Twenge et al., 2012), millennial generations now aged 25 to 42 (Lyon, 2023) are currently dominating the accounting profession. In Malaysia, as of June 2023, only 38,500 accountants registered with the Malaysia Institute of Accountants (MIA), serving 33.2 million of Malaysia's population (Poo, 2023). This means that one (1) accountant will serve approximately 874 people, with a ratio of 1:871 compared to 1:1,342 in 2003 for the number of accountants registered with MIA (Poo, 2023). The ratio indicates Malaysia is still left behind, although the ratio has been reduced. However, it is essential to note that based on the data in 2014 from the Committee to Strengthen the Accountancy Profession (CSAP), other countries like Australia have an accountant serving per population ratio of 1:119, Singapore 1:184, New Zealand 1:136, and Hong Kong, 1:195 (Poo, 2023). While the specific data for Malaysia in 2023 may not directly align with the current situation in Australia, Singapore, New Zealand, and Hong Kong, it nonetheless provides valuable insights into the ongoing disparities in accountant-to-population ratios across different countries, given Malaysia's smaller size compared to these countries.

When the number of accountants serving the population is high in Malaysia compared to other countries, the provision of financial services may be negatively impacted and result in errors, oversights, and a decline in service standards. Furthermore, there may be challenges in delivering financial services, processing transactions, and meeting regulatory obligations, which could affect the speed and effectiveness of economic decision-making and risk management practices. Hence, it affects issues of ethics, trust, and working for the public when handling the finances of large and small companies (Association of Chartered Certified Accountants, 2012). Furthermore, the ACCA Report 2022 on the Developing the Skills of the Sustainable Business and Finance Professionals identified the seven core capabilities required by all professional accountants: expertise, ethics, insight, sustainability, collaboration, digital and drive. Among the seven cores, critical thinking is crucial in gaining insight as a core career navigator, while digital literacy stands out as a key core component (Machado, 2022). Maintaining the accountant capabilities required by employers could pose a challenge when serving a large population.

This has motivated the study of the Millennial accountant profession, focusing on digital and critical thinking skills. Technology is impacting both Millennial accountants' competencies and mindsets. Using technology in the finance function creates an 'intelligence augmentation' model, where technology augments human intelligence (Chartered Global Management Accountant, 2018). Millennial accountants must understand what they want from their interactions with technology. Future professional accountants must create and understand a corresponding need for humans to retain appropriate spheres of control and influence the environment within which these human-machine interactions occur (Association of Chartered Certified Accountants, 2018). As technology continues to reshape the profession, the ability to think critically becomes increasingly valuable. Accountants make crucial decisions based on financial data, forecasts, and analyses. In the digital era, where data is abundant and complex, thinking critically is paramount (Louwers et al., 2017). As such, this study aims to support the accountancy profession, which will evolve significantly over the next period, by giving direction and highlighting the drivers expected to exert the most influence on the profession. Based on our analysis, up to this research date, using the Scopus database, limited research is being conducted about millennial accountants using bibliometric analysis that focuses on digital and critical thinking skills.

The current literature with bibliometric analysis focused on a wide range of areas such as digital labor (Goel et al., 2023), metaverse chronicles (Wider et al., 2023), virtual reality in the health sector (Pawassar & Tiberius, 2021), big data analytics (Aboelmaged & Mouakket, 2020) and Blockchain in auditing and accounting (Silva et al., 2022; Secinaro et al., 2021). Others examined finance and economics (Uyob et al., 2019; Thiemann & Priester, 2024; Munodei & Sibindi, 2023) and public-sector accounting (Bruns et al., 2020). While Uyob et al. (2019) analyzed business reporting language (XBLR), Munodei and Sibindi (2023) elucidated the emerging areas surrounding fintech in social protection. In addition, Theimann and Priester (2024) revealed how a structural rapprochement between macroeconomics and finance created a new subfield of microfinance. From the above discussion, it is evident that numerous studies have examined several facets of bibliometric analysis in the accounting area. Still, the studies have not specifically focused on Millennial accountants by focusing on digital and critical thinking skills. As such, we plan to fill this research gap by identifying the relevant variables that can be examined in the Scopus database. Therefore, this study aims to perform a bibliometric analysis of the currently published articles on digital and critical thinking skills in the millennial accountant profession in new research trends and future directions and critique the research underlying these topics.

This study focuses on publications from 2014 to February 2024 and is confined to those in the Scopus database. The study has four research questions (RQs) as follows:
RQ1. What are the main themes or topics represented by the authors' keywords in the literature?
RQ2. Which articles are most frequently cited in the literature?
RQ3. Which authors have the highest impact with cumulative citation counts?
RQ4. Which journals have the highest publication rates on digital and critical thinking skills for millennial accountants?

This research makes several contributions to the existing body of literature. In the first place, determining the keywords used by the author will provide valuable insights about the current or repeating theme focus on the accounting profession among Millennials and whether or not the topics mirror the practical work environment employers require. As a result, this will encourage future research to focus on subjects the business anticipates

accounting graduates to be knowledgeable about. Secondly, the benefit of knowing which publications are cited the most frequently and which writers have a significant impact is that it enables the researcher to evaluate the impact of their work and determine the path the research will take. In addition, it helps researchers assess the visibility and significance of individual papers and journals, and it makes it easier for them to make informed decisions regarding allocation, chances for collaboration, and publication strategies. Finally, selecting a reputable journal will guarantee that the results of the research publication can be utilized effectively by society and policymakers who are pertinent to the issue. Thus, the paper is structured as follows: Section 2 describes the literature review on digital and critical thinking skills, and Section 3 describes the research methodology. Section 4 presents the results of the bibliometric analysis. Finally, Section 5 summarises the results, conclusions, limitations, and opportunities for future research.

2. Literature Review

The overwhelming amount of literature available in a specific research discipline makes it challenging for researchers to have a structured overview of relevant information (Rodrigues et al., 2014; Zhou et al., 2015). Bibliometric analysis is a technique that makes it possible to provide a macroscopic overview of large amounts of academic literature and analyze them from a quantitative perspective (Merigo et al., 2015). The analysis gives insights into research areas by revealing detailed information (Spilker et al., 2016) about the collection of publications from specific databases such as publication type, location of publication, h-index, authors, keywords frequency and the number of citations (Ahmi & Mohd Nasir, 2019). The bibliometric analysis on innovative systems looks at 3250 documents from the Web of Science database released between 1988 and 2018 to get an overview of how innovation systems have changed and grown over time and to find new research topics (Dahesh et al., 2020).

The study on Millennial accountant profession up to this research date, supported by bibliometric analysis, covers various topics including digital labor, metaverse chronicles, virtual reality in the health sector, big data analytics, and Blockchain in auditing and accounting (Goel et al., 2023; Wider et al., 2023; Pawassar & Tiberius, 2021; Aboelmaged & Mouakket, 2020; Silva et al., 2022; Secinaro et al., 2021). Other studies have focused on finance and economics (Uyob et al., 2019; Thiemann & Priester, 2024; Munodei & Sibindi, 2023) as well as public sector accounting (Bruns et al., 2020). In a recent study, Uyob et al. (2019) examined the language used in business reporting, specifically XBLR. Meanwhile, Munodei and Sibindi (2023) shed light on the growing areas of interest in fintech within the realm of social protection. Furthermore, Theimann and Priester (2024) uncovered the emergence of a new subfield of microfinance resulting from a structural convergence between macroeconomics and finance. Hence, this study focuses on digital skills and critical thinking skills as it was among the seven core capabilities mentioned in 2022 in the ACCA Report, Developing the Skills of the Sustainable Business and Finance Professionals: expertise (1), ethics (2), insight (3), sustainability (4), collaboration (5), digital (6) and drive (7). Out of the seven cores, critical thinking is essential for gaining insight into core accountant career navigator, while digital literacy is a standout component core.

Digital Skill: The Report from The Youth Digital Skills Indicator claims that digital skills are the ability to engage with information and communication technologies (ICT) to facilitate productive outcomes in daily activities for themselves and others (Helsper et al., 2020). Professional accountants often need to gain the necessary skills in digital technologies, a crucial area of expertise (Association of Chartered Certified Accountants, 2016). The term for information and technology skills is also being used for computer literacy, digital competence, and many others (Zainuddin et al., 2021). Millennial accountants need to have an explicit knowledge of what they anticipate from technology to be successful in their careers. Because of the necessity of retaining control and influence over the environment in which human-machine interactions take place, it is essential for individuals who are interested in becoming accountants to be aware of this fact (Association of Chartered Certified Accountants, 2016).

Ibrahim et al. (2021) highlight an increased demand for IT professionals with accounting experience, as opposed to traditional accounting majors. This finding suggests that millennials entering the accounting profession may need to enhance their IT skills and technical knowledge to meet the demands of the evolving industry. These technologies can transform the accounting profession by automating repetitive tasks, improving data analysis and decision-making capabilities, reducing the risk of errors and fraud, and enhancing

accounting processes' overall efficiency and productivity (Zhang et al., 2020). The study also highlights the potential impact of blockchain technology on the accounting profession to increase transparency, improve security, and streamline auditing processes. These will require a shift in the skills and capabilities of accounting graduates (Ibrahim et al., 2021).

They will need a strong foundation in information technology and the ability to adapt to new technologies quickly (Damasiotis et al., 2015). However, research also indicates that millennials possess strong digital literacy skills and are adept at navigating various digital tools and platforms (Tran, 2018). Their familiarity with technology allows them to demonstrate proficiency in using accounting software, data analytics tools, and cloud-based platforms for financial analysis and reporting (Morrison et al., 2020). Moreover, millennials prefer technology-driven communication and collaboration methods that facilitate greater flexibility and connectivity in the workplace (Nguyen et al., 2020). Recognizing the importance of nurturing the latest sets of skills is crucial for the future of the accountant profession, as accounting firms and organizations can empower millennial accountants to navigate complexities, drive innovation, and uphold professional standards in the digital era.

Critical Thinking Skill: In today's digital age, the accounting field is experiencing significant transformations. Advancements in technology, such as big data, artificial intelligence, machine learning, and Blockchain, are revolutionizing how accountants work and provide value to their clients (Kupenova et al., 2020). These technological developments have sparked a growing interest in researching the trends and impact of these changes on millennials in the accounting profession. Amidst these changes, critical thinking remains an indispensable skill for accountants (Paul & Elder, 2006). Critical thinking encompasses analytical reasoning, problem-solving, and decision-making skills essential for effective accounting practices (Ridgway et al., 2019). It underpins effective decision-making, problem-solving, and ethical considerations in accounting. However, studies indicate that some millennials may need more robust critical thinking skills, particularly in areas requiring complex analysis and strategic decision-making (Allen & Debevec, 2021). Critical thinking enables accountants to evaluate the data's relevance, accuracy, and reliability. They must discern patterns, identify outliers, and interpret trends effectively to make informed decisions.

By critically analyzing financial information, accountants can mitigate risks, optimize resource allocation, and drive organizational growth. Moreover, critical thinking empowers accountants to assess the implications of various courses of action (Munter, 2016). They must consider potential outcomes, weigh alternatives, and anticipate future scenarios. Whether it involves investment decisions, budget allocations, or strategic planning, critical thinking enhances the efficacy of decision-making processes in accounting. The ability to think critically allows accountants to adapt swiftly to new challenges and capitalize on emerging opportunities. In addition to decision-making, critical thinking plays a pivotal role in problem-solving for accountants. Complex financial issues often require a systematic and analytical approach. Accountants must dissect problems, identify underlying causes, and formulate viable solutions (Cottrell, 2017). Critical thinking enables them to break down problems into manageable components, facilitating the development of effective strategies.

Furthermore, critical thinking fosters innovation and creativity in problem-solving. Whether it involves streamlining processes, enhancing efficiency, or addressing compliance issues, critical thinking equips accountants with the tools to navigate complexities and deliver value-added solutions. Innovative problem-solving skills are indispensable in the digital era, where disruptive technologies constantly reshape industries. Ethical dilemmas are pervasive in the accounting profession, as accountants often encounter situations where ethical principles conflict with business objectives or societal expectations. Critical thinking enables accountants to navigate ethical grey areas with integrity and discernment (Spilker et al., 2016). They must assess the ethical implications of their actions, considering the interests of stakeholders, regulatory requirements, and professional standards. By harnessing critical thinking skills, accountants can navigate complexities, drive innovation, and uphold ethical standards amidst evolving challenges and opportunities.

Accounting firms and organizations must recognize the importance of nurturing both sets of skills to ensure the readiness of their workforce for the digital age (Rogers et al., 2020). Factors such as educational background, professional development opportunities, and workplace experiences influence the development of critical thinking skills among millennial accountants (Hassan et al., 2021). Institute of higher learning and professional accounting bodies should emphasize interdisciplinary approaches incorporating technology-

enhanced learning methods, case studies, and real-world simulations to develop holistic skillsets among aspiring accountants. This section focused on a literature review of digital and critical thinking skills and provided valuable support for our research methodology. It helped us reduce the Scopus database from 6,527 to 456 articles. To ensure that we only included the most pertinent articles for our study, we narrowed down our search to 56 exact keywords related to the articles mentioned above and research conducted on case studies in Malaysia.

3. Research Methodology

This study uses bibliometric analysis, which enables a comprehensive review of a substantial volume of academic literature and quantitative analysis (Merigo et al., 2015). The research used a combination of the Scopus database for data retrieval and analysis and VOSviewer for network visualization. Scopus database is used in this study as it provides a more comprehensive and accurate understanding of the scholarly landscape across various fields (Meho & Yang, 2007). The first step in gathering bibliographic data is to search for relevant articles about the Millennial accountant profession in the Advanced Scopus database using the following query: *TITLE-ABS-KEY ('millennial' AND 'accountant' AND 'profession') OR ('accounting' AND 'profession') OR ('millennial' AND 'accountant') AND ('critical' AND 'thinking') OR ('digital' AND 'skill') OR ('digital' AND 'literacy')*. This search resulted in a total of 6,527 records being collected.

Next, within the Advanced Search Scopus database, the data were filtered according to the year, covering the period from 2014 to February 2024. Additional filters were applied that include subject areas (Social Sciences, Business, Management and Accounting, Economics, Econometrics, and Finance), document type (article), language (English), keywords, source type (journal), source title, author name, and publication stage (final). The additional filter resulted in the sample size selected being only 456 data. Hence, advanced query in the Scopus resulted as *TITLE-ABS-KEY ('millennial AND accountant AND profession') OR ('accounting AND profession') OR ('millennial AND accountant') AND ('critical AND thinking') OR ('digital AND skill') OR ('digital AND literacy') AND PUBYEAR > 2013 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (EXACTKEYWORD, "Accounting Education").*

Other than *accounting education* as the EXACT KEYWORD, 56 keywords were being entered in the TITLE-ABS-KEY. The keyword is *Higher Education, Accounting, Learning, Critical Thinking, Accountability, Big Data, COVID-19, Gender, Students, Data Analytics, Innovation, Technology, Management Accounting, Management, E-learning, Accounting Profession, Soft Skills, Qualitative Research, Technology Adoption, Social Media, Communication, Leadership, Digitalization, Digital Transformation, Blockchain, Skills, Employability, Competencies, Governance, Forensic Accounting, Decision-making, Malaysia, Workplace, Industry 4.0, Attitude, Skill, Information Technology, Information Systems, Big Data Analytics, Training, Job Satisfaction, Professional Competence, Personnel, Occupation, Digital Technologies, Automation, Commerce, Professional Ethics, Professional Identity, Knowledge Management, Labor Market, Corporate Governance, Business Education, Employment* and *Artificial Intelligence.*

To ensure the articles are extracted from reliable data, the *exact KEYWORDS* chosen are based on research conducted in Malaysia case studies with companies that were awarded the Best Employer and Most Attractive Graduate Employers to Work in recent years (Ibrahim et al., 2021). The findings from the case studies show the need for accounting graduates to have skills in technical skills, soft skills, data analytics and interpersonal skills in the workplace (Ahmad et al., 2022). There is a digital transformation of the accounting profession in the post-COVID-19 pandemic to emphasize the importance of digital and critical thinking skills to ensure the relevancy of the profession in becoming future-fit accountants (Zainuddin et al., 2021); accountants in the modern era are actively engaged in technology, as their work primarily involves working with systems and software. They must equip themselves with the necessary skills, such as critical skills, to keep up with technological advancements and maintain competitiveness in the current business (Zainuddin et al., 2023). The final step is exporting the articles and bibliographic information to CSV files and finally importing the CSV files into VOSviewer for network visualization and further analysis in meeting the objective of this study on authors' keywords, articles frequently cited authors with high cumulative citation and journal with highest publication rates.

4. Findings and Discussion

Author Keywords Occurrence: Table 1 presents the top ten author keywords used by researchers when studying the digital and critical thinking skills of Millennial accountants, including frequency of occurrences and clustering patterns. The finding, as shown in Table 1, aims to assess the *RQ1* in identifying thematic significance within the existing body of literature. Figure 1 shows the relationship in the interconnection between the keywords in the form of network visualization generated by VOSviewer software.

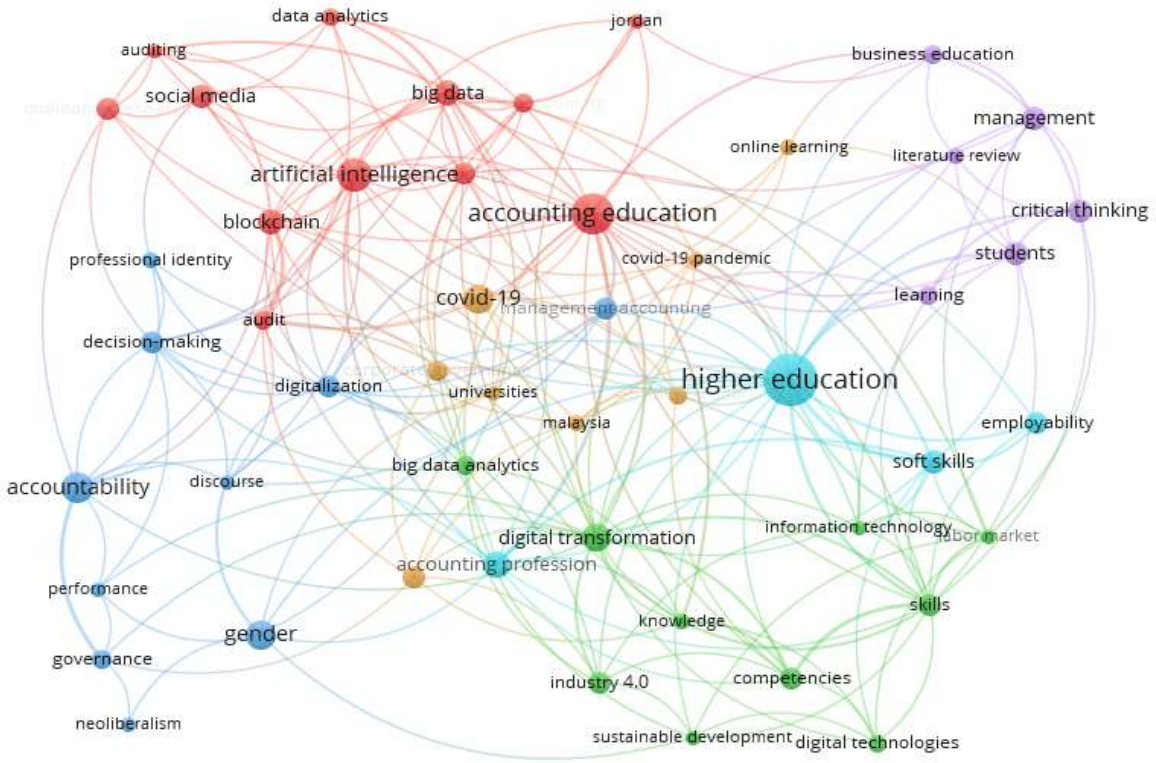
Higher education is the frequently used keyword. Meanwhile, keywords like *Artificial intelligence, digital transformation, Blockchain*, and *Big data* represent digital skills required by employers. These terms imply how technology affects accounting, specifically Millennials' digital and critical thinking skills. Other keywords include *accounting education, accountability, gender,* and *the accounting profession*. *The accounting profession*, as the main variable in this study, is not formed as the main author's keyword. In addition, *Critical thinking* appears as one of the least-used author keywords despite its crucial significance on Millennial accountants, as evidenced by several researchers (Zainuddin et al., 2021; Kurfiss, 1988; Larsson, 2017; Bradford, 1987; Haller et al., 2007). Although it is less common, it emphasizes the significance of developing critical thinking skills among accountants in fast-changing digital environments. Other keywords like *soft skills* highlight the broader aspects of the profession beyond technical competencies often associated with the accountant. Pattern clusters of four clusters allow researchers to uncover similar broad subjects and trends by utilizing keywords inside the same cluster. For example, *artificial intelligence, Blockchain,* and *Big data* fall under Cluster 1, highlighting their close thematic association despite not becoming the first top ten. The *COVID-19* pandemic and digital transformation fall under Cluster 2.

Table 1: Author's keywords

Top ten authors' keywords	Occurrence	Cluster
1. Higher education	57	6
2. Accounting education	35	1
3. Artificial intelligence	23	1
4. Accountability	20	3
5. Gender	19	3
6. COVID-19	18	2
7. Digital transformation	16	2
8. Accounting profession	15	6
9. Blockchain	13	1
Big data	13	1
10. Soft skills	12	6
Critical thinking	12	5

Source: Developed by authors.

Figure 1: Author's keywords Network Visualization



Source: Developed by authors.

Frequently Cited Articles: This section discusses *RQ2* on the most cited articles, as shown in Table 2, by setting the minimum citations in VOSviewer software at 50. Out of the total 456 articles, only 23 meet the thresholds. This means only articles with 50 or more citations are examined, and articles that do not meet the minimum set are excluded. This threshold focuses on the most well-cited from a total of 456 articles. The top ten articles most cited, with 489 citations among the researchers, is "Achieving the United Nations Sustainable Development Goals: An Enabling Role for Accounting Research" by Bebbington (2018). This is followed closely by Dwivedi (2023), with 482 citations on research about ChatGPT, perspectives on opportunities, challenges, and implications of generative conversational AI for research.

Other than the two highly cited articles, only a few directly align with digital and critical thinking skills among Millennial accountants regarding accounting practice and professional dynamics. For example, "The Role of Internet-related Technologies in Shaping the Work of Accountants" by Moll (2019) and "An Exploration of the professional habitus in the Big 4 accounting firms" by Spence (2014). The remaining articles focused on a wide range of broader societal issues, for example, globalization ("Globalization, accounting and developing countries"), diagonal accountability ("Critical dialogical accountability"), gender ("Accounting as gendering and gendered") and education-related topics ("E-learning success determinants", "Graduate employability and competence development in higher education" and "Forces for change in higher education").

Table 2: Top 10 Cited Articles

No.	Articles	Total citations
1.	Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research, *Bebbington (2018)*	489
2.	Opinion Paper: "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy, *Dwivedi (2023)*	482
3.	E-learning success determinants: Brazilian empirical study, *Cidral (2018)*	361
4.	The role of Internet-related technologies in shaping the work of accountants: New directions for Accounting Research, *Moll (2019)*	203
5.	Globalisation, accounting and developing countries, *Hopper (2017)*	166
6.	Critical dialogical accountability: From accounting-based accountability to accountability-based accounting, *Dillard (2019)*	160
7.	An exploration of the professional habitus in the Big 4 accounting firms, *Spence (2014)*	124
8.	Accounting as gendering and gendered: A review of 25 years of critical accounting research on gender, *Haynes (2017)*	111
9.	Graduate employability and competence development in higher education - A systematic literature review using PRISMA, *Abelha (2020)*	101
10.	Forces for change in higher education and implications for the accounting academy, *Pincus (2017)*	100

Source: Developed by authors.

High-Impact Authors with the Highest Cumulative Citation: Table 3 lists the top ten high-impact authors with the highest cumulative citation counts on digital and critical thinking skills in the Millennial accountant profession. All the authors have at least two documents and two citations. From the list, Ogan Yigitbasioglu from Australia is a high-impact author with 220 citations. This shows that the author's work on Millennial accountants has been cited extensively and consistently. This was followed by Chris Carter from the United Kingdom, who had 139 citations. The remaining authors have citations below 70, with Elizabeth Gammie, Mahmudul Md. Alam, Frank Mueller, Maria José Angélico Gonçalves, Gregory D. Saxton, Clay Spinuzzi, Dorothea Bowyer, and Denise Jackson with citations of 67, 54, 52, 51, 47, 46, 38 and 37, respectively. Among all the author's geographic backgrounds, the United Kingdom and Australia are the most contributing country for high-impact authors. Others are from Malaysia, Portugal, Canada, and the United States. The findings of this section are to address *RQ3*.

Table 3: Top 10 High-Impact Authors

No.	Authors	Total citation	Country
1.	Yigitbasioglu, Ogan	220	Australia
2.	Carter, Chris	139	United Kingdom
3.	Gammie, Elizabeth	67	United Kingdom
4.	Alam, Md. Mahmudul	54	Malaysia
5.	Mueller, Frank	52	United Kingdom
6.	Gonçalves, Maria José Angélico	51	Portugal
7.	Saxton, Gregory D.	47	Canada
8.	Spinuzzi, Clay	46	United States
9.	Bowyer, Dorothea	38	Australia
10.	Jackson, Denise	37	Australia

Source: Developed by author

Highest Publication Journal: Table 4 presents the top ten journals with the highest publication rates, which answers *RQ4*. However, it is interesting to note that there are differences between the number of articles

produced in each journal and the number of citations by other researchers. Hence, researchers need to consider both quantity and quality when choosing the journal and assessing the impact of scholarly publication. From the table, it is clearly at the forefront is *Sustainability (Switzerland)*, with 50 published articles and 726 citations, indicating a strong presence and significant influence in the field. Following closely is the *Accounting, Auditing and Accountability Journal*, which has 13 articles but a remarkable 758 citations, showcasing its high impact despite fewer publications. Similarly, *Critical Perspectives on Accounting* stands out with eight articles and 487 citations, highlighting its significance in driving critical discourse in accounting. While some journals like *Sustainability (Switzerland)* and *BMC Medical Education* have many articles published, their citation counts are relatively lower, indicating a lesser impact per article. Conversely, journals like *Accounting, Auditing and Accountability Journal* and *Human Relations* have fewer articles but significantly higher citation counts, suggesting a more focused and impactful contribution to the literature.

Table 4: Top 10 Highest Publication Journals

No.	Journals	No. of articles	No. of citations
1.	Sustainability (Switzerland)	50	726
2.	Accounting, Auditing, and Accountability Journal	13	758
3.	Accounting Education	12	167
4.	Critical Perspectives on Accounting	8	487
5.	International Journal of Management Education	7	21
6.	Education Sciences	6	29
7.	Meditari Accountancy Research	6	54
8.	Administrative Sciences	6	12
9.	BMC Medical Education	6	83
10.	Human relations	6	176

Source: Developed by authors

In a nutshell, the above findings address the RQ1, RQ2, RQ3 and RQ4. For RQ1 about the author keywords, *higher education* is the most frequently used by researchers. This is expected because *higher education* prepares the next generation of accountants, and employers want graduates with technical, communication, critical thinking, problem-solving, ethical and professional problem-solving, teamwork, information management, and lifelong learning skills (Ngoo et al., 2015). Hence, educators nowadays should transition from conventional teaching methods to innovative approaches. *Critical thinking* is a keyword that authors use less. However, it is interesting to note that *critical thinking skills* are highly valued by employers today. This is supported by research on case studies in Malaysia, focusing on companies recognized as the Best Employer and Most Attractive Graduate Employers to Work in the past few years (Ahmad et al., 2022). A similar pattern is expected with RQ2 when the article on sustainability was frequently cited instead of the article about the role of internet-related technologies in shaping the work of accountants. COVID-19 has strengthened digital technologies when the population worldwide is forced to stay home with strong internet access, digital tools, and digital abilities (Zainuddin et al., 2021; International Telecommunication Union Academy, 2020).

Thus, critical thinking and digital skills are in demand by current employers in Malaysia. Other researchers should start more research on critical thinking and digital skills to ensure our future graduates meet the Future Fit Accountant that has the right mix of skills among the younger Millennial generation (Ahmad et al., 2022). As for RQ3 and RQ4, the high-impact author and journal publication can be used as a source of reference for future research and inspire subsequent studies and development in the accounting profession field. The high-impact author (RQ3) might introduce novel ideas, theories, methodologies or discoveries that might fundamentally change the way future researchers address specific research in the accounting profession and align with future employer and accounting professional bodies such as The Association of Charted Certified Accountants (ACCA), Chartered Institute of Management Accountant (CIMA), and others. Meanwhile, a high publication journal rate (RQ4) provides researchers with valuable information about where to target their submissions, increased exposure to other scholars, potential collaborators, and emerging research areas, fostering intellectual exchange and allowing researchers to stay informed about the evolving landscape of

academic publishing. Exploiting these benefits will divert the researcher's research to what the industry and accounting professional bodies require from future accountants (Committee to Strengthen the Accountancy Profession (CSAP), 2014). The researchers' insights will serve as input for legislators to enhance our existing education system, particularly in the field of accounting.

5. Conclusion and Recommendations

This study seeks to conduct a bibliometric analysis of the existing articles on digital and critical thinking skills in the accounting profession of Millennials. It aims to explore emerging research trends, determine potential future paths, and conduct a broad review of the research conducted in these areas. There are four research questions*:* What are the main themes or topics represented by the authors' keywords in the literature (RQ1)? Which articles are most frequently cited in the literature (RQ2)? Which authors have the highest impact with cumulative citation counts (RQ3)? and which journals have the highest publication rates on digital and critical thinking skills for millennial accountants (RQ4). The finding provides concrete evidence that higher education remains the frequent author keyword, followed by accounting education in the past ten years in academic literature instead of critical thinking skills that potential employers require in the field of accountancy. Nevertheless, digital technology, which is part of digital skills, has started to become the center of research areas by most academic researchers. The top ten articles do not directly align with Millennial accountant's digital and critical thinking skills. Unsurprisingly, the author's keywords related to critical thinking skills did not rank among the top ten. However, future research must prioritize these areas of study, as they are highly sought after by potential employers (Ahmad et al., 2022; Zainuddin et al., 2023).

Researchers must ensure that what they are researching aligns with the current demands of the industry, just like high-impact authors and journal publications. Finally, the findings will provide interdisciplinary approaches incorporating technology-enhanced learning methods, case studies, and real-world simulations to develop holistic skill sets among aspiring accountants. Investments in professional development programs, continuous training initiatives, and technology-enabled learning platforms can bridge gaps in critical thinking abilities while leveraging Millennial accountants' digital competencies. Integrating digital and critical thinking skills into accounting curricula and professional certification programs is essential for preparing future generations of accountants (Van Den Heuvel et al., 2021; Committee to Strengthen the Accountancy Profession (CSAP, 2014) as formal education programs and professional certifications play a crucial role in fostering critical thinking abilities and practical frameworks for problem-solving in accounting contexts. Furthermore, it is crucial for accountants in the 21st century to have the necessary skills, such as digital proficiency and critical thinking, to effectively analyze financial data, make informed business decisions, and utilize various analytical methods. These skills are highly sought after by employers in today's work environment.

Limitations: Several limitations of the study have been identified. Firstly, the study relies on bibliometric analysis with data from the Scopus database, which means that other articles about millennial accountants from different sources, such as the Web of Science (WoS), are not being considered. Second, the study focuses on descriptive analysis, emphasizing authors' keywords, frequently cited articles, and high-impact authors and journals with high publication rates. No further analysis is conducted to examine the relationship between the research questions. Thirdly, certain elements are not being embedded in addressing the research question. For instance, only total citations are analyzed without considering the h-index in assessing the high-impact authors in millennial accountants. Some authors have high citation counts but a low *h*-index, which suggests that they have a few highly cited papers that contribute significantly to their total citation count. This means their impact is concentrated in a few influential works rather than spread across a larger body of literature. The finding might be different if *h*-index is included in the analysis.

Direction for Future Research: The study identifies several research opportunities to improve the field. To align with the current demands of the industry, it first suggests prioritizing study areas that are in high demand by potential employers. While digital and critical thinking skills are not among the top keywords, understanding employer preferences can guide future research directions. Additionally, the study proposes exploring other databases like Web of Science (WoS) for bibliometric analysis, expanding the scope beyond the Scopus database. Furthermore, there's potential for investigating the relationship between research questions to gain insights into trends and interactions between variables beyond descriptive analysis. Finally, including

the h-index in the analysis alongside total citations is recommended to assess the impact of authors' work more comprehensively, ensuring a broader understanding of their contributions to the literature on millennial accountants. These research opportunities highlight the importance of aligning research priorities with industry demands, exploring diverse data sources, delving deeper into relationships between variables, and adopting comprehensive metrics for assessing scholarly impact. Addressing these areas can enhance the depth and relevance of research on millennial accountants and contribute to addressing emerging challenges and opportunities in the profession.

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The Practice of Enterprise Risk Management and Sustainable Performance in Jordan

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Abstract: The primary objective of any organization is to minimize risks and losses while optimizing values, revenues, and returns. Therefore, risk management, which is often referred to as risk identification, likelihood of occurrence, and impact on the business, is essential. Recent corporate catastrophes have brought to light how inadequately corporations handle risks. In reaction to these challenges, organizations have shifted from separate and personalized procedures to a more comprehensive and integrated enterprise risk management (ERM) perspective in their risk management strategies. Therefore, to address these new global sustainable challenges which include hunger, poverty, high unemployment, climate change, and other related issues, businesses should place a strong priority on environmental preservation and social responsibility. Jordan is one of the countries dealing with several issues related to sustainability. The sustainable performance of Jordanian firms deserves further attention. Managers in Jordanian industrial businesses must keep a close eye on how the company's environmental environment is being improved to reduce air pollution, the usage of hazardous materials, and other difficulties. Therefore, companies in Jordan must adopt strategies that will allow them to face this issue to improve their social, environmental, and economic performance. Jordan's manufacturing and service industries should be at the forefront of a comprehensive approach to risk management and board monitoring, given the growing concerns regarding the environment, society, and economy. Since ERM is a relatively new concept, its implementation in Jordanian industrial and service companies is still in its early stages. Moreover, there is a lack of comprehensive research regarding the ERM in Jordan.

Keywords: *Risk, Enterprise Risk Management, Service Industry, Manufacturing Industry, Jordan.*

1. Introduction and Background

Any organization's main goal is to maximize profits, values, and returns while lowering risks and losses (Shatnawi et al., 2022). Thus, risk management is also known as the identification of the risks, likelihood of occurrence, and impact on the business (Adhariani, 2022). Corporate crises in recent years have highlighted how poorly organizations manage risks (Rubino, 2018). Organizations have changed their risk management strategies in response to these difficulties from discrete and individualized techniques to a more thorough and integrated enterprise risk management (ERM) perspective (Nasr et al., 2019). To overcome the shortcomings of traditional risk management (TRM), which functioned in separate silos within businesses, ERM was developed (Ade et al., 2020). International organizations have created a variety of ERM frameworks and standards in that regard. Businesses then integrate the framework into their risk management processes based on the one that best fits their needs (Bromiley et al., 2015; Perera et al., 2022). However, according to Dubosson et al. (2019), ERM is commonly implemented in organizations utilizing the COSO and ISO frameworks.

Through the facilitation of coordination across individuals, processes, and departments, ERM integrates and manages a variety of risks, including financial, operational, and strategic risks (Shatnawi et al., 2022). As a result, this integration lowers overall risks and improves the long-term viability of the organization (Fakir & Jusoh, 2020). The notion of sustainable performance can be assessed by financial metrics such as return on equity, which indicates the efficiency with which a company utilizes its equity, return on investment, and numerous others. Furthermore, the company assesses its performance by non-financial metrics such as the use of sustainable resources, community service, adhering to public ethics, and other relevant aspects (Al-Awamleh et al., 2022). Sustainable performance is in line with the triple bottom line theory (Cameron, 1988) and is comprised of three P's: profit (relating to economic concerns); people (covering social considerations); and planet (focusing on environmental factors). Since the manufacturing and service sectors have a significant impact on the national economy, the implementation of ERM is important. For example, there is a positive correlation between rising per capita income and the expansion of the manufacturing sector in emerging nations (Attiah, 2019).

Moreover, it is significant that the service industries such as business processing, software, and tourism are thought to be key contributors to economic growth in emerging nations (Attiah, 2019). According to the Jordan Ministry of Investment's Promotion Strategy 2023–2026, the manufacturing and service sectors are particularly important to the nation's economy in Jordan, which is categorized as a developing and emerging country by the United Nations World Economic Situation and Prospects Report 2020 (United Nations, 2020). Jordan is located in the Middle East and is bordered to the south by Saudi Arabia, to the northeast by Iraq, to the north by Syria, and the west by Palestine (Department of Statistics Jordan, 2021). The geographical size of the Jordan region is 89213 square kilometers. In addition, the population is anticipated to number approximately 10 million people (Shamout et al., 2021). Moreover, Jordan is seen as a tiny developing nation with scarce resources (Al Amosh & Khatib, 2023). However, the Jordanian stock market, which spans a variety of sectors including manufacturing and services, is regarded by many as one of the biggest Arab financial markets in the area (Bataineh & Ntim, 2020). As per the Jordan Securities Commission's draft of modified corporate governance guidelines from 2021, all 194 manufacturing and service businesses listed in the Amman Stock Exchange are required to form a specialized risk committee. This prerequisite demonstrates their dedication to encourage the use of ERMs (Alkelani et al., 2020). Based on data shown in Table 1, the manufacturing sector generated 23.93% of the GDP in 2021 and employed roughly 17.63% of the workforce. During the same period, Jordan's services sector, which employed 79.12% of the working force, made up 61.68% of the GDP of the nation (Statista, 2021).

Table 1: Jordan Analysis of Economic Activity Across Sectors

Breakdown of Economic Activity by Sector	Manufacturing	Services
Workforce Across Sectors	17.63	79.12
Value Added (in % of GDP)	23.93	61.68

Source: (Statista, 2021)

Overall, this study on the practice of enterprise risk management and its impact on sustainable performance in Jordan has the potential to inform strategic decision-making, enhance business resilience, and contribute to the country's economic development and sustainability efforts.

Problem Statement: The COVID-19 pandemic catastrophe has impacted several nations and industries, as well as the general economy and specific companies (Al Amosh et al., 2022). Additionally, it has altered how economies and businesses handle risk (Aldaas, 2022). Conversely, Wang and Huang (2021) asserted that the pandemic of 2020 has a noteworthy impact on social, economic, and environmental domains. As a result, businesses should prioritize environmental preservation and social responsibility to meet these new global sustainable challenges, which include hunger, poverty, high unemployment, climate change, and other associated difficulties (Nofryanti et al., 2021; Lin & Qamruzzaman, 2023). Jordan is one of the nation’s facing several sustainability-related difficulties (Shamout et al., 2021). More focus should be placed on the sustainable performance of Jordanian businesses (Taha et al., 2023). To cut down on air pollution, the use of hazardous products, and other issues, managers in Jordanian industrial companies need to closely monitor how the company's environmental environment is being improved (Jum'a et al., 2021). Furthermore, Jordan's lack of natural resources is contributing to the country's rising rates of unemployment and poverty (Al Amosh et al., 2022).

Apart from that, since the crisis started in September 2008, the Jordanian economy has been affected in every area (Matar & Nauimat, 2014). Consequently, Jordan's economy has been experiencing modest and steady development patterns even before the COVID-19 crisis (WB, 2023). Allan et al. (2018) stated that because of fierce competition from nations like Turkey and the Gulf countries, Jordan's manufacturing sector has had difficulties like rising prices and declining demand. In addition, the sector is negatively impacted by a notable decline in demand brought on by the unrest in nearby nations like Syria and Iraq (Alshourah, 2021). Thus, businesses in Jordan must improve their social, environmental, and economic performance by implementing strategies that will enable them to meet this challenge (Alshourah, 2021). Given the growing environmental, social, and economic concerns, a comprehensive approach to risk management and board supervision ought to focus on Jordan's manufacturing and service sectors (Chairani & Siregar, 2021). Furthermore, the implementation of digital transformation introduces new risks and hazards, so it is imperative to prioritize IT security because it directly affects the long-term viability of manufacturing and service companies.

For example, security flaws in the manufacturing industry have raised the possibility of hackers gaining unauthorized access to systems or halting a production line until they get payment (Oduoza, 2020). Furthermore, unapproved access to client data or disruptions to IT system availability in the service sector can erode customer trust, damage a company's brand and reputation, and hurt social and economic outcomes (Legowo & Juhartoyo, 2022). According to the Jordan Digital Transformation Strategy 2020, the Ministry of Digital Economy and Entrepreneurship of Jordan is actively engaged in the country's digital transformation. However, according to AlSobeh et al. (2023), Jordan is becoming a more frequent victim of cyberattacks and data breaches. Furthermore, according to Othman and AL-Dweikat (2021), the Jordanian service sector is currently facing several challenges in properly managing the risks connected with digital transformation. As such, businesses are realizing the importance of implementing ERM (Shad et al., 2019). ERM oversees managing all types of risks that businesses face, including those related to IT (Roslan et al., 2017). However, according to Silva et al. (2018), ERM adoption in Jordanian industrial and service organizations is still in its infancy and is a relatively new concept. Furthermore, thorough research is deficient concerning the ERM in Jordan (Shatnawi et al., 2020).

2. Literature Review

All kinds of businesses, including financial and non-financial enterprises, could use ERM (COSO, 2004). Accordingly, a great deal of earlier research has looked at how ERM affects performance in the financial sector as well (Nasr et al., 2019; Oyewo, 2021). Conversely, research in the non-financial sector has been done by Syrová and Špička, (2022). Nevertheless, most studies have focused on the financial sector, which includes banks and insurance providers (Harvey et al., 2020). Furthermore, several studies (Valaskova et al., 2018; Yang et al., 2018) have concentrated on the implementation of ERM in poor nations, while other studies (Altuntas et al., 2021; Sax & Andersen, 2019) have studied the implementation of ERM in developed countries. Still, very few research has been conducted in impoverished countries (Chen et al., 2019; Saeidi et al., 2021). On top of that, scholars in underdeveloped nations tend to address risk management in isolated ways rather than emphasizing comprehensive risk management (Taha et al., 2023). Moreover, a dummy variable has been used in earlier studies to gauge the adoption of ERM (Chen et al., 2019; Ojeka et al., 2019). Additionally, prior research has suggested that the effect of ERM implementation on non-financial performance indicators be examined, particularly regarding reputation (Pérez-Cornejo et al., 2019; Shad et al., 2019).

It was suggested by Altanashat et al. (2019) that more research be done on ERM in the manufacturing companies listed on the Amman Stock Exchange. As such, there is alarmingly much research that concentrates on Jordan's service industry (Gharaibeh & Bani Khaled, 2020). Conversely, one may legitimately contend that the relationship between ERM and sustainable performance is mediated by IT security. For example, ERM enables managers to identify specific security policies to address IT risk and have a thorough picture of all risks that the organization faces (Roslan et al., 2017). Moreover, maintaining company success over the long term depends on IT security (Loonam et al., 2020). On the other hand, the incidence of IT failure has a substantial effect on the reputation of the company, which can therefore affect long-term performance (Sorongan & Nugroho, 2013). So far, there has not been much research done on the relationship between ERM, IT, and performance (Saeidi et al., 2019). In addition, prior research has not sufficiently examined how ERM affects IT security, especially in developing nations (Owusu Kwateng et al., 2022). As such, there is a strong likelihood that CRO will moderate the relationship between ERM and sustainable performance, according to earlier studies. Numerous studies have demonstrated the critical role that the CRO plays in the execution of ERM (Bailey, 2019).

There have been conflicting outcomes regarding the CRO's influence on the ERM's implementation (Zhang et al., 2021). Drawing from the aforementioned and in alignment with the research conducted by Hassan et al. (2021), it is suggested that the next investigation ought to examine the moderator variables that influence this association. Moreover, moderating and mediating variables, as well as intangible elements, should be used to influence the ERM firm performance connection (Saeidi et al., 2021). Thus, by examining the effect of ERM implementation on sustainable performance - which includes environmental, social, and economic aspects - within non-financial Jordanian organizations particularly in the service and manufacturing sectors, this research aims to close the aforementioned gaps. Additionally, this study will evaluate ERM using the five core components specified in four recognized standards: AS/NZ 4360 (2009), ISO 31000 (2009), CSA (2003), IRM,

AIRMIC, and ALARM (2002), and AS/NZ 41000 (2009). Performance in the social, environmental, and economic domains will also be used to gauge sustainable performance. Meanwhile, a small number of studies have looked at all three aspects of sustainability (Cancela et al., 2020). It also examined how IT security influences the relationship between ERM and sustainable performance, where the inclusion of a CRO moderates the relationship.

Definition of Risk: Depending on one's interpretation, the term "risk" can have several meanings (Slovic, 1987). For example, the term "risk" comes from the Greek nautical lexicon "rhizikon" or "rhiza," which symbolically denotes the difficulties encountered at sea. By way of translation, the terms "risk" and "risq," respectively, have a more positive meaning in Arabic and Maltese. A more optimistic interpretation is presented in this translation, which suggests that God (called 'Allah' in Arabic and 'Alla' in Maltese) bestows wealth on a person (Grima & Bezzina, 2018). Within the realm of business, an individual's understanding of risk is contingent upon their experiences, viewpoints, and mentalities. Risk is assessed by engineers and designers from a variety of perspectives, including technological, financial, environmental and health (Walke et al., 2011). Moreover, risk and uncertainty can affect an organization in both positive and negative ways, according to Rubino (2018). As a result, businesses that do not accept risk as an essential part of their operations will not be able to prosper and create value for their stakeholders. Therefore, controlling these risks is crucial.

Definition of Risk Management: Risk management has its roots in the Athenians of ancient Greece, who regularly assessed risks before making choices about 2400 years ago. A pivotal moment in the area was in 1654 when Blaise Pascal and Chevalier de Mere played a game of Trivial Pursuit, which resulted in the creation of the theory of probability. According to Bernstein and Bernstein (1996), this discovery gave risk management a strong foundation. Risk management is a systematic approach used in the business domain that is specifically intended to oversee and control risks. It involves several activities, including identifying, analyzing, assessing, treating, monitoring, and reviewing risks as well as providing appropriate context, communication, and consultation (ISO, 2009). A company can choose between two essentially different approaches to risk management: the first, known as traditional risk management, addresses each risk separately, frequently in a compartmentalized way, and also tends to ignore the firm's strategic aspects (Stein & Wiedemann, 2016). However, the second strategy, known as enterprise risk management (Nocco & Stulz, 2006), manages hazards comprehensively.

Traditional Risk Management: Traditionally, organizations have managed risks in distinct and segregated divisions, like departments (Harvey et al., 2020; Shad et al., 2019). The linked nature of risks across several categories, such as operational, financial, and technical risks, which could have an impact on results, has not been sufficiently considered by this method. Furthermore, rather than using risk to create value, it focuses largely on managing risks individually, recognizing and evaluating their impact on organizations, and prioritizing risk mitigation and setting risk boundaries (Alawattegama, 2018). Therefore, one could claim that the effectiveness of the TRM technique has limitations. Thus, the idea of ERM developed as a result of certain TRM limitations. ERM is a comprehensive and integrated method that manages all potential risk types and synchronizes them with the overarching business goals (Perera, 2019). Moreover, taking into account qualitative and strategic risks in addition to the traditional emphasis on risk reduction, it identifies and seizes opportunities besides minimizing any potential drawbacks (Bromiley et al., 2015).

Enterprise Risk Management Framework: Businesses have realized how important it is to put in place a robust risk management system in recent years. It became clear that change was required as they battled to withstand financial losses brought on by unanticipated events, interruptions to their routine operations, damage to their reputation, or loss of their market position while utilizing traditional risk management systems (IRM, 2018b). As a result, ERM has become a popular substitute for traditional risk management. With the release of the AZ/NZS 4360 risk management framework, Australia and New Zealand led the way in the integration of risk management. After going through changes, this model was first presented in 1999 and then reissued as AZ/NZS 4360 in 2004 (Govender, 2019). As per Husaini et al. (2020), Enterprise Risk Management (ERM) is defined by AS/NZS 4360, 2004 as a collection of cultural practices, procedures, and endeavors that are intended to facilitate the accomplishment of organizational goals through efficient handling of events or possible occurrences that may impact goal achievement. However, the Enterprise Risk Management Integrated Framework was created in 2004 by the Committee of Sponsoring Organizations of the Treadway Commission

(COSO) (COSO, 2004). It defines ERM as "a strategic process involving an entity's board of directors, management, and other stakeholders, applied across the entire enterprise. This process facilitates the identification and management of potential events that may impact the entity and aligns risk management with the entity's risk appetite to ensure the reasonable achievement of its objectives" (COSO, 2004, p. 2).

In addition, the 2004 release of the COSO ERM Framework was followed by the 2017 release of the most recent version (COSO, 2017). This paradigm offers a fresh viewpoint, highlighting the fact that ERM is now more than just lowering risk to a manageable level. Rather, it is viewed as an essential part of developing strategies and spotting chances to create and maintain value (COSO, 2017). Moreover, it is significant to note that the COSO frameworks of 2004 and 2017 have their roots in the COSO Internal Control Framework, which was first created in 1992 and widely adopted by many large organizations across the globe to manage their internal control systems (Alijoyo & Norimarna, 2021). Furthermore, ISO 31000 was released by the International Organization for Standardization. The 2009 original edition was followed by the 2018 release. Process, framework, and principles are the three main pillars that both versions of the program use to guide firms (Rampini et al., 2019). The Framework was defined as "a set of components that provide the foundations and organizational arrangements for integrating, designing, implementing, evaluating, and improving risk management throughout the organization". The process includes "coordinated activities to direct and control an organization concerning risk," according to the principles, which stand for "the characteristics necessary for a risk management system to enable a company to manage the effects of uncertainty on its objectives" (ISO 31000, 2018).

Risk Assessment: According to ISO 31000 (2018), the risk assessment consists of three phases; (1) Risk identification, which is further divided into the subsequent steps: Once the potential negative occurrences have been identified, the causes or origins of these events may need to be tracked. Finding the conditions that generate or raise the likelihood of an event coming to pass comes next, and determining the possible outcomes that could result from the event's occurrence is the last step. Extensive identification is necessary since any danger that is missed at this stage will not be taken into account in later research. In addition, the risk identification process should involve people with the requisite experience (ISO 31000:2009); (2) Risk analysis: After risks are identified, it is crucial to carry out an analysis to determine which one requires prompt action from management (Kutsch et al., 2014) and assesses the efficiency and efficacy of the controls in place at the moment (ISO 31000, 2018). Investigating the causes of risk, its possible benefits and drawbacks, as well as its likelihood, is risk analysis. Consequences can take the form of both concrete and abstract effects. In some cases, determining the likelihood of an outcome at different times, locations, groups, or conditions requires the use of multiple numerical values or descriptors; (3) Risk evaluation: It Is critical to assess risks by contrasting them with the organization's predetermined risk standards. This is the risk assessment procedure. Based on the organization's appetite for and risk tolerance, which defines the types and levels of risks deemed acceptable, risk evaluation establishes whether or not the risks are acceptable. A company's willingness to accept different types and amounts of risk to meet its goals is referred to as its "risk appetite." On the other hand, risk tolerance indicates how much a company is willing to accept risk to achieve its objectives.

Sustainable Performance Determinants: Throughout the 20th century, organizations predominantly relied on economic indicators to assess their performance (el-Dalabeeh et al., 2019). However, this limited reliance on financial indicators failed to capture a company's innovation and continuous improvement efforts (Kaplan & Norton, 1996). Additionally, it often led them to overlook the significant environmental consequences of their actions (Bojnec & Tomšič, 2020). Therefore, there is a growing need to establish a proper balance among economic, social, and ecological objectives (Maali et al., 2021). Consequently, the concept of corporate sustainability, also known as corporate sustainable performance, emerged. This concept represents an organization's ability to efficiently utilize its finite resources over time, reduce waste, and implement best practices (Aksoy et al., 2020). Corporate sustainability is assessed and quantified through three dimensions: economic, environmental, and social performance (Kouaib et al., 2021; Shad et al., 2019; Tze San et al., 2022). A study by Mousa et al. (2022) found that organizations with superior sustainable performance are more likely to be able to lessen the negative effects of crises, like the current pandemic.

Additionally, Al Amosh and Khatib (2023) found that sustainable performance is crucial in boosting a company's image and reputation. As a result, businesses that are dedicated to long-term sustainability need to

make an effort to create economic value while tackling the myriad environmental and social issues that are related to their day-to-day operations (Cancela et al., 2020). In contrast, some previous research has utilized various dimensions of sustainability, including environmental, social, and governance (ESG) factors, to assess sustainable performance (Martínez-Ferrero et al., 2020; Pozzoli et al., 2022; Yadav & Prashar, 2022). Meanwhile, other studies have applied corporate social responsibility and corporate social performance as indicators of sustainable performance (Radu et al., 2022). The management of both the social and environmental aspects of a company is encompassed under Corporate Social Responsibility (CSR) and Corporate Social Performance (CSP) while the ESG concept not only addresses environmental and social aspects but also encompasses governance considerations (Gleißner et al., 2022). Environmental performance involves assessing a business's environmental impact, while social performance pertains to an organization's interactions with its employees, suppliers, and local community. Governance, on the other hand, is focused on finding a balance between the interests of the corporation and its stakeholders (Gleißner et al., 2022).

Economic Sustainable Performance: The concept of economic sustainability has been defined in a variety of ways by various scholars, but a consensus on a common definition has not yet been reached (Tennakoon & Janadari, 2022). For example, Mokbel Al Koliby et al. (2022) and Moslehpour et al. (2022) defined economic sustainability performance as an organization's ability to efficiently utilize its resources to achieve sustainable growth, while Tennakoon and Janadari (2022) defined economic sustainability as long-term competitive advantages, satisfying the needs of shareholders, and profitability. Nevertheless, economic sustainability is typically measured through financial indicators (Alsayegh et al., 2020), such as return on equity and return on assets (Miransyah & Dempo, 2021).

Environment Sustainable Performance: Environmental concerns have gained considerable attention within the global society (Banday & Aneja, 2019). These concerns encompass issues such as carbon and greenhouse gas emissions, which have been associated with adverse climatic changes (Adnan et al., 2018). The increasing global awareness of these environmental concerns aligns with the growing scholarly discourse concerning the adoption of eco-friendly business practices in recent years (Gangi et al., 2019). Furthermore, many organizations are compelled to effectively manage and mitigate their ecological impact to enhance their environmental efficacy (Bakhsh Magsi et al., 2018). According to Zaid et al. (2020), entities must operate their businesses in an environmentally sustainable manner rather than solely focusing on financial considerations. Thus, organizations are increasingly inclined to incorporate environmental considerations into their strategic plans, recognizing them as a fundamental component of their operational effectiveness and long-term sustainability (Issa & Zaid, 2021).

Social Sustainable Performance: Companies today aim to enhance their social sustainability performance by focusing on philanthropy, improved education and training, creating safer workplaces, increasing gender diversity, fostering a more ethnically diverse workforce, increased employee satisfaction, creating safer workplaces, employee motivation, improved occupational health and safety (Maali et al., 2021; Nofryanti et al., 2021). This emphasis on social sustainability performance fosters trust and loyalty among customers, employees, and society (Kouaib et al., 2021). This enhances a company's reputation and relationships with stakeholders (Nirino et al., 2022). According to prior research, the social dimensions have a substantial influence on the sustainable and financial success of firms (Kong et al., 2020). Consequently, good perception is expected to enhance the company's future success (Palma-Ruiz et al., 2020) (i.e., decrease the risk that comes with investments in buyer–supplier relations by preventing fraud and boosting the willingness to allocate resources) (Wang et al., 2015). In contrast, companies with lower social performance tend to have lower financial performance, which decreases the value of the share (Nirino et al., 2022). In relation to ERM, the more successful risk management has a stronger firm reputation (Kuo et al., 2021). In turn, enhanced social performance decreases exposure to the risk of contradictions with stakeholders (Becchetti et al., 2015).

3. Relevant Theory

Agency Theory: The principle of agency theory pertains to the relationship between the principal and the agent. According to Jehnsen and Meckling (1976), the principal refers to the individual or entity that possesses ownership of a company or acts as an investor. On the other hand, the agent represents the managerial entity responsible for overseeing the operations of the firm on behalf of the owner. In addition, according to Scott

(2015), agency theory focuses on the idea that the agent should behave in the best interests of principals. This is because divergent interests result in conflicts between the agents and principals. With regard to ERM, agency theory mainly benefits firm owners where the set-up objectives of the firm will become more reasonable and more achievable (Muslih, 2019). Furthermore, it has been demonstrated by Saeidi et al. (2021) that industry performance and overall shareholder value are affected positively by ERM implementation. This can be done by minimizing external capital payments, share price fluctuations, external capital payments, and improving the efficiency of capital.

Moreover, ERM is expected to increase industry and shareholder value and efficiency while decreasing the risk of total organizational failure. According to the Committee of Sponsoring Organizations of the Treadway Commission (COSO), executive management's commitment is necessary for the successful implementation of the ERM model. As a result, given their responsibility for protecting, creating, and advancing shareholder value, it is strongly advised that company executives fully support ERM. By utilizing the CRO to apply ERM, a more formal and transparent risk perspective can be achieved, which will lessen the information asymmetry that exists between corporate management and other stakeholders by having them report directly to the board (Husaini & Saiful, 2019). As a result, the agency theory provides the theoretical framework for this investigation.

Resource-Based View (RBV) Theory: Wernerfelt first proposed the RBV theory in 1984. Since then, it has gained significant recognition as a management theory in recent decades. The term "resources" encompasses a wide range of elements that are under the control of a firm, including assets, capabilities, business processes, information, level of expertise, and firm qualities and play a crucial role in enhancing the firm's efficiency and effectiveness (Barney, 2001). For instance, organizations can readily gain a competitive advantage when they have the necessary assets (Yakob & Abdullah, 2021). According to the theory, ERM adoption can lead to higher sustainable performance and a beneficial impact on a company's reputation (Kejwang, 2022; Pérez-Cornejo et al., 2019). Where ERM is considered, it is an organizational intangible resource that manages risks such as competition, regulatory pressures risks, environmental, fraud lack of volunteers, investment risks, reduced fund flow and economic (Bali & Uslu, 2017; Elahi, 2013). For instance, dealing with reputable risks will encourage firms to apply good business practices, which will lead to a good reputation.

Another example is when a company manages environmental risks that hurt the environment to avoid environmental problems. Additionally, RBV theory supports the idea that secured IT has an impact on sustainable performance. RBV holds that firms can use their unique resources to gain a competitive advantage (Barney, 1991). For example, a secured IT system can improve overall firm performance, strengthen channels of communication, increase employee engagement, and boost competitiveness (Hagen, 2010). As a result, RBV theory supports the idea that secured IT is essential to ensuring sustainable performance. Furthermore, firm intangible capabilities, like the application of ERM, allow organizations to effectively utilize their exclusive resources, like secure IT, to reduce risks and create a long-term competitive advantage (Yang et al., 2018). In other words, intangible capabilities and exclusive resources can be translated into success and sustained performance. The impact of IT security on firm sustainability and the effect of ERM on IT security on firm sustainability is also strongly supported by RBV.

ERM and Sustainable Performance: Additionally, ERM was found to have a positive effect on organizational performance when measured by non-financial performance, which was proxied by learning and growth (innovation), customer satisfaction, competitive advantage, and internal business processes. On the other hand, a study by Al-Nimer et al. (2021) looked into the effects of ERM on the financial, non-financial, and environmental performance of companies and investigated the potential moderating role of business model innovation. Data were gathered and analyzed from a sample of 228 companies in Jordan, and the results showed a strong and significant positive relationship between ERM and environmental performance, but no direct impact on financial performance. Moreover, a six-year study carried out in Spain by Pérez-Cornejo et al. (2019) revealed a positive relationship between the quality of ERM systems and firm reputation.

Significance and Contribution of Research: The practical significance of the present research has provided valuable information and created awareness among the managers of non-financial companies in Jordan and other countries with similar factors to those in Jordan, particularly in the Mena region, which shares a similar

culture, religion, language, tribal, and family tradition, to improve their sustainable performance. The findings of the study will extend their current knowledge by understanding how ERM, IT security, and CRO presence enhance sustainable performance. The present research will suggest that managers of manufacturing and service firms pay more attention to CRO presence to improve their sustainable performance. Moreover, the present research conceptual framework and findings could help owners and managers formulate relevant internal control mechanisms as proactive mechanisms, recognizing risks at an early stage and evaluating their impact on the company's sustainable performance in uncertain and risky environments. It also provides awareness to the managers in capitalizing on IT security which in turn affects the sustainable performance of the organization.

The current research conceptual model combines ERM with the impact of IT security as a mediator, and the presence of CROs modifies the relationship between ERM and sustainable performance. This highlights the major role that ERM plays in sustainable performance, as well as the significance of effective IT security mediators in enhancing sustainable performance. Additionally, the presence of CROs is a moderator that supports ERM to improve sustainable performance. The goal of the current study is to investigate the manufacturing and service industries in Jordan. Previous studies have shown that ERM has a significant impact on firm performance. To make a theoretical and practical contribution to the body of knowledge that is already in existence, this study looks into the theoretical contribution of analyzing the relationship between ERM and its impact on sustainable performance. It also looks into the roles of IT security as a mediator and CRO presence as a moderator. The current investigation expands upon the research conducted by Owusu Kwateng et al. (2022), which examined the impact of ERM on economic firm performance.

Furthermore, this study aims to extend the work of Saeidi et al. (2019) by investigating the role of intangible assets as a moderator in the relationship between ERM performance and its outcomes. The inclusion of a research study on ERM in developing countries would enhance the existing body of knowledge on ERM and contribute to the development of a distinct framework for ERM. This is particularly important as previous studies on ERM have predominantly focused on developed countries, with limited research conducted in developing countries (Saeidi et al., 2019). Research is scarce regarding risk management in Jordan (Al-Nimer et al., 2021). This research aims to provide a comprehensive framework that examines the mediating role of IT security in ERM-sustainable performance relations. Additionally, it investigates the moderating effect of CRO presence, specifically in the context of the manufacturing and service industries in Jordan. This study will address the gaps in previous research that have not adequately explored in this particular industry context.

4. Conclusion and Recommendations

This paper concludes with a detailed review of Enterprise Risk Management (ERM) practices in Jordanian manufacturing and service companies, highlighting the implications of these practices for sustainable performance. Previous research has been examined, and it was found that although there is a growing recognition of the significance of ERM, more research that is specifically tailored to the Jordanian business context is still needed. This emphasizes the importance of investigating the complex opportunities and challenges that manufacturing and service companies in the region face when it comes to risk management practices. Furthermore, the conversation has brought attention to the various advantages that successful ERM implementation can offer Jordanian businesses. These advantages range from better decision-making procedures to increased operational effectiveness and financial performance.

ERM helps businesses navigate uncertainty and seize opportunities more quickly. By encouraging a culture of risk awareness and incorporating risk management into strategic planning, businesses can become more resilient and adaptable, which in turn ensures long-term sustainability and competitiveness in the market. The efficacy of ERM in promoting sustainability in Jordanian manufacturing and service firms depends on several factors, some of which have already been discussed. First and foremost, ERM is essential in tackling social, economic, and environmental risks, which in turn supports overall efforts towards sustainability. By recognizing and reducing risks related to labor practices, supply chain disruptions, financial instability and environmental impacts, businesses can improve their social responsibility, economic viability, and environmental stewardship, ultimately promoting long-term sustainability.

Additionally, ERM can act as a growth accelerator, allowing businesses to actively spot and seize new opportunities while skillfully handling the risks that come with them. By incorporating sustainability into risk management procedures, businesses can better align their business goals with larger social and environmental objectives, which will ultimately improve their reputation, stakeholder trust, and competitiveness in the market. The conversation also underlines how crucial stakeholder participation and cooperation are to advancing ERM efficacy and sustainability results. Through the engagement of employees, suppliers, customers, and other relevant parties in the discovery, evaluation, and mitigation of risks, businesses may use a range of viewpoints and specialized knowledge, ultimately strengthening the resilience and pertinence of their risk management plans. Transparent reporting and communication on sustainability and ERM performance can also promote trust and accountability, which will improve the company's standing and social license to operate. The potential benefits of implementing and optimizing ERM practices within Jordanian manufacturing and service companies are significant, despite potential obstacles. Companies in Jordan can harness the transformative power of ERM to navigate uncertainties, capitalize on opportunities, and achieve sustainable growth.

Meanwhile, it also contributes to broader societal and environmental goals by prioritizing stakeholder engagement, innovation, and transparency. In conclusion, this review has shed light on the significance of ERM practices and their impact on sustainable performance in the context of Jordan. In addition, ERM plays a crucial role in enhancing the resilience and sustainability of businesses in Jordan by helping them identify, assess, and mitigate various risks that may affect their operations and performance. Despite the benefits of ERM, many challenges exist in its implementation within the Jordanian context. These include limited awareness and understanding of ERM principles, resource constraints, and cultural barriers. However, there are also significant opportunities for businesses to leverage ERM to gain a competitive advantage, enhance stakeholder trust, and adapt to evolving market dynamics. Based on the findings of this review, government agencies, industry associations, and academic institutions should collaborate to raise awareness about the importance of ERM and provide training programs and educational resources to help businesses develop the necessary skills and knowledge.

Besides, businesses should integrate environmental, social, and governance (ESG) factors into their risk management frameworks to address emerging sustainability challenges and capitalize on opportunities for value creation. ERM is an ongoing process that requires regular review and adaptation to changing circumstances. Businesses should establish mechanisms for continuous monitoring, evaluation, and improvement of their risk management practices remaining agile and responsive to evolving threats and opportunities. Moreover, policymakers should consider implementing supportive regulations and incentives to encourage businesses to adopt robust ERM practices and integrate sustainability into their operations. This may include providing tax incentives, grants, or recognition for companies that demonstrate excellence in risk management and sustainability performance. Thus, by embracing ERM practices and integrating sustainability considerations into their operations, businesses in Jordan can enhance their resilience, drive long-term value creation, and contribute to the country's economic development and sustainable future.

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