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SOCIAL MEDIA EXPOSURE, FINTECH AND DIGITAL CONSUMER ENGAGEMENT: PROSPECTS AND CHALLENGES

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Editorial

Information Management and Business Review (IMBR) provides a digital forum for researchers to share their knowledge and publish research work in the fields of information management, business, management and related disciplines. The work submitted for publication consideration in IMBR should address empirical and theoretical developments in the subjects related to the scope of the journal in particular and allied theories and practices in general. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal and that all listed authors approve its submission to IMBR. It is IMBR policy to welcome submissions for consideration, which are original, and not under consideration for publication by another journal at the same time. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. The current issue of IMBR is a special issue in collaboration with Universiti Teknologi MARA (UiTM), Malaysia and comprises papers of scholars from different universities in Malaysia, Indonesia, Pakistan, Nigeria, Bangladesh and England. Efficiency of Malaysia's Labor Market during the Covid-19 Pandemic, Accrual-Based Accounting by Public Sector Entities, Effects of Environmental Values on Gen Z's E-Waste Recycling Intention, Capital Structure–Firm Performance Nexus, Factors Influencing Green Practice Adoption, Institutional Ownership and Integrated Reporting in the Digital Age, Predicting Intention to Continue Using E-Tourism Technologies, Modelling Workplace Ostracism among Workforces, Influence of Online Classroom Games on Undergraduates' Academic Excellence, Factors Affecting Work-Life Balance, Issues Faced by Micro Businesses during COVID-19, Pro-Environmental Behavior Decisions, Money Management Behavior, Management of Gamified Lesson, Understanding the Association of Sleep Disorders, Exalted Islamic Ethics towards Conquest of Fintech, Practical Gaps in e-Wallet Acceptance, Affective Design Components of Educational Application, Relationship between Emotional Intelligence and Employee's Performance, Impact of Live-Streaming Shopping Characteristics on Behavioral Intention, Relationship between Person-Job Fit, Employee Engagement and Turnover Intention, Examining the Work Engagement-Organizational Citizenship Behavior Link, Effects of Green Intellectual Capital on Business Sustainability, Determinants of Employee Innovative Work Behavior, Employees' Turnover Intention, Effect of Conceptual Factors on Small and Medium-Sized Enterprises Business Success, Factors Influencing Sustainable Entrepreneurship in SMEs, Executive Compensation Gap and Its Impacts on the Company, Marketing & Customer Orientation, Entrepreneurship Education and Women Entrepreneurship Sustainability, Enhancing Social Sustainability, Non-linear Panel Data Liquidity Model of Islamic and Conventional Banks, Determinants of Customer Satisfaction towards Muslim-Friendly Healthcare Service Deliveries, Nisab of Zakat and Zakat Contribution, Determinants of NPLs, Vaccination Acceptance among Indigenous Community, Factors Affecting the Intention to Invest in Islamic SRI, Mosque Tourism Satisfaction, Factors Affecting Consumer Purchase Intention through Social Commerce, Relationship between Social Media and Intention to Invest, Energy Performance in Malaysian Public Hospital, Effect of Entrepreneurial Self-Efficacy between Business Incubator Funding and Business Success, Barriers to Green Data Centers Implementation, Influence of Artificial Intelligence on Financial Management, Deterministic Data Envelopment Analysis, Determinants of Smartphone Nomophobia and Pathology, Factors Contribute to Students' Academic Performance, Thematic Analysis to Measure Social Anxiety, Consumers' Willingness to Purchase Generic Medicines, Event Volunteer Motivational Factors and Quality of Life, Factors Contribute to Social Media Addiction, Causality between Corruption and Economic Growth, Purchase Intention towards International Cosmetic Products, Food Vendor Instagram Caption, Understanding Whistleblowing Intention, Exploring FinTech Lending, Study of Natural Personal Care Products, Service Quality Dimension, Service Operations Mastery, Sentiment Analysis on Airline Quality Services, Relationship between the Motivational Factor and Social Entrepreneurship Activity, Student-Staff Partnerships, Relationships between Social Media Adoption and Homestay Performance, Employee Creativity among Staff and Factors That Influence Job Stress among Foreign Construction Site Workers are some of the major practices and concepts examined in these studies. All the submitted papers were first assessed by the committee of Universiti Teknologi MARA and the editorial team of the journal for relevance and originality of the work and then blindly peer-reviewed by external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity of the purpose. The special issue will therefore be a unique proposition, where scholars will be able to appreciate the latest results in their field of expertise and to acquire additional knowledge in other relevant fields.

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PAPERS

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A Study on the Matching Efficiency of Malaysia's Labor Market during the Covid-19 Pandemic using the DEA-Malmquist Productivity Index

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Abstract: This paper analyses the matching efficiency of the Malaysian labor market during the COVID-19 pandemic. Employing Malmquist DEA, the results indicate that from January 2020 to December 2021, the average total factor productivity change is 0.967. TFPCH declined and had an average growth rate of -3.3% during the sample period. Decomposing TFPCH into technical change (TECHCH) and efficiency change (EFFCH), low TECHCH, with an average growth rate of -10.2%, is the main reason why TFPCH is far from the effective frontier. The TFPCH of the mining and quarrying industry is the highest, with an average growth of 18.7%. The TFPCH of both manufacturing and construction industries are the lowest with average annual growths of -1.7% and -7.6% respectively. Overall, it can be concluded that one of the main drivers to enhance the matching efficiency of the labor market is technical change or technological progress. One way is to strengthen online platforms that can help the firm or industry to match job vacancies to job seekers, even during economic shocks.

Keywords: *Data Envelopment Analysis; Malmquist Productivity Index, Labor market efficiency.*

1. Introduction and Background

The COVID-19 pandemic has caused dramatic changes in every aspect of human life, especially health, economy, and social life. Because this virus is contagious, governments around the world have attempted to stop its spread through various policies. The Malaysian Government implemented several phases of Movement Control Order (MCO) (Table 1). During the first phase, the MCO, there were many restrictions, such as the general prohibition of mass movements and gatherings across the country. All business premises were closed, except for supermarkets, public markets, grocery stores, and convenience stores selling daily necessities. All government and private spaces were also closed, except those providing essential services. All public and private higher education institutions (IPTs) and skills training institutes nationwide were also closed, as were all kindergartens and public and private schools. Foreign visitors and tourists were also prohibited from entering the country.

During the Conditional Movement Control Order (CMCO) phase, most economic sectors and activities were permitted to operate, but they were required to comply with business standard operating procedures, such as social distancing and recording the names and telephone numbers of customers and the dates of their visit. In the Recovery Movement Control Order (RMCO) phase, the restrictions were loosened further. On 29th June 2020, the government announced that public and private pre-schools, kindergartens, nurseries, and daycare centers may return to operation from 1st July. In addition, spas, wellness and foot massage centers, cinemas, meetings, seminars, weddings, birthdays, and religious gatherings were among the enterprises and activities permitted during the RMCO. Swimming in public, hotel, condominium, gated community, and private pools were also allowed.

Table 1: Malaysia's MCO Phase

Date	Descriptive Statistics
March 2020 – May 2020	Movement Control Order (MCO)
May 2020 – June 2020	Conditional Movement Control Order (CMCO)
July 2020 – March 2021	Recovery Movement Control Order (RMCO)
January 2021 – May 2021	MCO by states
June 2021	Full Movement Control Order (FMCO)
June 2021 – December 2021	National Recovery Plan (NRP)

Source: National Security Council

A year later, approaching June 2021, the number of cases tremendously increased, forcing the government to announce a total lockdown or Full Movement Control Order (FMCO). Only essential economic and social services listed by the National Security Council were permitted to operate during this lockdown, such as food and beverage (F&B), banks, docks, airports, and transport related to cargo and commodities, land, air and water transport, construction and critical infrastructure works, and hotels used solely for quarantine. Restaurants may only open from 6 a.m. to 10 p.m. The government implemented the National Recovery Plan (NRP) as the final phase of MCO. At this stage, Malaysians were encouraged by the government to take two shots of vaccination to prevent the spread of the virus.

These policies have changed the labor market landscape drastically. The pandemic has led to massive job losses and economic slowdowns across the world. Malaysia in particular has seen considerable decline in both employment and productivity growth. Employment declined significantly from 15.1 million persons in 2019 to 14.9 million persons in the second quarter of 2020, as workers were laid off their contracts were not renewed and small businesses were impacted (Bank Negara Malaysia, 2021). During the COVID-19 pandemic, common reasons for job losses were business closure, downsizing, voluntary and mutual separation schemes (VSS/MSS), company financial difficulties, and constructive dismissal (MOHR, 2021).

Table 2 shows job retrenchment data in 2020 and 2021. In 2020, the industries with the most job losses were manufacturing (23,281 jobs), wholesale and retail (15,023), and accommodation and F&B (14,427). In 2021, this trend continued, with manufacturing wholesale and retail industries seeing the most retrenchments.

Table 2: Job Retrenchment by Industry 2020 and 2021

Industry	2020	2021
Agriculture, forestry & fishing	867	504
Mining & quarrying	1620	732
Manufacturing	23281	13205
Construction	7878	4888
Electricity, gas, steam & air conditioning supply	520	510
Water, sewerage & waste	459	163
Wholesale & retail	15023	10613
Transportation	7064	3136
Accommodation and F&B	14427	4856
ICT	5734	4762
Financial & and insurance takaful	2793	2079
Real estate	2781	1739
Professional & Technical	10090	4986
Administrative & and support service	8378	4146
Defense compulsory social security	125	73
Education	2263	1764
Human Health and Social Work	769	612
Arts, entertainment & recreation	1348	637
Other services	1557	1909
Activities of households	12	3

Activities of extraterritorial	35	43
Total	107024	61360

Source: Perkeso & MOHR

By group of occupation, as shown in Table 3, professionals had the most retrenchments (2020: 28,116, 2021: 17,051). The data also shows that the most affected professionals, most of them were from the manufacturing sector (2020: 4,439, 2021: 2,758). The second most affected occupation was technicians and associate professionals (2020: 20,548, 2021: 12,187).

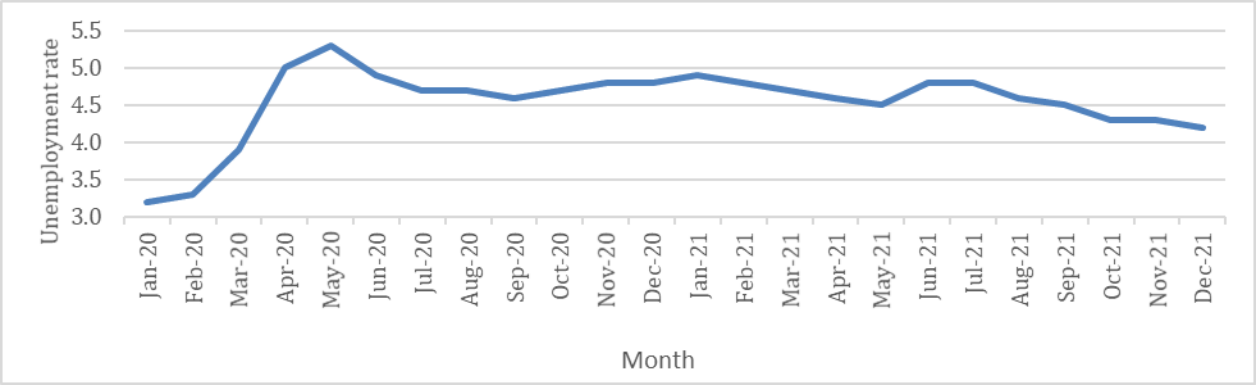
Table 3: Job Retrenchment by Group of Occupation 2020 and 2021

Types of Skills	Group of Occupation	2020	2021
High-skilled	Managers	14176	961
High-skilled	Professionals	28116	17051
High-skilled	Technicians & associate professionals	20548	12187
Middle-skilled	Clerical support workers	9249	5690
Middle-skilled	Service & and sales workers	11885	4319
Middle-skilled	Skilled agricultural, forestry, livestock & and fisheries workers	73	51
Middle-skilled	Craft & and related trades workers	2321	1105
Middle-skilled	Plant & and machine operators and assemblers	11826	6643
Low-skilled	Elementary occupations	7009	3934
Undefined		1821	763
Total		107024	61360

Source: Perkeso & MOHR.

Retrenchments and the inability of job seekers to enter the labor market during the pandemic caused the unemployment rate to rise tremendously. As shown in Figure 1, the unemployment rate was around 3.3% in January 2020. When the government started to implement the restriction order, the rate surged to 5.3% in May 2020, stagnating around 4.6% for the remainder of the year. From the demand side, employers were unable to sustain their businesses. The former Entrepreneur Development and Cooperatives Minister, Tan Sri Noh Omar, said that about 37,415 businesses closed following the implementation of the Movement Control Order 3.0 (MCO 3.0) beginning in May 2021 **(**Nuradzimmah & Arfa, 2021).

Graph 1: Malaysia's Unemployment Rate



Sources: Department of Statistics Malaysia (DOSM)

However, many job vacancies were available in the market during the COVID-19 pandemic. Table 4 shows that the top three industries with the most job vacancies were manufacturing, wholesale and retail, and accommodation and F&B. Yet, as shown in Table 5, these job vacancies were mostly for elementary occupations, i.e., low-skilled jobs, which made up 25% of total job vacancies.

Table 4: Job Vacancies by Industry 2020 and 2021

Industry	2020	2021
Agriculture, forestry & fishing	18547	75676
Mining & quarrying	1325	9226
Manufacturing	190278	603216
Construction	55590	164651
Electricity, gas, steam & air conditioning supply	4322	14438
Water, sewerage & waste	4466	9376
Wholesale & retail	120587	249744
Transportation	35613	107741
Accommodation and F&B	79069	353624
ICT	27771	122975
Financial & and insurance takaful	15156	55901
Real estate	9116	16586
Professional & Technical	45099	171828
Administrative & and support service	70327	238594
Defence compulsory social security	4033	4167
Education	22235	105340
Human Health & Social Work	10406	60335
Arts, entertainment & recreation	3068	12746
Other services	21971	96681
Activities of households	5890	7570
Activities of extraterritorial	435	162
Total	745304	2480577

Source: Perkeso & MOHR

The concentration of job vacancies in middle- and low-skilled jobs made it difficult for job seekers, especially those previously working in high-skilled jobs and fresh university graduates, to enter the labor market during the pandemic. This led to the issue of a mismatch between demand and supply (Said et al., 2021).

Table 5: Job Vacancies by a Group of Occupations in 2020 and 2021

Types of skills	Group of occupation	2020	2021
High-skilled	Managers	35964	97700
High-skilled	Professionals	110175	457153
High-skilled	Technicians & associate professionals	89954	298578
Middle-skilled	Clerical support workers	55985	180164
Middle-skilled	Service & and sales workers	135058	395450
Middle-skilled	Skilled agricultural, forestry, livestock & fisheries workers	3846	8270
Middle-skilled	Craft & related trades workers	49426	176050
Middle-skilled	Plant & machine operators and assemblers	81418	220626
Low-skilled	Elementary occupations	183478	646586
Total		745304	2480577

Source: Perkeso & MOHR

Against this background, this paper aims to analyze the matching efficiency of the labor market. In this context, efficiency refers to the speed with which the unemployed find jobs and vacancies match job seekers. The faster this occurs, the higher the matching efficiency and the lower the level of unemployment, assuming that other things are constant (Sheldon, 2003). Little research has measured the matching efficiency of the labor market, particularly during the COVID-19 pandemic. This study thus seeks to close this gap by merging the matching efficiency concept of labor economics with the methodology of efficiency measurement studies. We employ the DEA-Malmquist Productivity Index (MPI) using data from various government agencies to

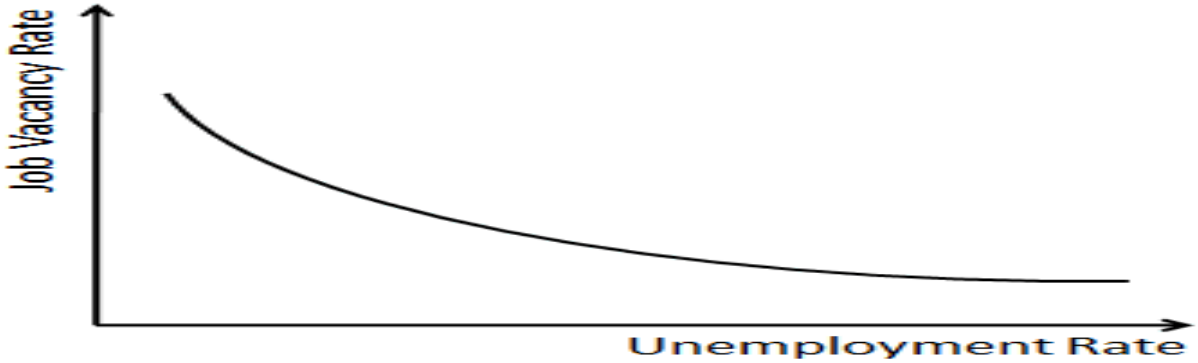
present a complete picture of how the pandemic has affected the labor market. The results are expected to further shed light on the difficulties faced by the Malaysian labor market during the pandemic and provide recommendations on how to improve its labor market. The findings may also be useful for other countries facing comparable problems.

2. Literature Review

Theoretical Review

The Theory of the Beveridge Curve: Introduced by British Economist William Beveridge, the theory of The Beveridge Curve describes how job vacancies and unemployment vary along a curve (Figure 1). When economic growth is high, job vacancies tend to be high, and unemployment tends to be low. At one point, the number of job vacancies might exceed the number of unemployment, and vice versa.

Figure 1: The Beveridge Curve



(**Source:** Borjas, 2015)

All points where unemployment is equal to the number of vacancies are shown by the 45-degree line from the origin. If the Beveridge curve shifts outwards, two possibilities have taken place in the labor market. Firstly, it could be due to a decline in search effectiveness among the unemployed. Secondly, there could be an increase in mismatches between the patterns of unemployment and vacancies across sectors, as employers are posting more job openings, but potential employees possess inadequate or wrong skills. When a mismatch happens, it would decrease the rate of hires given the labor market tightness. Subsequently, the curve shifts outwards of the origin (Wall & Zoega, 2002; Albaek & Hansen, 2004; Shibata, 2013).

However, the change in the curve pattern is not necessarily a sign of rising structural unemployment or mismatch. Firstly, it could be due to unemployment insurance: the unemployment rate remains high because workers are unwilling to look for jobs. Secondly, employers may be posting more vacancies but are not yet interested in hiring. The movement along the curve is associated with the state of the business cycle (Arpaia et al., 2014). When a recession happens, employers tend to cut costs and are unwilling to hire new employees. There are no new open vacancies, leading to a higher unemployment rate. At this state, equilibrium unemployment moves down the curve.

Empirical Review

Methods to Measure Matching Efficiency: Matching efficiency is the productivity of the process of matching job seekers to available job vacancies. Among the reasons contributing to the mismatch is the decline in matching efficiency (Erken et al., 2015). Job seeker characteristics, job vacancy characteristics, recruitment or hiring practices, job matching technology, and search channels are among the determinants of matching efficiency. A decline in matching efficiency means a lower chance for a match to form between firms and job seekers. Since job creation is motivated by search and matching frictions, it is relevant for explaining unemployment, mainly through changes in matching efficiency (Cheremukhin & Restrepo-Echavarria, 2014).

There are several methods to measure efficiency. Its measurement follows the same principles as measuring a Hicks-neutral index of productivity in the production function (Hall & Schulhofer-Wohl, 2018). The measurement of efficiency based on the efficient frontier involves either parametric or non-parametric methods. Some examples of parametric methods are Stochastic Frontier Analysis (SFA), Thick Frontier Approach (TFA), and Distribution Free Approach (DFA). The econometric theory is used to estimate pre-specified functional forms, and inefficiency is modeled as an additional stochastic term. For non-parametric methods, Data Envelopment Analysis (DEA) or Free Disposal Hull (FDH) are among the most popular.

Ilmakunnas and Pesola (2003) analyze efficiency using the parametric method SFA. Ilmakunnas and Pesola (2003) analyze efficiency using the parametric method SFA. The authors find that the returns to scale are close to constant in the frontier estimation. This method was later followed by Němec (2015) and Hynninen et al. (2009), who respectively attempted to measure the efficiency of the Czech and Finnish labor markets. Meanwhile, Sheldon (2003) measures the efficiency of public employment services in Switzerland by employing the non-parametric method DEA. Du and Seo (2022) use the same method to analyze the efficiency of R&D activities of universities in China.

Labor Market during Covid-19: Lemieux et al. (2020) examine the initial effects of the COVID-19 pandemic on the Canadian labor market, focusing on changes in employment and total hours worked between February and April 2020. Due to the distribution of lost labor, the authors find that COVID-19 caused a 32% drop in the total number of hours worked per week among employees aged 20 to 64, along with a 15% decline in employment. Those most impacted by COVID-19 are younger workers, hourly-paid employees, non-union workers and employees in public-facing positions in the industries most impacted by closures (accommodation and food services). In the United Kingdom, Costa Dias et al. (2020) find that COVID-19 has caused substantial drops in labor demand in numerous economic sectors and initial severe labor shortages in other sectors. The current crisis differs significantly from traditional downturns in that it involves not only a general slowdown in economic activity but also a drastic short-term change in the mix of economic activities.

A recent study by Adamowicz (2022) shows that the pandemic has disruptive, immediate and long-term repercussions on the Polish labor market. The pandemic has caused a widespread economic downturn and has permanently altered Poland's labor market. The use of technological instruments, such as the digitalization of the economy and society, e-commerce, remote learning, and remote working, is important to aid the labor market in adapting to the new crisis conditions. In Malaysia, Habibullah et al. (2021) examine the impact of lockdown measures undertaken by the Malaysian Government on employment outcomes. The authors find that loss of employment is significantly related to lockdown measures, with a reduction in employment and income for workers in non-essential sectors. The study emphasizes the need for policymakers to consider targeted measures to support affected workers and sectors to mitigate the negative effects of the pandemic on the labor market.

Rahman et al. (2020) find that the COVID-19 pandemic has caused a substantial increase in unemployment and a decline in labor force participation in Malaysia. They identify four main factors that contribute to job vulnerability during the pandemic: the nature of the job, industry characteristics, worker demographics, and geographic location. Workers in the services sector are the most vulnerable to job losses, particularly those employed in the accommodation and F&B and wholesale and retail industries. Workers in the manufacturing and construction sectors are also at risk, but to a lesser extent. In terms of worker demographics, young workers and those with low education levels are most vulnerable to job losses.

3. Research Methodology

Sources of Data: One input and one output are used to find matching efficiency change. Labor market tightness, measured as the number of vacancies divided by the number of unemployed, is the input, and job finding rate is the output. The job-finding rate is expressed as the number of unemployed persons who manage to secure a job in a given year divided by the number of unemployed persons. Generally, the job-finding rate would increase when there are fewer unemployed workers and more job vacancies, which would create more new successful matches.

The data are monthly data from January 2020 to December 2021, when the COVID-19 virus started to hit the economy. Data on the number of vacancies, number of retrenchments, and number of new placements for all 19 industries are collected from the Ministry of Human Resources. The data are estimated from Sistem Insurans Pekerjaan (SIP) and Perkhidmatan Maklumat dan Analisa Pekerjaan (EIAS). Specifically, the number of vacancies is estimated based on the vacancies dataset on My Future Jobs. My Future Jobs is the Malaysian National Employment portal for all job seekers and employers. This portal provides the most accurate job match data based on jobseekers' abilities and competencies using AI technology and a validated matching algorithm. The number of retrenchments is estimated based on the loss of employment dataset, and the number of new placements is estimated based on the placement dataset.

Methodology: This method combines the matching efficiency concept of labor economics with the methodology of efficiency measurement studies following Said et al. (2021) and Sheldon (2003). To estimate the matching efficiency, the non-parametric DEA-Malmquist productivity index (MPI) is employed. Initially introduced by Caves et al. (1982), MPI has been used by others (see Färe et al. (1992); Färe et al. (1994)). The selection of inputs and outputs in the analysis must be based on the designated rule of thumb (Cooper et al. 2002; Banker & Datar, 1989). The sample size must abide by the rules before continuing with the DEA analysis: $n \geq \max \{m \times s, 3(m + s)\}$ (1)

Where:
n = number of decision-making units (DMUs)
m = number of inputs
s = number of outputs

In this study, total factor productivity changes for all 19 industries are measured using output-oriented MPI. Change in total factor productivity (TFPCH) is decomposed into efficiency change (EFFCH) and technical change (TECHCH). Change in efficiency change (EFFCH) is decomposed further into pure technical efficiency change (PECH) and scale efficiency change (SECH). Färe et al. (1994) express the DEA-Malmquist productivity index (MPI) as:

$$m_0(y^{t+1},\ x^{t+1},\ y^{t+1},\ y^t,\ x^t) = \frac{d_0^{t+1}(x^{t+1},y^{t+1})}{d_0^t(x^t,y^t)}\ [\left(\frac{d_0^t(x^{t+1},y^{t+1})}{d_0^{t+1}(x^{t+1},y^{t+1})}\right) x\ (\frac{d_0^t(x^t,y^t)}{d_0^{t+1}(x^t,y^t)})]^{1/2} \quad (2)$$

Where:
m = productivity change between period t and period t-1
outputn as $m_0(y^{t+1},\ x^{t+1},\ y^{t+1},\ y^t\ x^t)$ = fficiency change x technicl ange (3)

where: efficen change = $\frac{d_0^{t+1}(x^{t+1},y^{t+1})}{d_0^t(x^t,y^t)}$ (4)

ecicac $[\left(\frac{d_0^t(x^{t+1},y^{t+1})}{d_0^{t+1}(x^{t+1},y^{t+1})}\right) x\ (\frac{d_0^t(x^t,y^t)}{d_0^{t+1}(x^t,y^t)})]^{1/2}$ (5)

4. Results and Discussion

Decomposition of Total Factor Productivity: Table 7 shows the dynamic development of Total Factor Productivity (TFP) which could be translated into matching efficiency in the Malaysian labor market. From January 2020 to December 2021, the average total factor productivity change (TFPCH) is 0.967. TFPCH declines at an average rate of -3.3 % in the sample period. Decomposing TFPCH into technical change (TECHCH) and efficiency change (EFFCH) shows that low TECHCH, with an average growth rate of -10.2%, is the main reason why TFPCH is far from the effective frontier.

Table 7: Mean Malmquist Productivity Index Decompositions

Index	Mean	% Explained
Total factor productivity change (TFPCH)	0.967	-3.3%
Technical change (TECHCH)	0.898	-10.2%
Efficiency change (EFFCH)	1.076	7.6%
Pure technical efficiency change (PECH)	1.003	0.3%

Scale efficiency change (SECH)	1.073	7.3%
Total factor productivity change (TFPCH)	0.967	-3.3%

Source: Authors' calculations

Technical change (TECHCH) reflects how the change of production frontier surface contributes to the variation of productivity. A TECHCH of greater than one indicates technical level is in the growth state or progression. A TECHCH that equals one indicates that the technical level is in a constant state of stagnation, while a value of less than one indicates that the technical level is declining or regression (Li et al, 2015). Because all values are less than one, technical change, which can be translated as technological growth that is, the technology to match job vacancies to job seekers, has not reached the optimum frontier during the sample period.

Efficiency change (EFFCH) measures the effectiveness of resource allocation, which in this context can be translated as the availability of job vacancies for job seekers. The decomposition of the EFFCH index into (1) pure technical efficiency change (PECH) (change of technical efficiency under the hypothesis of variable scale reward) and (2) scale efficiency change (SECH) (change of scale efficiency) demonstrates the impact of economies of scales on productivity. In this study, the decomposition of EFFCH indicates that the increase in the EFFCH of the labor market is mainly attributed to SECH, whose average growth rate is 7.3%, rather than PECH, whose average growth rate is 0.3%. The results suggest that the labor market has been operating at the right scale of operations but has been managerially less efficient in controlling the operating costs during the process of matching available jobs to available job seekers.

Table 8 shows the decomposition of TFP by industry. The TFPCH of the mining and quarrying industry is the highest, with an average growth of 18.7%, while it is lowest for both manufacturing (-1.7%) and construction (-7.6%) industries. Undeniably, the construction sector is among the most affected sectors during the crisis. Due to the lockdowns, most construction projects, including maintenance projects, have been delayed. In addition, the disruption of global supply chains, including the lack of employees, contractors, subcontractors, raw materials, and other inputs, has also led to declining TFPCH. Several supply chains for building materials have stopped manufacturing and distributing (ILO, 2021). As a consequence, lots of workers were retrenched, disrupting the process of matching efficiency in the labor market.

The manufacturing industry underwent a similar scenario. Data from DOSM show that the Industrial Production Index (IPI) for the manufacturing sector reduced to 0.2% in June 2021 after recording a growth of 29.8% in May 2021. Subsectors that contributed to this decline were those that were not allowed to operate during the pandemic. These subsectors included transport equipment and other manufacturing; non-metallic minerals, base metals, and engineered metals; wood, furniture, paper products and printing; and textiles, clothing, leather and footwear (MIDA, 2021). Workers were told to stay at home, factories were closed, and global supply chains paused for a moment, increasing the operating costs of the manufacturing sector (ILO, 2020a & Lim, 2022).

Table 8: Mean Malmquist Productivity Index Decompositions by Industry

Industry	TFPCH	% Explained
Agriculture, forestry & fishing	1.142	14.2%
Mining & quarrying	1.187	18.7%
Manufacturing	0.983	-1.7%
Construction	0.924	-7.6%
Electricity, gas, steam & air conditioning supply	1.024	2.4%
Water, sewerage & waste	1.060	6.0%
Wholesale & retail	0.880	-12.0%
Transportation	1.063	6.3%
Accommodation and F&B	1.045	4.5%
ICT	1.027	2.7%
Financial & and insurance takaful	0.909	-9.1%

Real estate	0.897	-10.3%
Professional & Technical	0.850	-15.0%
Administrative & support service	0.873	-12.7%
Defence compulsory social security	0.898	-10.2%
Education	0.893	-10.7%
Human Health & Social Work	0.876	-12.4%
Arts, entertainment & recreation	1.005	0.5%
Other services	0.917	-8.3%
Mean	0.967	-3.3%

Source: Authors' Calculations

In the services sector, low TFPCH is shown by the professional and technical which includes legal and accounting activities, architectural and engineering activities, management consultancy activities, and others (0.850), administrative and support service (0.873), human health and social work (0.876), and wholesale and retail (0.880) industries, indicating that they are regressing. Even though there were not so many retrenchments in the professional and technical, administrative and support service, human health, and social work industries, however with the abundance of vacancies in these two industries, could disturb the matching efficiency and the tightness of the labor market.

For the wholesale and retail industry, the shock tremendously differs between brick-and-mortar versus online shops, essential versus non-essential stores, and small versus large retailers emerging because of the pandemic (ILO, 2020b). As this industry is very labor intensive and relies on low-wage and part-time workers, any shock could disrupt the matching efficiency. On the other hand, most essential services that have been allowed to operate during certain phases of MCO show a TFPCH of > 1, suggesting that these industries are progressing. These industries include electricity, gas, steam and air conditioning supply; water, sewerage and waste transportation; and accommodation and F&B.

5. Conclusion

In this study, we attempt to analyze the matching efficiency in the labor market, particularly during the COVID-19 pandemic, by combining the efficiency concept in labor economics with the methodology of efficiency measurement studies. Using the DEA-Malmquist Productivity Index method, we analyze the matching efficiency of the Malaysian labor market from January 2020 to December 2021. The results demonstrate that the overall level of matching efficiency is not high. There is inefficient resource allocation, which could be explained in terms of labor market tightness and job-finding rate. Overall, the average TFP change value is 0.967, and TECHCH is the main reason why TFPCH is far from the effective frontier. In addition, the decomposition of efficiency change (EFFCH) shows that pure technical efficiency change (PECH) is another factor that causes low matching efficiency change. It can be concluded that the main force in promoting the matching efficiency of the labor market is the development of technology.

From the results, we can suggest that to enhance the matching efficiency of the labor market, the element of technology should be highlighted as one of the mechanisms to reduce the labor market tightness. Thus, we propose several suggestions, specifically in terms of matching job vacancies with job seekers. First, every industry must increase the adoption and use of current technology. Second, online platforms that could help industries, especially essential industries, to sustain their business should be strengthened. This can prevent the destruction of human capital during an economic crisis or shock, which can cause damage to a nation as it is unable to fully utilize available resources. Further research might look at the productivity of a particular industry, concentrating on each group of occupations, from high-skilled to middle-skilled and low-skilled jobs.

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Conceptual Framework on Antecedents of True and Fair View Reporting Surrounding Migration to Accrual-Based Accounting by Public Sector Entities: A Case of Federal Statutory Bodies (FSB) in Malaysia

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Abstract: Following the institutional reforms in Malaysia, the Federal Government issued Treasury Circular PS 1.2/2020. Federal Statutory Bodies (FSBs) are now required to adopt the Malaysian Public Sector Accounting Standard (MPSAS) as the standard for preparing financial statements. While most private sectors strongly embrace accrual accounting systems and derive many benefits from them, the practice and application in the public sector, including FSBs, is still in its infancy. Therefore, this study examines the antecedents of true and fair view reporting in the context of migration to accrual accounting by FSB in Malaysia. This study is due to the lack of research on accrual accounting in the public sector, as researchers rigorously focus on the private sector that controls the economy. In addition, there are few studies on the conversion of the public sector in emerging economies to accrual accounting. The study provided a conceptual discussion on the antecedents that potentially affect the true and fair view reporting through the adoption of accrual accounting. The discussion is expected to benefit many stakeholders, especially regulators and policymakers, as emerging economies such as Malaysia continue to actively pursue institutional reforms. By adding new variables from the study so that they can be used in various and extensive aspects of the research.

Keywords: *True and Fair View, Financial Reporting, Accrual Accounting, Public Sector Accounting and Federal Statutory Bodies.*

1. Introduction and Background

According to Johari et al (2019), the Malaysian government has implemented a series of administrative changes since the early 1980s to increase the efficiency and effectiveness of public service delivery. The first phase of reform, New Public Management (NPM), was implemented between 1981 and 2005 to make public institutions more business-like and market-oriented. In 2009, the second reform phase, known as the Government Transformation Program (GTP), selected seven National Key Results Areas (NKRAs) as priorities for change to increase accountability. Quantifiable goals and outcomes were assigned to each NKRA to enable performance assessment at multiple levels. Despite the changes, the overall performance of Malaysia's public sector organizations fell short of expectations. Malaysia's competitiveness ranking dropped from 12th in 2013 to 14th in 2014, from 14th to 19th in 2015, dropped to 18th in 2016, and dropped again to 23rd in 2017, 25th in 2018, and the latest report was released in 2019, placing the country 27th, far behind Singapore, which ranked first in the world (Global Competitiveness Report, 2010-2019; IMD World Competitiveness Report). Apart from the fact that most private sector companies are very much using the accrual accounting system and deriving many benefits from it, the practice and application in the public sector as a whole is still in its infancy, including the Federal Statutory Bodies (FSB), despite the issuance of Treasury Circular of Finance Circular PS 1.2/2020 on the adoption of the Malaysian Public Sector Accounting Standard (MPSAS) as part of accrual accounting. Therefore, this study examines the antecedents of true and fair view reporting in the context of the transition to accrual accounting by public sector entities: A Case of Federal Statutory Bodies (FSB) in Malaysia.

2. Literature Review

Public Sectors and Federal Statutory Bodies in Malaysia: The public sector in Malaysia includes 25 ministries, 141 departments and agencies, 127 Federal Statutory Bodies, and over 1.4 million employees (Samah, 2021). The Ministry of Finance (2022) has produced data on the FSB. Currently, there are 132 Federal Statutory Bodies in Malaysia. According to the Ministry of Finance, the Statutory Bodies (Accounts

and Annual Reports Act) 1980 [Act 240] defines a Federal Statutory Body as "anybody corporate, irrespective of its name, that is incorporated under the provisions of federal law and is a public authority or an agency of the Government of Malaysia but does not include a local authority or a body corporate incorporated under the Companies Act 1965" Similar to a company, a Federal Statutory Body is a distinct legal organization with the capacity to manage, sue and be sued, contract, acquire, purchase and retain assets in its name.

In conjunction with the previous statement, Federal Statutory Bodies (FSBs) in Malaysia faced the unique situation of reporting to the Accountant General Department (AGD) but using accrual accounting under the Private Entities Reporting Standard (PERS) instead of the modified public sector cash basis to prepare their financial reports. Since the federal government issued Treasury Circular PS 1.2/2020, FSBs are now required to use the Malaysian Public Sector Accounting Standard (MPSAS). Although both standards are based on accrual accounting, there are enough differences between the two standards that raise several accounting dilemmas. A fundamental difference between the two standards is the objective of reporting; with MPSAS focusing on public accountability as the main source of funding are government taxes, while PERS is intended for the corporate sector, which focuses on investors and creditors as its main stakeholders. Accrual accounting is a method of accounting in which transactions and other events are recorded when they occur (rather than when cash or its equivalent is received or paid). This means that every transaction is documented in the books and reflected in the company's financial statements. Income statement, financial position and cost items are all recorded on an accrual basis.

Accrual Accounting: The reform of the public sector to make it more efficient, effective, and accountable in the delivery of public services is a global phenomenon. In conjunction with the changes in the public sector, significant accounting reforms have been implemented in several countries. Among the changes is the transition from traditional cash accounting to the accrual accounting business model (Hasan & Yeow, 2012). Budgetary reform follows a sequence that begins with cash-based accounting and moves through the introduction of double-entry accounting with elements of modified cash-based or modified accrual cost analysis to the introduction and development of full accrual accounting that emphasizes performance-based information. However, several public sector reforms in recent years have driven a global shift to accrual accounting. Figure 1 shows the spectrum of government accounting systems developed by Baker & Rennie (2006). On this scale, we have cash accounting at one end, modified cash accounting in the middle, and full accrual at the other end.

Figure 1: Accounting System Spectrum, adapted from Baker and Rennie (2006)



New Zealand was the first independent country in the world to begin implementing accrual accounting in the public sector in the late 1980s (Pallot & Ball, 1997). Funnel and Cooper (1999) also noted that Australia was one of the first countries to introduce accrual accounting in its government. In the United Kingdom, accrual accounting was fully implemented in the public sector in 1998/99. In Malaysia, the evolution of government accounting is as follows: Before the introduction of the Program Performance Budgeting System (PPBS) in 1969, Malaysia used the Traditional Budgeting System (TBS), which is based on a line-item budget and prioritizes the inputs or objects of expenditure. In 1969, the PPBS was first used to help government officials and administrators prioritize and plan based on the most efficient and cost-effective means of achieving the government's program objectives when budgeting for competing programs (Dean, 1989). In 1990, Treasury Circular No. 11 of the Ministry of Finance introduced the Malaysian Budget System (MBS), commonly known as the Modified Budget System, which was fully implemented in all government ministries and agencies by 1995. The main objectives of the MBS are to increase the accountability of controlling officials and program managers and to better allocate funds to government programs. Then, in 1992, the Micro Accounting System (MAS) was introduced by the Malaysian government to improve the data previously generated by the MBS cash-based accounting system. The goal of MAS, similar to activity-based costing, is to calculate the value of goods and services provided by government agencies.

In 1996, the government-wide standard accounting system SAGA was introduced. The Malaysian government eventually introduced an electronic accounting package using the accrual method. The main objective of the Statutory Accounts and General Administration Act (SAGA) is to ensure that the Statutory Bodies 'financial records of government agencies are regularly updated and submitted promptly for audits (Abdul Rauf et al., 2003). The systems allow state agencies, public corporations, and government-related organizations to use the accrual method of accounting. The federal and state governments in Malaysia are considering switching to the accrual accounting system. Given the increasing prevalence of accrual accounting in the public sector around the world and the benefits of accrual accounting, government books must be forced by circumstances to adopt accrual accounting. In 2013, the Malaysian government began forcing all of its departments and the FSB to move fully to accrual accounting (Ministry of Finance).

Figure 2: Government Accounting System evolution in Malaysia



According to the International Public Sector Accounting Standard (IPSAS), accrual accounting is used when transactions and/or business events occur rather than waiting for cash to be received or paid. This means that transactions and business events, even if they were (or will be) accounted for in the prior period, are documented, recognized and reported in the financial period that corresponds to the period in which they occurred (or the future period). The main reason for these changes is to ensure high-quality reporting and relevance of the information identified, which will ultimately increase both transparency and accountability (Abdulkarim, Umlai & Al-Saudi, 2020). However, there are obstacles mentioned by (Abdulkarim et al., 2020). Adopting the established accrual accounting standards would involve high costs of implementation, variations in the accounting system, and the cost of training public sector employees. The obstacle is closely related to the country's budgeting process, where budgets are constructed either on a cash basis or on a modified cash basis. In an Italian study, the obstacles of accrual accounting were affected by the lack of technical qualification, human resources and know-how. Saleh, Isa, & Hasan (2021) stated that strong support from the top, availability of hardware, the readiness of accounting systems, and adequate accounting experience are all important success factors that distinguish accrual accounting. The study also found that all employees need to be made more aware and that each organization should develop comprehensive action plans. Malaysia has taken several initiatives since 2011 to facilitate the adoption of accrual accounting. Establishing an Accounting Standards Advisory Committee (GASAC) to analyze existing policies, standards, rules, and regulations; conducting a gap-fit analysis to plan effective processes and technologies; and training to improve staff competency were some of these initiatives (IFAC, 2013).

In the context of accrual accounting, there is still little evidence on the public sector. More researchers rigorously focus on the private sector as it represents an open economy and free market transactions (Rautiainen & Luoma-aho, 2021). It could be that some parties are affected by these statistics and the financial situation, even though this so-called New Public Management trend does not necessarily fit the circumstances of the public sector. In particular, the use of public sector accounting data by politicians is a problem that is both current and under-researched (Haustein, Lorson & Oulasvirta, 2021). However, Teruki, Nyamori & Ahmed (2019) mention that few studies address the organizational, social and environmental domains in which financial disclosure occurs. Moreover, previous studies have been conducted in Western countries. The topic of financial disclosure in local governments in Southeast Asian countries has received little attention. The findings may contribute to the existing understanding of public sector disclosure practices in underdeveloped countries. This is because previous research has tended to focus exclusively on developed countries (Abu Bakar & Saleh, 2016). Bakar & Saleh (2015) mentioned that previous research has generally yielded poor results in terms of the extent and quality of disclosures made by public sector organizations. The vast majority of previous studies seem to have focused on local governments; studies on other types of public sector organizations, such as federal and state governments, higher educational

institutions, and parastatal groups, seem to be rare. Institutional theory is widely used in the social sciences and has not been sufficiently explored in political science (Mahmud, 2017). Based on previous studies, some factors drive truthful and fair reporting of public institutions based on institutional theory that justifies this current study.

The Underpinning Theory- Institutional Theory: According to Baker, Bedard & Prat de Hauret (2014), since Weber's 1947 metaphorical portrayal of bureaucracy as an "iron cage," neo-institutional theory has developed into a research paradigm that has had a tremendous impact on many social scientific areas. Although neo-institutional theory originated in sociology, it has now been applied to various academic fields such as political science, organizational behavior and strategic management. Various components of neo-institutional theory have offered a framework for accounting study, including studies on the accounting profession, accounting regulation and the Securities and Exchange Commission's regulatory role (SEC). It acknowledges that institutional forces continue to have an impact on processes across all of their stages by drawing on institutional theory. The implementing Customs administration continues to submit to the coercive, mimetic, and normative pressures arising from its organizational environment, which consists of the community of suppliers, customers, professional networks, and governmental bodies. This is because of the ongoing uncertainties and complexities surrounding a Risk Management project (Alsharari, 2022)

Rana, Ahmed, Narayan & Zheng (2022) mentioned that Neo-institutionalism has been defined as a socio-political theory of political, social, and economic practices that examines how structures, such as schemas, rules, norms, and routines, come to be institutionalized. Performance and accountability-related NPM reform initiatives have swept the globe, influencing how labor, service provision, and behavior are organized and carried out. Other than that, Polzer & Reichard, (2020) stated that according to new institutional theory; Institutional settings (such as legislation, procedures, or, more generally, widespread (accounting) traditions or prior government reform experiences) impact socioeconomic life. The doubt on "how do institutions influence individual behaviors?" (In this case, how do accountants react to the elements impacting "true and fair view" reporting with the harmonization of accounting standards through MPSAS?) is central to any institutional analysis. De Silva Lokuwaduge & De Silva, (2020) mentioned that institutional theory and new institutional sociology have been increasingly popular in the study of public accounting. Organizations, according to institutional theory, strive to adopt dominant social norms, systems, practices, and structures that are believed to be acceptable in society. Traditional cash-based accounting systems in government entities are being phased out in favor of accrual-based IPSAS as part of the New Public Financial Management (NPFM) initiative, as it "provides more and accurate information about government solvency, patrimonial goods, and the costs of public services". Governments all around the globe are under increasing pressure from international professional accounting groups, who act as legitimate stakeholders and advocate for the adoption of accrual-based IPSAS standards.

Alsharari, (2020) found, that the results demonstrate the interconnectedness of social and economic forces, the vulnerability of public organizations to institutional pressures, and the importance of extra-organizational competition and inventive dissemination in budgetary transformation processes. These conclusions would be supported by other case studies that examined the interface between macro- and micro-levels of institutional transformation. Mahmud (2017) stated that, even if it has been shown that institutions do have a role in public policymaking, the thorniest challenge with institutional theory or institutionalism is how such institutions play a role. How institutions empower and constrain policy actors is the best method to characterize how institutions influence policy outcomes. Understanding the trends in institutional theory will aid in a better analysis of the policymaking process. Institutional theory asserts that institutions matter in policymaking because policymaking is nearly inextricably linked to a state's institutional framework, which is why institutional theory is the finest theoretical understanding to apply in policymaking. The role of institutions in constraining and empowering human behavior is defined by institutional theory or institutionalism. New institutionalism recognizes that institutions operate in a society that includes a variety of other institutions.

To improve transparency and accountability, the Malaysian government has switched from using the modified cash-basis accounting system to the accrual accounting system (Ahmad, Abul Hasan, and Ismail, 2021). As a result, Institutional Theory is the best choice for explaining the framework, and it has an effect on

the framework's creators as well as on regulators and standard-setters. Weber (1947) noted that Institutional Theory has primarily concerned itself with the social sciences; however, after extensive research, several disciplines have been incorporated into its framework. These include political science, organizational behavior, strategic management (decision-making), and accounting professions and regulations. According to Polzer & Reichard (2020), it had a significant effect on financial statement reporting in that it led to a more unified system of accounting for government agencies and other organizations across Malaysia. Bell and Lundblad (2011) state that institutional theory deals with shifts in organizational policy. The goal of this theory is to evaluate how pressure from outside the organization affects the decision to come clean. Institutions carry out policies that are fraught with legal, economic, and social complexities. That is the significant external pressure put on businesses by law, regulation, and local customs. Organizations keep their "status and legitimacy" by following the formalized sets of agreements, norms, conventions, and traditions that entities and people are expected to follow, as outlined by the institutional theory of Bruton, Ahlstrom, and Li (2015). According to Dacin, Goodstein, and Scott (2002), the existence of diverse and contradictory beliefs and practices can lead to institutional pressure. These pressures are known as "functional pressure," "political pressure," and "social pressure," respectively. Hence, the institutional theory is well suited to the conceptual framework of this study as it covers the shifting of the accounting method, government reformation in terms of regulations and accountability and lastly, the changes that lead to the institutional pressure. Those portray, the accommodation of institutional theory into the structure is well underpinning (Haladu & Salim, 2016).

True and Fair View Reporting in the Public Sector: Based on Treasury Circular PA 3.1/2013, Generally Accepted Accounting Principles (GAAP) are defined in Treasury Circular No. 15 of 1994 as "standard accounting principles and practices prepared and announced by a professional body established by law for the use of its members about the annual accounts for trade, industry, and business in Malaysia." As a result, while generating yearly financial statements, all FSBs use the MASB accounting rules set by the Malaysian Accounting Standards Board. The MASB accounting standards have since been superseded by two (2) new accounting standards, Financial Reporting Standards (FRS) and Private Entity Reporting Standards (PERS) (PERS). In addition, a "true and fair view" of financial statement reporting and auditing indicates that the auditor judged the evidence produced sufficient after evaluating all audit papers. This, on the other hand, demands a professional assessment of what data is available and how much of it can be validated. When the term "true and fair" was first coined in the United Kingdom in 1948, it was thought to be a high-level notion requiring judgment on the part of accountants and auditors (Stacy, 1997). To evaluate if a set of financial accounts represents a "true and fair" assessment of a set of circumstances, both the accountant and the auditor must apply their judgment, skill, and professional knowledge.

The spectrum of “True and Fair View” (TFV) under Section 226(2) of the Companies Act 1985 (UK), the words "true and fair view" to describe what the balance sheet and profit and loss account shall give: “The balance sheet shall give a true and fair view of the state of affairs of the company as at the end of the financial year, and the profit and loss account shall give a true and fair view of the profit or loss of the company for the financial year.” Accountants and auditors are both familiar with the concept of "true and fair view" (TFV). For many years, it has been the foundation of audited accounts. The necessity to display a TFV was originally enacted in the United Kingdom's Companies Act of 1948. Accounting standards have been created and published primarily to develop financial records designed to produce a "TFV" since the publication of Statement of Standard Accounting Practice (SSAP) I – Accounting for Associated Companies (ASC, 1971) in January 1971. As new accounting rules and pronouncements from the Accounting Standards Board (ASB) are released, it is necessary to establish if the accounts present the TFV. Because there is no accepted definition of a TFV, it is ultimately a legal concern (Jayalakshmy, Seetharaman & Khong, 2005).

Antecedents of True and Fair View

Political Interventions: Firms with political clout hold a disproportionate amount of power compared to other corporations. Firms engaged in auditing are at significant peril (Bliss and Gul, 2012). Political companies do poorly in accounting terms when compared to their non-political counterparts (Khelil, Khlif & Amara, 2021). Comprehensive research reveals how and why political interactions affect economic development. Weak laws and a concentration on family business mean that political ties are more common in

developing nations. Due to a lack of external and internal controls, political-affiliated enterprises have an agency issue. Monitoring and controlling shareholders are more likely to come to blows. Najaf & Najaf (2021) found in their studies that, politically linked businesses incur significant agency costs and top management is motivated by financial incentives. As a result, it has the most detrimental effect on a company's worth. Due to their political clout, politically connected boards are more likely to generate tension between owners and employees.

Yudhanti & Tjahjadi (2021) found, that politically connected entities are thought to be uninformative regarding social responsibility and engage with stakeholders less transparently. According to the current study, entities with political ties do not contribute to the consolidation of corporate scale or social responsibility statements. Businesses with political ties are less open when it comes to sharing information with the public, even more so when the information is supplied voluntarily. In comparison to minority ownership, majority state control in China is associated with greater political benefits and hence outperforms (Liljeblom, Maury & Horhammer, 2020). According to Abdallah and Ismail (2017), the beneficial effects of corporate governance on performance are highest in GCC states where the government or local businesses are the main owners. (Nirwana & Haliah (2018) observed that political issues impact the financial statements quality. The high political elements will affect the quality of financial statement's quality.

Political changes and transitions in political power have an effect on accountability and management systems in the public sector. Additionally, such an influence may be felt in poor countries (Harun, Van Peursem & Eggleton, 2012). Changes at the national level provided an opportunity for technocrats at the Ministry of Finance (MOF) and elsewhere to translate new concepts into accrual accounting standards and procedures. Political ties can take the shape of formal or informal relationships between municipal officials and senior corporate executives. It is stated that a strong political relationship with China would enable the attainment of two essential globalization goals: real economy finding in emerging nations and technology acquisition from industrialized countries. Moreover, voluntary disclosure may be a policy option for certain political groupings. Due to political ties, shareholders may suffer significant agency concerns. As a result, they are considered to have a lesser quality of earnings and a lack of financial reporting clarity (Yudhanti & Tjahjadi, 2021). The preceding discussion established the premise that there is a substantial link between political intervention and the disclosure of true and fair views. The first hypothesis statement of the investigation is as follows: -

H1: Political intervention has a positive relationship with the 'true and fair view' reporting.

Economic Consequences: For long-term socioeconomic growth, the Twelfth Plan 2021-2025 includes measures and efforts to protect national security and sovereignty. The government will then place a high value on digitalization, citizen involvement in decision-making, the execution of projects, and coordinating efforts across the three branches of government. Honesty and openness, as well as an understanding of the current skill shortages, governance ecosystem and program management, can help to further develop and improve the public sector. Priorities for implementing the Twelfth Plan revolve around creating a high-performing civil service, promoting an integrated government strategy, and increasing budgeting and management skills. Wu, Gao, Chen & Li (2016) found, that the economic consequences may increase the risks and uncertainty in a company's future operations. As a result, a restatement frequently occurs before financial trouble. Furthermore, restatements can harm a company's image and reputation, increasing its information risk and, as a result, undermining investor confidence in the entities, perhaps leading to financial difficulty. An organization may face a wide range of severe economic implications after restatements, including significant share price volatility, management turnover and the firing of auditors, as well as a rise in the possibility of information leaks, litigation and other negative effects (Gao & Jia, 2021). Promoting integrity has become a crucial component of government innovation in most countries.

Malaysia has reaffirmed its commitment to fighting corruption while also developing good governance to ensure long-term economic growth and prosperity. Malaysia has been chastised for becoming a corrupt nation, but it is also stated to be on track to achieve its objectives, particularly in these difficult economic times. The government's Performance Management and Delivery Unit (Pemandu), according to a recent poll conducted by Ernst & Young, failed to ensure economic growth (Johari, Alam & Said, 2020). Previous studies have indicated that transparency decreases equity and debt costs, enhances stock market liquidity, minimizes

estimate risk, and reduces bid-ask spreads, and our study verified it (Wardhani, 2019). The credibility of the annual report determines how much of an impact the disclosures have on the company's bottom line.

The results of the empirical study reveal that foreign direct investment (FDI) and economic growth have a positive association, which is shown to be significant. As a result of these findings, the government should pay more attention to how foreign direct investment (FDI) affects economic growth. Foreign direct investment (FDI) can assist a country's economy grow by creating more jobs, which in turn boosts GDP. According to the Malaysian Investment Development Authority (MIDA) (2021), a substantial shortfall in Foreign Direct Investment (FDI) is evident in our country at the moment. Before 2021, the current Malaysian government must step up its efforts to secure foreign investment, which is critical. It might begin by fostering a positive attitude toward recruiting further foreign direct investment (FDI). By publishing more economic reform packages and implementing more effective economic policies, the government can benefit from the crisis moment. Hence, the tendency for the true and fair view in financial reporting to be affected is quite clear and requires more attention for these studies. The discussion established above is to build a strong hypothesis that there is a positive link between economic consequences and true and fair views reporting. The second hypothesis statement of the investigation is as follows: -
H2: Economic consequences have a positive relationship with the 'true and fair view' reporting.

Societal Values: Strong corporate governance is linked to good societal ideals. Firm success and disclosure are favorably correlated with good corporate governance. Stronger shareholder rights result in increased company value, profitability, and sales growth. The public values companies with better corporate governance and transparency. Ghani and Said (2010) discovered that performance and social obligation influence Malaysian Local Authorities' digital financial disclosure approaches. According to the research, disclosure was hampered by a lack of experience, technology, and enforcement. The prior study concentrated on digital disclosure, whereas ours looks at the whole range of disclosure modalities (Teruki et al., 2019). Johari et al., (2019) found that public sector organizations are frequently referred to as "red tape" organizations due to the numerous rules and regulations that restrict employee conduct. Formalization and centralization are also characteristics of organizations in the public sector. Siddiquee (2014) agreed that the public sector in Malaysia is as highly bureaucratic as before despite the implementation of numerous transformational reforms. The framework, operating processes and procedures, and red tape in the Malaysian public sector are highly centralized, overbearingly complicated, and repetitive, delaying or impeding any action or decision.

Pacheco, Paredes & Wheatley (2017) mentioned that Gray theorized that accountants' value systems (Hofstede's four dimensions) are linked to and generated from social values. On the other side, accounting values have an impact on accounting systems. Accounting systems are impacted by institutional factors such as legislative frameworks and capital market regulations (which are also influenced by societal values). As outlined in his concept, cultural factors impact the accounting system in two ways: by influencing value systems, and by affecting institutional aspects and their repercussions. Samy Combs and Myachina (2013) stated that, at the level of the accounting subculture, societal values are reflected, which are defined by ecological effects shaped by external forces. As a result, value systems conveyed through accountants' attitudes may be linked to and derived from society's values, with a focus on work-related values. As a result, accounting values will have an impact on accounting systems. Gray's model recognizes, however, that social norms can influence accounting systems and the accounting values that drive them indirectly through their impact on what Gray refers to as "institutional consequences."

To put it more succinctly Haniffa and Cooke (2002), in multiracial nations, the prevailing social standards may not represent the nation's goals as a whole, particularly if each race group has chosen to retain its own ethnic identity and views. When it comes to financial reporting, there may be certain discrepancies across ethnic groups in Malaysia based on race and religion, as well as government economic policy. An attempt is made in this research to see whether a link can be found between societal values and the practice of voluntary disclosure, and the four bipolar cultural dimensions outlined by Hofstede (1991) for the two primary ethnic groups participating in economic operations (the Chinese and the Malay). The discussion in this paragraph gives rise to the third hypothesis that there is a significant relationship between societal values and true and fair view reporting. The third hypothesis statement of the investigation is as follows: -

H3: Societal values have a positive relationship with the 'true and fair view' reporting.

Balancing Cost-benefit Concerns: There should be a focus on issues like better strategic decision-making, more transparency and accountability in the future, and harmonized rules as part of our search for justifications (Polzer & Reichard, 2020). As an alternative, it is reasonable to assume cost/benefit factors, such as high reform expenses or claims that lawmakers would be unable to interpret complex accounting information. Advocates highlight the advantages of improved comparability and consistency of financial accounting information as a prerequisite for more effective fiscal monitoring and integration across nations, particularly in the EU context. Moreover, consolidated government financials may enhance government transparency and, by extension, its credibility in money markets. Bamber (2017) The inherent costs of adoption, according to supporters, outweigh any potential savings or benefits. For many years in the United Kingdom, voluntary risk reporting has been favored over mandatory reporting since it yields better and more detailed disclosures. Participants stated that organizations or entities would have to invest in systems and technology, as well as other preparatory expenditures, even if the present reporting structure would only see little improvement in terms of cost Non-compliance may be due to a variety of reasons, including oversights by management or a lack of knowledge, but it can also be the consequence of a deliberate choice. One reason for noncompliance is that making necessary disclosures is too expensive, putting the organization's aims and objectives at risk. This is similar to Dye's (1985, 1986, 1990) proprietary cost theory's disclosure choice equilibrium and the consequent constraints on managers to reveal due to real and financial externalities.

Saleh, Isa & Hasan (2021) Accrual accounting implementation is influenced by several concerns, obstacles, and causes. Malaysia may learn from New Zealand, Australia, and the United Kingdom in terms of overcoming implementation challenges such as asset and liability recognition and valuation, human competency, and high implementation costs. In addition to human resource expertise, identified software and technological capabilities, accounting policy and standard suitability, and effective communication as prerequisites for successful accrual accounting implementation which will lead to proper financial statement reporting. The above-mentioned discussions give rise to the fourth hypothesis which says that there is a significant relationship between balancing cost-benefit concerns and true and fair view reporting. The fourth hypothesis statement of the investigation is as follows: -
H4: Balancing cost-benefit has a positive relationship with the 'true and fair view' reporting.

Gender Diversity: Branco, Bianchi, & Branco (2021) We expect that increased gender, age, and country diversity will result in higher levels of reporting, based on resource dependence theory. Because men and women have "diverse talents, expertise, and views," gender diversity is an important board characteristic. Most studies looking at gender disparities point to significant differences in "values, perceptions, and beliefs between men and women in general". Egbunike & Odum (2018) in the context of Asia-Pacific countries, reveal that board leadership structure was not associated with firm performance and financial reporting quality. After correcting for a variety of corporate governance and firm-level factors, it is shown that greater proportions of female directors are associated with more transparent disclosure (DeBoskey, Luo & Wang, 2018). There would be a significant influence of gender moderating the other independent variables and true and fair view reporting. The fourth hypothesis statement of the investigation is as follows: -
H5: Gender diversity moderates the relationship of political intervention, economic consequences, societal values and balancing cost-benefit concerns on 'true and fair view' reporting.

3. Methodology

The scope of the review must be limited to be manageable, and it will not be possible to examine everything (Abu Bakar & Saleh, 2016). Therefore, only studies having a Malaysian emphasis or that feature Malaysia in a comparative context are included here. Research treating Malaysia as merely one nation among many, such as Asia or the developing world, is not included. In terms of literature, the investigation draws exclusively from scholarly publications and dissertations. The lack of academic rigor prevented the inclusion of books, book chapters, and articles in professional periodicals, and conference papers. To determine which of these sources represent scholarly work would be an onerous task for the author. Consistency with previous review studies requires including just academic journals. Because of their importance to the study and the government as a whole, the study also incorporates the most recent official circulars and policies produced by

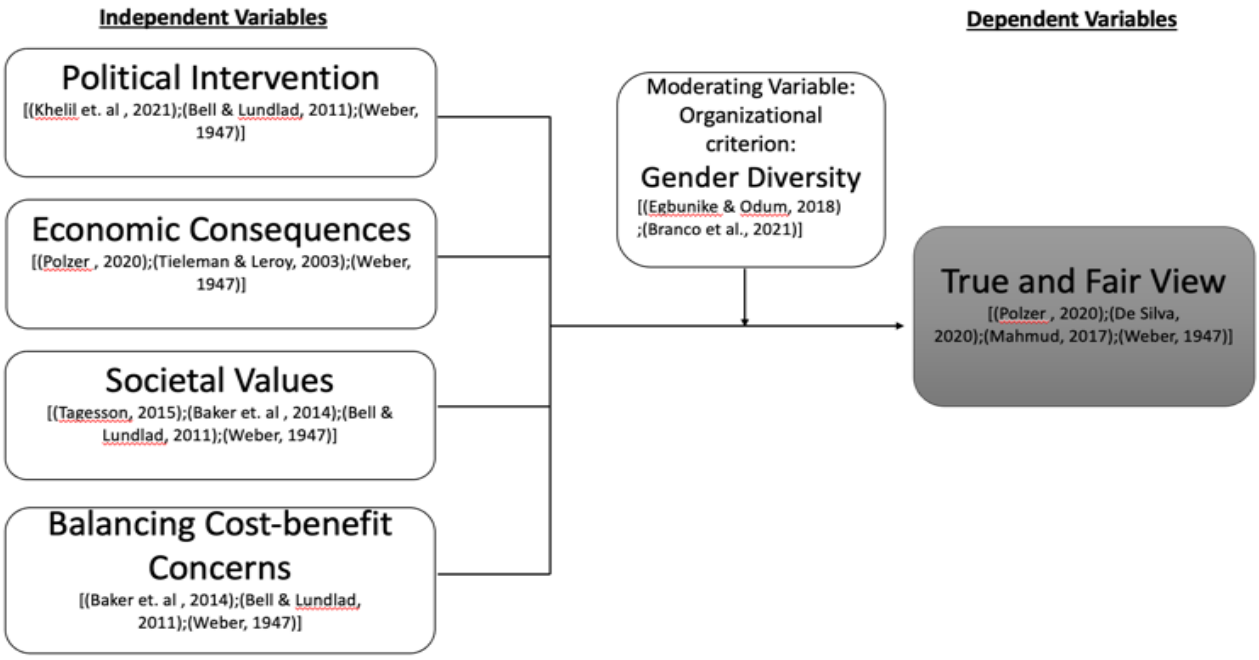
Ministries such as the Treasury Circular and Public Sector Policies. Due to the low amount of journal publications on Malaysian PSA predicted by previous review studies, this investigation also draws upon Master's and Doctoral theses to supplement its findings. Additionally, only English and Malay articles and circulars are included.

Literature searches have been conducted using search engines including Emerald, Elsevier, and the IPN Journal of Research and Practice in Public Sector Accounting and Management (National Accounting Institute). The Malaysian Theses Online (MYTO) database has been used for theses and dissertations since it contains every thesis ever archived by the libraries of Malaysia's public universities. We have searched for these terms and others like them: 'Malaysia', 'true and fair view', 'public sector', 'government', 'federal', 'local', 'account*', 'performance', 'financial', 'financial statement', 'statutory bod*'. Search strategies that look both backward and ahead across time for relevant literature have also been implemented.

4. The Conceptual Framework

Based on the preceding discussion of potential antecedents of a true and fair view of reporting by public sector entities, the following conceptual framework is proposed. In the conceptual framework, independent antecedents are political intervention, economic consequences, societal values, and balancing cost-benefit concerns. The moderating variable is gender diversity. The center of the issue understudy in the proposed conceptual framework is the true and fair view.

Figure 3: Proposed Conceptual Framework



The government of Malaysia has shifted from a modified cash-based accounting system to an accrual accounting system due to better transparency and accountability (Ahmad, Abul Hasan & Ismail, 2021). Therefore, the most suitable theory used for the framework is Institutional Theory and it does impact the preparers, regulators, and standard setters. Weber (1947) mentioned, that Institutional Theory has primarily focused on social science, then after multiple studies, several elements are deemed to be inside the structure of the theory such as political science, organizational behavior, strategic management (decision-making) and accounting professions and regulations. Polzer & Reichard, (2020) mentioned that it had a huge impact on the reporting of the financial statement in meeting the true and fair view disclosure which to produce harmonization of the accounting system, in this case, in Federal Statutory Bodies and public sector as the whole of Malaysia.

According to Bell & Lundblad (2011), institutional theory handles organizational policy changes. The purpose of this theory is to examine the impact of external organizational pressure on disclosure. Institutions execute policies with legal, economic, and social nuances (Tieleman & Leroy, 2003). That is the forceful external influence exerted on organizations by governments, regulatory agencies or bodies, and host community norms. According to the institutional theory of Bruton, Ahlstrom, and Li (2010), organizations maintain their "status and legitimacy" by adhering to the formal sets of agreements, norms, conventions, and traditions that entities and persons are supposed to follow. Institutional pressure, according to Dacin, Goodstein, and Scott (2002), may stem from three sources of institutionalized norms or practices: Functional Pressure; which stems from problems in the company's operations; Political Pressure; which stems from underlying power distribution; and Social Pressure; stems from the existence of diverse and contradictory beliefs and practices.

The goal of historical institutionalism is to track the time history of social, economic, and political behavior and development, with an emphasis on power dynamics and path dependence. However, there are factors influencing the true and fair view reporting that impact the quality of the disclosure. Firstly, institutional reforms and political (in terms of politicians or members of parliaments) interventions and connections are aligned and will influence the reporting quality either positively or negatively (Khelil et al., 2021). When the government decides to change the accounting system to improve accountability, there must be a relationship with politics. So, there is a relationship between power and behavior. It is closely related to political power, which will have a significant impact on the true and fair view reporting of financial statements in Federal Statutory Bodies. Secondly, the impact of the economic decision to shift to an accrual accounting system is derived from the institutional theory; changing the accounting system is one of the biggest economic decisions made by the government, and it is chosen to be used as it is perceived to be more efficient and effective from another accounting system in accounting harmonization, as will perceive strategic decision-making. As a result, increased transparency and accountability, as well as unified norms on the reporting side; therefore, economic consequences will have a significant influence on the true and fair view reporting (Polzer & Reichard, 2020).

Thirdly, for societal values, it is how accountants in FSBs behave in preparing reports of financial statements toward disclosing true and fair views or otherwise. This is because “Sociological Institutionalism is based on the assumption that organizations are influenced by pressure from their institutional environment and adopt the structures and/or procedures that are considered legitimate and are regarded as the appropriate choice” (Tagesson, 2015). A multitude of factors, including professional association standards and the country's accounting culture, influence the behaviors of accountants in the public sector. As a result, institutions assist in defining what constitutes the right behavior in a given setting, such as when and how specific accounting data should be utilized to make well-rounded decisions (Scott, 2014). Moreover, when the decision was made during the institutional reform, there will be costs to be incurred to gain the benefit from the decision. In the debate over accounting harmonization, considerations that highlight issues such as easier access to credit markets and better strategic decision-making, as well as increased transparency and accountability, should be explored. Also anticipated would be cost-benefit issues, such as high reform costs or charges that legislators would not comprehend complex accounting facts (Polzer & Reichard, 2020). As highlighted in the institutional theory, any decisions made there will have consequences for the whole institution for example various components of neo-institutional theory have offered a framework for accounting study, including studies on the accounting profession, accounting regulation and the Securities and Exchange Commission's regulatory role (SEC). The neo-institutional theory holds that "organizations" are socially generated and susceptible to processes that influence the design and functioning of their regulatory systems (Baker et al., 2014). As for this study, the cost is the implementation of any new regulation or laws related to FSB and the benefit is to gain TFV in financial reporting. In fulfilling the objective huge costs are incurred as the implementation of the accrual accounting system is still new and ongoing.

Lastly, organizations, according to institutional theory, strive to adopt dominant social norms, systems, practices, and structures that are believed to be acceptable in society (Jayasinghe, Adhikari, Soobaroyen, Wynne, Malagila & Abdurafiu, 2020). After correcting for a variety of corporate governance and firm-level factors, (DeBoskey et al., 2018) showed that greater proportions of female directors are associated with more transparent disclosure. From the statement made by the scholars, organizational structure plays an

important role in the theory, and it is indeed to zoom in on gender diversity as the moderating role to the rest of the listed factors to produce financial reports in "true and fair view".

Table 1: Operational Definition

Variable	Definition	Source
True and fair view	Perceived quality of the financial disclosure produced by the standards and frameworks.	(Cheung et al., 2010) (Tarr & Mack, 2013) (Jayalakshmy et al., 2005) (Ullah et al., 2020) (Puroila & Mäkelä, 2019)
Political interventions	Perceived political involvements or ties during the preparation and reporting of the financial reports.	(Najaf & Najaf, 2021) (Yudhanti & Tjahjadi, 2021) (Dal Magro & Klann, 2021)
Economic consequences	Perceived economic impacts on the quality of accounting reports.	(Grassa et al., 2022) (Wu et al., 2016) (Wardhani, 2019) (Ahmad et al., 2021)
Societal values	The perceived societal value of the collective behavior of the accounting personnel in producing true and fair view financial reports.	(Alsharari, 2022) (Alsharari, 2020) (Feng et al., 2017) (Haniffa & Cooke, 2002)
Balancing cost-benefit concerns	Perceived cost incurred to gain specific benefit out of the quality of the financial reporting and disclosure	(Bamber, 2017) (Polzer & Reichard, 2020)
Gender Diversity	Perceived sexuality roles moderating the impact of the variables in producing high-quality annual reports	(Egbunike & Odum, 2018) (Branco et al., 2021)

Research Opportunities: Factors influencing true and fair view reporting of Federal Statutory Bodies in Malaysia studies are very important to meet the need for valuable inputs for public sectors in Malaysia to improve their reporting. In previous reports published by Global Competitiveness Reports, it was mentioned that the overall competitiveness of the public sector in Malaysia has lagged in service delivery, performance, and reporting, and the ranking shows a declining trend, while Singapore maintained the first since 2015. This is an urgent call for researchers to conduct as much research in the public sector as in the private sector; the public sector is no longer second to none. Previous research has also found that less research is conducted in the public sector than in the private sector because the private sector is considered the market controller for the overall economy. The public sector remains the opportunity cost for previous researchers, as the importance of research to the public sector is considered insignificant. However, it is important to a country's reputation, stability, and sustainability. Many previous studies on the public sector have been conducted in developed and Western countries, so the studies in developing countries such as Malaysia and also in underdeveloped countries are still a niche. On the positive side, researchers can transfer the studies conducted in Western countries to Malaysia to make improvements. There is a need for research in this area as public sector issues are hot and current today. This is because there has been a rising trend of corruption and financial scandals by employees and political officials in recent decades. This is a wake-up call for researchers to conduct more research in this area to get to the root of the problems. Finally, numerous studies rely on institutional theory in the social sciences in general, however, specifically for political science. Since the theory fits the research framework, the institutional theory will form the basis for the studies.

Research Implication: The significance of this study to the body of knowledge that currently exists about TFV reporting in the FSB is that it demonstrates the influence of factors that affect the preparation of financial reports. The importance of this study is primarily to facilitate the adoption of MPSAS 1 and reduce the erroneous reporting of the standard in FSBs. Secondly; the study will ensure that the National Anti-Corruption Plan or any other government-initiated plan to combat corruption and fraud successfully meets the plans' objectives. In addition, the study will improve preparers' and auditors' understanding of factors such as political intervention, economic consequences, societal values, and balancing costs and benefits that influence truthful reporting in the public sector. In conjunction with the importance, it will highlight which

factors had the greatest influence on the preparation of the reports. About the management area, the independent board of directors (BOD) and top management can ensure that the aforementioned factors do not influence the reporting process under their control and take precautions to contain these factors at the management level. Next, the study will identify related initiatives, laws, regulations, programs, and policies, such as institutional reform initiatives, i.e., New Public Management Reforms, National Anti-Corruption Plan (NACP), and New Economic Model (NEM) programs initiated to improve transparency or institutional reforms in FSBs.

In addition, the results of the study will help to broaden and improve the scope of institutional theory by adding new variables from the study so that they can be used in different and extensive aspects of the research. Moreover, the study will provide a clear guideline for policymakers to regulate accounting laws or regulations in Malaysia within federal statutory bodies given the bad influences on financial reporting. In addition to this importance, the findings will improve the corporate governance framework of federal statutory bodies by mitigating these factors that continuously influence the reporting process. Finally, the results of this study will ensure that financial report preparers are aware of the factors that prevent them from performing due diligence in producing truthful and appropriate reports and that this does not become the norm.

5. Conclusion

The objective of this paper was to establish the conceptual framework for the study of Antecedents of True and Fair View Reporting Surrounding Migration to Accrual Accounting by Public Sector Entities: A Case of Federal Statutory Bodies (FSB) in Malaysia. The paper is more towards strategizing the whole concept of the study and finding the perfect framework before proceeding to actual fieldwork.

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The Effects of Environmental Values on Gen Z's E-Waste Recycling Intention

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Abstract: The rapid growth of electronic waste (e-waste) has become a pressing environmental concern, necessitating a deeper understanding of individuals' intentions toward responsible e-waste management. This study aims to explore the relationship between e-waste recycling intentions using the Theory of Planned Behavior (TPB) while considering the influence of environmental values. The research design employs a quantitative approach, utilizing a survey questionnaire to collect data from 115 Gen Z respondents. The findings show that perceived behavioral control, subjective norms and environmental values influence the intention to recycle e-waste while attitude was not impactful in influencing e-waste recycling intention. The findings will offer valuable insights for policymakers, environmental organizations, and practitioners seeking to promote sustainable e-waste practices. Ultimately, the study aims to foster a more comprehensive understanding of how individual attitudes can be leveraged to drive positive changes in e-waste management and contribute to a more sustainable future.

Keywords: *E-waste recycling, environmental values, Theory of Planned Behavior, perceived behavioral control.*

1. Introduction and Background

Waste from electrical and electronic equipment (WEEE) or also known as e-waste refers broadly to various types of products with circuity or electrical components with a power or battery supply (Step Initiative, 2014). The United Nations Institute for Training and Research, and the European member states recognize electrical and electronic equipment waste under six categories including temperature exchange equipment, screens and monitors, lamps, large equipment, small equipment and, small IT and Telecommunications equipment (Forti et al., 2020). In 2022, 50 million tons of e-waste recorded was recorded globally. Developed nations produce more e-waste than developing countries; however, Asia is expected to contribute significantly to the growing amounts of e-waste generated each year (Time, 2023). In Asia, 24.9 million tons of e-waste was generated in 2020, of which only 11.7% was documented and recycled through the proper channels. For this amount of e-waste, an estimated 60.8 million tons of carbon dioxide and greenhouse gases could be emitted into the atmosphere. It is also estimated that the raw material in e-waste could be worth up to USD 26.4 billion. China, India and Indonesia are expected to be the largest producers of e-waste in the coming decade (E-waste Monitor, 2020).

Locally, Malaysia is expected to produce 24.5 million units of e-waste by 2025 and the current most common e-waste item discarded by Malaysian consumers is the laptop (Department of Environment Malaysia, 2023; Business Today, 2023). The growing trend of usage of electric and electronic devices in consumer lifestyles is expected to increase the amount of e-waste which will be managed by governments around the globe through waste management systems. Proper e-waste management systems must be employed given that improper exposure to electric and electronic waste has been shown to cause a myriad of health issues including harmful effects on neurodevelopment (Huo et al., 2019) (, birth outcome Zhang et al., 2018), learning outcomes (Soetrisno et al. 2020), respiratory effects (Amoabeng et al. 2020), hearing loss (Xu et al., 2020) and cancer (Davis et al, 2019). Therefore, it is of growing importance to improve e-waste management systems and adjust consumer habits in discarding e-waste. Increasingly, e-waste management systems have increased in prominence on global and national agendas in line with sustainability goals. Policymakers must grasp the consumers' motivational precursors to e-waste recycling.

Given the importance of this issue, this study focuses on understanding Gen Z's (born between 1996 and 2010) (Pew Research Centre, 2020) intention to recycle e-waste. Previous studies indicate that motivational models used to study consumer behavior and intention in e-waste recycling stem from past studies in recycling (Tonglet et al., 2004). Current studies focusing on e-waste recycling intention have utilized the Norm Activation Theory (Nguyen, 2023), Behavioral Reasoning Theory (Dhir et al., 2021), Technology Acceptance Model (Ramzan et al., 2021), Valence Theory (Dhir et al., 2021) and most prominently, the Theory

of Planned Behavior (Wan et al., 2017; Wang et al., 2016). Drawing from Tonglet et al. (2004), further attention is required in the incorporation of additional variables to the Theory of Planned Behavior to further the understanding of the intention to recycle e-waste. Hence, this study will study the effects of Environmental Values on e-waste recycling Attitude and Intention. The effects of Environmental Values on attitudes should be investigated to examine the effects of altruistic values on pro-environmental behavior. Additionally, previous use of Environmental Values was only limited to understanding its effects on Perceived Behavior Control and requires the expansion of the model to include all variables in the Theory of Planned Behavior to obtain a deeper understanding of its influence as an intrinsic motivator (Ofori et al., 2022).

2. Literature Review

Theory of Planned Behavior: The Theory of Planned Behavior (TPB) attempts to identify motivational factors that influence intention and behavior. The motivational factors indicate the extent of effort that will be exerted for the performance of behavior. Thus, the greater the intention, the higher the likelihood of performing the behavior. The Theory of Planned Behavior asserts that behaviors are shaped by the formation of intention. Intention is predicted by attitude, subjective norm and perceived behavioral control. An individual's perception of the favorability of a behavior is defined as attitude while subjective norm refers to the perceived social pressure to perform a behavior; and perceived behavioral control alludes to the ability of an individual to perform a behavior in the given context (Ajzen, 1991).

TPB has been used in the past to study pro-environmental behavior, including studies on e-waste recycling. Previous studies have employed the use of TPB with the Norm Activation model (Schwartz, 1977), the Value Belief Norm theory (Stern et al., 1999) and the Theory of Interpersonal Behavior (Triandis, 1977). TPB is viewed as an effective model to understand behavioral intention (Riebl et al., 2015; Timm and Deal, 2016). When TPB is used in studies focusing on pro-environmental behavior, studies were found to focus on additional variables such as moral norms, past behavior, self-identity and habit (Yuriev et al., 2020). Behavior performance is expected to be successful when the individual has the required opportunities and resources. Deterrence in behavior performance is caused by non-motivational factors such as time or money; which represents actual control over behavior.

Attitude: Attitude refers to the degree to which the behavior is evaluated or appraised to be favorable or unfavorable. Attitude includes experiential and instrumental dimensions (Ajzen, 2002). Utilitarian drives also motivate individuals toward the performance of behavior (Batra & Ahtola, 1991). Voss et al. (2003) suggested that the degree of utility of a product would influence consumption attitude or rather, in this context, the degree of utility of performing a behavior.

Attitude is defined as an evaluative response to a specific matter as either preferred or non-preferred. It is usually a predisposed emotional state concerning a particular object, issue or entity (Perloff, 2016). According to Ajzen (1991), attitude shapes the intention to perform a behavior. Past studies on pro-environmental behavior have provided evidence that attitude influences the intention to adopt green building technologies (Rajae et al., 2019) and also recycling intention (Wan et al., 2017). Therefore, this study examines the following hypothesis:
H_1: Attitude has a significant effect on Behavioral Intention.

Subjective Norm: Subjective norm is defined as the perceived social pressure to perform or not to perform the behavior (Ajzen, 1991). Subjective Norm describes social influence on behavior performance (White, Smith, Terry, Greenslade, & McKimmie, 2009). Significant others are seen to be able to influence an individual's behavioral intention (Ajzen, 1991). Individuals will be influenced by relevant other's beliefs on whether specific behavior should be performed (Fornara, Carrus, Passafaro, & Bonnes, 2011; White et al., 2009) as a form of external incentive or validation in decision-making (Comber & Thieme, 2013).

It is expected that the individual's willingness to meet the expectations of a reference group important to them would be a strong predictor of behavioral intention (Venkatesh & Davis, 2000). Previous research has shown that subjective norms can influence pro-environmental behavior intentions such as the intention to

recycle agricultural waste (Jiang et al., 2018), recycle plastic waste (Khan et al., 2019), and e-waste (Wan et al., 2017). Therefore, this study examines the following hypothesis:
H_2: Subjective Norm has a significant effect on Behavioral Intention.

Perceived Behavioral Control: Perceived behavior control refers to the perceived ease or difficulty in performing the behavior, given that it reflects experience and anticipates obstacles or impediments (Ajzen, 1991). Perceived control can be understood to be the effortlessness or difficulties in the performance of behavior (Tonglet et al., 2004). Thus, individuals who know how to recycle would be more likely to do so.

Past studies have shown that perceived behavioral control can affect the intention to perform behavior (Russell et al., 2017) in household recycling intention and electronic device reuse and repair intention (Kianpour et al., 2017) and even in pro-environmental behavior (Niaura, 2013). Knowing how to recycle through procedural steps has been found to influence recycling behavior (Rosenthal, 2018). Thus, recycling rates have been significantly influenced by perceived behavioral control (Kumar, 2019). However, previous observations have also suggested that perceived behavioral control did not affect recycling behavior (Zhang et al., 2019). Thus, this study examines the following hypothesis:
H_3: Perceived Behavioral Control has a significant effect on Behavioral Intention.

Environmental Values: Values are seen as shaping an individual's self and personality and function as a force of motivation for behavior (Schwartz, 2012). Values can regulate people's intentions to perform a behavior. Values can predict the performance of pro-environmental behavior such as the use of electric vehicles (Han et al., 2017; He et al., 2018) and staying in green hotels (Verma et al., 2019) or using electric vehicles, as mentioned by Dhir et al. (2021). The consumers' values shape their actions. When selecting a specific behavior to perform, consumers consider the compatibility between the action with their values, previous experience, current beliefs and established needs (Saphores et al., 2012). Previous studies have observed the influence of values in determining the disposal of e-waste such as mobile phones (Ting et al., 2019).

Environmental values can be described as a moral obligation to engage or refrain from certain actions that will jeopardize the quality of the environment (Steg & Nordlund, 2019). Environmental values are expected to serve as a form of intrinsic motivation for environmentally friendly behavior (Ofori et al., 2021). Previous research indicates that environmental values do influence pro-environmental behavior such as recycling (Khalil et al., 2017; Zuo et al., 2017; Sorkun, 2018), using public transportation (Bamberg et al., 2002), reducing personal car use (Nordlund & Garvill, 2003), recycling e-waste (Zuo et al., 2017; Sorkun, 2018). Thus, this study examines the following hypothesis:
H_4: Environmental Values Control has a significant effect on Behavioral Intention.
H_5: Environmental Values have a significant effect on Attitude.

3. Research Methodology

For this study, 128 respondents answered the online questionnaire, but 115 respondents were retained due to straight-lining. Based on the minimum sample size obtained through G*Power a prior power estimation, the minimum sample size required for more than 0.80, effect size of 0.15 (Hager, 2006), with a 5% probability of error, to the power of $(1 - \beta) = 95\%$ and with four predictors is 89. Purposive sampling was employed where the respondents selected by the researcher were individuals who use electrical and electronic products. The age of the respondents was 20 – 24 years old representing the age of consumers recognized as Gen Z. Purposive sampling not only is efficient and cost-effective but also allows for typical representations of the population to be obtained, aligning to the objectives of this study.

The research questionnaire used included the instrument for the Theory of Planned Behavior (Wan et al., 2017) comprising 34 items and environmental Values containing 9 items. The 7-point Likert scale ranging from 'Strongly Disagree' to 'Strongly Agree' was utilized for the instrument (Ofori et al., 2021). The respondent's demographic attributes were also collected. Twelve demographic items were also included in the questionnaire. Partial Least Squares Structural Equation Modelling analysis was employed using the SmartPLS4 software. This is primarily motivated by the research goal which is to identify the influence of key

drivers in consumer technology acceptance and extend existing structural theory. This can be achieved in PLS-SEM because it estimates coefficients or path model relationships that maximize the R^2 values of the endogenous constructs. PLS-SEM also estimates complex models with multiple construct and structural paths where causal predictive explanations are emphasized (Ramayah, Cheah, Chuah, Ting & Memon, 2018; Hair, Hult, Ringle & Sarstedt, 2016) in estimating statistical models.

4. Results

Demographic Profile: A total of 128 respondents took part in this study, however, 115 responses were retained due to straight-lining. All respondents were aged between 20 years old to 24 years old and identified as Bumiputra. The most common way respondents dispose of their e-waste was by re-selling followed by storing it at home, recycling it at the designated recycling point, recycling through a waste collection van/lorry service, giving it away, discarding it in the dumpster, recycling by sending it to government allocated recycling rubbish bin, recycle using recycling bins for electronic waste, recycle by sending to a government-run recycling center, recycle by sending to waste store, recycle by sending to waste collection in mall and other manners not mentioned in the questionnaire (Table 1).

Table 1: Demographic Profile of the Respondents

Demographics	Frequency	Percent (%)
Age		
Below 20 years (from 18 years)	0	0
20 - 24 years	115	100.0
Gender		
Female	95	82.6
Male	20	17.4
Ethnicity		
Bumiputra	115	100.0
Ways of Disposing of E-waste		
Re-sell	75	
Recycle at designated recycling points (e.g., weekly community recycling initiative)	36	
Recycle using recycling bins for electronic waste	18	
Recycle by sending to waste store	11	
Recycle through waste collection van/lorry service	28	
Recycle by sending to waste collection in a mall	11	
Recycle by sending to government-run recycling centre	12	
Recycle by sending to government-allocated recycling rubbish bin	24	
Give away	27	
Store at home	30	
Discard in dumpster	25	
Others	3	

Measurement Model: The measurement properties were sufficient for Composite Reliability, Indicator Loading, Average Variance Extracted, Cross Loading, Fornell and Larcker's criterion and HTMT. Two items were dropped given the low item loading, below the value of 0.6 (Byrne, 2010) however, item EVAL2 was retained given that the threshold values for the measurement of internal consistency convergent reliability and discriminant validity were met (Table 2). The threshold of 0.70 (Hair, Hult, Ringle & Sarstedt., 2016; Henseler, Hubona & Ray, 2016) was achieved for all CR scores. Also, the Average Variance Extracted (AVE) for all constructs which were above 0.50 (Bagozzi & Yi, 1988; Fornell & Larcker, 1981; Hair et al., 2016) (Table 2).

Discriminant validity was indicated through examination of the cross-loading, Fornell and Larcker's criterion and HTMT. The cross loadings for each construct were observed to be the highest for their designated constructs thus indicating discriminant validity (Hair et al., 2016) (Refer to Table 3). For the Fornell & Larcker Criterion (Table 4), the square root of each construct's AVE was greater than all other correlations with any other construct (Hair et al., 2016). Using the stringent criteria, the HTMT scores are all below the threshold of 0.85 thus displaying discriminant validity (Kline, 2011) (Table 5).

Table 2: Factor Loadings, Convergent Validity and Composite Reliability

Construct	Items	Loadings	AVE	Cronbach Alpha	Composite Reliability (rho c)
Attitude	ATT1	0.830	0.538	0.794	0.851
	ATT2	0.716			
	ATT3	0.582 (item dropped)			
	ATT4	0.523			
	ATT5	0.802			
	ATT6	0.758			
Subjective Norm	SN1	0.746	0.565	0.847	0.886
	SN2	0.663			
	SN3	0.748			
	SN4	0.763			
	SN5	0.785			
	SN6	0.799			
Perceived Behavioral Control	PBC1	0.728	0.650	0.910	0.928
	PBC2	0.776			
	PBC3	0.821			
	PBC4	0.805			
	PBC5	0.871			
	PBC6	0.818			
	PBC7	0.818			
Environmental Values	EVAL1	0.625	0.557	0.883	0.908
	EVAL2	0.553			
	EVAL3	0.570 (item dropped)			
	EVAL4	0.665			
	EVAL5	0.844			
	EVAL6	0.849			
	EVAL7	0.826			
	EVAL8	0.805			
	EVAL9	0.746			
Behavioral Intention	BI1	0.811	0.701	0.786	0.875
	BI2	0.865			
	BI3	0.835			

Table 3: Cross Loadings

	ATT	BI	EVAL	PBC	SN
ATT1	**0.830**	0.255	0.347	0.310	0.363
ATT2	**0.716**	0.080	0.204	0.142	0.286
ATT4	**0.523**	0.040	0.138	0.127	0.229
ATT5	**0.802**	0.312	0.278	0.365	0.399
ATT6	**0.758**	0.224	0.126	0.355	0.330

BI1	0.290	**0.811**	0.378	0.610	0.535
BI2	0.233	**0.865**	0.254	0.666	0.528
BI3	0.199	**0.835**	0.430	0.467	0.495
EVAL1	0.183	0.260	**0.625**	0.126	0.076
EVAL2	0.209	0.193	**0.553**	0.080	0.135
EVAL4	0.340	0.318	**0.665**	0.233	0.232
EVAL5	0.321	0.338	**0.844**	0.217	0.313
EVAL6	0.242	0.377	**0.849**	0.196	0.252
EVAL7	0.200	0.337	**0.826**	0.182	0.209
EVAL8	0.211	0.313	**0.805**	0.151	0.203
EVAL9	0.195	0.328	**0.746**	0.173	0.197
PBC1	0.259	0.477	0.173	**0.728**	0.411
PBC2	0.332	0.541	0.185	**0.776**	0.432
PBC3	0.406	0.513	0.164	**0.821**	0.551
PBC4	0.351	0.473	0.142	**0.805**	0.523
PBC5	0.328	0.597	0.198	**0.871**	0.485
PBC6	0.217	0.652	0.256	**0.818**	0.511
PBC7	0.296	0.645	0.191	**0.818**	0.492
SN1	0.386	0.409	0.227	0.581	**0.746**
SN2	0.499	0.337	0.380	0.378	**0.663**
SN3	0.253	0.398	0.145	0.373	**0.748**
SN4	0.238	0.499	0.230	0.549	**0.763**
SN5	0.326	0.462	0.168	0.400	**0.785**
SN6	0.377	0.618	0.179	0.439	**0.799**

Table 4: Fornell & Larcker Criterion

	ATT	BI	EVAL	PBC	SN
ATT	**0.734**				
BI	0.290	**0.837**			
EVAL	0.326	0.420	**0.746**		
PBC	0.383	0.700	0.236	**0.806**	
SN	0.450	0.622	0.282	0.603	**0.752**

Table 5: HTMT

	ATT	BI	EVAL	PBC	SN
ATT					
BI	0.316				
EVAL	0.346	0.503			
PBC	0.419	0.809	0.252		
SN	0.545	0.737	0.330	0.686	

Structural Model: To assess the lateral collinearity, the Variance Inflator Factor (VIF) was examined. All values were below the threshold value of 3.3 and thus, the model does not possess collinearity issues (Table 6).

Table 6: VIF

	ATT	BI
ATT		1.353
BI		
EVAL	1.000	1.151
PBC		1.615
SN		1.745

The results of hypotheses testing are presented in Table 7 where the following hypotheses were found to be significant: Subjective Norm (H_2) (ß = 0.301, p <0.01), Perceived Behavioral Control (H_3) (ß = 0.505, p <0.01) and Environmental Values (H_4) (ß = 0.256, p <0.01) had a significant effect on Behavioral Intention. Environmental Values (H_5) (ß = 0.326, p <0.01) also had a significant effect on Attitude. Finally, Attitude (H_1) (ß = -0.122, p <0.01) did not have a significant effect on Behavioral Intention.

According to Cohen (1988), the effect size (f^2) can be interpreted as having a substantial effect size (0.35), medium effect size (0.15) and small effect size (0.02). Perceived Behavioral Control (0.407) has a large effect size. Although, Environmental Values (0.147) and Subjective Norms (0.134) were observed to be close to having a medium effect size they did not achieve the threshold requirement of 0.15. Lastly, Attitude (0.029) has a small effect size.

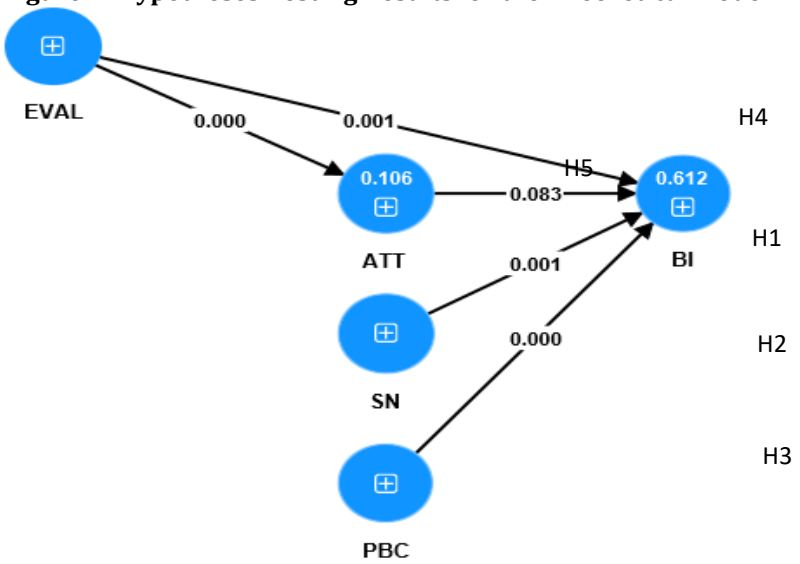
Using Cohen's (1988) interpretation of the Coefficient of Determination (R^2), in influence of the constructs can be interpreted as substantial (0.26), moderate (0.13) or weak (0.02). Behavioral Intention (0.612) shares 61.2% of the variance with Attitude, Subjective Norm, Perceived Behavioral Control and Environmental Values, signifying a large effect. The variance in Attitude (0.106) indicates a moderate effect (Refer to Table 7).

For Stone-Geisser's Q^2 value, a value higher than 0 is considered to have predictive relevance for the endogenous constructs (Hair et al., 2016; Geisser, 1974). Given the Q^2 scores in Table 7, the constructs in the model exhibit predictive relevance.

Table 7: Hypotheses Testing

	Hypothesis	Beta	SE	t-value	LL	UL	f^2	R^2	Q^2	Findings
H_1	ATT → BI	-0.122	0.071	1.732	-0.275	0.000	0.029			Not Supported
H_2	SN → BI	0.301	0.095	3.179	0.114	0.481	0.134			Supported
H_3	PBC → BI	0.505	0.085	5.955	0.331	0.658	0.407	0.612	0.552	Supported
H_4	EVAL → BI	0.256	0.080	3.207	0.099	0.411	0.147			Supported
H_5	EVAL → ATT	0.326	0.082	3.978	0.081	0.440	0.119	0.106	0.043	Supported

Figure 1: Hypotheses Testing Results for the Theoretical Model



5. Conclusion and Discussion

The results indicate that Perceived Behavioral Control has the largest effect on Behavioral Intention. Previous literature asserts these findings as well (Ofori et al., 2021). This indicates that most respondents have the individual capacity to recycle their e-waste. The confidence to perform a behavior narrows the gap between intention and behavior (Rosenthal, 2018) increasing the likelihood of follow-through to behavior performance. Thus, policymakers should consider the importance of offering the public a system for recycling e-waste that enables citizens to perform e-waste recycling easily. Convenient avenues for e-waste recycling would aid rather than hinder the chances of residents being interested in recycling e-waste whether or not they care about the health environment or not.

Subjective Norm is observed to be an important indicator of the intention to recycle e-waste among Gen Z. Congruent to the findings by Wan et al. (2017); Subjective Norm has a significant effect on Behavioral Intention while Attitude does not. Literature suggests that as the influence of Subjective Norms increases, the influence of Attitude decreases (Huffman et al., 2014). In this study, Attitude was not found to be a significant predictor of Behavioral Intention. This suggests that while Gen Z might not fully perceive e-waste recycling to be favorable for them, they continue to possess the intention to recycle e-waste. Huffman et al. (2014) assert the importance of social groups in shaping the behavior of communities even when the individual is not aware of the benefits of recycling.

Environmental Values influence Behavioral Intention and Attitude in a significant manner. As observed through the effect sizes for H_4 and H_5, it is evident that Environmental Values do influence the formation of the intention to recycle e-waste. Internal environmental values can be observed in this study to shape Gen Z's formation of attitude and intention, leading to the performance of e-waste recycling behavior. This is further supported by data from the respondents, where more than half of the respondents do actively sell their used e-waste and a smaller proportion of respondents discard their e-waste directly into the dumpster without any type of recycling.

Managerial Implications and Recommendations

This study focuses on the influence of Environmental Values on the Attitude construct in TPB and the intention to recycle e-waste. However, future studies should consider investigating the effects of Environmental Values on beliefs using the full Theory of Planned Behavior model. One of the limitations of this study is the use of university students only as the sample. Thus, it is recommended that the study be

carried out on other age groups to ascertain the importance of the indicators in the intention to recycle e-waste.

The findings suggest that Gen Z possesses the intention to recycle e-waste when they are confident that they are able to perform the behavior and when their social group perceives e-waste recycling to be favorable. Government agencies interested in promoting e-waste recycling behavior to Gen Z should focus on ensuring that e-waste recycling facilities are within easy reach of Gen Z. E-waste recycling agencies should consider making e-waste drop-off bins, centers and collection points that are within an acceptable radius of distance from Gen Z's congregation spots. Additionally, engaging opinion leaders perceived to be important to Gen Z could also help influence their perception of recycling e-waste.

Conclusion

This study seeks to establish the influence of environmental values on attitudes and e-waste recycling intention for Gen Z. The influence of environmental values is evident on attitude and behavioral intention indicating that pro-environmental values can shape the attitudes and intentions of Gen Z. However, from this study, it can be seen that perceived behavioral control and subjective norms had a stronger role to play in shaping the intention to recycle e-waste. Therefore, while pro-environmental values do affect attitude, the roles of perceived behavioral control and subjective norm should not be discounted as significant motivators of e-waste recycling behavior.

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Capital Structure–Firm Performance Nexus: The Moderating Effect of Board Independence

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Abstract: The purpose of this study is to investigate the relationship between capital structure and firm performance by exploring the moderating effect of one of the corporate governance mechanisms, namely board independence. Panel data regression was employed based on a sample of 492 non-financial listed companies in Malaysia from 2010 to 2019. The results showed that capital structure has a significant positive impact on firm performance. Meanwhile, board independence significantly and negatively moderates the relationship between capital structure and firm performance. The findings of this study shall provide better insights for investors, firm managers, and policymakers on the critical role of corporate governance mechanisms in enhancing firm performance, particularly in implementing suitable actions and policies.

Keywords: *Capital structure, Firm performance, corporate governance, Board independence.*

1. Introduction and Background

Capital structure is one of the crucial considerations for any corporation. It involves making decisions on an efficient mix of different financing sources available namely debts versus equity to minimize the weighted average cost of capital (WACC). Essentially, decisions about capital structure provide a clear direction for firms in financing their overall operations and growth to achieve corporate goals. Financial managers are responsible for identifying the best and most optimal capital structure to minimize the cost of investment and ultimately maximize firms' profit. Therefore, any decision regarding capital structure choice is associated with multiple benefits and costs, which will eventually affect firm value and performance.

The relationship between capital structure and firm performance has been a major theoretical and empirical debate. However, existing studies (see for example, Ul Islam and Mazhar Iqbal, 2022, Ahmed, Nugraha and Hágen, 2023, Gill, Biger and Mathur, 2011; Alarussi and Alhaderi, 2018; Ha et al., 2019) provide mixed and inconsistent findings. It is argued that the reasons behind such findings are contingency and situational factors that could influence the relationship (Jermias, 2008; Pham and Nguyen, 2020a). Additionally, Pham and Nguyen (2020b) stated that the magnitude and direction of capital structure and firm performance association could change as a result of these moderating factors. Hence, it is crucial to identify the factors that could moderate the capital structure and firm performance association.

In relation to corporate governance mechanisms, the Agency Theory posits that one of the approaches to address the monitoring managers problem is by increasing the proportion of independent directors to the board (Jensen and Meckling, 1976). The positive impact of having independent outside directors is based on the notion that they are independent of the management, and thus, can better exercise the monitoring role to avoid any opportunistic behaviors and ensure that decisions made by the board will benefit the firm. It is further argued that managers will use debt financing more effectively and prudently under the high presence of independent directors. On this note, the effectiveness of debt financing towards firm performance can be moderated by corporate governance mechanisms such as board independence (Ronoowah and Seetanah, 2023; Wu, Alkaraan and Le, 2023). Nonetheless, empirical works investigating the role of board independence in moderating the impact of debt financing on firm performance remain scarce, particularly in emerging economies such as Malaysia.

To bridge such a gap, this study aims to explore the moderating effect of board independence on the relationship between capital structure and firm performance by focusing on the Malaysian market. Having a deeper understanding of the role of board independence is vital as capital structure choice may affect firms' strategic decisions. Besides, investigating the influence of board independence on the effectiveness of debt

financing shall provide a more comprehensive understanding and offer useful implications for corporate governance practices in emerging economies.

2. Literature Review

Theoretical Background on Capital Structure: Capital structure refers to the method by which a firm finances its operation through a mixture of debt and equity. An optimal capital structure mix relies on a trade-off between risk and return, which is anticipated to reduce the cost of capital and enhance performance. Hence, decision-making on capital structure is crucial for every firm not only for profit maximization purposes but also for the sustainability and achievement of its overall goals**.** A number of theoretical frameworks have been established in the finance literature to explain firms' capital structure decisions.

The origin of Capital Structure Theory can be traced back to the seminal work presented by Modigliani and Miller (1958) in which a firm's cost of capital does not affect firm value under the restrictive assumptions of no taxes, transaction costs, or bankruptcy. However, in 1963, Modigliani and Miller presented new evidence indicating that borrowing could contribute to tax advantage which would result in a tax shield, hence reducing the cost of borrowing while increasing firm value or performance (Modigliani and Miller, 1963).

Later, Myers (1977) presented the Trade-Off Theory which combines both advantages and disadvantages of debt. The theory states that to maximize firm value, a firm will trade off the benefit of debt which comes from its tax benefit and the cost of debt derived from the bankruptcy costs. This theory further asserts that a firm can decide on the optimal composition of debt in its capital structure to maximize the benefit against the cost of debt. Hence, the Trade-Off Theory anticipates a positive association between debt and profitability until it reaches the optimal level of indebtedness.

In 1984, Myers and Majluf introduced the Pecking Order Theory which advocates the need for firms to follow the hierarchy of financial choices. Based on the advocate, firms would first use internal financing rather than external financing. In cases where external financing is needed, debt is preferred over equity as it is associated with a lower cost of financing. Accordingly, this theory posits an inverse relationship between debt and profitability where profitable firms are assumed to have a lower debt level in their capital structure.

The Agency Theory proposed by Jensen and Meckling (1976) states that there are two types of agency cost, namely agency cost of equity and agency cost of debt. Agency cost of equity focuses on the potential misalignment of interest between the shareholders (principal) and managers (agent) in maximizing a firm's returns and value. Issuing debt reduces the agency's cost as it encourages the managers to act in the shareholders' interest instead of indulging in any discretionary behaviors or wasting resources on unprofitable projects. This will improve the firm's performance, giving rise to a positive relationship between debt and firm performance. Meanwhile, the agency's cost of debt relates to the potential conflict between equity holders and debtholders. Increasing the debt level creates higher agency costs due to the diverging interests of both shareholders and debtholders. For instance, in cases where the leverage is high, debtholders would demand higher interest to compensate for the greater risk of liquidation whilst shareholders would invest sub-optimally (Harris and Raviv, 1991; Myers, 1977). Thus, a negative relationship is suggested between debt and firm performance.

Capital Structure and Firm Performance: Empirical evidence regarding the association between capital structure and firm performance provides mixed and contradictory results. On one hand, several studies demonstrate that leverage is positively correlated with profitability and value. For instance, Abdulkarim and Bahamman (2021) revealed that capital structure has a significant positive impact on profitability, implying that higher leverage will enhance firm performance. Gill, Biger, and Mathur (2011) reported a positive relationship between debt and firm profitability, suggesting a greater tendency for profitable firms to rely more on debt mainly due to interest tax shield benefits. A study by Ramli, Latan and Solovida (2019) observed a positive significant correlation between firm leverage and financial performance among Malaysian firms. These results posit that increasing the level of debt will reduce agency costs and increase firms' performance.

Conversely, other empirical studies have exhibited the negative impact of leverage on firm performance. For instance, Pham and Nguyen (2020a, 2020b) and Ha et al. (2019) found that debt financing has a significantly adverse impact on firms' performance in Vietnam. Muhammad, Migliore and Mohsni (2021) and Ahmed et al. (2023) reported a negative association between capital structure and Italian as well as Iranian firms' performance respectively, suggesting that firms prioritize their funding sources, starting from internal financing to debt issuance while equity stands as the last resort in meeting their funding needs. Similarly, Alarussi and Alhaderi (2018) revealed a negative and significant relationship between leverage and profitability among Malaysian firms. They stated that a firm generally has a choice to finance its operation either by equity or debt, thus signaling the trade-off between business and financial risk undertaken by the firm. A study by Ronoowah and Seetanah (2023) also showed that capital structure has a negative and significant effect on Mauritian non-financial firm value, supporting the Pecking Order Theory. This suggests that high leverage in the capital structure decision creates unfavorable signals for investors, which consequently refrains them from buying a company's shares and thus leads to a decrease in share prices.

Board Independence and Firm Performance: Board composition is an important corporate governance mechanism that influences the board's ability to fulfill its oversight responsibilities and the effectiveness of firm performance. A common supposition is that a board performs a better monitoring role when its members are adequately independent, particularly in criticizing the management's actions and policies.

Theoretically, there are contradictory views regarding the role of board independence towards firm value and performance. The Agency Theory states that the board of directors should be independent of the executive management to effectively perform their monitoring and control roles (Jensen and Meckling, 1976). It is assumed that independent directors can retain freedom from managerial influence and address the agency's problem by providing oversight on the firm's strategic direction as well as scrutinising the managers' performance. This will consequently enhance the firm's value and performance. On the contrary, the Stewardship Theory suggests that the presence of outside directors will have a negative influence on a firm's performance. The underlying assumption of this theory is that the interests of both shareholders and management are aligned, and hence the management is motivated to make decisions that will increase firm performance and value (Donaldson and Davis, 1991).

Nonetheless, existing empirical studies regarding the impact of outside independent directors on firm performance have been equivocal. For instance, a study by Ferriswara, Sayidah, and Agus Buniarto (2022) found that a board comprising a great number of independent directors will allow for more effective oversight of management, thus leading to enhanced performance. Similar findings were reported by Muhammad et al. (2021) and Kao et al. (2019) where a positive association between the appointment of independent directors and firm performance implies that the monitoring value of independent directors is more significant in markets with weaker corporate governance mechanisms. This is further supported by He, He and Evans (2020) who found that board independence is positively associated with firm long-term success. They posit that firms' resources and internal processes facilitate boards to mobilize those resources in solving complex tasks, which are crucial in attaining the firm's long-term success.

On the other hand, the findings by Nguyen, Evans and Lu (2017) demonstrated a negative significant association between board independence and firm performance in Vietnam. It is argued that one of the major challenges faced by independent directors to participate in a board is the information-asymmetry disadvantage between insiders and outsiders. Likewise, Rashid (2018) provided evidence that board independence and firm economic performance do not positively influence each other. The author asserted that outside directors are less competent in performing their tasks due to the lack of expertise and information, which prevents them from exercising their monitoring roles effectively and ultimately contributes to lower firm performance.

Moderating the Role of Board Independence on the Relationship between Capital Structure and Firm Performance: Despite the ongoing debate, no conclusion has yet been drawn on the direct association between capital structure and firm performance. While empirical evidence to date remains inconclusive, several studies (see for example Jermias, 2008, Pham and Nguyen, 2020a; Abdulkarim and Bahamman, 2021) argued that a moderating factor should be considered to validate such a relationship.

The extant literature review however demonstrates that there are limited studies conducted on examining the moderating impact of independent directors on the relationship between capital structure and firm performance. Ronoowah and Seetanah (2023) proved a significant moderating effect of corporate governance mechanism on capital structure and firm performance of Mauritian non-financial firms. Meanwhile, Pham and Nguyen (2020a) demonstrated that board independence reduces the negative impact of leverage on firms' profitability, implying its moderating impact on the capital structure and firm performance relationship. They further argued that the impact of leverage on profitability is greater across firms with a greater number of independent directors. This shows that independent directors strengthen the impact of leverage on the profitability of Vietnamese firms. In another study, Pham and Nguyen (2020b) highlighted the imperative presence of board independence in firms with high levels of debt financing to assist managers in monitoring the effectiveness of leverage, hence reducing the negative consequence of debt financing on performance. Likewise, Javeed, Yaqub, and Aslam (2017) and Muhammad et al. (2021) provided evidence of the significant positive moderating impact of leverage on performance. They concluded that adding more independent directors to the board will positively influence the relationship between debt and performance. In contrast, Abdulkarim and Bahamman (2021) conducted a study involving Nigerian listed industrial goods firms and found a negative significant effect on the relationship between capital structure and profitability after introducing board independence as a moderator.

3. Data Description and Methodology

Sample and Data Sources: The sample of this study comprised 492 public listed firms in Bursa Malaysia covering the period of 2010 to 2019. Delisted firms and those categorized under the financial sector, such as banks, insurance companies, Real Estate Investment Trusts (REIT), and closed-end funds, were excluded from the sample due to the different nature of their business operation, rules and regulations, and capital structure. The financial data was retrieved mainly from the Data-Stream databases while the corporate governance data was manually gathered from the firms' annual reports.

Measurement of Variables: The dependent variable of this study was firm performance. It was measured using Tobin's Q (TQ), which is a hybrid measure of a firm's performance based on the market perceptions of how the firm has performed and how it is likely to achieve in the future (Muhammad et al., 2021). Meanwhile, the independent variable of this study was capital structure, which was proxied by debt ratio (DR) which is the ratio of total debt to total assets that indicates a firm's sources of funding to finance its assets. Board independence (INDEP), represented by the total number of independent non-executive directors on the board, and was employed as the interaction variable between the capital structure and firm value relationship. It is believed that the effectiveness of debt financing towards firm performance may be moderated by the presence of board independence. This will prompt managers to use debt financing more effectively and prudently (Pham and Nguyen, 2020a).

Meanwhile, several control variables that could influence firm performance related to corporate governance mechanisms were incorporated, including ownership concentration (OC), board size (BSIZE), and CEO duality (DUAL). OC was defined as the total percentage of shares owned by all majority shareholders who owned at least 5% of total shares. This minimum threshold of 5% voting rights is necessary as it is considered a strong control for the controlling shareholders, which may influence firms' performance and value (Basu, Paeglis, & Rahnamaei, 2016). On the other hand, BSIZE was represented by the total number of directors on the board while DUAL occurred when the CEO was also the board chairperson (a binary variable of 1 was assigned in the presence of CEO duality whilst 0 was allocated for the non-existence of CEO duality). Other control variables related to firm-specific characteristics that might affect firm performance were also considered, namely firm growth (GROWTH), which was represented by the annual percentage change in a firm's net sales and firm age (AGE), which was calculated as the total number of years since inception. Table 1 displays the descriptions and measurements of all variables used in this study.

Table 1: Variable Descriptions and Measurements

Variables	Descriptions and Measurements
Tobin's Q (TQ)	Ratio of book value of assets minus book value of equity plus market value of equity to book value of assets
Debt ratio (DR)	Ratio of total debt to total assets
Board Independence (INDEP)	Total number of independent directors on the board
Ownership concentration (OC)	Percentage of shares owned by majority shareholders (holding at least 5% of shares)
Board size (BSIZE)	Total number of directors on the board
CEO duality (DUAL)	Dummies where 1 denotes firms with CEO as board chairperson and 0 otherwise
Firm age (AGE)	Total number of years since inception
Firm growth (GROWTH)	Growth in sales

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

Model 1:
$$TQ_{it} = \alpha + \beta_1 DR_{it} + \beta_2 INDEP_{it} + \beta_3 OC_{it} + \beta_4 BSIZE_{it} + \beta_5 DUAL_{it} + \beta_6 AGE_{it} + \beta_7 GROWTH_{it} + e_{it} \quad (1)$$

Model 2:
$$TQ_{it} = \alpha + \beta_1 DR_{it} + \beta_2 INDEP_{it} + \beta_3 DR * INDEP_{it} + \beta_4 OC_{it} + \beta_5 BSIZE_{it} + \beta_6 DUAL_{it} + \beta_7 AGE_{it} + \beta_8 GROWTH_{it} + e_{it} \quad (2)$$

The baseline model (Model 1) examined the direct impact of capital structure and firm performance while the interaction model (Model 2) explored the moderating effect of board independence on the association between capital structure and firm performance after controlling other corporate governance mechanisms and firm characteristics. These models were analyzed using panel data regression. Among the advantages of panel data include increasing the degree of freedom and providing control over unobserved time-invariant heterogeneity, hence improving the estimators' efficiency (Baltagi, 2008).

This study conducted different panel data pooling techniques, namely Pooled Ordinary Least Square (POLS), Random Effect (RE), and Fixed Effect (FE). Numerous diagnostic tests were done to choose the best estimation model. The Breusch-Pagan Lagrange Multiplier (LM) test was used to select between the POLS and RE models. The rejected null hypothesis showed that RE was better than POLS. The Hausman test was done to choose between the FE and RE models. The rejected null hypothesis showed that FE was the most appropriate model over RE. Next, the existence of multicollinearity issues was determined by examining the correlation coefficients among the variables and the variance inflation factor (VIF). Multicollinearity does not stand as an issue if the correlation coefficients are less than 0.80 and the VIFs are smaller than 10 (Gujarati, 2003). Finally, the Wald and Wooldridge tests were conducted to assess groupwise heteroskedasticity and auto-correlation respectively. Rejecting the null hypotheses of both tests indicated the existence of heteroskedasticity and auto-correlation problems. This was followed by calculating the robust standard errors to enhance the estimators' efficiency.

4. Results

Descriptive Statistics: Table 2 shows the descriptive statistics for all variables used in this study. The Tobin's Q values range from 0.2133 to 16.3353 with a mean value of 1.0265, indicating that the majority of the firms have low performance. Tobin's Q values between 0 to 1 reveal poor firm performance and may imply that the shares are undervalued while higher Tobin's Q values illustrate that a firm is increasing in value (Muhammad et al., 2021). Similar to Ramli et al. (2019), an average debt ratio of 18.75% showed that overall firms tend to use a relatively low proportion of leverage in financing their assets. Our results also showed that the board generally has three independent non-executive directors with a mean value of 3.4374. This met the requirement by the Malaysian Code on Corporate Governance (2021) in which at least half of the board should comprise independent directors.

Meanwhile, the average ownership concentration of 48.4417% was similar to the findings reported by Mokhtar et al. (2018), representing that approximately 50% of Malaysian public listed firms belong to the majority shareholders. Furthermore, the results demonstrated an average of seven board members (mean value of 7.3541), which corresponds with the recommended optimal number of seven to eight board members for a board to function effectively (Jensen, 1993). A low mean of 0.0880 for CEO duality corroborated with the requirement by the Malaysian Code on Corporate Governance (2021) where the positions of Chairman and CEO should be held by different individuals. With regards to the control variables, the average firm age since inception was 29 years (mean value of 29.0205) while the average annual growth in sales was 13.1935% (mean value of 13.1935).

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
TQ	4911	1.0911	1.0265	0.2133	16.3353
DR	4867	18.7528	15.3433	0	139.17
INDEP	4920	3.4374	1.0525	1	9
OC	4920	48.4417	17.2013	5.08	98.01
BSIZE	4920	7.3541	1.7991	3	17
DUAL	4920	0.0880	0.2833	0	1
AGE	4920	29.0205	17.1201	2	134
GROWTH	4878	13.1935	94.3395	-100	2791.94

Correlation Analysis and VIF: Table 3 exhibits the correlation coefficients and VIF values between the variables. The correlation coefficients were less than 0.80, indicating that the variables were not highly correlated. Besides, the VIF values were less than 10, signifying the inexistence of multicollinearity issues (Gujarati, 2003).

Table 3: Correlation Analysis and VIF

	TQ	DR	INDEP	OC	BSIZE	DUAL	AGE	GROWTH	VIF
TQ	1								
DR	-0.050***	1							1.03
INDEP	0.097***	0.113***	1						1.51
OC	0.086***	-0.073***	-0.026*	1					1.01
BSIZE	0.107***	0.125***	0.568***	0.011	1				1.50
DUAL	-0.047***	-0.066***	-0.075***	0.012	-0.042***	1			1.02
AGE	0.049***	0.043***	0.102***	-0.024*	0.003	-0.104***	1		1.03
GROWTH	-0.013	0.019	-0.006	0.023	-0.007	-0.007	0.009	1	1.00

Notes: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Empirical Results and Discussions: Table 4 illustrates the empirical outcomes of the study where Model 1 examined the direct relationship between capital structure and firm performance while Model 2 explored the moderating effect of board independence on the relationship between capital structure and firm performance association. Overall, the results showed that both the Breusch–Pagan LM and Hausman tests were in favor of the fixed effect estimation. Further analyses of the Wald and Wooldridge tests reported the existence of heteroskedasticity and autocorrelation issues. Hence, robust standard errors were calculated to improve the efficiency of estimators.

Table 4: Estimation Results with Robust Standard Error

	Model 1	Model 2
DR	0.00015	0.00623**
	(0.0012)	(0.0031)
INDEP	-0.00723	0.0285
	(0.0185)	(0.0278)
DR*INDEP		-0.00169**
		(0.0008)
OC	-0.0056***	-0.00558***
	(0.0018)	(0.0018)
BSIZE	0.0330*	0.0335**
	(0.0170)	(0.0179)
DUAL	-0.1370	-0.136
	(0.1090)	(0.1091)
AGE	0.0200***	0.0204***
	(0.0049)	(0.0049)
GROWTH	-0.00013**	-0.00013**
	(0.00006)	(0.00006)
Constant	0.5800***	0.438**
	(0.1980)	(0.2179)
Observations	4,820	4,820
Number of FIRM	492	492
R-squared	0.031	0.033
F-Stat	3.74***	3.33***
LM test		13335.44***
Hausman test		58.50***
Heteroskedasticity		2.7e+06***
Serial Correlation		8.336***

Notes: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively

The estimation results of Model 1 showed that capital structure has an insignificant impact on firm performance. This contradicts the findings of previous studies (Ha et al., 2019; Muhammad et al., 2021; Alarussi & Alhaderi, 2018) which found that leverage significantly influences firm performance. In line with the assertion of extant empirical works such as Pham and Nguyen (2020a), board independence was introduced to validate its moderating role towards capital structure and firm performance association.

Following the addition of board independence, our results displayed a significant positive correlation between leverage and firm performance as shown in the estimation results of Model 2. This corroborates with the previous empirical works by Abdulkarim and Bahamman (2021) and Ramli et al. (2019), suggesting that higher gearing will enhance firms' profitability. The positive association is probable to the tendency of Malaysian firms to use external financing instead of internal financing to enhance their financial performance. Additionally, the findings validate the predictions of the Trade-Off Theory concerning the benefit of debt, which comes from its tax benefit and cost of debt derived from the bankruptcy costs.

Results showed a significant negative moderating effect of board independence in the capital structure and firm performance relationship. It was observed that adding independent directors to the board has negatively changed the association between debt and firm performance, which is consistent with the empirical work of Abdulkarim and Bahamman (2021). In contrast to Mubaraq, Rahayu, Saifi, and Darmawan (2021), this study implies that increasing the control exercised by independent directors to reduce agency conflicts has an adverse impact on the relationship between debt and performance. This finding recommends that an efficient mix of independent directors to the total number of board members plays a crucial role, particularly in moderating the leverage and profitability association.

Regarding the control variables, a negative significant impact was found between ownership concentration and firm performance. The finding is comparable to other studies such as Dakhlallh, Rashid, Abdullah, and

Dakhlallh (2019) and Nguyen et al. (2017). In line with the entrenchment effect hypothesis, our results signified that controlling shareholders could expropriate wealth and engage them to take actions for their advantage at the expense of the minority shareholders. Similar to Pham and Nguyen (2020b), this study found that board size is positively and significantly related to firm performance. This shows that having a greater number of board of directors can lead to better performance because they bring more experience, skills, and knowledge, particularly in dealing with various business situations. The results also demonstrated an insignificant relationship between CEO duality and firm performance. However, the effect of CEO duality on firm performance tends to be negatively consistent with the Agency Theory (Jensen mean value of Meckling, 1976). Combining both roles (CEO and chairperson of the board) generally indicates the CEO's excessive and dominant power in ruling the firm and enhances their entrenchment, consequently diminishing the firm value (Kao et al., 2019). With regards to firms' specific characteristics, firm age and growth have a positive and negative significant relationship with firm performance respectively. It is argued that older firms are more likely to benefit from experience, reputation, and economies of scale, thus generating higher revenue and profit than younger firms (Ahmed et al., 2023; Alarussi and Alhaderi, 2018). Meanwhile, Ramezani, Soenen, and Jung (2002) stated that an optimal point exists beyond which further growth will adversely affect firm performance and destroy shareholder value.

5. Conclusion

This study aimed to examine the moderating effect of board independence on the relationship between capital structure and firm performance. The empirical results revealed an insignificant relationship regarding the direct impact of capital structure on firm performance. However, further investigation was done by introducing board independence as a moderator; the results showed a positive significant relationship between capital structure and firm performance. It was also observed that board independence has a negative moderating effect on the capital structure and firm performance relationship. Such a finding recommends the imperative need for an efficient mix of independent directors to the total number of board members, particularly in moderating the association between leverage and profitability. This shows that board independence, which is one of the corporate governance mechanisms, stands as a key contingent factor that can influence the capital structure and firm performance relationship.

The findings of this study offer significant implications and better insights for investors, firm managers, and policymakers on the critical role of corporate governance mechanisms in enhancing firm performance, particularly in implementing suitable actions and policies. Nonetheless, this study has certain limitations. First, it did not disintegrate between short- or long-term debts while different types of leverage may influence firm performance in different ways. Second, future research may consider the moderating role of other corporate governance mechanisms such as ownership structure in exploring the association between capital structure and firm performance. Finally, this study was conducted based on the emerging economy of Malaysia. Future studies can undertake further empirical investigation on other emerging economies or conduct a comparison with other developing countries. The findings will contribute to a more robust conclusion to the topic.

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Factors Influencing Green Practice Adoption and Mediating Role of Green Practice Benefits

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Abstract: Green practices are still uncommon among public workers in the course of their daily work; they do not assist in focusing on saving costs or contributing to environmental preservation. This research aims to examine what factors can influence employees at Politeknik Port Dickson (PPD), Malaysia to adopt green practices. Using the Technological, Organizational and Environmental (T-O-E) theory, this study proposed a research model that consists of green practice benefits, technological factors (compatibility and complexity), organizational factors (management support), and environmental factors (governmental support and environmental uncertainty). Moreover, the mediating role of green practice benefits was tested between the relationship of technological factors, environmental factors and green practice adoption. The online survey was conducted to get feedback from the employees in PPD by using a purposive sampling technique. A total of 153 responses were received and the final data were analyzed using SmartPLS 4.0. The findings found that green practice benefits positively influence green practice adoption. Meanwhile, compatibility (positive) and complexity (negative) influence green practice benefits. The mediating effect result has shown that green practice benefits mediated the relationship between technology factors (compatibility and complexity of the technology) and green practice adoption. The outcome of this study asserts to aid the management and employees at PPD in implementing green practices more efficiently in the future to safeguard the environment's well-being and save administrative costs in polytechnics.

Keywords: *Technological, organizational, environmental, green practice benefits, green practice adoption*

1. Introduction and Background

In general, there are still a large number of individuals on the planet who are unaware of the critical nature of adopting green practices (Junainah & Hanim, 2020). The spread of environmental surveillance systems across many administrative objectives is critical in sustaining the environmental management tradition. Organizations with a higher capacity for environmental management may achieve greater financial success (Wong et al., 2016). Additionally, Subramaniam and Mohd Salleh (2016) stated that environmental issues have become major problems across the globe, as governments are always under a burden to develop environmentally responsible and friendly activities. Companies worldwide are frequently on the lookout for new and creative methods to boost their overall competitiveness, and this responsibility has become a major factor in today's competitive environment. Environmental management has been elevated to a priority in the corporate world, alongside key brands in technology, consumer products, transportation, and a variety of other industries, since it enables businesses to retain economic viability without diminishing environmental capital (Ibrahim & Jaafar, 2016).

Most Asian cities are experiencing harmful and dangerous levels of air pollution, with India recording the highest levels. According to World Health Organization (WHO) data, there exist nine of the ten most polluted cities. Additionally, the statistics indicate that Malaysia is ranked seventh in Asia for environmental sustainability. The Environmental Performance Index (EPI) is an article that highlights environmental health leaders and laggards that bring attention to problems that lawmakers must address. Low EPI ratings highlight the need for sustainability measures, most notably air quality improvement and greenhouse gas (GHG) emission reduction. Malaysia's government has established an energy policy to ensure the long-term viability of energy, the environment, the economy, and society. Additionally, companies must embrace both firm and customer-driven green innovations to increase their efficiency (Musa, Li & Abas, 2016). The Ministry of Energy, Green Technology, and Water Malaysia (KeTTHA) was established on 9 April 2009 to pioneer an innovation aimed at resolving world problems such as environmental pollution, ozone depletion, and global warming. One of the objectives is to define the path for energy, green technology, and water industries by the company's overall growth goals (KeTTHA, 2010).

To guarantee that the Department of Polytechnic Studies and Community College (JPPKK) adheres to the government's green practices standards, the JPPKK established the SmartGreenPolyCC to implement the suggestions. According to SmartGreenPolyCC (2021), the teams seek to support a green culture and preserve polytechnics to generate green-collar workers, consistent with the objective of polytechnic transformation and Malaysia being a high-income, low-carbon developed country by 2025. The PolyGreen Polytechnic Blueprint Program, which began on April 1, 2015, will be extended to include several key components, as well as suggestions for sustainable development for all polytechnics and community colleges. Additionally, Blueprint Smart Green PolyCC programs include strategic cooperation around the implementation of planned green practices that adhere to certain management and organizational criteria (SmartGreenPolyCC, 2021).

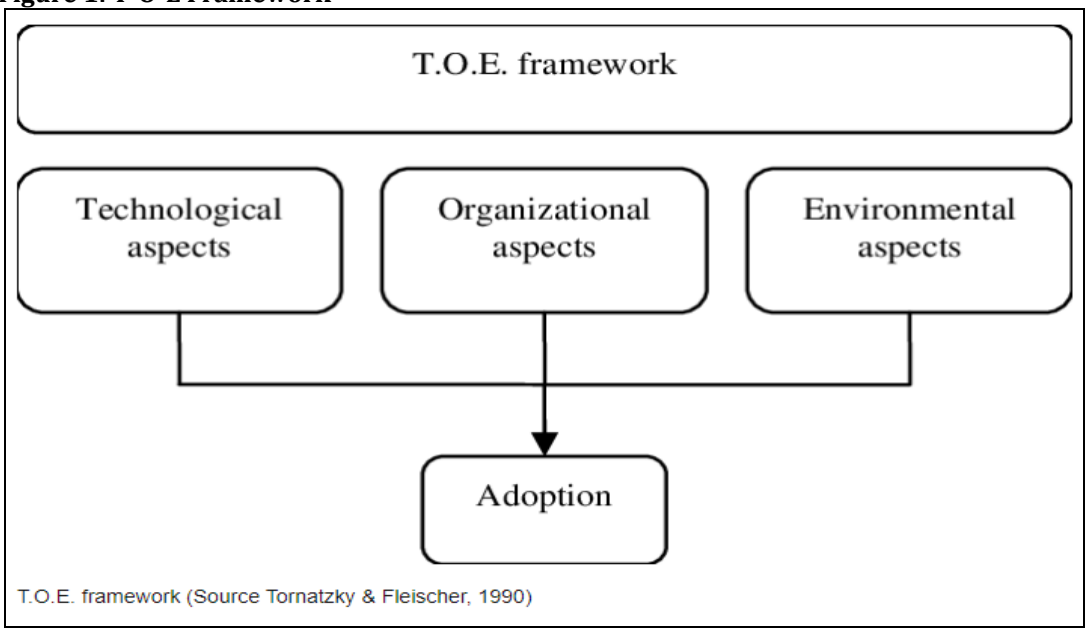
Governments and the World Energy Council (WEC) are key partners in developing and executing a wide variety of green technology projects that will fulfill society's requirements continuously. The obligation is to ensure that no damage is caused by the depletion of natural resources. In other words, the current demands must be satisfied without jeopardizing the capacity of future generations to meet their own (Kamaruddin et al., 2011). Although many studies agree that an organization's efficiency is largely reliant on its innovative features, the adoption of green technology has been seen as a key industry in the 21st Century that will accelerate its development (Woo, Chung, & Chun, 2014). Green technology is the development and deployment of goods, services, and systems that contribute to the protection of the natural environment and natural resources while mitigating and decreasing the adverse impacts of human activities (KeTTHA. 2010). Employees' understanding of green technology and its applications may be improved, and negative environmental impacts can be mitigated (Azmi, Musa, & Abdullah, 2017). To integrate government suggestions, the polytechnic and community college host a variety of activities promoting green practices. If this ecologically beneficial activity is sustained and expanded, it will assist companies in reducing various operational expenses.

Understanding the variables is critical for individuals to successfully adopt green practices and for researchers to fully comprehend the issues that must be addressed. Several researchers have proposed numerous factors that influence an organization's adoption of green practices (Gadenne et al., 2009; Williamson et al., 2006). Investor pressure, eco-friendly regulations, business dimensions, leadership characteristics, and human resources have all been linked to environmental and organizational factors in previous studies (Etzion, 2007; Gonzalez-Benito & Gonzalez-Benito, 2006a). Earlier research, particularly in the area of information technology (IT) adoption, has amassed a substantial body of empirical evidence, demonstrating that appropriate organizational structures complement technology adoption. Besides, such evidence enables organizations to achieve sophisticated productivity gains as a result of technology adoption. The primary objective of this study is to ascertain the variables that impact green practices among employees of the Politeknik Port Dickson (PPD). This study has followed the framework of the study by Mohd Rizaimy (2018) with some changes to reflect the relevance of the study among employees in PPD. Technological factors (compatibility and complexity), organizational factors (organizational support), and environmental factors (governmental support and environmental uncertainty) are the focused factors that influence green practices adoption among employees in PPD. Understanding these variables is crucial as they may affect green practices for them to be implemented successfully and for academics to grasp the issues that need to be addressed. Meanwhile, the current study also intends to highlight the role of green practice benefits as a mediator in the relationship between technological factors and green practice adoption.

2. Literature Review

Theory of Technological, Organizational and Environmental (T-O-E): Tornatzky and Fleischer (1990) have developed the T-O-E framework as shown in Figure 1. It is the first of its sort in the adoption literature, proposing a general set of characteristics that explain and predict the possibility of innovation adoption. Its proposition implies that technology development, organizational conditions, business and organizational reconfiguration and industry environment (Kowath & Choon, 2001) influence adoption.

Figure 1: T-O-E Framework



The TOE framework is used for an organizational-level analysis as stated by Awa, Ojiabo, and Orokor (2017). The paradigm places a focus on high-level qualities such as the technical, organizational, and environmental surroundings, rather than on the specific behaviors of people inside firms. The TOE framework has had modest theoretical progress since its inception, despite its widespread application. According to Zhu and Kraemer (2005), the lack of advancement is because the TOE framework is "too broad" and provides a great deal of latitude for varying factors and metrics; therefore, there is little need to update the theory itself. According to Baker (2012), another key problem is that the hypothesis coincides "too well" with other technology adoption theories and does not offer an alternative explanation. Consequently, there is virtually little pressure to adjust the framework. Alam (2009) as well as Ismail and Ali (2013) observed that the majority of research on organizational technology adoption is grounded in the theory of planned behavior (TPB), the technology acceptance model (TAM), the resource-based view theory (RBV), the diffusion of innovation (DOI), and the technology organization environment model (TEO). However wide these studies are, research undertaken at the organizational level is still scarce.

This research attempts to close a significant gap in previous studies. Based on a comprehensive literature review, this research would determine that the TOE framework is a sound paradigm for analyzing the determinants influencing the adoption of green practices in PPD. The factors delineated in this study namely technological (relative advantages, compatibility and complexity), organizational (organizational support and quality of human resources) as well and environmental (governmental support and environmental uncertainty), are significant enough to influence the organization's green practices adoption.

Organizational Factors and Green Practice Adoption: Many businesses strive to integrate a variety of green practices to improve their environmental performance. According to Suryanto, Haseeb and Hartani (2018), the execution of organizational innovation, particularly in the environmental system, is an important component of management. Applying environmental standards to business operations necessitates experimenting with new resource combinations and repurposing old resources. Firm executives have recognized that green practices are a critical component of long-term development and can provide a competitive edge for the organization (Song & Yu, 2018). Organizational factors may also be referred to as internal factors, implying that the drive for green activities stems from a feeling of environmental responsibility (Ibrahim et al., 2018). Additionally, these variables are linked to the characteristics of the business, such as financial resources available and management focus on green practices adoption.

Organizations with well-educated human capital have a greater chance of responding to technological change. Many researchers have drawn parallels both total quality management (TQM) and environmental management (EM), for example, in terms of the necessity for an organizational environment that embraces green adoption (Li, Ye, Dai, Zhao & Sheu, 2019). Thus, green practice adoption, like the application of other types of innovation, is a multi-stage process that includes initiation activities, managerial decisions to embrace green practices, and infusion activities (Ho, Lin, & Tsai, 2014). As a consequence, organizational support and the quality of human resources may affect the firm's adoption of green practices (Mohd Rizaimy, 2018).

a) Organizational Support: The term organizational support refers to the degree to which a business encourages its workers to follow green habits via the use of a particular technology or system (Mohd Rizaimy et al., 2018). Additionally, by providing incentives for innovation adoption and guaranteeing the availability of financial and technical resources for innovation, we may help encourage technological innovation adoption (Lee et al., 2005; Jeyaraj et al., 2006). Likewise, organizational support is defined as workers' views of the organization's value and care for them, as well as proof that it is improving internal relationships.

In terms of organizational support, the top management in an organization plays a vital role. Several departments and divisions have to cooperate and coordinate the implementation of numerous green practices. The top management usually supports and encourages green projects to guarantee success (Lin & Ho, 2011). Apart from that, senior management's main duty is to acquire and effectively manage resources for the business to implement green practices. Employees feel secure and confident at work when they believe they have the backing of the company (Lee, 2008). As a consequence, organizational support may both inspire and help workers in implementing green ideas (Acharya, 2013). This is corroborated by Ho, Lin, and Tsai (2014), who found that many companies have adopted green practices in their work environments with the organization's assistance.

Furthermore, Christmann (2000) stated that implementing green practices is a complicated process requiring cross-disciplinary cooperation and significant modifications to current operations. Employees with a high learning capacity will find it easy to engage in training programs that encourage the adoption of green practices. As a result, businesses with excellent human resource skills will be much more likely to effectively implement a green strategy (Christmann, 2000). Ibrahim et al. (2018) stated that adopting green technology would benefit companies with trained people, which will ultimately aid them in implementing successful green practices across the company. Consequently, the following hypothesis was developed.
H1: Organizational support positively influences green practice adoption

Green Practice Benefits and Green Practice Adoption: Adopting green practice usually relates to achieving multiple dimensions of sustainability. Implementing green practices is the actions that individuals and organizations take to reduce their impact on the environment. To adopt green practices, organizations may need to invest in new technology, equipment, or infrastructure. However, these investments can often pay for themselves over time through cost savings and improved efficiency. As stated in the literature by Konietzko et al., (2020), adopting green practices significantly reduces harmful emissions and waste, thus helping organizations enhances ecological performance. Furthermore, according to Premaratna et al., (2021), the adoption of green practices provides green benefits to the environment, financial and operational, improve the health and the conditions of employees and reduce safety risks. Moreover, in the same article, the researchers mentioned that green practice adoption decisions always have a link with costs and benefits. This implies that knowing and realizing the importance of green practice benefits is expected to be able to do greater things. As a result of these observations, the following hypothesis was formed:
H2: Green practice benefits positively influence green practice adoption

Governmental Support and Green Practice Adoption: Environmental considerations relate to the external environment in which a firm operates. Environmental factors also affect the spread of new technology and its uses, regardless of organizational or institutional factors (Assimakopoulos & Wu, 2010). The components of governmental support and environmental uncertainty were found to be often utilized in many researches. As a result, the variables are appropriate for use in this research (Lin & Ho, 2011). The green industry has made significant progress with government aid, but there is still a lot of opportunity for it to grow in the long run,

and it requires special attention from managers and decision-makers to make a greater contribution to society and the economy (Chen, Chen, Xu, Liu, & Niu, 2017). The availability of external resources will influence the adoption of green practices.

b) Governmental Support: Governmental support has aided the company's adoption of green practices significantly. The former may take a variety of forms, including providing subsidies or tax credits to businesses that take steps to reduce environmental hazards and enhance environmental standards throughout the country's sectors (Mohd Rizaimy et al., 2018). According to Lee (2008), government assistance has a major effect on companies' willingness to engage in green projects. Shaharudin, Govindan, Zailani, and Tan (2015) stated that the government's environmental regulations have compelled businesses to use green processes for reverse operations. Thus, this study anticipates that government assistance will have a beneficial effect on organizational adoption of green practices. Consequently, the following hypothesis was constructed.
H3: Governmental support positively influences green practice adoption

Technological Factors and Green Practices Adoption
Technological factors include current technologies and technical abilities as well as emerging technologies within the company making them important to the business. Technology may be seen as a source of data. According to Ibrahim et al. (2018), technology, more often referred to as automated devices or systems, is a word used in the business sector to refer to automated equipment or procedures that may accelerate the completion of a job. It is often used in business to facilitate the exchange of information in the companies. However, Ibrahim et al. (2018) added that technological factors that influence the adoption of green practices are rarely studied. Thus, the compatibility and complexity of the performance that a business seeks to achieve via green practices are referred to as technical considerations. Besides, the type of technology employed in the organization may affect employees' perception of green practice benefits and this will lead to green practice adoption.

c) Compatibility: Compatibility means that the practices that should be implemented are congruent with the organization's current activities, which encourages the business to integrate them into its operations (Ibrahim et al., 2018). According to Rogers (2003), compatibility refers to the degree to which an innovation is seen to befit the business's current values, experiences, and requirements. Based on this, the employees value the benefits of green practices more. Ho and Lin (2012) discovered that compatibility affects attitudes toward green management techniques in Taiwanese logistics companies. This is backed up by Etzion (2007), who claimed that the higher an innovation's perceived compatibility, the larger the potential for environmental effectiveness. Additionally, Ozaki (2011) emphasized that compatibility seems to have a significant effect on users' intent to adopt new technology, especially green processes, in their companies. Compatibility is also critical for green practice uptake (Lin & Ho, 2011). Adopting green practices is not a one-time event, but rather a process of knowledge gathering and integration, since many green practices are enhancements to existing technologies and processes in businesses. Additionally, green practices will be more readily adopted inside an organization when they are consistent with the organization's existing technology and procedures. As a consequence of this, the following hypotheses were developed:
H4: Compatibility of technology positively influences green practice benefits
H4(a): Green practice benefits will mediate the relationship between compatibility and green practice adoption

d) Complexity: Complexity is defined as the degree to which an invention is deemed difficult to comprehend and use. It will impede knowledge transfer and innovation dissemination and is widely believed to be detrimental to innovation uptake. Green activities include both tacit and explicit knowledge, which will complicate the process of acquiring and sharing tacit technical knowledge as a result of sophisticated technology (Ho & Lin, 2012). Hence, a situation of this nature creates a hindrance to elevating performance. Rogers (2003) suggested that complexity may impede the transmission of information and dissemination of innovation. According to Mohd Rizaimy et al. (2018), adopting green practices is complicated since it entails a variety of processes that must be understood and altered. For instance, the greater the complexity of green practices, the more difficult it is to embrace new and creative green practices. Green practices are

considerably simpler to adopt in a company if the process is simple and practical. As a consequence of these findings, the following hypotheses were developed:
H5: Complexity of the technology positively influences green practice adoption
H5(a): Green practice benefits will mediate the relationship between complexity and green practice adoption

Environmental Uncertainty and Green Practices Adoption: The most significant element affecting a firm's decision-making has been found as environmental unpredictability (Li & Atuahene-Gima, 2002). It is a term that relates to managers' perceptions of rapid and unexpected changes in client needs, technological development, and competitive activity. Lin and Ho (2011) defined environmental uncertainty as challenges in market competition that are parallel to changes in green technology advances. Hence, this has compelled managers to be proactive and creative to improve performance in uncertain circumstances. Environmental uncertainty has pushed businesses to embrace green practices such as green buying, internal management, and logistics (Lo & Shiah, 2016). When there is a great deal of uncertainty, businesses attempt to collect and analyze information often and rapidly to handle environmental changes (Gupta & Govindrajan, 1991). According to Ibrahim et al. (2018), when environmental uncertainty exists, businesses are required to implement environmental innovations to create the ability to enhance environmental performance in uncertain settings. To maintain competitiveness and survival, firms must use additional environmental measures to reduce market unpredictability. As a consequence of this, the following hypotheses were developed.
H6: Environmental uncertainty positively influences green practice adoption
H6(a): Green practice benefits will mediate the relationship between environmental uncertainty and green practice adoption

Research Framework: The literature has several theories for the variables that influence innovation (Lin & Ho, 2010). While some academics have examined green practice adoption through the lens of technology innovation, little empirical research has examined the combined effects of technological, organizational, and environmental variables. The components under discussion are drawn from several related ideas, hence grouped into a comprehensive explanation of the Technology-Organization-Environment (TOE) framework. Tornatzky and Fleischer (1990) developed the TOE framework to explain technology adoption in organizations and to illustrate how the process of adopting and implementing technological advances is affected by the technical, organizational, and environmental contexts. According to Awa, Ojiabo, and Orokor (2017), the TOE framework is used to analyze organizations at the organizational level. The paradigm places a premium on high-level characteristics such as the technical, organizational, and environmental contexts, rather than on specific actions of people inside companies.

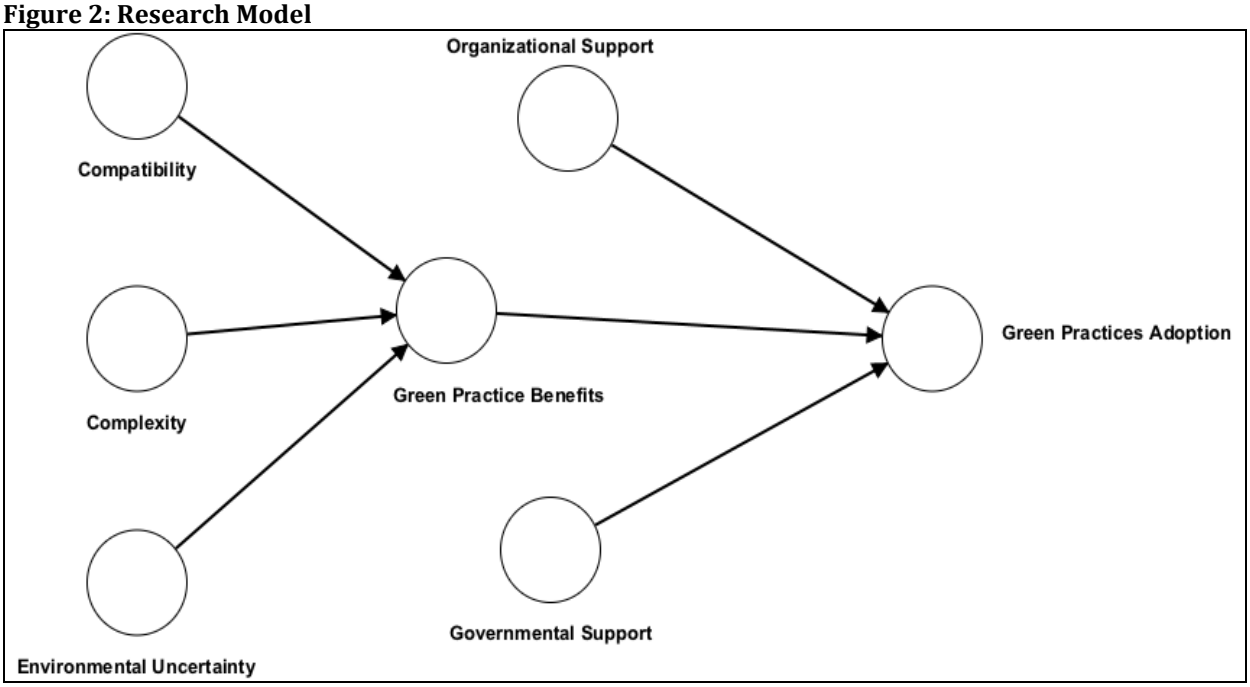
The purpose of this research is to ascertain the fundamental variables that influence an organization's decision to embrace green practices. According to a researcher's observation (Alam, 2009; Ismail & Ali, 2013), the majority of research on organizational technology adoption is based on the theory of planned behavior (TPB), the technology acceptance model (TAM), the resource-based view theory (RBV), diffusion of innovation (DOI), and the technology organization environment model (TOE). However, there is less research conducted at the organizational level. This research attempts to close a significant gap in previous research. After a thorough assessment of the literature, this research determined that the TOE framework is an appropriate paradigm for studying the variables affecting the adoption of green practices in PPD. Numerous studies have utilized the TOE framework to examine the effect of innovation and the uptake of green practices. For example, Lin and Ho (2008) utilized the TOE framework to examine the adoption of green practices in Taiwan's logistics sector. Besides, Weng and Lin (2011) investigated green innovation uptake in China's SME sector. Numerous research studies have shown that combining the TOE framework with additional theories helps to better explain technology adoption (Alatawi et al., 2012).

According to Rogers (2003), the rate of adoption of an invention is determined by five qualities as viewed by members of a social system. Relative advantage, compatibility, complexity, trialability, and observability are five characteristics of innovation. Additionally, the TOE paradigm is compatible with Roger's (1983) theory of diffusion of innovation (DOI). The DOI theory examines adoption choices through the rationalistic lens of strategic choice, to enhance organizational efficiency and performance (Midgley & Dowling, 1993). This theory explains how, why, and at what pace new ideas and technologies spread across cultures, with

implications for both individuals and firms (Oliveira & Martins, 2011). In the context of green practice adoption, this study examines just three DOI theory characteristics: relative benefits, compatibility, and complexity. Additionally, it was shown that relative benefits, compatibility, and complexity have consistent correlations with innovative behaviors (Oliveira & Martins, 2011).

The research model suggested in this work is shown in Figure 2. It is an adaption of the TOE theory and a synthesis of the DOI theory. Based on the review of the literature, this study hypothesized that technological factors (compatibility, complexity), organizational factors (organizational support), environmental factors (governmental support, environmental uncertainty), and green practices benefits could all influence the adoption of green practices by employees. According to Alatawi et al. (2012), the company's processes and procedures can only operate effectively if they are linked with certain related characteristics that may assist the firm in achieving high performance. Firms must identify which variables are most likely to influence the adoption of green practices and, ultimately, the firm's success in this situation.

Figure 2: Research Model



3. Methodology

The target respondents for this study were employees at Politeknik Port Dickson, Malaysia. In identifying the right respondents for the study, a purposive sampling technique was used. This sampling technique helps the researchers to choose the representative sample to represent the entire population. GPower calculation software was used to calculate the minimum sample size. Since the model had a maximum of three predictors (Figure 1) with the effect size as small (0.15) and the power needed as 0.95, the minimum sample size required was approximately 119. Based on this calculation, the total of 119 data collected was fulfilled for the study. The online survey using the questionnaire was via Google Forms and the URL link was shared via email and WhatsApp group. For ethical considerations, several issues have been considered, including the statement of confidentiality and informed consent for participants. The analysis of the study began with analyzing the profile of the respondents using IBM Statistical Package for Social Sciences (SPSS) version 26. The IBM SPSS was also used for data cleaning and normality testing. For model assessment, Partial Least Square-Structural Equation Modelling (PLS-SEM) version 4.0.8 was used to test the measurement model and structural model of the study, discussed in the next section.

To detect common method bias, the researchers used the Herman one-factor test in SPSS. If the variance in this test exceeds 50% of the threshold value, it indicates the presence of common method bias (Rodríguez-

Ardura & Meseguer-Artola, 2020). However, in this study, the variance is only 22.23 percent, which is less than the 50 percent threshold, indicating that there is no common method bias. Moreover, the researchers also ran a full collinearity assessment to test whether common method bias was a concern in this study as suggested by Kock and Lynn (2012). In doing that, a dummy variable was created using the random function in Excel; then, all the related constructs (including the dependent variable) were regressed in the research model against this common variable using SmartPLS.

4. Results

The survey was self-administered, prepared in Google Forms, and distributed online via WhatsApp groups and emailed to all Politeknik Port Dickson employees. Meanwhile, the researchers also sent private invitations to participate in the survey. For this study, the total population of employees in PPD was 575 and the total adequate minimum sample for this study was 103. However, there were 153 respondents responded to the questionnaires; greater than the minimum sample size required for this study as determined by G*Power analysis.

Table 1: Demographic Details

DEMOGRAPHIC VARIABLES		FREQUENCIES	PERCENTAGE
Gender	Male	61	39.9
	Female	92	60.1
Age	21-30 years old	11	7.2
	31-40 years old	65	42.5
	41-50 years old	60	39.2
	51years old above	17	11.1
Race	Malay	132	86.3
	Chinese	13	8.5
	Indian	8	5.2
Education	SPM	20	13.1
	Diploma	24	15.7
	Degree	78	51.0
	Master	27	17.6
	PhD	4	2.6
Years of Working	1-3 years	8	5.2
	4-6 years	8	5.2
	7-9 years	8	5.2
	10-12 years	23	15.0
	13-15 years	45	29.4
	16 years above	61	39.9

Total (n) = 153

Profile of Respondents: Table 1 shows that 60.1% (92 respondents) were female; while 39.9% (61 respondents) were male. It also shows that 42.5% (65 respondents) were between 31-40 years old, followed by 39.2% (60 respondents) who were aged between 41 and 50 years old. Another 11.1% (17 respondents) were 51 years old and above and the remaining 7.2% (11 respondents) were 21-30 years old. In terms of race, the majority of those who responded to the questionnaire were Malays, representing 86.3% (132 respondents), while the Chinese represented 8.5% (13 respondents). Indian race contributed the least 5.2%,

(8 respondents). Most of the respondents had a degree as their highest education level at 51.0% of the total respondents, which constituted 78 respondents. It is followed by those with a Master's that constituted 17.6% (27 respondents) followed by Diploma holders 15.7% (23 respondents). Then, it is followed those with Sijil Pelajaran Malaysia constituted 13.1% (20 respondents) and those with Ph.D. constituted 2.6% (4 respondents).

In terms of working experience, most of the respondents were working for 16 years and above 39.9% of the total respondents which constituted 61 respondents. 29.4% (45 respondents) were working for 13-15 years, and 15.0% (23 respondents) were working for 10-12 years. Meanwhile, 5.2% (8 respondents) were working 1-3 years, 5.2% (8 respondents) were working 4-6 years and another 5.2% (8 respondents) were working 7-9 years. In terms of income, it was found that most respondents have an income in the M40 group from RM4,851-RM10,959 at 79.7% (122 respondents). Meanwhile, 14.4% (22 respondents) have an income in the B40 group of less than RM4,850 and 5.9% (9 respondents) in the T20 group with an income of more than RM10,959.

Measurement Model: The measurement model was tested to assess the loading of each item, construct reliability, convergence validity and discriminant validity (Hair et al., 2017). This technique is called confirmatory factor analysis (CFA). As shown in Table 2, the construct validity and reliability test results show composite reliabilities (CR) that exceeded the threshold value of 0.7. Meanwhile, the average variance extracted (AVE) for each construct was greater than 0.5; thus, the cut-off values ensure that at least 50% or more of the variances in the construct are explained by the set of indicators. The collected data have been verified for reliability by calculating Cronbach's Alpha (CA) and the value of CA for each construct was higher than 0.6, which is acceptable. The details of the construct's reliability and validity are presented in Table 2 and the results of the measurement model show that all the constructs are valid measures based on their parameter estimates and statistical significance (Hair et al., 2017).

Table 2: Construct Validity and Reliability

CONSTRUCTS	CA	CR	AVE
Compatibility	0.790	0.876	0.703
Complexity	0.751	0.861	0.678
Environmental Uncertainty	0.735	0.834	0.722
Governmental Support	0.735	0.833	0.633
Green Practice Benefits	0.653	0.812	0.591
Green Practices Adoption	0.797	0.868	0.625
Organizational Support	0.925	0.935	0.617

Table 3 shows all the items loading were higher than 0.6, except only one item to measure environmental uncertainty which is the loading score at 0.563. Most of the constructs score more than 0.3 of mean value, while standard deviation results are close to 1.0. Low standard deviation means (below 0.5) data are clustered around the mean (green practice adoption and green practices benefits), and high standard deviation (above 0.5) indicates data are more spread out (for other constructs). The kurtosis values for each construct are less than three indicating that data are more flat with a wide degree of dispersion. Meanwhile, the skewness values are between +-0.5 and +-1 which represent moderate skewness. However, the skewness value for green practices adoption and green practices benefit is greater than -1 indicating that the data shape is a high degree of skewness. The overall results are presented in Table 3.

Table 3: Item's Loading and Descriptive Analysis

Constructs	Items	Loadings	Mean	Std Dev	Kurtosis	Skewness
Green Practices Adoption	I recommend that our organization adopt green practices.	0.714	4.331	0.518	2.889	-1.197

Constructs	Items	Loadings	Mean	Std Dev	Kurtosis	Skewness
Compatibility	I recommend that our organization conducts environmental assessments of reporting green practices.	0.812	3.711	0.811	-0.099	-0.388
	I recommend that our organization follow environmental governance at the national level.	0.739				
	I recommend that our organization should have a legal and regulatory compliance unit related to green practices.	0.884				
	The green practices are compatible with our organization.	0.850				
	The green practices are consistent with our organization's values.	0.939				
	Integrating green practices with the organization's existing system is easy.	0.683				
Complexity	Understanding green practices is difficult.	0.889	2.536	0.938	-0.345	0.415
	Learning green practices is difficult.	0.915				
	Sharing the knowledge of green practices is difficult.	0.636				
Environmental Uncertainty	The advances in green technology in organizations happen quickly and are hard to accept.	0.799	2.347	0.988	-0.516	0.569
	Environmental regulation for green practices will affect the organization's operation.	0.954				
Governmental Support	The government provides financial support for adopting green practices.	0.563	3.576	0.853	0.710	-0.737
	The government provides technical assistance for adopting green practices.	0.859				
	The government helps train manpower with green skills in organizations.	0.914				
Organizational Support	Top management provides acceptable green technology-related training to employees that can help employees learn new technologies easily.	0.852	3.903	0.764	0.119	-0.956
	Top management provides employees with a suitable platform for sharing knowledge.	0.859				

Constructs	Items	Loadings	Mean	Std Dev	Kurtosis	Skewness
	Top management can help employees deal with environmental issues.	0.633				
	Top management allows employees to use new technologies to solve problems easily.	0.877				
	Top management provides opportunities for employees to contribute new ideas to the organization.	0.878				
	Our organization provides resources for employees to learn green knowledge.	0.762				
	Our organization provides a code of environmental ethics and standards for green practice.	0.601				
	Our organization provides resources to deal with environmental issues.	0.783				
	Green practices can provide better environmental performance.	0.701				
Green Practice Benefits	Green practices can provide higher economic benefits.	0.838	4.593	0.421	1.674	-1.128
	Green practices can enhance our organization's reputation.	0.761				

This study has also run the discriminant validity testing by using the Heterotrait-Monotrait ratio (HTMT) criterion suggested by Henseler et al. (2015). They reiterated that if the ratios were lower than $HTMT_{0.85}$, then the conclusion could be made that all measures were discriminant. Moreover, based on Franke and Sarstedt (2019), if the upper limit of the HTMT bootstrapping value does not contain a 1, then the measures are discriminant. As shown in Table 4, all the ratios are below a cut-off value of 0.85; as such, the measures are distinct.

Table 4: Discriminant Validity: HTMT

CONSTRUCTS	1	2	3	4	5	6	7
(1) Compatibility	1.000						
(2) Complexity	0.152	1.000					
(3) Environmental Uncertainty	0.222	0.626	1.000				
(4) Governmental Support	0.388	0.285	0.300	1.000			
(5) Green Practice Benefits	0.586	0.243	0.163	0.225	1.000		
(6) Green Practices Adoption	0.216	0.276	0.239	0.228	0.475	1.000	
(7) Organizational Support	0.232	0.194	0.155	0.597	0.140	0.242	1.000

To ensure that the data have no multicollinearity issue, this study performed correlation analysis and computed variance inflation factor (VIF). The r-correlation values (Table 5) between the variables are less than 7. Meanwhile, the VIF results shown in Table 6 indicated that no serious concern was present as the VIF values were all below the threshold of 3.3.

Table 5: Correlation Analysis

CONSTRUCTS	1	2	3	4	5	6	7
(1) Compatibility	1	-0.073	0.156	0.196	0.437	0.174	0.151
(2) Complexity	-0.073	1	0.45	-0.163	-0.158	-0.206	-0.01
(3) Environmental Uncertainty	0.156	0.45	1	0.14	0.143	-0.079	-0.016
(4) Governmental Support	0.196	-0.163	0.14	1	0.118	0.195	0.544
(5) Green Practice Benefits	0.437	-0.158	0.143	0.118	1	0.357	0.097
(6) Green Practices Adoption	0.174	-0.206	-0.079	0.195	0.357	1	0.234
(7) Organizational Support	0.151	-0.01	-0.016	0.544	0.097	0.234	1

Table 6: Collinearity Statistics (VIF)

CONSTRUCTS	VIF
Compatibility	1.053
Complexity	1.287
Environmental Uncertainty	1.313
Governmental Support	1.429
Green Practice Benefits	1.016
Organizational Support	1.423

Structural Model: The structural model was tested by assessing the significance and magnitude of the hypothesized relationships using a bootstrapping procedure. As suggested by Hair et al. (2019), the path coefficient, t-values, p-values, and standard errors were reported for the structural model using a 5000-sample re-sample bootstrapping procedure. Additionally, Hahn and Ang (2017) argued that p-values are not a good criterion for testing the significance of a hypothesis and many PLS experts suggested using a combination of criteria such as p-values, confidence intervals, and effect sizes. Table 7 shows a summary of the criteria used to test the hypotheses developed. For measuring the effect size, this study used guidelines by Cohen (1988), whereby the values of 0.02, 0.15 and 0.35 represent small, medium and large effects, respectively.

All the indicated T-O-E dimensions explained about 17.1% of the variance in green practice adoption. Meanwhile, compatibility, complexity and environmental uncertainty explained about 23% of the variance in green practice benefits. The analysis also found that green practice benefits (β = 0.333, t-value = 3.343***, f^2 = 0.132) were the predictors that most positively influenced green practice adoption while organizational and governmental support was insignificant. Compatibility is shown to have a dominant direct effect on green practice benefits (β = 0.395, t-value = 6.269***, f^2 = 0.192), while complexity negatively influences green practice benefits (β = -0.2085, t-value = 2.122**, f^2 = 0.044). Thus, H2, H4 and H5 were supported with a small ll effect size on the indicated outcome. In this study, H1, H3 and H6 were rejected.

The mediating effect and level of significance were measured using the t-value and the differences in the confidence interval. The results of the mediation analysis shown in Table 7 reveal that green practice benefits only mediated two relationships in the model. Green practice benefits mediated the relationships of compatibility (β = 0.131, t-values = 2.740***) and complexity (β = 0.069, t-values = 1.783*) on green practice adoption. Therefore, H7 and H8 were supported while H9 was rejected. The details of the result are shown in Table 7 and Figure 3.

Table 7: Hypothesis Testing

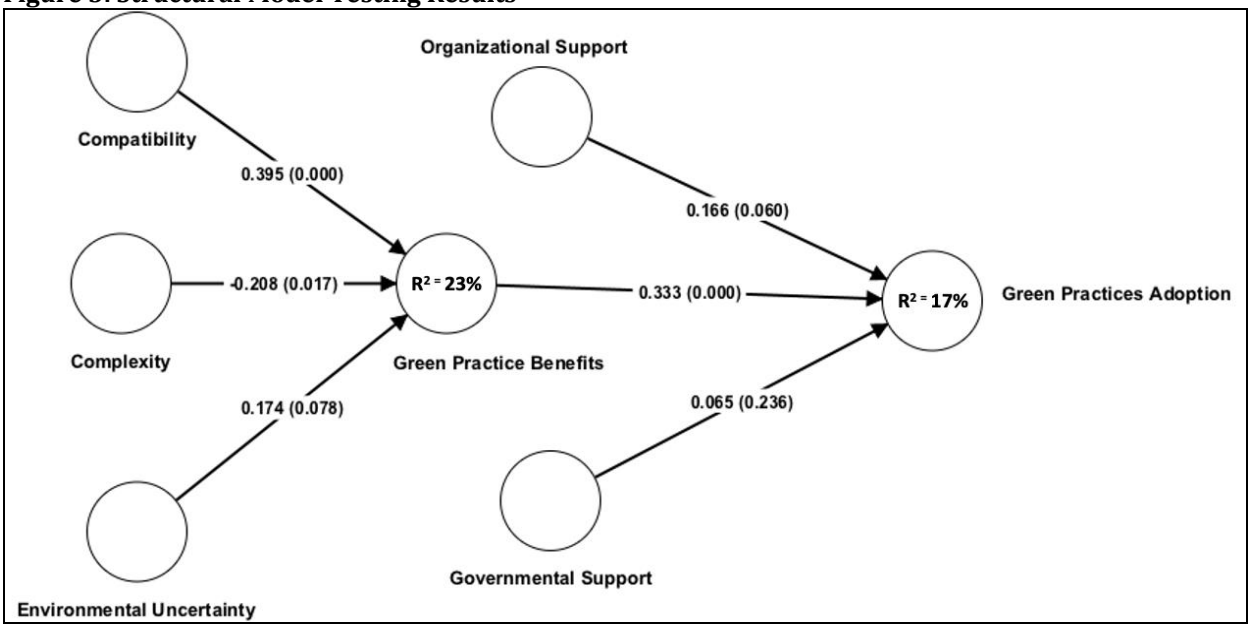
Dependent Variables	R^2
Green Practice Benefits	0.230
Green Practices Adoption	0.171

Table 7a: Hypothesis Testing

Hypothesis	Direct Relationship	*Beta*	Std Dev	T-values	P-Values	5.00%	95.00 %	f^2	Results
H1	Organizational Support -> Green Practices Adoption	0.166	0.107	1.558	0.060	-0.326	0.260	0.023	Not Supported
H2	**Green Practice Benefits -> Green Practices Adoption**	**0.333**	**0.100**	**3.343**	**0.000**	**0.158**	**0.477**	**0.132**	**Supported**
H3	Governmental Support -> Green Practices Adoption	0.065	0.091	0.718	0.236	-0.098	0.200	0.004	Not Supported
H4	**Compatibility -> Green Practice Benefits**	**0.395**	**0.063**	**6.269**	**0.000**	**0.270**	**0.481**	**0.192**	**Supported**
H5	**Complexity -> Green Practice Benefits**	**-0.208**	**0.098**	**2.122**	**0.017**	**-0.349**	**-0.033**	**0.044**	**Supported**
H6	Environmental Uncertainty -> Green Practice Benefits	0.174	0.123	1.420	0.078	-0.136	0.303	0.030	Not Supported

Hypothesis	Indirect Relationship (Mediating Effect of Green Practice Benefits)	Beta	Std Dev	T-Values	P-Values	5.00%	95.00 %		Results
H4(a)	**Compatibility -> Green Practice Benefits -> Green Practices Adoption**	**0.131**	**0.048**	**2.740**	**0.003**	**0.056**	**0.213**		**Supported**
H5(a)	**Complexity -> Green Practice Benefits -> Green Practices Adoption**	**-0.069**	**0.039**	**1.783**	**0.037**	**-0.142**	**-0.015**		**Supported**
H6(a)	Environmental Uncertainty -> Green Practice Benefits -> Green Practices Adoption	0.058	0.044	1.313	0.095	-0.012	0.131		Not Supported

Figure 3: Structural Model Testing Results



Discussion: The analysis of our research data has demonstrated that all the constructs used in this study can be considered valid measures. This conclusion is drawn from the parameter estimates and the statistical significance associated with these constructs. It confirms that the chosen variables accurately capture the intended aspects of the study. The results of hypothesis testing offer important insights into the connections between various elements in the context of green practices. Notably, the results imply that the advantages of adopting green practices do have a considerable impact on adoption. This result emphasizes how crucial it is to highlight the advantages and benefits of sustainable and environmentally friendly practices as a means of promoting their adoption. According to the current investigation, organizational and governmental support has no statistically significant effect on whether or not green practices are adopted. This may come as a surprise, but it implies that other variables are more important in motivating green activities within organizations. The precise obstacles or difficulties that limit the effectiveness of support from these entities could be explored in further detail.

The impact of technological elements on the adoption of green practices is also examined in this study. In particular, the study's findings show that technology compatibility and complexity have a large direct impact on the advantages of green practice benefits. This demonstrates how crucial it is to take technology considerations into account when developing and putting into practice sustainability efforts. On the other hand, it was discovered that environmental uncertainty has less of an effect on the advantages of green practices benefits. This shows that factors other than the immediate environmental setting may have a more significant impact on how green practices are regarded to be advantageous. The complex relationship between environmental uncertainty and sustainability activities could be the subject of further study. The current study provides valuable insights into the factors influencing the adoption of green practices within organizations. These findings can guide decision-makers in crafting more effective strategies to promote sustainability and environmentally conscious practices. However, it's essential to acknowledge the limitations of this study, such as the specific context and sample size, which may influence the generalizability of these findings. Further research in this field is encouraged to gain a more comprehensive understanding of these complex relationships.

Managerial Implications and Recommendations: Six direct and indirect hypotheses, concentrating on organizational issues, environmental factors, technological factors, and the benefits of green practices as mediators have been addressed in this study. The outcome showed that technology's relative advantages had a substantial impact on the advantages of green practices. Using Roger's Diffusion of Innovation Model to assess Politeknik Port Dickson's (PPD) suitability for digital technology, it can be said that PPD is at the early

adopter stage. Early adopters are the second-fastest group of people to accept a new technology. The PPD's objective is to provide a curriculum that is driven by industry and improve graduation readiness through coordinated industry involvement; this statement is specifically intended for PPD (JPPKK, 2020). PPD is one of the educational institutions that use technology to help students get ready for the demands of the industry. Significantly, PPD frequently implements green practices due to the comparative benefits they experience, which may eventually enhance their environmental performance.

This study found that employees' opinions of the advantages of green practices are greatly influenced by technical compatibility and complexity. Even though PPD is one of the educational institutions working towards employing the most up-to-date technology for activities, the majority of staff still finds it challenging to implement green practices because the technology is quite limited and does not assist them. In addition, it has been asserted that the green practice procedure does not work well with PPD's current system. Additionally, this study discovered that if workers see the advantages of green practices, the link increases in technical compatibility and complexity as well as the adoption of green practices. The management of PPD must therefore offer green practices training to increase employee understanding of the advantages of using green practices, hence encouraging adoption. For technological environmental uncertainty, the result revealed that the relationship between this construct and green practice benefits was not significant, and the hypothesis is not supported. In this case, employees in PPD did not perceive environmental uncertainty as the factor that influenced their perception of green practice benefits. This is because employees at PPD are still in the early stages of awareness and the basic implementation of the adoption of green practices. Therefore, they are not completely experiencing the issues of environmental uncertainty in the existing process. However, this factor needs to be further analyzed for a better understanding of the reasons behind the non-significant effects.

About the adoption of green practices, this study discovered that government support did not have a substantial impact. Companies must offer enough resources, incentives, encouragement, and inspiration from the top management to ensure that all employees adopt green practices in PPD (Irwan et al., 2019). Employee buy-in is essential to the success of the implementation of green practices. Adopting green practices necessitates in terms of values in human resource capabilities and competencies. Since green practices are still in their infancy, there will undoubtedly be more labor involved than in the existing approach. Many tasks and jobs related to green processes were accelerated quickly because of the quality of the employees, which included traits like inventiveness and problem-solving abilities. The implementation of green practices will be more successful if human resources are competent (Ho & Lin, 2012). This boosts the organization's attitude towards environmental activities. Government support has not been shown to have a substantial impact on the adoption of green practices. To conduct the savings program at PPD, including funding, it was required to utilize existing resources and efforts since PPD is most likely a government-affiliated institution under the Ministry of Higher Education. According to Garis Panduan Penjimatan Perbelanjaan Awam, 2022, internal savings must be implemented by the ministry, department, agency and federal statutory body to ensure that all expenditures are compliant with the guidelines and rules for financial management established by the Ministry of Finance (MOF) from time to time. Not all equipment, resources, or technology linked to going green can be purchased by PPD without government approval. This is because each transaction must have approval from the government.

5. Conclusion

To improve the findings about the impact of the independent variables, specifically, the technological component, organizational factor, environmental factor, and green practice benefits, on the adoption of green practices, several ideas and recommendations may be applied to this research. The fundamental suggestion is that every employee takes responsibility for their activities for an organization to implement green practices. When a person is aware of the damage that can result from ignoring environmentally friendly practices, their sense of responsibility grows. Employees who incorporate green practices into daily routines for doing jobs should therefore receive increased exposure to and coaching on the adoption of these practices. It may then be suggested that the organization form a team or group to adopt green technology and practices. This committee's creation will enable it to guide the business towards greater environmental responsibility. To raise morale and promote wider adoption, the organization's higher management could offer rewards to

workers who adopt this ecologically friendly approach. This is because implementing a green practice requires a lot of work and sacrifice on the part of the employee. Organizations must, among other things, offer pertinent training to staff to help them comprehend and quickly adopt green practices within the company. To hold seminars on applying green practices for all staff, organizations can work with GreenTech Malaysia and the Malaysian Ministry of Energy, Water, and the Environment (KeTTHA). The outcomes would be astounding if every organization started to implement green practices. Only two of the many advantages are money and energy.

The government should intensify its effort to inform the people about the value of adopting green practices by spreading information through a range of avenues, including the media, the radio, the television, and even exhibitions. Such initiatives should be stepped up nationwide to make people aware of the significant benefits of adopting green practices for themselves, their organizations, and most importantly the environment. To achieve Malaysia's goal of achieving the Sustainable Development Goals (SDG 13: Climate Action) in 2035, the government also needs to step up the implementation of the Green Technology and Sustainable Development Policy at the national and state levels. Therefore, through education and awareness campaigns as well as by boosting essential institutional and human capacity, the government needs to step up efforts towards early warning, readiness, mitigation, and adaptation to climate change. Finally, it should be encouraged from an early age to embrace green practices and participate in this awareness drive. The individual is not the only one with this insight. Every person, every organization, every government agency, every business, every non-profit, and the media are included in this. Due to this, it is our responsibility to raise awareness of environmentally friendly practices for the benefit of the planet's sustainability and those of all living things.

The researchers are obligated to conduct this study to plan when to look into the research on the adoption of green practices. About this study, future researchers need to identify other factors and traits that might encourage people to adopt green practices. To identify the variables that affect green practices, the researcher also needs to assess the organization's situation. For instance, it is challenging to identify any important technology for the adoption of green practices. Furthermore, the bulk of government organizations do not exploit systems or technology to their fullest degree. The study expects that these suggestions might give future academics insights into the elements that affect whether green practices are adopted by public or private businesses.

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Institutional Ownership and Integrated Reporting in the Digital Age: A Conceptual Exploration of Firm Performance in Malaysia

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Abstract: This concept paper explores the potential moderating role of institutional ownership on the relationship between Integrated Reporting (IR) adoption and firm performance within the context of the digital business era, specifically in Malaysia. Drawing on stakeholder theory and agency theory, the paper highlights the dual role institutional investors can play in shaping a firm's adoption of IR and its subsequent effect on performance. Through a comprehensive review of the existing literature, the paper unravels the unique challenges and opportunities that arise when adopting IR in the digital business landscape, particularly in developing nations with concentrated ownership structures. The study emphasizes the importance of nuanced understanding to promote corporate transparency and sustainable value creation. It aims to guide future research endeavors, informing policymaking and business practices to optimize the benefits of IR in the digital era. The conceptual framework and discussions put forth in this paper are intended to contribute to the broader academic discourse on the evolution of IR practices in the digital business era.

Keywords: *Integrated Reporting, Institutional Ownership, Digital Business Era, Firm Performance*

1. Introduction and Background

Integrated Reporting (IR), which provides an all-encompassing view of a company's performance by incorporating both financial and non-financial data, has been highly commended (Cheng et al., 2014; Dumay et al., 2017). Prior research has examined the connection between IR implementation and various performance and benefits measures, resulting in a variety of conclusions (Lee & Yeo, 2016; Velte & Stawinoga, 2017; Vitolla & Raimo, 2018; Samy, 2019; Adegboyegun et al., 2020; Islam, 2021). Some studies suggest the positive benefits of IR adoption measured by various performance measures, while others indicate otherwise. In the context of digital business in Malaysia, it is suggested that the distinct ownership structure, characterized by significant institutional ownership, can influence the adoption of IR and, in turn, corporate results. Large institutional investors, such as pension funds, insurance companies, and mutual funds, frequently hold substantial interests in companies, exerting significant influence over governance and decision-making procedures. Due to their long-term investment horizon and interest in sustainability, these institutions may advocate for increased transparency, exhaustive information disclosure, and the integration of investor relations (IR) practices (Ioannou & Serafeim, 2012).

In the literature, however, there is a deficiency regarding the preferences of institutional investors regarding IR and whether their advocacy would positively affect firm performance. Atkins and Maroun (2015) investigated the opinions of institutional investors in South Africa regarding the inaugural integrated reports published by firms listed on the Johannesburg Securities Exchange. As demonstrated by studies by Atkins and Maroun (2015) and Solomon et al. (2013), other research has engaged with institutional investors but has primarily concentrated on social and environmental reporting (Muneer, 2020). Existing data, however, do not cast light on whether the correlation between the extent of IR implementation and corporate performance is dependent on the high concentration of institutional ownership. Potentially, the presence of influential institutional investors could strengthen the correlation between IR utilization and business performance. These investors may encourage the adoption of IR in corporations, assuming that such disclosure will strengthen decision-making processes and resource allocation, thereby improving financial performance (Amel-Zadeh & Serafeim, 2018). In addition, these institutional investors may contribute valuable resources and knowledge, thereby assisting corporations in effectively applying IR and maximizing its prospective advantages (Dhaliwal et al., 2014).

On the other hand, the high concentration of institutional ownership may give rise to potential conflicts of interest, thereby weakening the correlation between IR application and business performance. Large

institutional investors may prioritize their interests, leading to suboptimal reporting and decision-making procedures (Fama & Jensen, 1983; Shleifer & Vishny, 1997). This could diminish the potential benefits of IR implementation, resulting in a tenuous or even negative relationship between IR and business performance. In light of these contradictory expectations and the dearth of empirical data regarding the conditional relationship between IR implementation, institutional ownership, and corporate performance, it is necessary to conduct additional research. This would cast light on the impact of ownership structure on IR practices and their effect on corporate performance, especially in the context of Malaysia's rapidly evolving digital commerce sector.

Based on the above discussion, the problem in hand is the questions that have emerged regarding the capacity of Integrated Reporting (IR) to convey a comprehensive picture of a company's financial, environmental, social, and governance (ESG) performance, especially during the current digital era. Though some evidence supports the positive outcomes of IR adoption, the driving mechanisms and contextual factors underlying this association are poorly understood, particularly in emerging economies such as Malaysia. Malaysia's unique business environment, characterized by highly concentrated ownership structures and government-affiliated entities, necessitates a more in-depth examination of how ownership concentration may influence the association between IR adoption and firm performance. In light of this, the purpose of this concept paper is to explore the potential moderating effect of substantial institutional ownership on the relationship between IR adoption and firm performance in the context of digital businesses in Malaysia. By examining this conditional relationship, this research will provide a deeper understanding of the factors influencing IR practices in Malaysia's rapidly evolving digital business landscape, thereby facilitating the formulation of strategies to promote comprehensive reporting across diverse businesses. In addition, this research will enhance our comprehension of the interplay between ownership structures, IR adoption, and firm performance in the context of Malaysia's digital business environment. Thus, the following research questions and research objectives are developed:

Research Objective: The primary objective of this study is to investigate the moderating effect of highly concentrated institutional ownership on the relationship between integrated reporting (IR) adoption and firm performance among Malaysia-listed companies. The study aims to provide insights into the factors influencing IR practices and their impact on firm performance in the Malaysian context, with a particular focus on the role of institutional ownership structures.

Research Questions:
How does the adoption of integrated reporting affect firm performance among Malaysia-listed companies?
How does the concentration of institutional ownership influence the relationship between integrated reporting adoption and firm performance?
Is the relationship between integrated reporting adoption and firm performance conditional on the level of institutional ownership concentration in Malaysia-listed companies?

2. Literature Review

Integrated Reporting: Integrated Reporting (IR) has emerged as a crucial mechanism for firms to effectively communicate their sustainability initiatives and achievements to various stakeholders. A plethora of scholarly investigations have examined the diverse factors that contribute to the adoption of Information Retrieval (IR). Eccles and Serafeim (2013) argue that the adoption of integrated reporting (IR) by firms is influenced by external pressures and expectations, including stakeholder demands, regulatory requirements, and industry standards. Moreover, the authors suggest that organizations of greater size and with a substantial impact on society and the environment are more likely to embrace Integrated Reporting (IR) as a strategy for effectively communicating their sustainability initiatives to relevant stakeholders.

A content analysis was conducted by Jamal and Erlane (2016) in Malaysia, focusing on annual reports of real property companies listed on Bursa Malaysia. The analysis revealed that these companies exhibited suboptimal levels of integrated reporting practices. Significantly, the adoption of Investor Relations (IR) practices in the Malaysian market continues to be a voluntary endeavor, with a limited number of companies opting to embrace such techniques. Qaderi, Chandren, and Abdullah (2023) conducted a study in which they

observed a rising trend in the adoption of Integrated Reporting (IR) among Malaysian companies, specifically in alignment with the International Integrated Reporting Framework (IIRF). The researchers found notable disparities in IR practices between large-scale enterprises and smaller firms. The authors contend that the implementation of investor relations (IR) has been influenced by the recommendations outlined in the 2017 Malaysian Code of Corporate Governance. The adoption of information retrieval (IR) is increasing, however, there is considerable variation in the quality of its implementation among different corporations. Numerous corporations place a higher emphasis on adhering to regulatory requirements rather than providing a comprehensive assessment of their performance and the generation of value. According to the findings of Grewal and Serafeim (2020), certain companies employ investor relations (IR) as a means to demonstrate their dedication to sustainability, without implementing significant alterations to their operational procedures.

Numerous scholarly investigations have also examined the prospective benefits and drawbacks associated with the adoption of information retrieval (IR) systems in the context of business operations. For example, Matemane and Wentzel (2019), examine the relationship between the quality of integrated reporting (IRQ) and the financial performance of South African banks that are publicly traded on the Johannesburg Stock Exchange (JSE) from 2010 to 2014. The results indicate a positive correlation between IRQ and earnings per share (EPS). However, no statistically significant correlations were found between IRQ and Tobin's q (Q-Ratio), IRQ and return on equity (ROE), IRQ and return on assets (ROA), and IRQ and economic value added (EVA). In summary, the incorporation and execution of Integrated Reporting (IR) practices within corporations are subject to various influences, encompassing external pressures, Corporate Social Responsibility (CSR) disclosure, and regulatory guidance. Although the implementation of IR has been associated with potential advantages, it is crucial to acknowledge that prior research has produced limited and inconclusive findings. Hence, additional research is warranted to comprehensively examine the influence of adopting Investor Relations (IR), specifically regarding its implications on the firm's financial performance, while considering the accompanying costs.

Institutional Ownership in Developing Countries: Institutional ownership exerts considerable influence on corporate governance protocols and the quality of financial reporting, particularly within emerging economies like Malaysia. This is typically manifested through institutional investors such as banks, insurance companies, pension funds, and investment funds, which often own significant portions of publicly traded corporations' equity (Gillan & Starks, 2003). The diverse motivations, investment timeframes, and supervisory capacities of various categories of institutional investors imply that institutional ownership can have unique ramifications for the implementation and influence of Integrated Reporting (IR). Notably, institutional ownership in developing economies is often more concentrated compared to their developed counterparts, signifying that fewer institutional investors possess substantial stakes in corporations (Boubakri, Cosset, & Saffar, 2013; Ghazali, 2007). This concentration of institutional ownership can potentially drive corporate governance and financial reporting practices in several ways. Firstly, institutional owners, by their significant stakes, are often well-positioned to exercise direct oversight over management, thus curtailing any potential agency problems and enhancing overall corporate governance (Shleifer & Vishny, 1997). This ability to monitor corporate affairs closely could be instrumental in promoting the adoption of advanced practices like IR, given its potential to provide a more holistic view of company performance, thereby facilitating more informed decision-making.

Secondly, institutional investors, by their substantial holdings, often have the leverage to influence the composition of the board, thereby shaping the strategic direction of the company (Gillan & Starks, 2003). The board, under the sway of such significant institutional ownership, may be more inclined to adopt progressive reporting strategies like IR, which can provide them with a broader perspective of the firm's operational performance. Lastly, institutional investors, given their fiduciary duties and long-term investment horizons, often demand higher levels of transparency and disclosure from firms (Bushee, 1998). This demand may act as a compelling force driving the adoption of IR. IR, with its comprehensive disclosure of both financial and non-financial metrics, can help satisfy the transparency demands of institutional investors. However, it is important to note that while concentrated institutional ownership could be a boon in terms of promoting good governance and IR adoption, it could also result in potential conflicts of interest. Major institutional investors might prioritize their interests over those of other stakeholders, leading to suboptimal decision-

making and reporting practices. Consequently, while concentrated institutional ownership can encourage the adoption of IR, the quality and impact of such reporting might be diluted due to potential conflicts of interest (Shleifer & Vishny, 1997). Given the complex dynamics at play, further research is warranted to explore the nuanced role of institutional ownership in shaping the adoption and impact of IR, especially within developing countries like Malaysia. Such research could yield valuable insights into how corporate governance practices, the demands for transparency and disclosure, and the potential conflicts of interest inherent in concentrated institutional ownership interact to shape the landscape of IR adoption and its subsequent effects.

Institutional Ownership and Adoption of Integrated Reporting: Institutional ownership and its implications for Integrated Reporting (IR) adoption can manifest differently, particularly in developing economies with highly concentrated ownership structures, such as Malaysia, in the age of digital enterprises. Depending on the type of institutional investor and his or her investment preferences, the impact could be either positive or negative. Long-term institutional investors, such as pension funds and insurance companies, tend to demonstrate heightened vigilance towards sustained profitability and value creation in their portfolio companies, a trait that is especially prevalent in the rapidly evolving digital business landscape (Cox, Brammer, & Millington, 2004). Given the growing importance of technology trends and digital transformation initiatives, these investors may support the adoption of IR as a comprehensive tool that provides a 360-degree view of a company's operations, including financial and non-financial metrics, risks, and opportunities (Eccles & Serafeim, 2014; Dumay et al., 2016). In the digital age, where the interconnectedness of business risks and opportunities accentuates the need for more inclusive reporting practices, this shift towards holistic reporting becomes increasingly important.

In contrast, institutional investors with a focus on immediate financial performance, such as hedge funds and mutual funds, may be less concerned with long-term value creation and sustainability issues (Bushee, 2001). In the context of digital businesses, these investors may be hesitant to advocate for the adoption of IR practices because they believe the benefits of comprehensive reporting do not necessarily outweigh the additional costs and complexity associated with it (Flower, 2015; de Villiers et al., 2017). This perception may be exacerbated by the ever-increasing complexity and dynamism that characterize the digital business era, where measuring and reporting a vast array of performance metrics during rapidly shifting technological landscapes and business models may appear difficult. In the context of developing nations like Malaysia, where ownership structures are typically extremely concentrated, this scenario becomes even more complicated. Concentrated ownership can generate conflicts of interest, power imbalances, or a preference for short-termism, thereby impeding the adoption of IR practices designed to improve transparency, accountability, and long-term value creation (Shleifer & Vishny, 1997). The complex relationship between institutional ownership categories, digital business trends, and ownership concentration issues must therefore be thoroughly examined. Such research would contribute to a greater comprehension and facilitate the endorsement of IR practices in these contexts, ultimately benefiting stakeholders and promoting sustainable business practices in the digital age.

The Role of Institutional Ownership as the Moderating Factor: The complex connection between institutional ownership, adoption of Integrated Reporting (IR), and firm performance continues to attract scholarly attention. The relationship's multifaceted nature, as demonstrated by contradictory findings in existing literature, highlights its complexity. Institutional investors' surveillance expertise and advocacy for greater transparency and disclosure can frequently have a positive impact on firm performance (Shleifer & Vishny, 1997; Gillan & Starks, 2003). These findings suggest that institutional investors can enhance the effectiveness of investor relations, thereby enhancing corporate governance, informing decision-making processes, and enhancing stakeholder relations (Eccles & Serafeim, 2014; Barth et al., 2017). Such favorable outcomes are not, however, assured. According to additional studies (Bushee, 1998; Cox et al., 2004), the correlation between institutional ownership and firm performance may be contingent on the specific characteristics of the institutional investor and the peculiarities of the firm. In economies where institutional ownership is concentrated, such as Malaysia, the impact of institutional investors on IR adoption and consequent firm performance may be amplified. Nonetheless, the trajectory of such influence remains unclear, necessitating additional investigation.

This comprehension becomes crucial in the rapidly expanding digital business era. Due to the growing reliance of businesses on data and digital technologies, the demand for comprehensive reports that include both financial and non-financial information has increased. In this context, IR can provide a more comprehensive depiction of a company's performance, as well as its strategies for addressing the myriad risks and opportunities associated with digital transformation. Nonetheless, the incorporation of IR presents obstacles, especially for businesses in developing nations with concentrated ownership structures. Institutional investors with a focus on the short-term may be resistant to adopting IR, citing increased costs and complexity. In addition, the accelerated rate of digital transformation introduces new challenges and uncertainties that may influence the perceived benefits and risks of IR adoption. Understanding the dynamics of institutional ownership is crucial in this context. This knowledge can aid in identifying potential impediments to IR adoption and developing countermeasures. Beneficial would be policy interventions or initiatives designed to educate institutional investors on the merits of IR in the digital business era. Providing companies with assistance in implementing IR, such as guidance or technical assistance, may also be advantageous. In conclusion, the complex connection between institutional ownership, IR adoption, and firm performance in the digital business era, especially in developing nations with concentrated ownership structures, highlights the need for more nuanced, context-specific research. By enhancing our understanding of these dynamics, we can contribute to the formulation of strategies and policies that promote IR adoption, thereby enhancing corporate transparency, accountability, and value creation in the digital age.

Theoretical Framework: The theoretical framework for this study draws on two main theories: stakeholder theory and agency theory. These theories help explain the relationship between integrated reporting (IR) adoption, institutional ownership concentration, and firm performance in the context of Malaysia-listed companies.

Stakeholder Theory: Stakeholder theory posits that organizations are responsible for addressing the needs and interests of various stakeholder groups, including shareholders, employees, customers, suppliers, and the broader community (Freeman, 1984). Integrated reporting, as a comprehensive reporting framework, aims to provide a more holistic view of a company's value creation process, taking into account both financial and non-financial aspects that are relevant to diverse stakeholders (Eccles & Krzus, 2010; Adams, 2015). According to stakeholder theory, the adoption of IR is expected to improve firm performance by enhancing the quality of information available to stakeholders, which in turn supports better decision-making and resource allocation (Dumay et al., 2017; Cheng et al., 2014). Furthermore, IR adoption may signal a company's commitment to transparency, accountability, and long-term sustainability, which can enhance its reputation and relationships with key stakeholder groups (Eccles & Serafeim, 2014).

Agency Theory: Agency theory focuses on the conflicts of interest that can arise between principals (e.g., shareholders) and agents (e.g., managers) in the context of corporate governance (Jensen & Meckling, 1976). Institutional investors, as major shareholders with significant influence over company decisions, can play a critical role in monitoring and disciplining managers to align their actions with the interests of shareholders (Shleifer & Vishny, 1986). In this study, agency theory helps explain the potential moderating effect of institutional ownership concentration on the relationship between IR adoption and firm performance. On the one hand, highly concentrated institutional ownership may strengthen the positive impact of IR adoption on firm performance, as institutional investors are more likely to demand transparent reporting and effective governance practices (Busco et al., 2013; Ioannou & Serafeim, 2012). They can also provide valuable resources and expertise that help firms effectively implement IR and realize its potential benefits (Dhaliwal et al., 2014).

On the other hand, agency theory also suggests that concentrated institutional ownership may create potential conflicts of interest, as large institutional investors may prioritize their interests over those of other stakeholders (Fama & Jensen, 1983; Shleifer & Vishny, 1997). This could undermine the potential benefits of IR adoption and weaken the relationship between IR and firm performance. By integrating stakeholder theory and agency theory, the theoretical framework of this study offers a comprehensive perspective on the interplay between IR adoption, institutional ownership concentration, and firm performance. This framework helps guide the development of research hypotheses and the design of the empirical analysis, contributing to

a better understanding of the factors shaping IR practices and their impact on firm performance in the Malaysian context.

The Conceptual Framework and the Hypotheses Developed: Theoretical grounding is essential to accurately comprehend and elucidate empirical phenomena. In this regard, our theoretical framework for this study finds its roots in two seminal theories, namely, the Stakeholder Theory and the Agency Theory. We draw upon these theories to propose our conceptual framework, explaining the relationships and interactions between Integrated Reporting (IR) adoption, institutional ownership concentration, and firm performance. The conceptual framework for this study is as follows:

Integrated Reporting (IR) Adoption(IRL): This represents the extent to which a firm adheres to a reporting approach that offers a comprehensive picture of its performance. This approach incorporates both financial and non-financial parameters, providing a multi-faceted view that is pertinent to an array of stakeholders (Eccles & Krzus, 2010; Adams, 2015).

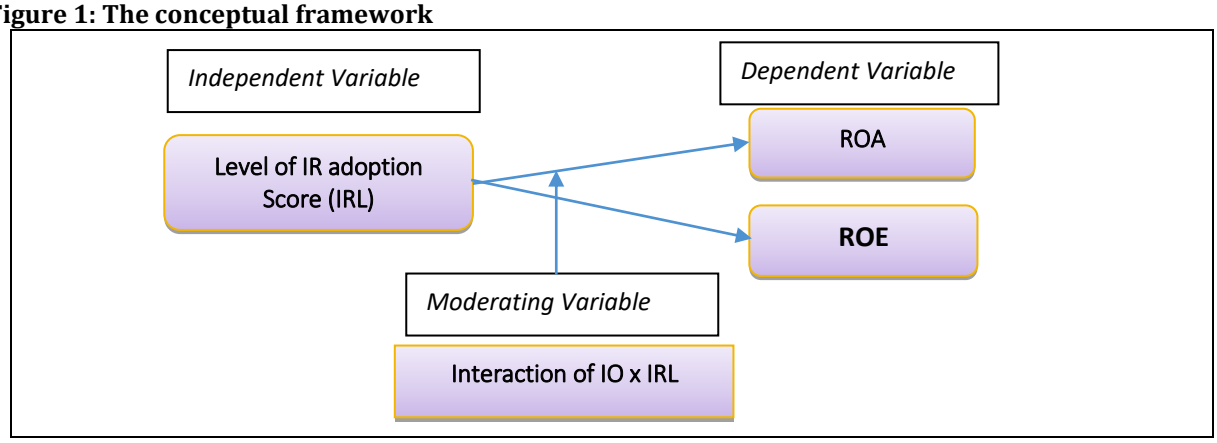
Institutional Ownership Concentration (IO): Refers to the extent of the firm's shares held by institutional entities. The level of concentration can potentially shape the influence these institutions exert on a firm's operations and governance.

Firm Performance: Denotes the proficiency of a firm in managing its resources, operations, and strategies to generate profits and value for its shareholders and stakeholders.

Moderating Effect of Institutional Ownership Concentration(IRL*IO): The effect of IR adoption on firm performance might be contingent upon the degree of institutional ownership concentration in the firm. Concentrated institutional ownership could either augment or diminish the positive impact of IR adoption on firm performance, contingent on the specific characteristics of the institutional investors involved, their strategic preferences, their governance influence, and the potential for conflicts of interest (Shleifer & Vishny, 1997; Fama & Jensen, 1983). The propositions derived from this conceptual framework, to be empirically tested in the study, are as follows:
H1: There exists a positive relationship between the extent of IR adoption and firm performance.
H2: The association between IR adoption and firm performance is moderated by the level of institutional ownership concentration, implying that this relationship is not homogeneous across varying degrees of institutional ownership concentration.

In future studies, we will empirically test these hypotheses through a regression analysis incorporating interaction terms, the details of which will be elaborated in the methodology section. The empirical insights from this investigation will further our comprehension of the interplay between IR practices, institutional ownership structures, and firm performance. This exploration is particularly salient in the context of publicly listed firms in Malaysia, a developing country marked by concentrated institutional ownership.

Figure 1: The conceptual framework



3. Methodology

This section outlines the methodology proposed to investigate the moderating effect of highly concentrated institutional ownership on the relationship between the level of IR adoption and firm performance in Malaysia. The study employs a quantitative research design, using secondary data from annual reports, integrated reports, and financial databases. The methodology consists of the following steps: sample selection, data collection, and data analysis.

Data and Sample Selection: The sample for this study consists of Malaysia-listed companies for the fiscal year 2022. To ensure a representative sample, we will use stratified random sampling, where the firms are first categorized based on industry sectors as classified by the Bursa Malaysia. From each industry category, a random sample of firms will be selected, proportionate to the total number of firms in that sector. This method will allow for a more balanced representation of the various industries in the Malaysian context.

Dependent Variable (DV)

Firm Performance (FP): We use measurement for firm performance, i.e., return on assets (ROA) and return on equity (ROE). These measures can be calculated based on financial data from annual reports or financial databases.

Independent Variables (IVs)

Integrated Reporting Adoption (IR): To measurement of the level of Integrated Reporting (IR) adoption will be established via a content analysis of integrated reports or annual reports with embedded IR elements. This analysis will be grounded in the guidelines and content elements proposed by the International Integrated Reporting Council (IIRC) (Dumay et al., 2017). Content analysis is a commonly utilized methodological approach in accounting research that enables the assessment of the uptake and quality of corporate reporting practices, including IR (de Villiers, Rinaldi, & Unerman, 2014; Dumay et al., 2016). This technique stands out due to its ability to dissect substantial volumes of qualitative data methodically and objectively, such as corporate reports, enabling the identification of underlying patterns and trends (Krippendorff, 2018). By leveraging content analysis, scholars can quantify the presence and frequency of particular keywords or concepts pertinent to IR, thus providing a nuanced understanding of the extent of IR adoption and the quality of reporting practices across firms (McNally et al., 2017). For this study, we will employ content analysis to scrutinize the 2022 financial reports of companies listed in Malaysia to discern the level of IR adoption. This approach will encompass the following steps:

Keyword Identification: Guided by the International Integrated Reporting Framework, we will compile a list of keywords synonymous with IR adoption. As affirmed in previous studies, these keywords signify various facets of IR (Barth et al., 2017; Haji & Hossain, 2016).

Execution of Content Analysis: The financial reports will be manually evaluated against the predetermined keywords to assess the presence and recurrence of IR elements.

Coding and Reliability: A coding scheme will be developed to categorize and quantify the identified keywords in the financial reports. In this scheme, the presence of a keyword is denoted by "1", and its absence by "0" (Krippendorff, 2018).

Percentage of IR Adoption: By concentrating on the content components of the IIRC (2013) integrated reporting framework, we created a disclosure index like that used by Marx and Mohammadali-Haji (2014), Stent and Dowler (2015), and Lee and Yeo (2016). By adopting this approach, we will ensure systematic and objective examination of the financial reports, thus facilitating a comprehensive understanding of the extent of IR adoption among listed companies in Malaysia. Mathematically, the formula can be expressed as follows:

$$\text{IR adoption score} = \sum (\text{keyword score})$$

Where:

∑ denotes the sum of the keyword scores, and the keyword score is either 1 or 0 depending on the presence or absence of the keyword in the financial report. The maximum possible IR adoption score in this case would be 49 points, indicating full adoption of the identified IR elements. IR adoption percentage = (IR adoption score / Maximum possible IR adoption score) x 100%

Institutional Ownership Concentration (IO): Information on the shareholdings of institutional investors will be collected from annual reports or financial databases. The institutional ownership concentration will be calculated using the percentage of shares held by the top institutional investors or the Herfindahl-Hirschman Index (HHI) based on the shareholdings of all institutional investors in the firm (Yusoff & Lehman, 2018).

The moderating variable

Interaction Term (ID): IRL * IO: To test the moderating effect of institutional ownership concentration on the relationship between IR adoption and firm performance, include an interaction term by multiplying the IR adoption score by the institutional ownership concentration measure.

Control Variables:

Firm Size (FSIZE): Natural logarithm of total assets or market capitalization as a proxy for firm size.
Leverage (LEV): Measure leverage as the ratio of total debt to total assets.
Firm Age (FAGE): Calculate firm age as the number of years since the firm's incorporation.
Industry: Include dummy variables for different industries to control for industry-specific effects.

The final regression model be as follows:

$$FP = \beta 0 + \beta 1 * IR + \beta 2 * OC + \beta 3 * (IRL * IO) + \beta 4 * FSIZE + \beta 5 * LEV + \beta 6 * FAGE + \beta 7 * Industry + \varepsilon$$

4. Conclusion

This conceptual paper has demonstrated the importance of Integrated Reporting (IR) in the contemporary, digitally dominated business environment. Specifically, this discussion demonstrates the potential moderating effect of institutional ownership on the association between IR adoption and firm performance. It emphasizes the significance of understanding this complex interaction in the Malaysian context and beyond, highlighting the potential for these dynamics to promote corporate transparency and sustainable value creation in the digital business environment. Contribution to the existing literature by presenting a conceptual framework that synthesizes stakeholder and agency theories is the significance of this paper. This integration provides a deeper comprehension of the dynamics that shape IR practices in the context of digital business. It is strongly hoped that this study will stimulate additional academic discourse, generate practical ramifications for firms, institutional investors, and regulators, and contribute to a greater understanding of IR in the digital business era. As we progress further into the digital business era, future research should focus on explaining the complex relationships between IR adoption, institutional ownership, and firm performance. A comparative analysis of diverse institutional settings and ownership structures, especially in developing nations, would provide a more nuanced understanding of these dynamics.

In addition, future research could investigate the unique challenges and opportunities that accompany the adoption of IR in the digital era of business. Adapting IR practices to capture and disseminate the inherent risks and opportunities of digital transformation could be an essential area of research. In addition, it would be advantageous to investigate how the digital business environment influences the perceived value of IR from the perspectives of various stakeholders, with a particular emphasis on various categories of institutional investors. Lastly, future research should also examine the impact of regulatory bodies on the incorporation of IR into digital business operations, either as facilitators or impediments. Such research would provide invaluable insights into the types of policies and initiatives that could effectively promote the adoption of IR in the digital age. It is anticipated that these future research directions will considerably enrich

the existing literature and serve as a guide for policy decisions, strategic initiatives, and corporate practices in an increasingly digital business environment.

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Predicting Intention to Continue Using E-Tourism Technologies amidst Covid-19 Endemic: A PLS-SEM Approach

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Abstract: After almost two years of stalling, the tourism sector is now thriving as we move into the Covid-19 endemic phase, making travel safer. Therefore, continuous use of personalized immersive technology that can deliver timely information and shield users from the outbreak is essential. This study looks at how travellers intend to continue using e-tourism technologies which include augmented reality, social media, smartphone apps, smart technologies, websites and reservation systems. Purposive sampling was used to select 200 respondents who were above 18 years old to participate in a survey that was based on the Expectation-Confirmation Model. The acquired data was then examined using PLS SEM for hypothesis testing. The results showed that satisfaction with e-tourism technologies was the most significant predictor of motivation to keep using such technologies. Further discussion includes contributions to the field of knowledge as well as for players, developers and service providers in the tourism sector.

Keywords: *Continuance Intention, Covid-19, E-tourism Technologies, Satisfaction.*

1. Introduction and Background

The United Nations World Tourism Organization (UNWTO) reported that in 2020, the number of foreign visitors declined by 60% to 80% (WTO, 2020). Similarly, in Malaysia, domestic tourist expenditures decreased by 60.8% from RM103.2 billion in 2019 to RM40.4 billion in 2020 as domestic tourist numbers decreased due to Covid-19 movement restrictions (Bernama, 2020). Therefore, countries are having a hard time reviving their economies, particularly through tourism recovery. They must come up with measures to entice tourists to visit their own countries, as disease prevention is one of the top concerns among travellers today. Malaysia had 4.5 million confirmed cases in June 2022, with 35,732 deaths (Ministry of Health, 2022). Various precautionary actions have been implemented worldwide during the Covid-19 situation. Social distancing, use of masks, and seclusion of one's self are employed to prevent direct interaction with individuals. These steps are taken to make sure that the spread of Covid-19 was limited to an absolute minimum (Wilder-Smith, 2020; Kuc-Czarnecka, 2020; Korzeb & Niedziółka, 2020) and that the people of the country were resilient. Simultaneously, the government began immunizing the entire population. As of June 2022, 28 million individuals in Malaysia had received at least one dose of vaccination (Ministry of Health, 2022).

By the end of June 2023, Malaysia is expected to complete the transition from the pandemic to the endemic phase of the outbreak (Yusof, 2023). Nevertheless, consumers are advised to still be cautious regarding daily activities, particularly in public places, while ambiguity about the novel Covid-19 continues. Covid-19 and the significance of tourism to Malaysia's economic development necessitate tourism operators to come up with a marketing plan that keeps their destinations competitive while also disseminating the most recent information about the problem. Consumers' demand for e-tourism technologies is driven by the extensive use of today's technology. As travel becomes more convenient and safer, people might require more motivation to travel. One strategy for doing so is to provide unique, fascinating technological experiences. Unanswered is the question of whether travellers will use technology during this period to get prompt information and safeguard themselves during the endemic phase.

Thus, this study incorporated the Expectation-Confirmation Model (ECM) to determine tourists' intention to continue using e-tourism technologies amidst Covid-19 endemic. With the help of these technologies, the tourists could stay resilient and avoid the red spots. As such, SmartPLS software was used to examine the

ECM aspects of confirmation, perceived usefulness, and satisfaction toward continued intention to utilize e-tourism technology.

2. Literature Review

E-Tourism Technologies: Pourfakhimi, Duncan, Ould, Allan, and Coetzee (2020, p. 3) claimed that e-tourism technologies are more than just online hotel booking and airline ticketing. They classify e-tourism technologies as a variety of technologies, including "mobile technologies, self-service technologies, social media, mobile applications, augmented reality, and smart technologies." The tourism and hospitality industries have benefited the most from these technological advancements due to their demands and features (Kennedy-Eden & Gretzel, 2012).

Expectation-Confirmation Model (ECM): Using the Expectation Confirmation Theory (ECT), Bhattacherjee (2001) developed the ECM, a research paradigm for information systems (Lee, et al., 2011). However, Bhattacherjee (2001) argued that actual use of information systems shapes customer expectations and confirmation of the information system's usefulness, which motivates continuous usage intention which led to the introduction of ECM, as depicted in Figure 1. The consequence of real use of the information system is evaluated during confirmation in the ECM. Consumers develop trust in the results and evaluate the usefulness of the system if the result meets their expectations. Satisfaction encompasses both fulfilment of a person's wants, needs and desires as well as the person's belief that his or her needs are met. Hence, the interplay of confirmation and perceived usefulness leads to satisfaction.

Continuance Intention: The primary dependent variable in the current study is continuance intention which is the desire to reuse a system or utilize it repeatedly (Bhattacherjee, 2001). The intention of tourists to keep utilizing e-tourism technology is what is meant by continuance intention in this current study. Despite the fact that most of them are focused on person-level decision-making, both the individual and organizational levels of analysis have addressed studies on information system continuation (Hossain & Quaddus, 2012). The current study focuses on the individual level of analysis and posits that e-tourism technology continuance intention is a mental state reflecting an individual's choice to continue repeating their current behavior. This mental state is comparable to the intention to repeat a purchase in the marketing industry (Lu, 2014).

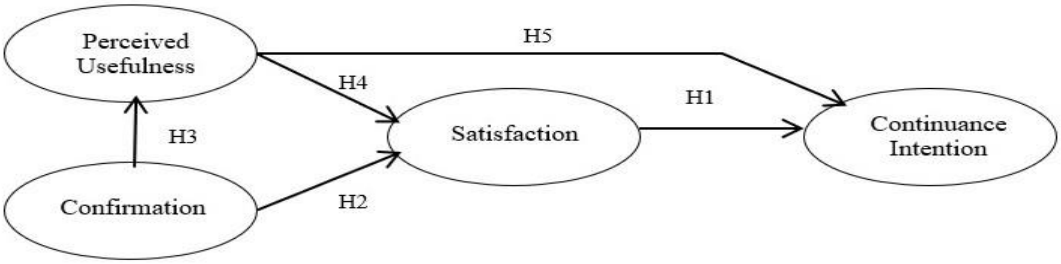
Satisfaction: The term "satisfaction" refers to how customers feel about their previous experiences with information systems (Bhattacherjee, 2001). In their study, Hsiao and Chang (2013, p. 3) defined "satisfaction as a consumer's positive emotional state as a result of using mobile advertising." On top of that, Bhattacherjee (2001, p. 355) further explained that "user satisfaction is influenced by two factors: information system expectations, and confirmation of expectations following actual use. Users assess their satisfaction or evaluative response by comparing it to their expectations." Customer satisfaction has been found to influence consumers' continuance intentions as a result of cognitive, emotional, and conative loyalty in an e-commerce B2C model (Yuksel, et al., 2010). Several previous studies have discovered favorable direct links between satisfaction and the desire to continue (Thominathan & Ramayah, 2014). Besides, numerous researches in various fields have demonstrated the favorable impact of customer satisfaction on use (Al-Hattami, 2021) as well as usage continuance (Al-Hattami et al., 2021). As a result, in this investigation, the following hypothesis is proposed:
H1: Satisfaction positively affects continuance intention.

Confirmation: The fascinating factor of confirmation influences perceived usefulness and satisfaction favorably, which can all result in a continuance intention. In practice, confirmation entails self-evaluation and meeting service standards. Confirmation is the process of comparing things (Bhattacherjee et al., 2008). According to Bhattacherjee (2001), disconfirmation (perceived performance lagging expectation) specifies that the expectation has not been satisfied, whereas confirmation (perceived performance meeting expectation) implies that the benefits of using information systems have appeared as expected. Expectations were reinforced before the consumer was satisfied, according to Liao et al. (2007). Both factors were considered in the study as key factors. Confirmation of expectations, according to Wen et al. (2011), has a favorable impact on perceived usefulness and satisfaction, resulting in continued behavior. Tourists will compare their real experience visiting a tourism destination to their initial expectations. They will be satisfied

with the sights if their expectations are met. Furthermore, Chong (2013) agrees that the degree of confirmation would rise and enhance consumer satisfaction and the perceived usefulness of mobile commerce services. Thus, the following hypotheses are offered in this study:
H2: Confirmation positively affects satisfaction.
H3: Confirmation positively affects perceived usefulness.

Perceived Usefulness: Perceived usefulness is the individual's belief that using a particular technology improves the caliber of their work output (Davis, 1989; Bhattacherjee, 2001). Previous studies have discovered a relationship between perceived usefulness and satisfaction (Hsiao, Chang, & Tang, 2016; Oghuma, et al. 2015; Thominathan & Ramayah, 2014), as well as the relationship between continuance intention and perceived usefulness (Oghuma et al., 2016; Oghuma et al., 2015; Thominathan & Ramayah, 2014). Perceived usefulness, according to a few earlier studies, positively affects user satisfaction and intention to continue using information systems (Bölen & Zen, 2020; Chong, 2013; Foroughi et al., 2019). Hence, the hypotheses are listed as follows:
H4: Perceived usefulness positively affects satisfaction.
H5: Perceived usefulness positively affects continuance intention.

Figure 1: Presents the Research Framework



3. Research Methodology

The determinants of continuance intention to use e-tourism technologies among Malaysian tourists are examined in this current study. An online survey of 230 respondents had been administered via Google Forms. This study used a purposive sampling technique when selecting Malaysian tourists. Before that, tourists aged 18 and above had been identified as the targeted population and each of the respondents was required to have utilized at least one of the e-tourism technologies discussed in the Literature Review section. After removing the incomplete responses, 200 responses were accepted as valid for data analysis. The administered questionnaire consists of two main sections namely Section A which comprises questions focusing on the demographic profiles of respondents as well as the usage of e-tourism technologies and Section B which includes questions related to measuring the determinants of e-tourism technologies' continuance usage intention among tourists. This study adapted measurement items from a range of sources. The items for Confirmation, Satisfaction and Continuance Intention were adapted from Bhattacherjee (2001) and Chong (2013) whereas the items for Perceived Usefulness were adapted from Chong (2013). All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4. Results and Discussion

Demographic Profile

Table 1: Respondents' Demographic Characteristics

Variable	Percentage
Gender	
Male	23%
Female	77%

Age	
18 – 20	18.5%
21 – 30	58.5%
30 and above	33%
Ethnicity	
Malay	97%
Chinese	2%
Indian	1%
Educational level	
Diploma	32%
Bachelor's degree	50.5%
Postgraduate degree	17.5%
Employment	
Government sector	17.5%
Housewife	1%
Private sector	8%
Self-employed	2.5%
Student	71%
Monthly income	
Below RM2000	68%
RM2001 – RM5000	13%
RM5001 – RM8000	10.5%
RM8001 – RM11000	7.5%
Above RM11000	1%
User of any e-tourism technologies?	
Yes	78.5%
No	21.5%
Frequency of e-tourism technology usage	
Extremely frequent	8%
Quite frequent	14%
Slightly frequent	21.5%
Neither	1.5%
Quite infrequent	18.5%
Slightly infrequent	15.5%
Extremely infrequent	6%

According to the respondents' demographic characteristics in Table 1, 77% of the samples were female and 23% were male. The largest of the samples' respondents (58.5%) ranged in age from 21 to 30; next, 33% were over the age of 30; and the remaining 18.5% were between the ages of 18 and 20. For ethnicity, 97% of them were of Malay ethnicity and the rest were made up of Chinese and Indian. Regarding educational level, most of the respondents hold a bachelor's degree (50.5%), 32% have a diploma and 17.5% have a postgraduate degree. Students made up 71% of the responses overall. This finding clearly elucidates another finding which exposes that most of the respondents received a monthly salary below RM2000. On the other hand, those who worked in the government sector comprised 18% of the participants with monthly incomes reaching between RM5000 to RM11,000. Apart from that, the samples consisted of those who worked in the private sector (8%), self-employed (2.5%) as well as housewives (1%). Furthermore, 78.5% of the respondents revealed that they are active users of at least one of the e-tourism technologies, and 43.5% of them admitted themselves as frequent users of those technologies.

Data Analysis: Partial Least Squares (PLS) modelling was used to assess the measurement and structural model (Ringle et al., 2015), which does not require the normality assumption, hence data can either be normally or not normally distributed (Chin et al., 2003). Firstly, the researcher tested the issue of Common Method Bias. This is in accordance with the suggestions of Kock and Lynn (2012) and Kock (2015) which is to test the full collinearity if only one source was utilized to obtain the data. This approach involved regressing

each variable against a common variable. The full collinearity test for variables such as Confirmation, Continuance Intention, Perceived Usefulness and Satisfaction are 3.322, 4.412, 2.686, and 4.162 respectively. The analysis produced a VIF of less than 5. Therefore, there is no serious issue with data obtained from one single source.

Measurement Model: To evaluate the model created using a 2-step technique, the researcher adhered to the advice of Anderson and Gerbing (1988). According to the recommendations of Hair et al. (2019) and Ramayah et al. (2018), the measurement model was first evaluated to ascertain the validity and reliability of the instruments utilized. Following that, the structural model was used to evaluate the developed hypotheses. Loadings, average variance extracted (AVE) and composite reliability (CR) were assessed for the convergent validity of the measurement model. As displayed in Table 2, the values are all acceptable because loadings are all higher than 0.708, AVEs are all higher than 0.5 and the CRs are all higher than 0.7 (Hair et al., 2019).

Table 2: Measurement Model

Variable	Item	Loadings	CR	AVE
Confirmation	CONF1	0.871	0.927	0.760
	CONF2	0.878		
	CONF3	0.825		
	CONF4	0.911		
Continuance Intention	CONT1	0.858	0.931	0.729
	CONT2	0.882		
	CONT3	0.902		
	CONT4	0.746		
	CONT5	0.874		
Perceived Usefulness	PU1	0.857	0.938	0.717
	PU2	0.855		
	PU3	0.846		
	PU4	0.855		
	PU5	0.877		
	PU6	0.788		
Satisfaction	SAT1	0.881	0.953	0.804
	SAT2	0.889		
	SAT3	0.907		
	SAT4	0.906		
	SAT5	0.899		

Secondly, the discriminant validity was assessed using the HTMT criterion. Henseler et al. (2015) and Franke and Sarstedt (2019) suggested that the HTMT values should be lower than 0.9. As can be seen in Table 3, there is only one HTMT value which is above 0.9. Consequently, bootstrapping was done to make sure 90% of the bias-corrected intervals (BCI) upper level (UL) values were less than 1. As a result, Table 4 shows that all the values are less than 1. This clearly indicates that HTMT value of 0.913 in Table 3 is not an issue. Hence, the measurement items are considered valid and reliable.

Table 3: Discriminant Validity (HTMT Ratio)

Variable	1	2	3	4
1. Confirmation				
2. Continuance Intention	0.832			
3. Perceived Usefulness	0.816	0.806		
4. Satisfaction	0.841	**0.913**	0.710	

Structural Model: The multivariate skewness and kurtosis were assessed as suggested by Hair et al. (2017) and Cain et al. (2016). The results indicated that the data collected was not multivariate normal as Mardia's multivariate skewness ($\beta = 3.624$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 29.438$, $p < 0.01$). Thus, the suggestions of Hair et al. (2019) were followed whereby the path coefficients, the standard errors, t-values and p-values were reported for the structural model using a 5,000-sample re-sample bootstrapping

procedure as documented by Ramayah et al. (2018). Furthermore, criteria namely p-values, confidence intervals and effect sizes were combined due to the comment made by Hahn and Ang (2017) that p-values per se are a poor standard for determining if a hypothesis is significant.

Next, the effect of the 2 predictors on Continuance Intention was tested which revealed that the R^2 was 0.771 (Q^2 = 0.556). This indicates that Satisfaction and Perceived Usefulness explains 77.1% of the variance in Continuance Intention. Satisfaction (β = 0.635, p< 0.01) and Perceived Usefulness (β = 0.317, p< 0.01) were all positively related to Continuance Intention, thus H1 and H5 were accepted. Subsequently, the effect of Confirmation (β = 0.634, p< 0.01) and Perceived Usefulness (β = 0.190, p< 0.01) on Satisfaction is tested with an R^2 of 0.617 (Q^2 = 0.490) which shows that Confirmation and Perceived Usefulness explain 61.7% of the variance in Satisfaction which confirms H2 and H4. Finally, the researcher tested the effect of Confirmation (β = 0.744, p< 0.01) on Perceived Usefulness, with an R^2 of 0.553 (Q^2 = 0.389), highlighting that Confirmation explains 55.3% of the variance in Perceived Usefulness, consequently supporting H3. The overview of the criteria used to assess the proposed hypotheses is shown in Table 4.

Table 4: Hypothesis Testing

Hypothesis	Relationship	Std. Beta	Std. Dev.	t-value	p-value	BCI LL	BCI UL	f^2
H1	SAT -> CONT	0.635	0.063	10.112	p< .001	0.524	0.732	0.992
H2	CONF -> SAT	0.634	0.064	9.984	p< .001	0.527	0.734	0.469
H3	CONF -> PU	0.744	0.038	19.823	p< .001	0.674	0.799	1.239
H4	PU -> SAT	0.190	0.074	2.566	0.005	0.067	0.312	0.042
H5	PU -> CONT	0.317	0.065	4.886	p< .001	0.214	0.426	0.247

Note[1]: Confirmation = CONF, Continuance Intention = CONT, Perceived Usefulness = PU and Satisfaction = SAT. Note[2]: The researcher uses a 95% confidence interval with a bootstrapping of 5,000

The use of PLS-Predict, as suggested by Shmueli et al. (2019), is a more current and up-to-date technique to assess predictive relevance. The holdout sample-based method PLS-Predict provides case-level predictions on an item or construct level and uses a 10-fold technique to validate predictive relevance. According to Shmueli et al. (2019), if all of the item differences (PLS-LM) are negative, there is strong predictive power; if most of the item differences (PLS-LM) are negative, there is moderate predictive power; if a minority of the item differences (PLS-LM) are negative, there is low predictive power; and if none of the item differences (PLS-LM) are negative, there is no predictive power at all. Only a small percentage of the PLS model's errors were lower than those of the LM model, as seen in Table 5. Hence, it may be asserted that the model's predictive potential is considered to be low.

Table 5: PLS-Predict

	PLS		LM		PLS-LM		Q^2 Predict
Item	**RMSE**	**MAE**	**RMSE**	**MAE**	**RMSE**	**MAE**	
CONT1	0.521	0.413	0.530	0.415	**-0.009**	**-0.002**	0.401
CONT2	0.562	0.404	0.551	0.391	0.011	0.013	0.424
CONT3	0.485	0.375	0.475	0.359	0.010	0.016	0.462
CONT4	0.675	0.507	0.680	0.508	**-0.005**	**-0.001**	0.286
CONT5	0.503	0.386	0.503	0.368	0.000	0.018	0.470

Discussion: This current research aims to investigate the continuance intention to use e-tourism technologies amongst Malaysian tourists amidst Covid-19 endemic. The findings reveal that satisfaction has a stronger positive impact on continuance intention in using e-tourism technologies compared to perceived usefulness. This demonstrates that Malaysian holidaymakers view the satisfaction they experience from utilizing e-tourism technologies as being far more essential than the technology's usefulness. These outcomes are consistent with earlier research, such as that of Yuksel et al. (2010), Hsiao and Chang (2013), Chong (2013), Thominathan and Ramayah (2014), and Al-Hattami et al. (2021). Notwithstanding, the perception of the technologies being useful to the tourists in determining their continuance usage is comparatively significant

as the findings in this study corroborate well with results from previous research done by Chong (2013), Foroughi et al. (2019) and Bölen and Özen (2020)

The characteristics that affect tourists' satisfaction with e-tourism technologies, which in turn affects their intention to use the technologies in the future, are supported by the study's hypotheses. The investigation's findings are intriguing. It was found that confirmation affected user satisfaction with e-tourism technology more than perceived usefulness. This shows that the extent to which tourists' expectations are met—rather than whether or not they believe the technologies are useful to them—has a substantial effect on customers' satisfaction with e-tourism technology. Undoubtedly, the finding is supported by earlier studies by Oghuma et al. (2016), Oghuma et al. (2015), Lu (2014), Thominathan and Ramayah (2014), Chong (2013) and Hsiao and Chang (2013).

Finally, this research investigates the association between confirmation and perceived usefulness. As a result, this research clearly confirms the finding which strongly proves that tourists' perceived usefulness of e-tourism technologies is boosted by confirmation. In other words, if the expectations among the tourists are confirmed, the technology will appear to be enormously useful to them. This is consistent with past studies that found a substantial connection between confirmation and perceived usefulness (Wen et al., 2011; Chong, 2013).

5. Conclusion

The purpose of the current research was to determine how perceived usefulness, confirmation, and satisfaction affected Malaysian tourists' intentions to continue using e-tourism technologies. However, there are several drawbacks to this research. To start with, Malaysian tourists were chosen for this study using a purposive selection technique. It is recommended that future research should employ suitable probability sampling methods to overcome generalization issues. Secondly, the majority of the samples were mainly students. In the future, potential researchers should increase the number of respondents to cover other segments of tourists. Thirdly, the current study only examined a limited number of variables based on ECM. Future studies could, perhaps, integrate other appropriate constructs based on the latest literature recommendations to gain better prediction power of continuance intention in e-tourism technologies.

Overall, this study confirms that the intention to use e-tourism technologies in the future is positively impacted by satisfaction with those technologies. Also, how well e-tourism technologies meet visitors' expectations is unquestionably related to that satisfaction. All things considered, the findings suggest that the model does a decent job of explaining the factors that affect satisfaction and continuance intention to utilize e-tourism technologies.

Paper Contribution to Related Field of Study: The results of this survey show that young travellers between the ages of 21 and 30 made up the majority of those who used e-tourism technologies. It is known that young users assess the innovation regardless of whether it is for first-time use or continuance use. As such, with regards to satisfaction and continuance intention to use e-tourism technologies, the beliefs of the usefulness of those technologies are prominent as presented in the study's findings. Thus, to promote satisfaction and facilitate continuance intention among young users as tourists in this modern world and at the same time be resilient to the Covid-19 disease, e-tourism technologies ought to be personalized to the specific needs of the users as well as be designed to have usability and utility for the users. In detail, e-tourism technologies should be specifically built with a visually attractive and user-friendly interface, coupled with a clear layout and powerful navigation to accommodate relevant, accurate, up-to-date and comprehensive information for young consumers and future generations.

From a conceptual standpoint, this research has several unique contributions. In Malaysia, research on post-adoption environment namely continuance intention is still insufficient to comprehensively understand the phenomenon. Therefore, to provide empirical data in the field and offer additional details on customers' intentions to repeatedly use a certain system, further research on continuance intention is required. As a result, this study adds to the body of existing knowledge since it illustrates the growth of the literature on continuing usage intention and adds critical new information to the literature on the post-adoption

environment. Additionally, this study succeeded in substantiating Bhattacherjee's (2001) ECM by identifying Malaysian tourists' continued intention to use e-tourism technologies.

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Modelling Workplace Ostracism among Workforces amid Pandemic Outbreaks

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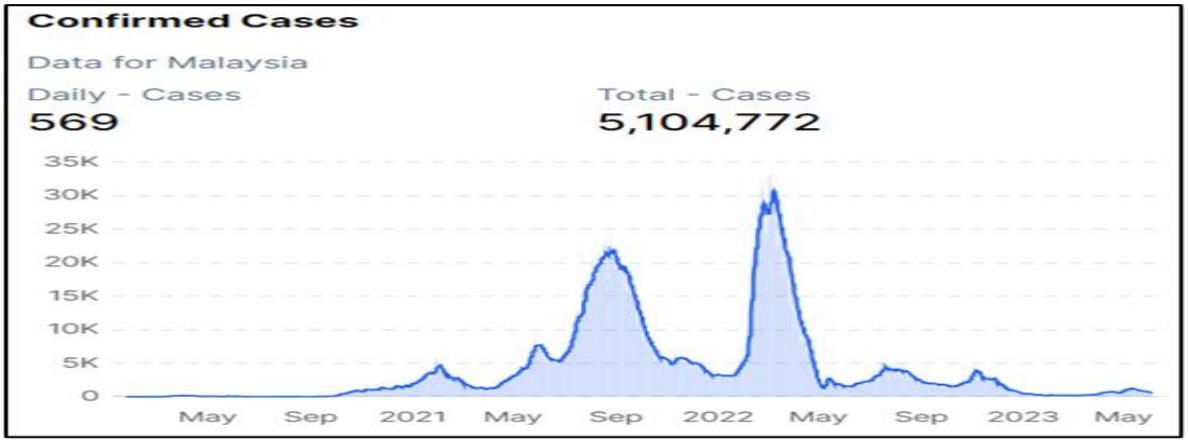
Abstract: Amid pandemic outbreaks, many jobs that were once thought to be safe are now considered potentially harmful since the virus can be easily spread from one person to another. Albeit vaccination program, the fear of infections at the workplace is still alarming as getting vaccinated is a voluntary act and the virus keeps evolving from time to time. As everyone must keep their working life at risk since social distancing and wearing face masks are no longer being forcefully practiced, people are taking safety precautions into their own hands, leading to changes in ostracized behavior in the workplace. Following the Theory of Protection Motivation, this paper made attempts to conceptually model workplace ostracism to understand why some workforces are changing their behavior towards ostracism during a pandemic outbreak. Towards the end, the findings from this study are expected to contribute towards achieving mentally stable workforces and sustainable human resources.

Keywords: *Workplace, Ostracism, Protection Motivation Theory, Workforce.*

1. Introduction and Background

COVID-19 has formed serious issues in disease management, workplace conditions, as well as social and economy globally (Ariza-Montes et al., 2022). The most critical problem resulting from COVID-19 is having employees adapt to new working conditions (Carnevale & Hatak, 2020). According to Floyd, Dun, and Rogers (2000), COVID-19 has generated an unprecedented level of public fear, the need for physical distancing, and increasing health and safety concerns wherein the physical distance between people has become the norm in most countries, which restricts physical contact, reduces social engagement (Pawar et al., 2020) and it causes employees to feel disconnected (Nisar et al., 2021). Even though the prevention measures for COVID-19 have been shown to reduce transmission rates, the new norm is stimulating changes in people's behavior (Bavel et al., 2020). Due to fear, the behavior of people was changing towards preventing and avoiding themselves from being infected with the virus (Bavel et al., 2020), with some practicing ostracism towards each other in their workplace. According to National Health and Morbidity Survey, 4.57 million working adults were reported to bear mental health issues with 29% of employees reporting that they have poor mental health. Numerous studies have found that the COVID-19 pandemic and social distancing practices are related to a rise in mental health problems such as depression, anxiety, distress, and insomnia (Vui-Yee & Yen-Hwa, 2020).

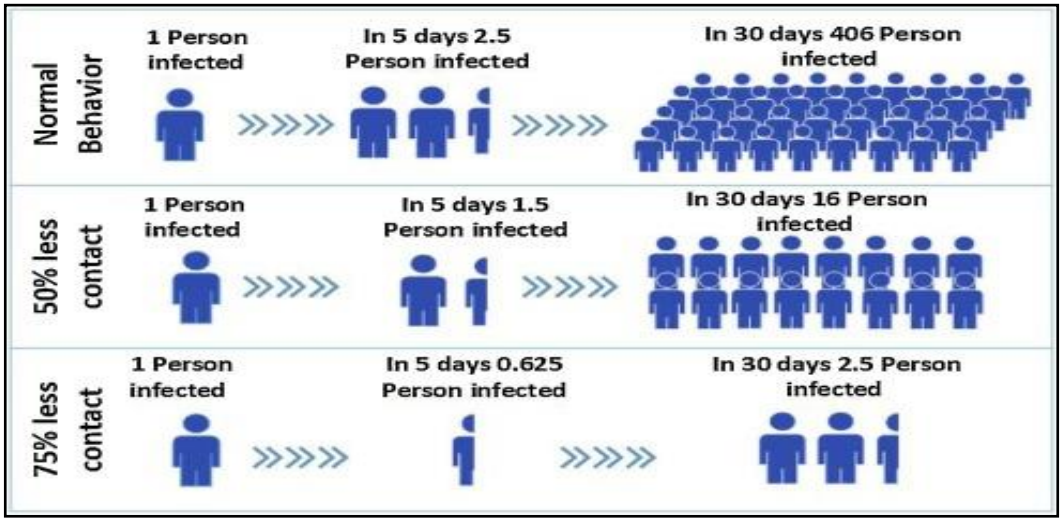
Figure 1: Total COVID-19 cases (KKMNOW, 2023)



According to KKMNOW (2023), as of 3 June 2023, Malaysia has recorded 5,104,772 confirmed cases as illustrated in Figure 1 and the cases are still increasing indicating that the virus is still spreading. Therefore, the objective of this study is to understand why ostracism occurs in the workplace among workforces amid pandemic outbreaks. This study adds to the existing knowledge of the ostracism field of study by investigating social exclusion in the working setting during the upsurge of contagious diseases worldwide which is different from existing ostracism-related scholarly works that were done by others.

Changes in the Working Setting: All organizations in both financial and non-financial institutions were affected by the COVID-19 outbreak (Barua & Barua, 2021) which brought about disruption, uncertainty, difficulty, and ambiguity (Azizi et al., 2021) business. Regardless of the outbreak, workforces must continue to work normally together even though most of the virus transmission occurred in workplaces (Bazzoli & Probst, 2022). Many jobs that were once thought to be safe are now considered potentially harmful because of COVID-19 (Sinclair et al., 2021). Moreover, the risk of infection is higher for employees in service sectors such as banking since they often engage with consumers while performing their duties (Yu et al., 2021) and the virus is easily spread from person to person (Rothan & Byrareddy, 2020). According to risk assessment studies, workplaces that bear high customer density and visit duration are linked to an increase in the total weekly cases of COVID-19 (O'Donoghue et al., 2020). Thus, the possibility of infection is always present which makes the employees live in fear of COVID-19 exposure and uncertainty at the workplace (Dennerlein et al., 2020). To respond to the risk, health experts have proposed a variety of ways to stop the virus' transmission, such as physical distancing, but it caused problems and challenges in providing the service to customers (Shaheen et al., 2022). A recent study reported that physical distancing can lead to ostracism and at the same time, trigger negative mental health effects of ostracism (Hales et al., 2021). According to Ahmed et al. (2021), the spread of the virus and the disease's severity can be decreased through less contact between an infected person and a healthy person as shown in Figure 2 below.

Figure 2: Social distancing (Ahmed et al., 2021)



Workplace Ostracism: Workplace ostracism concept and scale was introduced by Ferris et al., (2008). According to Shah and Hashmi (2019), ostracism is the degree to which an individual believes he or she is being ignored or excluded by the organizational phenomenon. In the workplace, ostracism is the sense that an employee is left out or ignored by coworkers (Ferris et al., 2008). Meanwhile, according to Xing and Li (2022), ostracism is workplace cold violence and cold treatment, varies with individual interpretations, is the employee's overall rejection feeling, and is a typical workplace issue. According to Harvey et al. (2019), there are different types of ostracism which are physical, social, and cyber. Other types of ostracism are role-prescribed when social situations call for them to engage in ostracism, defensive to protect against experiencing ostracism themselves, obvious when someone engages in ostracism due to failing to notice someone nearby, and not-ostracism when they only believe they are experiencing ostracism but are not in reality (Williams, 2007) and obvious ostracism when workplace ostracism due to protection during the

pandemic (Graupmann & Pfundmair 2023). Ostracism is a passive-aggressive type of behavior such as silence, ignorance, and a refusal to respond to greetings (Liu & Xia, 2016). It happens when an individual is purposefully excluded from a social connection or interaction (Harvey et al., 2019), giving ostracized employees silent treatment, avoiding eye contact, disregarding greetings, and isolation from social interaction (Anasori et al., 2021). Workplace ostracism is a short-term influence strategy that works well but may be harmful to relationships in the long run (Nezlek et al., 2015) which can influence both employees and organizations (Liu & Xia 2016). Previous studies reported that employees' psychological, emotional, and material resources will be reduced (Xing & Li, 2022), and participation and concentration at work will decrease (Chi & Liang, 2013). It may be more detrimental to the organization when those negative outcomes spread throughout the organization, causing job strain, emotional exhaustion, and a depressed attitude at work (Harvey et al., 2019; Muneer et al., 2017) with the one that ostracises others will have a diminished sense of belonging, more anger, ego depletion, and a reduced desire to work (Chen et al., 2022).

Effect of Ostracized Behavior: Ostracized people run into social suffering, developing a variety of pro and anti-social behaviors (Wesselmann et al., 2015). Those who are experiencing social exclusion may develop antisocial, introverted, closed, and uncooperative traits (Pellegrini et al., 2021). Ostracism increases physical pain, social pain, negative emotion, and impaired self-regulation due to an increased perception of rejection (Pasamehmetoglu et al., 2022). When one encounters workplace ostracism, their emotions of isolation would be increased, which might result in stress and depression (Sarwar et al., 2022) leading to turnover, and job dissatisfaction (Williams & Nida, 2022). The fear of contracting the virus and social isolation place employees in an uncertain situation (Lima et al., 2020) which is impactful on employees' engagement with work and organization (Shaw et al. 2020). On the side of positive impact, researchers discovered that exclusion could lead to prosocial effects such as increased assisting, cooperating, and funding behaviors that help other people or organizations (Lee & Shrum, 2012; Maner et al., 2007; Ouwerkerk et al., 2005; Xu et al., 2017).

Underpinning Theories: Social exclusion refers to the disadvantage experienced by some groups who are being cut off from mainstream society and unable to directly participate in daily life (Piachaud et al., 2009). While, Protection Motivation Theory (PMT) was developed by Rogers (1975), which describes what motivates people to take precautions when they feel a health threat.

Social Exclusion Theory: Social exclusion is interchangeably used with social isolation which is deemed as a lack of social coherence (Silver, 2007). It can take one of two different forms which are rejection and ostracism (Richman et al., 2016; Williams & Nida, 2011). This theory shows a connection to ostracism due to likeness to a phenomenon and process in which a person's need for belonging and connection is hindered because of rejection or ostracism by a social group or individual (Chen et al., 2022; Williams, 2007; Xia, 2008). The effect of social exclusion is rooted in the need-threat model as seen in Figure 3 (Williams, 2009) which states that people who are excluded go through a reflexive period in which neural pain responses like physical pain appear (Eisenberger et al., 2003) and are experiencing less happiness with basic needs like belonging, self-esteem, control, and purposeful existence (Williams, 2007).

Protection Motivation Theory: Previous research has used a variety of theories to explain workplace ostracism such as the social exchange theory, SET (Zhao et al., 2013), and the conservation of resources theory, COR (Ali et al., 2020). PMT is another well-known theory to investigate health-relevant contexts and disease outbreaks, including influenza, H1N1, Ebola, Norovirus, the current coronavirus pandemic (Fisher, 2015) and motivations behind employee safety behavior (Lee, 2022). It was created to better understand how and why people react to possible dangers to their health and safety and it has been widely utilized as a framework to anticipate protective actions (Rogers, 1975) to prevent the occurrence of a negative outcome (Roger, 1983). This theory was classified into threat and coping appraisal (Norman et al., 2015). Threat appraisal is to determine how dangerous the disease is and the possibility one would have it. Coping appraisal, on the other hand, evaluates one's anticipated response efficacy of suggested recommendations that can minimize or eliminate the threat and their ability to carry out the suggested behavior successfully (Yu et al., 2022). The stronger the appraisals, the higher one's protection motivation; thus, the more likely an individual is to adopt the recommended behaviors (Rogers, 1975). As illustrated in Figure 4, this study utilizes PMT theory to explain factors that influence the workforce's behavior to practice ostracism in the workplace.

Figure 3: Williams's temporal need-threat model of ostracism (Williams & Nida, 2022)

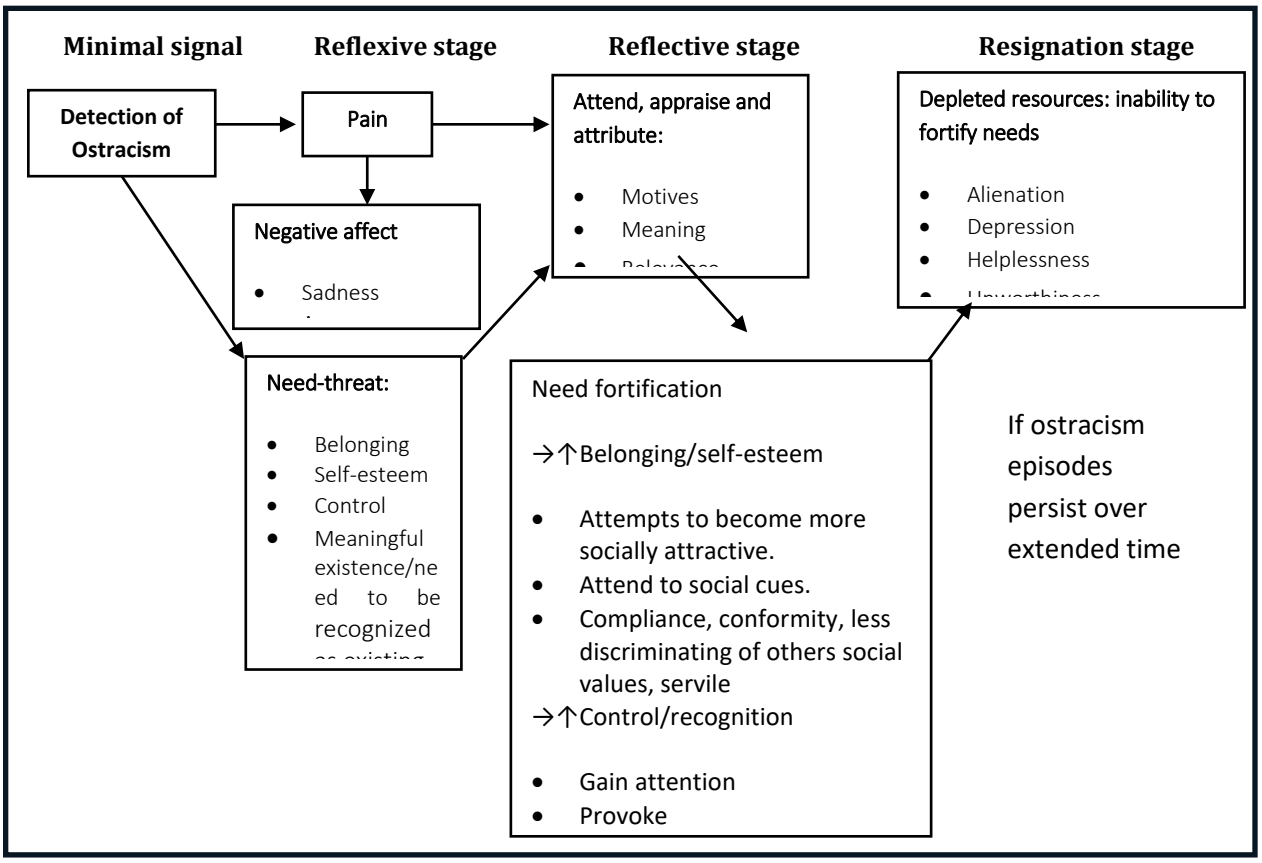
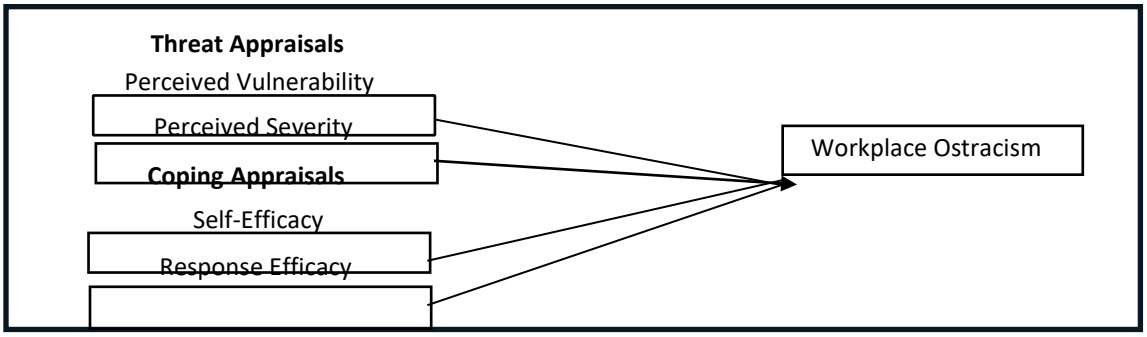


Figure 4: Conceptual framework



2. Methodology

This conceptual paper employs a qualitative research approach to explore and analyze the phenomenon of workplace ostracism among workforces during pandemic outbreaks. As such, the study aims to review and synthesize existing literature, theories, and conceptual frameworks to develop a comprehensive understanding of workplace ostracism in the context of pandemic outbreaks. Firstly, a comprehensive literature review is conducted to identify and examine scholarly articles, studies, and relevant publications related to workplace ostracism and pandemic outbreaks. This review involves searching academic databases, relevant journals, books, reports, and other reputable sources. The literature review helps identify key concepts, theories, and existing frameworks that contribute to understanding workplace ostracism in the specific context of pandemic outbreaks. Later, based on the findings from the literature review, a conceptual

framework is developed to organize and structure the key concepts and relationships related to workplace ostracism among workforces during pandemic outbreaks. The framework integrates relevant theories, concepts, and empirical evidence to provide a theoretical lens for understanding and analyzing the phenomenon. Additionally, comparisons and connections are made between workplace ostracism and the specific challenges and dynamics arising from pandemic outbreaks. Since this is a conceptual paper, data collection in the traditional sense is not applicable. Instead, the data is derived from the literature review and existing theories. The primary sources of data are scholarly articles, books, reports, and other relevant publications that contribute to the understanding of workplace ostracism and pandemic outbreaks. The conceptual framework developed earlier guides the discussion and enables a comprehensive analysis of the topic.

3. Discussion

In the era of disease outbreaks, it is comprehensible that people's behavior is somewhat changing as some are taking extra precautions to avoid becoming infected with the virus. PMT was often used in the field of health behavior in predicting individuals' intentions to engage in protective behavior (DeFranco & Morosan, 2017) against H1N1 (Sharifirad et al., 2014), and COVID-19 (Eberhardt & Ling, 2021; Kim et al., 2022) have evidencing PMT is helpful to explain on how people behave in pandemic situations (Lee, 2022). According to Pilch, Wardawy, and Probierz (2021), PMT helps to better understand how people behave in the face of potential health risks like the existence of influenza infection. People are motivated to participate in and adhere to protective measures when they think the outcome will be successful and the action is realistic (Meulenaer et al., 2018). Individual actions and attitudes toward the situation are changing with the rise of dangers (Su et al., 2022). Employees' awareness of the threats connected to the pandemic might affect their attitudes and behavior at work (Vu et al., 2022; Wang et al., 2021). According to Vu et al., (2022) during the COVID-19 outbreak, employees were concerned about their health and felt insecure about their work, so they reacted defensively; as such it is deemed appropriate to model ostracism in understanding employee health protection behavior in the workplace.

4. Conclusion

Although these days cases related to COVID-19 are minimally reported, as the decision to be vaccinated against the coronavirus is voluntary, and since the virus is constantly evolving and subsisting within the community, fear of the virus remains. Apart from the public, employers and employees are also highly affected by this pandemic situation. This is happening because they still need to carry on with their working life but are exposed to a high risk of being infected by close interaction with their colleagues. Therefore, some workforces are responding to potential threats to their health and safety at the workplace by practicing ostracism and jeopardizing their mental health and well-being. As research on ostracism in the workplace is still sparse, especially in Malaysian studies, understanding possible factors that can cope with workplace ostracism issues is expected to contribute towards achieving mentally stable workforces and sustainable human resources.

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Digital Consumer Engagement: Examining the Impact of Audio and Visual Stimuli Exposure in Social Media

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Abstract: The promotion of coffee shops through Instagram content has become highly beneficial to consumers' decision-making, as short videos reel Instagram and photos can help consumers judge and experience products through visual and audio stimuli on content. Consequently, scholars and managers must understand consumer behaviors regarding audio-visual stimuli on Instagram content and identify factors influencing perception and consumer engagement with content. A novel contribution of this study is the introduction of audio-visual stimuli on Instagram content based on the stimulus-organism-response paradigm, which explains how sensory marketing and information adoption affect consumer engagement on social media Instagram. To empirically evaluate the proposed research model, we conducted an online survey with 120 participants who followed Instagram @kopijanjijiwa and @kopikenangan. We performed data analysis using structural equation modelling and Smart-PLS software and the results indicated that all hypotheses, except for perceived cognitive and audio-visual stimuli, significantly affected consumer engagement. This study could provide insights into the antecedents of perceived cognitive and consumer engagement on social media Instagram. Thus, contributing knowledge of digital consumer behavior helps managers understand consumer behavior regarding social media and formulate marketing strategies.

Keywords: *Audio visual stimuli, Digital consumer engagement, Instagram, Perceived cognitive.*

1. Introduction and Background

Generation Z dominates Indonesia's population at 27.94 percent (BPS 2021b; BPS 2021a). It is predicted that, in 2020–2030, Indonesia will have a demographic bonus or a condition in which the productive population age outnumbers the non-productive population. This condition means that the country has an expanding youth population, known as Generation Z. Enjoying a cafe atmosphere accompanied by coffee and other menus has become a lifestyle for most of Generation Z, and this is an excellent opportunity for Indonesia to have a coffee business (Pratomo, 2023). The increasing growth of the coffee shop industry has rapidly expanded as a food and beverage industry in the urban areas of Indonesia. The coffee shop industry's competitive conditions in Indonesia cause all-brand coffee shops to seek innovative strategies to differentiate themselves from other brands (Han et al., 2019). Several indicators can influence Generation Z's purchasing intentions for Coffee Shops, including social media and electronic word of mouth (EWOM) consumers' social interaction, participation in message delivery, and encouraging the expression of brand-related opinions, thereby enhancing consumer opinion sharing and engagement (Levy & Gvili, 2015). According to survey data collected by Toffin Indonesia in 2020, the number of name-brand coffee shops in Indonesia reached 2,937 outlets, and the market value reached IDR 4.8 trillion. The consumption of coffee products in Indonesia is increasing rapidly. The sales volume of "ready to drink" (RTD) coffee products in 2018 increased to 120 million litres. A 13.9% increase was also observed in the consumption of coffee products in 2019/2020 (Toffin, 2019). Based on this data, the coffee shop context was chosen as the focus of this study because it has promising business potential for further exploration.

Several indicators can influence Generation Z's purchasing intentions for Coffee Shops, including social media and electronic word of mouth (EWOM) consumers' social interaction, participation in message delivery, and encouragement of the expression of brand-related opinions, thereby enhancing consumer opinion sharing and engagement (Levy & Gvili, 2015). Generation Z Indonesia is generally very similar to technology. They are familiar with the Internet and have a good command of the technology. Exposure to the Internet at a high intensity makes this generation rich in information (Stilman & Stillman, 2018). They prefer more diverse social media channels, such as Instagram, Facebook, and Twitter, and access them daily (Kantar.com, 2018).

Generation Z in Indonesia has a longer duration of internet use than other generations. On average, they access the Internet for up to 7 hours daily (Databoks, 2022).

Instagram is one of the most widely used social media platforms (Suryani et al., 2021). A previous study has included consumer engagement on the Instagram platform, focusing on young consumers, a Generation Z born between 1997 and 2012, representing 27.94% of Indonesia's population. Instagram offers small and large businesses the opportunity to reach young consumers and showcase personalized content in a variety of areas and niches, which has the potential to become viral for a global audience. The ability of Instagram as a photo-sharing platform to engage users, help them communicate, and share content are critical elements of social commerce that make Instagram an attractive platform for marketers. This made Instagram a perfect setting for studying sensory marketing audio-visual stimuli and consumer engagement in social media (Hazari & Sethna, 2023).

Social media enable customer interaction, collaboration, knowledge, and information sharing related to their preferences for supporting brands (Carlson et al., 2018). According to Adityaswara (2022), Generation Z represents a huge market opportunity in the digital marketing ecosystem. The primary consumers of social networks are Generation Z, who view social networks as a source of news, entertainment, communication, and shopping. Social networks offer a new ecosystem in which interactive marketers can generate organic consumer-brand relationships (Wang & Black, 2015). Today's society is inseparable from the prominent role of social media, which has been used as a tool to run businesses and carry out transactions on an ongoing basis. Social media provide information about a product (Salhab et al., 2023). It creates applicable and beneficial content for consumers, giving companies higher expectations of patron shopping behavior (Dahnil et al., 2014). It creates applicable and beneficial content for consumers, giving companies higher expectations of patron shopping behavior (Kim & Ko, 2012) and increasing consumer engagement with branded posts (De Vries et al., 2012; Michaelidou et al., 2011). Marketing activities on social media are widely used by coffee shop businesses in Indonesia. Many coffee shops use social media marketing to improve consumer engagement and increase purchase intentions.

Another critical point that is interesting to discuss is digital consumer engagement as a form of consumer behavior that refers to emotional responses, judgments, and actions, such as recommending products to other consumers, giving likes on social media, providing feedback, and following accounts. Even though the popularity of social media has led to many brands using platforms such as Instagram and Facebook for marketing communications, typically with brands posting content on their social media pages for their consumers to see and engage with, and particular interest in relationship marketing is the concept of customer engagement (CE), which is widely regarded as a vital agenda that marketers today must actively pursue if they wish to build long-term customer interactions and relationships and solidify customer loyalty for their brands (Khan et al., 2020; Lim et al., 2022; Rosenbaum et al., 2017). Despite this being commonplace and becoming important, there is yet to be an agreement on how various firm-determined characteristics of branded social media content affect different types of engagement (e.g. liking, commenting, and sharing) with brands in social media. Customer engagement has been addressed by several definitions in the literature. When interacting with a brand, customer engagement is a consumer's cognitive, affective, and behavioral activities (Dolan et al., 2019).

Based on the theoretical underpinning of dual processing theory and previous research, this study argues that the nature of message appeal (rational or emotional) influences consumer engagement. Organizations invest heavily in social media but need a better understanding of the effects of visual and audio stimulus social media content on user engagement (Swani et al., 2017). This study aims to determine how audio-visual and visual stimuli affect consumers' perceptions of the information received. This study focuses on one perception formed when consumers receive audio-visual stimulation from social media content: perceived cognitive (informative and remunerative) on passive engagement behavior and active social media users. It argues that the nature of the message appeal (rational or emotional) influences consumer engagement. Organizations invest heavily in social media but have little understanding of the effects of visual and audio stimulus social media content on user engagement.

The SOR model was used to explain how individuals react to environmental stimuli. Stimulus-used sensory marketing in social media-based SOR theory has shed new light on some familiar and recurring topics in social media strategy marketing and consumer behavior. The role of audio and visual stimuli in marketing social media is essential for scholars and marketers to create more engaging and immersive consumer experiences with brands on social media Instagram and how such experiences can impact consumer engagement (Rappaport et al., 2018; Velasco et al., 2018). Therefore, there is a need to better understand how stimuli and sensory marketing on social media have created perceived cognition, which consumer behavior toward brands on social media might be more described and better understood. Marketers involve consumers by building relationships through audio-visual stimulation of the social media content included in the social media marketing strategy (SMMS). In addition, the impact of perceived cognition from content can enhance their engagement with these posts on Instagram, which states that the perceived cognition of the content material has a sizable impact on active consumer engagement. The degree to which the content is informative and original, containing a surprise each time fresh content is viewed, determines how much consumer engagement is increased and how much more customers talk about this informative content. Because content on Instagram can encourage customers' behavioral goals, businesses should pay attention to their content characteristics (Anwar, 2023).

From the viewpoint of the S-O-R framework, both interactivity and vividness are exemplary stimuli "driven variables" content's ability to convey information captures audiences' attention through a sensory-rich (audio-visual) mediated environment that should be added to content as digital content. Marketing on social media has limitations in terms of consumer sensory experience. Consumers cannot touch, smell, or feel the product directly. There are limitations to multisensory interactions that exist in the online environment, which affect how customers evaluate the effects. Therefore, it is essential to include sensory marketing as a stimulus for social media content. However, how audio-visual sensory marketing stimuli used on Instagram for advertisement content influence consumer engagement behavior remains to be seen (Steuer et al., 1995).

Kusumasondjaja and Tjiptono (2019) stress that people evaluate different types of content. We can uncover clusters of visual and audio stimuli as sensory marketing stimuli. These components motivate people to process their posts. As previously mentioned, people are visual beings. Online consumers can retain only 10 to 20 percent of the information they read or hear about, but once that information is paired with visual elements, it suddenly goes up to 65 percent. The human brain can only process minimal detail at any given time. In addition, any information that can be processed faster will take priority when grabbing a person's attention. Visuals and images are more suited to social media and Instagram content than simple blocks or lines of text. People on social media platforms are more willing to engage in visual content. Forty percent of online users will respond more favorably to visual content than to plain textual content (Leonard, 2022). For instance, tweets with images receive 150 percent more retweets than tweets without images, while Facebook posts with images generate 2,3 times more engagement than posts without them. Human senses play a critical role in the selection of products, and until recently, senses have been underused in marketing strategies (Sendra, 2017). Numerous definitions of sensory marketing have been provided in the literature. Sensory marketing refers to stimulating consumers' senses through marketing tactics that influence consumer perception for multiple reasons, including visual backgrounds and auditory experiences (Holbrook & Hirschman, 1982; Krishna, 2012b). Bagozzi (1986) conceptualized stimuli as marketing mix variables and other environmental inputs that affect the emotional responses of consumers (e.g. atmosphere, visual appeal, accessibility, social cues, customer service, and information).

A social media marketing strategy (SMMS) to increase consumer involvement in social media is needed, especially for coffee chain start-ups in businesses with tough competition (Red Ocean). This study incorporates the sensory marketing theory into the SOR model. The application of the SOR Model in this study shows that audio and visual stimuli in Instagram social media content can communicate the sensory appeal (audio and visual) of a product (S) which influences the perceived cognitive felt by audiences (O). Furthermore, consumers respond to a stickier (R) with CE involvement. This study describes consumer behavior towards audio and visual stimulus reels on Instagram, which shapes their cognitive perceptions and influences consumer engagement with brand start-up coffee chains (Chen et al., 2023).

2. Literature Review

S-O-R Theory: In the SOR framework, a stimulus (S) perceived in the environment is processed by an internal component, the organism (O), which, in turn, produces positive or negative responses (R). SOR theory assumes that people's reactions to the physical environment follow three steps: environmental stimuli, emotional state, and behavioral response. Stimulus refers to the physical environment. Organism refers to consumers' inner conditions from both cognitive and emotional perspectives, and reaction is explained as behavior in terms of approach or avoidance. Environmental stimuli influence an individual's emotional state (cognitive and emotional), affecting approach and avoidance responses (Mehrabian & Russell, 1974). Since Kotler (1973) introduced the term atmosphere, the effect of physical stimuli on consumer behavior has consistently interested marketing practitioners and scholars (Bitner, 1992). In the last three decades, researchers have recognized the influence of atmosphere as an obvious cue in customer evaluations of service quality and, ultimately, in repeat purchases in various service settings (Baker, 1987; Bitner, 1992). SOR theory constructs a mechanism to explain human behavior by analyzing humans' cognitive and affective states influenced by environmental stimuli (Shah et al., 2020). These cognitive responses consist of thoughts, beliefs, and perceptions developed in the consumer's mind while interacting with a website interface. Following the same rationale and logic of the SOR framework, many sensory marketing studies and models follow similar patterns of stimulus, being and interpreted, and then judged and felt, which levers a behavioral or situational outcome in the context of a service (Helmefalk & Hultén, 2017b; Mari & Poggesi, 2013). An update to the SOR has added antecedents of sensory marketing audio-visual stimuli, such as visual and auditory cues (Pei et al., 2022).

Chen et al. (2023) used sensory marketing on YouTube to determine how consumers act when they watch YouTube product reviews in social commerce. Previous research has demonstrated that sensory stimuli affect consumers' behavioral, cognitive, and affective responses to products and environments (De Luca & Botelho, 2021). Previous research also shows that environmental factors and audio and visual stimuli on Instagram (S) reels were found to affect individuals' internal states (O), and the internal states of cognition would subsequently influence consumer responses (R). The SOR model was initially designed for environmental psychology (Merhabian & Russel, 1974). However, several studies have clarified, developed, and applied them in social commerce (Hewei & Youngsook, 2022; Xue et al., 2020). This research contributes to including the SOR model in a social commerce environment by focusing on visual audio stimuli on reels of start-up coffee shop chains' Instagram to increase consumer engagement on Instagram. Marketers could use this research model as an empirical approach to understand consumer behavior in the social commerce environment.

Consumer Engagement: Consumer engagement on social media is 'A function of the value derived from the emotional and cognitive states induced by key stimuli received by consumers during their online experiences Claffey & Brady (2014). Consumer engagement has been viewed as a construct that consists of cognitive, emotional and/or behavioral dimensions (Brodie et al. 2011; Hollebeek 2013; Wallace et al. 2014). Claffey and Brady (2014) argued that CE is a 'function of the value derived from the emotional and cognitive states induced by key stimuli received by consumers' (p. 337). Collectively, the emotional and cognitive elements can be seen to reflect an overarching psychological dimension. Even though the popularity of social media has led to many brands using platforms such as Instagram and Facebook for marketing communications, typically with brands posting content on their social media pages for their consumer "fans" to see and engage with, particular interest in relationship marketing is the concept of customer engagement (CE), which is widely regarded as a vital agenda that marketers today must actively pursue if they wish to build long-term customer interactions and relationships and solidify customer loyalty for their brands (Khan et al., 2020; Lim, Kumar, et al., 2022; Rosenbaum, Kelleher, et al., 2017).

Engaging consumers in the social media setting is essential because engaged consumers result in a 30 percent revenue increase, whereas disengaged consumers account for a revenue drop of 14 percent (Kumar & Pansari, 2016). Consumer engagement has been explored by various researchers in the past (Brodie et al., 2013; Hollebeek et al., 2014); however, empirical work on the concept of engagement in the context of social media started recently (Dolan et al., 2019; Izogo & Mpinganjira, 2020). Barari et al., (2021) define consumer engagement as behavioral manifestations that have a brand or firm focus, beyond purchase, as a result of the

motivational drivers. The behavioral perspective is also supported by (Muntinga et al., 2011), who consider consumer actions such as sharing, liking, and commenting on brand posts as consumer engagement with brand posts. Marketers are also concentrating their digital marketing efforts on social media users, especially Generation Z the most social media users in Indonesia, as they spend 5-7 hours daily on social media interactions (Kominfo, 2023). For example, customer-brand relationships are extremely critical nowadays owing to the COVID-19 pandemic, where customers or netizens face constraints regarding physical proximity and refrain from visiting physical stores due to safety concerns (Young, 2017). The managerial premise here is that if customers engage with the firm's social media initiatives, it may help firms build customer-brand relationships, enhance brand loyalty and increase customer dissemination of good word-of-mouth (Tay, 2018). This will also increase the overall profitability of the firm (Kumar & Pansari, 2016).

Audio and Visual Stimuli Affect a Perceived Cognitive: Sensory marketing is rooted in consumer senses which can influence consumer perceptions, judgments, and behavior (Kusumasondjaja & Tjiptono, 2019). Sensory experience is the initial stage of consumers' decision-making (Hung et al., 2017). In online marketing, marketers must incorporate sensory elements into their online ecosystem, because consumers cannot directly stimulate products (Petit et al., 2019). In contrast to traditional marketing, consumers receive sensory stimulation of products directly from their physical environments (Biswas, 2019). Petit et al. (2019) revealed that the five senses (sight, taste, touch, smell, and hearing) have different ways of attracting consumer attention. Marketing on social media, brands start-up coffee chains ought to highlight their high-skill barista, enticing elements that make consumers eager to taste by featuring enticing on a coffee cup with a frothy layer or adding other visually perfectly crafted coffee milk, convenient packaging by incorporating visual tools such as artistic pictures, videos, and music that facilitates a cognitive appeal paired with information about coffee and the brand's history.

All of these aspects help illustrate a comprehensive view of the brand (Dobre et al., 2021). Coffee shop content on Instagram conveys much information through short videos such as scrolls containing visual elements and audio as a stimulus for perceived cognition. Several studies have highlighted that sensory stimuli affect perceived cognition, and through sensory modelling, consumers' senses can be stimulated online (Krishna et al., 2017). Cognitive responses consist of thoughts, beliefs, and perceptions developed in the consumer's mind while interacting with a website interface. Following the same rationale and logic of the SOR framework, many sensory marketing studies and models follow similar patterns of stimulus, being and interpreted, then judged and felt, which levers a behavioral or situational outcome in the context of a service (Helmefalk & Hultén, 2017a). As Instagram is an audio and visually-oriented social media platform, it is vital to understand its influence on users' perceptions of digital content on social media. Therefore, the research hypotheses are as follows:
H1. (a) Visual stimuli on the content of Instagram coffee shops influence perceived cognition.
H1. (b) Audio stimuli on the content of Instagram coffee shops influence perceived cognition.

Audio and Stimuli Effect Consumer Engagement: The main question about consumer behavior is: Why is this Instagram coffee shop more popular than another with the same product? The answer is that Instagram posts offer customers. Consumers are ready to engage in a pleasant experience. *Sensory marketing* can be defined as the use of ambient factors surrounding the selling point (such as music, scent, color, touching, and tasting sensations) to stimulate a reaction toward the content in the consumer's mind (Rieunier & Jallais, 2013). Since the beginning of the last century, the environment and atmosphere surrounding the individual can have an impact on his mood and relaxation (emotional responses), his thoughts (cognitive responses), and his physical attitudes (behavioral responses), with experiments such as the theory of hierarchy of needs of Maslow et al. (1970). Krishna (2012) argues that sensory marketing encompasses visual, auditory, and digital marketing, which impacts consumers' emotions, cognitions, and behaviors.

Customer engagement results from motivational drivers stimulating engagement behaviors other than purchase decisions (Busalim et al., 2021). García-de-Frutos & Estrella-Ramón, (2021) viewed social media engagement behavior as "a mutually beneficial process through which firms and consumers co-create brand-related content and social experiences on social media." Moreover, several researchers have measured consumer engagement on social media platforms, such as clicking, liking, commenting on, or sharing the brand's content (Moran et al., 2019; Wahid & Gunarto, 2022). *Consumer engagement* is defined as interactive

and co-creative consumer behavior with companies or brands. Consumer engagement exists in every phase, from purchasing transactions, repurchasing, and recommending product brands to other consumers voluntarily evaluating brands (Roberts & Alpert, 2022; Roberts & Alpert, 2010). Extended marketing research has identified an interaction between consumer engagement and other constructs such as brand attachment, satisfaction, involvement, commitment, loyalty, and trust (Castillo-Abdul et al., 2021; Eslami et al., 2022; Huang et al., 2022).

H2. (a) Visual stimuli on Instagram brand coffee shop content influence consumer engagement.
H2. (b) Audio stimuli on Instagram brand coffee shop content influences consumer engagement.

Perceived Cognition Effect Consumer Engagement: Message appeal design has been considered mainly in traditional media contexts, with numerous studies suggesting that advertising and creative message appeals can be organized as either rational (also referred to as informational or utilitarian) or emotional (also referred to as affective or transformational) (Wu and Wang 2011). Rational messages are thought to be processed intellectually, whereas transformational messages appeal to the psychological characteristics of the target audience (Laskey et al., 1989). While many authors argue that emotional message appeals are more effective in engaging consumers than rational appeals, the findings are inconsistent and conflicting and have been based on static traditional media settings (De Vries et al., 2012; Liu & Stout, 1987). The static traditional media setting differs from the social media context in that social media allows for dynamic and real-time interaction between message senders and receivers. Past research has categorized rationally framed message appeals as those that include factual information about a product (De Vries et al., 2012; McKay-Nesbitt et al., 2011). Rational appeal refers to product specifications, features, performance, and tangible cues (Swani et al. 2017). Rational appeals differ from emotional appeals, which contain less and more subjective information (Leonidou & Leonidou, 2009). Rational appeals are better appreciated by consumers whose purchasing decisions are guided more by logic, information, and facts (Schiffman & Kanuk, 2006), and who may be highly educated or have a solid technical background. Given the dynamic and interactive nature of social media, social media settings categorize posts as rational, rather than emotional and appealing (Lib & Campbell, 2008; Tafesse & Wien, 2017). Therefore, informational content strategies are those that highlight the functional attributes of company products and services, such as information on Instagram content delivery information using audio and visuals to show how baristas make great coffee, information about quality ingredients, and history of coffee (Swani et al., 2017, 2014), and are widely considered to use a functional, or rational, appeal (Campbell et al., 2011). In social media, perceived cognition is categorized as having rational appeal (Alpinkar & Berger, 2012; Cvijikj & Michahelles, 2013).

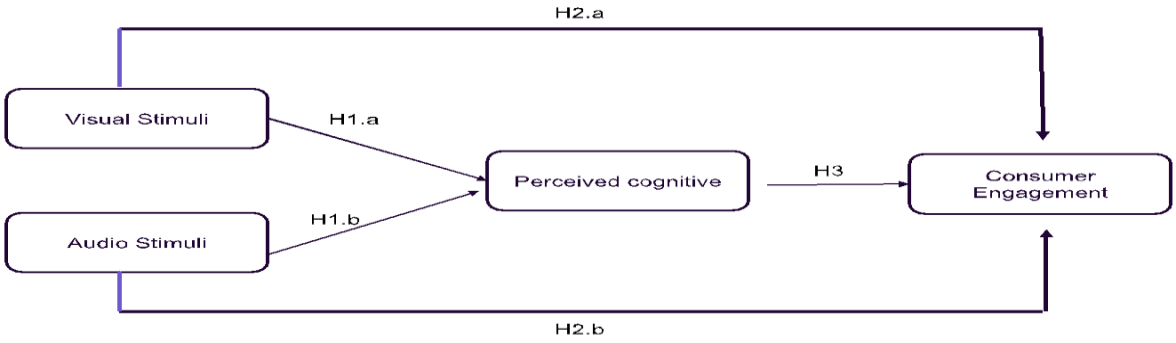
Other studies of traditional advertising content effectiveness utilize the central processing theory to explain how rational television content increases active online behaviors (Chandrasekaran et al., 2017). The results also align with work demonstrating that online marketing messages with highly rational content (utilitarian) lead to more significant information sharing when high cognitive involvement occurs. Notably, the effectiveness of informational content is greater than that of remunerative content, which results in active engagement in the form of liking and sharing but not passive behavior (consuming) (Chiu et al., 2014). Dolan et al., (2019) indicate that while rational content appears superior to emotional content within social media to drive active consumer engagement, the type of rational content is essential, and content should comprise product- and brand-related information rather than sales-focused promotion such as remunerative content. This contradicts the views of scholars, who have suggested that consumers mainly engage with brands through social media to obtain discounts (Baird & Parasnis, 2011). Behavioral investigations of social media engagement have failed to consider users' expressions of relevant cognitive dimensions of engagement. The extent to which social media content can facilitate users' cognitive and engagement experiences is a valuable area for further investigation (Dolan et al., 2019). From a social cognitive perspective, interactions with the environment (in this case, the media environment) influence media exposure by continually reforming expectations about the likely outcomes of future media consumption behavior. Audio-visual stimuli can transform sensory experiences into cognitive models that guide actions. The human capacity for vicarious learning allows individuals to acquire rules for conduct without physically enacting the behavior but rather by observing others. Direct experience with enacting behavior also affects these perceptions, called perceived cognition. Individuals use their capacity to plan actions and anticipate potential behavioral consequences (Larose et al., 1987). This study focuses on the perceived cognition of social media and expectations about the positive outcomes of content ads on Instagram, which can help audiences, encounter informative content or

make valued social contacts, which should increase consumer engagement. Therefore, this study proposes the following hypotheses:
H3. Perceived cognitive influence consumer engagement on Instagram.

3. Research Methodology

Instrument Development: From existing literature with adequate reliability and validity was adapted to fit the context of this study. Visual sensory perceptions were measured using four items adapted from Huang et al. (2022). Audio stimuli were measured using four items adapted from Huang et al. (2022) Perceived cognitive was assessed using five items selected by Chen & Lee (2008). Consumer engagement intent was measured using five items developed by Yoong & Lian (2019). All measurements used a five-point Likert scale which the details can be seen in Appendix 1.

Figure 1: Conceptual Model



Procedure: As the central focus of this study is on Generation Z, who become consumers on Instagram, the target population of this study is restricted to Generation Z. It is revealed that Generation Z has been visiting and following the Instagram of brand start-up coffee chains. Consumers in terms of Generation Z were picked in this study mainly because they are appropriate, relevant, and representative of the desired population to engage on Instagram. In the present study, the official Instagram accounts of the 2 most popular brand start-up coffee chains in Indonesia, i.e., @kopikenangan and @kopijanjijiwa.

Among them, the total consumer Generation Z engagement on social media Instagram cannot be accurately estimated. As a result, this study should use a purposive sampling technique. The detailed category of people as respondents will be (1) those who belong to Indonesian Generation Z, (2) those who already visited and followed Instagram's official account brand of start-up coffee chains at least one year before, (3) those who give liked, share content, and commented while they become a follower on Instagram official account brand of start-up coffee chains. It means that the study employs an individual as the unit of analysis. Other researchers, such as De Vries et al. (2012), have also used purposive sampling.

4. Results

Validity and Reliability Test: We tested the data using partial least squares (PLS) with the Smart PLS 4.0. Two stages of data testing were conducted. First, we tested the convergent and discriminant validities of the measurement model. Second, a structural model is used to evaluate the significance of the hypotheses. After performing validity testing, we dropped two items: "The sensory stimuli of content Instagram is visual" and "The sensory stimuli of content Instagram is audio" The sensory stimuli of content Instagram are audio. The factor loadings for each construct after dropping the two items were higher than the suggested value of 0.70, and the average extracted value (AVE) was higher than the recommended value of 0.5, indicating that this study met the convergence validity criteria. We also conducted reliability tests based on Cronbach's alpha and composite reliability criteria. The construct validity and reliability results are presented in Table 1. The results suggested that each construct in this study had a Cronbach alpha value higher than the implied value

of 0.70, and the composite reliability value was more significant than the recommended value of 0.70, indicating that this study met the reliability requirement (Hair et al., 2017). This study evaluated the discriminant validity assessed the discriminant validity using the heterotrait–monotrait (HTMT) criterion. The results indicated that each construct's value was below 0.85 (Henseler & Ringle, 2015), indicating that the HTMT criteria had good discriminant validity

Table 1: Construct Validity and Reliability

Construct	Factor loadings	CA	CR	AVE
Visual Stimuli (VS)	0.855-0.882	0.927	0.968	0.805
Audio Stimuli (AS)	0.965-0.941	0.967	0.975	0.909
Perceived Cognitive (PC)	0.973-0.930	0.979	0.983	0.922
Consumer engagement (CE)	0.964-0.949	0.904	0.848	0.628

Structural Model and Hypothesis Testing: Table 2 presents the discriminant validity. Consequently, the Fornell-Larcker criterion of discriminant validity was met. Second, we assessed discriminant validity using the heterotrait-monotrait (HTMT) criterion. The results indicated that the value of each construct was below 0.85. This indicates that the HTMT criteria had good discriminant validity. In the context of structural equation modelling (SEM) and discriminant validity assessment, the HTMT is a measure used to evaluate the extent to which indicators of different constructs in a model are distinct from each other. A value below 0.85 suggests that the indicators of different constructs are sufficiently distinct, demonstrating good discriminant validity. This means that the constructs measured in the study are not highly related or overlapping, indicating that they are conceptually different.

Table 2: Discriminant Validity

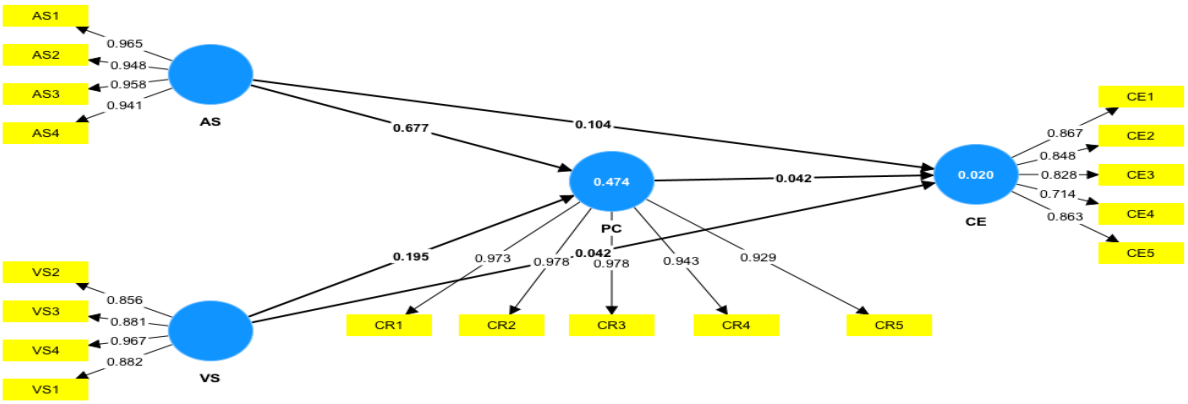
Construct	heterotrait – monotrait (HTMT)
E <-> AS	.102
C <-> AS	.668
C <-> CE	.089
S <-> AS	.109
S <-> CE	.081
VS <-> PC	0.114

After the data meet the measurement requirements, the research is continued using the bootstrapping method on SmartPLS with a significance level of 0.05, where if the p-values are less than 0.05, or t-values are greater than t-critical (1.96), an alternative hypothesis is declared accepted. The criterion for the path coefficient value is that, if the value is positive, then the influence of a variable on the variable it influences is unidirectional. If the path coefficient value is negative, the influence of a variable on the other variables is in the opposite direction. The research hypothesis can be accepted if the value of the t-count (t-statistic) > t table at an error rate (α) of 5%, which is 1.96. The test results showed that the visual and audio stimuli supported perceived cognition and had a positive relationship. However, visual and audio stimuli and perceived cognition had no significant effect on consumer engagement. Details are presented in Table 3.

Table 3: Summary of Hypothesis Testing

Hypothesis	Path coefficient	T-value	Decision
H1. (a) Visual Stimuli → Perceived Cognitive	.195	.122	Support
H1. (b) Audio Stimuli → Perceived Cognitive	.677	.382	Support
H2. (a) Visual Stimuli → Consumer Engagement	.042	.233	Unsupported
H2. (b) Audio Stimuli Consumer → Engagement	.104	.388	Unsupported
H3. Perceived Cognitive → Consumer Engagement	0.042	0.153	Unsupported

Figure 2: Hypothesis Testing Results



Discussion: Research on sensory stimuli within marketing has largely focused on the study of vision (see Krishna, 2007). A primary objective of this article is to contribute to the growing literature on sensory stimuli within marketing in showing that advertising for a food and beverage product can affect resulting cognitions during consumption and ultimately affect taste perceptions. Through audio and visual stimuli on ad social media Instagram, we showed audio and visual stimuli led to heightened perceived cognition.

First, this study utilized two elements of sensory stimuli marketing: visual and audio. Sensory marketing theory refers to sensory perceptions that affect consumers' attitudes and behaviors by influencing their emotions and cognition (Khrisna, 2017). This study found that visual and auditory stimuli are used as inputs (stimuli) that cause the audience to form perceptions of advertising and brand or a product's physical and cognitive characteristics based on Instagram content. The results indicated that visual stimuli (H1a) affect perceived cognition, and audio stimuli (H1b) significantly affect perceived cognition; thus, consumers are more likely to perceive affective when provided with auditory stimuli from product Instagram content, while other research found that visual stimuli have been found to attract viewer attention (Riegelsberger, 2002) and increase the credibility of online articles (Fogg et al., 2002). Visual and audio stimuli on content Instagram encourage customers' experiences, create evaluations of products, and develop general attitudes and beliefs toward the objects (Kim et al., 2016). When people process information and respond to audio-visual stimuli, they are more likely to engage with the content, leading to cognitive persuasion effects and increasing analytical evaluation of the arguments (Escalas, 2007; Kim et al., 2016). Previous research shows, Mitchell and Olson (1981) that an audio ad (Facial tissues are soft) results in the tissues being perceived to be less soft than a visual ad (picture of a kitten). Edell and Staelin (1983) suggest that the audio stimuli in the ad are processed more cognitively and can guide the processing of the picture contained within the ad. Audience to an actual consumption experience where they will evaluate a sensation. This research suggests that the content of ads using stimuli audio and visual can be processed cognitively and could affect taste perception by framing the overall experience. With the effects depending largely on thought generation and cognition, we anticipate the availability of cognitive resources to affect the ad taste effects. The introduction of cognitive load should distract attention away from the ad (Nowlis and Shiv 2005; Shiv and Nowlis 2004) and attenuate the effect that the ad has on taste perceptions. Visual and auditory stimuli in video content posted on Instagram by coffee shops, such as clear sounds, resonant sounds, and excellent pictures, can make the information more apparent, making consumers more likely to process the information perceived cognitively.

Second, visual and audio stimuli were not significantly associated with consumer engagement (H2a) (H2b). This suggests that audio and visual stimuli interactions with an audience do not affect consumer engagement on social media Instagram. This result is inconsistent with previous studies, which found that consumers can experience products/brands/services virtually by examining and manipulating the visual images, functions, and features of products in various ways. For products presented in 2D modes, consumers tend to understand products better (Violante et al., 2019). Visualization as a strategy for sight sense involves creating brand awareness and establishing an image of a product or brand that sharpens the customer's sensory experiences and engages more with ads. Visual stimuli are processed more automatically than verbal stimuli

in an advertising context, and this could affect taste perceptions even under cognitive constraints (Simmons, Martin, and Barsalou 2005). Previous research found that its use in music therapy was more effective than visual therapy in enhancing attention and emotion (Haslbeck, 2014; Schwartz et al., 2017). However, there needs to be more discussion on interactive audio in the business context, and its impact on consumer behaviour remains to be seen. In addition, the potential of applying visual and audio stimuli to Instagram content did not have a significant effect on consumer engagement.

Third, this study demonstrated that perceived cognition is not significantly associated with consumer engagement (H3). This indicates that the audience will be more likely to increase their emotional bond after perceiving visual and audio stimuli from Instagram brand start-up coffee chains. This finding is consistent with a previous investigation that suggested that perceived affective behavior significantly impacts consumer engagement (Huang et al., 2022; Ha et al., 2016).

5. Managerial Implications and Recommendations

This research has collected empirical data and proved the importance of visual and audio stimuli on how consumer behavior occurs on Social Media. The contribution of this research will be useful for business people who use social media to promote their products, especially for coffee shop business people, marketing managers, and academics. Managers can benefit from this research to develop marketing strategies using Social. The media, understand and adapt to the differences in behavior found in the various markets studied.

Limitations in this study are acknowledged. This research provides insight into consumers in Indonesia. A study that looks deeper into the culture of each society, revealing the social and cultural aspects of consumption can be carried out provides a different insight and is therefore recommended. This research only considers cognitive perception, therefore further research considering affective perception is recommended.

Conclusion: Based on these research results, several new possibilities have been discovered for future studies. First, in this study, sensory marketing using visual and audio stimuli on the content of Instagram coffee shops was perceived by cognitive consumers as visual and auditory stimuli. Further research should focus on emotions, cognition, and behavior. Sensory marketing is essential for future exploration because sensory experiences with these products influence consumers' behaviors toward particular objects (people and products). In addition, there are numerous digital platforms on which consumers can engage in sensory experiences. Second, this study uses sensory marketing as an antecedent to consumer engagement. However, in consumer engagement on social media, it is essential to consider additional psychological factors that may influence how the audience responds to visual and audio stimuli and affect perceived cognition and emotions. Finally, as this study was conducted at a certain point, the results may differ from those obtained over a more extended period. Therefore, a longitudinal study would be the most appropriate in the future.

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Appendix 1

Construct	Questioner item
Visual Stimuli	VS1. Design of coffee shop on Instagram is visual appealing VS2. Influence is physically attractive in the content on Instagram VS3. Influence look beautiful/handsome with coffee products VS4. The images used in content coffee shops on Instagram appeal to me emotionally
Audio stimuli	AS1. Influencers coffee shop on Instagram speaks euphoniously when reviewing the products AS2. Coffee shop video review influence my attention because it is pleasant sounding. AS3. Coffee shop content on Instagram using harmonious sound effects in video AS4. Content coffee shop on Instagram using a melodic music background.
Perceived cognitive	PC1. Design of content coffee shops on Instagram makes it easier to look for information. PC2.Contents coffee shop on Instagram is attractive. PC3.interaction with social media coffee on Instagram quick. PC4. Social media coffee on Instagram can help me get information quick.
Consumer engagement	CE1. I often browse Instagram content of coffee shop CE2. I often read posts of coffee shops on Instagram CE3. I often use “like” content posting coffee shops on Instagram CE4. I often comment on content posting coffee shops on Instagram CE5. I often share coffee shop posts on Instagram

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The Influence of Online Classroom Games (OCG) on Undergraduates' Academic Excellence: A Study in the Context of Hybrid Learning

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Abstract: Hybrid learning has gained momentum globally, offering a viable alternative to traditional face-to-face education. As it involves combining traditional classroom instruction with online elements, hybrid learning has expanded possibilities for enriching education. Due to this fact, educators are constantly seeking innovative ways to engage students in the ever-evolving educational landscape. Hence, exploring diverse teaching tools beyond traditional methods is crucial. This concept paper explores the influence of Online Classroom Games (OCG) on the academic attainment of undergraduates, utilizing a qualitative approach to gather data. Initially, the interview transcripts will be gathered from 4 programs in the cluster of Business and Management faculty involving 16 participants. They will be carefully reviewed to identify recurring patterns. The findings of this study will offer empirically-based strategies to heighten student engagement and improve learning outcomes in the contemporary educational sphere. Ultimately, the outcomes of this research aspire to aid the educational community in readying itself for the hybrid and flexible learning system, as recently introduced by the Malaysia Ministry of Higher Education (MOHE).

Keywords: *Hybrid learning, online classroom games, academic excellence.*

1. Introduction and Background

The landscape of education has witnessed a significant transformation in recent years, primarily driven by advancements in digital technologies. In response to these changes, the Malaysia Ministry of Higher Education (MOHE) has introduced a hybrid and flexible learning system, recognizing the need for adaptable educational approaches in the post -pandemic era. The hybrid approach allows students to combine remote learning with on-campus components, providing them with the flexibility to customize their learning experiences while ensuring necessary face-to-face interactions and hands-on learning opportunities (Raes, 2022). The decision had numerous benefits including the reduction of educational debts and expenses, as well as granting students the flexibility to engage in off-campus employment or pursue activities that demanded their presence elsewhere.

Within this context, educators are encouraged to explore innovative teaching tools and strategies that enhance student engagement and learning outcomes in the hybrid learning environment. Online classroom games have emerged as a promising avenue for integrating technology into education. Research has shown that well-designed educational games can improve student motivation, engagement, and knowledge retention (Cheung & Ng, 2021). In addition to engaging students in the learning process, hybrid learning and the incorporation of online classroom games have shown promising potential in enhancing students' performance. By leveraging technology and interactive elements, educators can create dynamic learning environments that cater to individual student needs and preferences. Through incorporating elements of competition, collaboration, and interactive learning, online games can create an immersive and engaging learning experience as well as promote academic excellence (Essa, 2023). Online classroom game learning combines educational content with the utilization of digital games in an online setting. These games are specifically designed for educational purposes and have the ability to engage diverse learning styles and behaviors. Learning can occur in formal or informal environments, either individually or in groups. Game-based learning has been found to enhance various cognitive abilities such as perception, reasoning, critical thinking, spatial navigation, and memory retention (Essa, 2023).

Unfortunately, existing empirical research on digital game-based learning has predominantly focused on adolescents (Ding, Guan, & Yu, 2017). While some studies have examined the effectiveness of incorporating digital games in teaching for traditional college students (Ding et al., 2017), there is a limited amount of

research dedicated to investigating the impact of digital game-based learning on non- traditional undergraduate students. When strategically designed and implemented, digital games have the potential to improve academic performance and overall learning effectiveness. Therefore, this study aims to explore the research on digital game-based learning for undergraduates and examine the implications of online classroom games on achievement and learning outcomes.

2. Literature Review

Technology has had a great influence on every aspect of society and is constantly evolving. Higher education institutions still struggle with how to effectively integrate electronic devices in the classroom to increase student engagement, development, performance, and learning outcomes. The lack of guidance is apparent from the existing gap in research literature that addresses the topic of the use of digital games to engage nontraditional students. This study attempts to bridge the gap by providing an overview of the existing problem, method, benefits, challenges, and possible solutions. The use of digital game-based learning as supplementary aids at the university level is in the early stages of development (Moylan, Burgess, Figley, & Bernstein, 2015). College and university leaders hesitate to use digital games at the post-secondary level because of insufficient data on learning outcomes, assessments, and academic performance directly linked to digital game-based interventions (Vandercruysse, Vandewaetere, Cornillie, & Clarebout, 2013). Ding et al. (2017) stated, "due to difficulties in defining, constructing, and measuring complex variables as well as the subsequent results, rigorous empirical research on the effectiveness of gamification in education or game-based learning has been limited" (p. 148). However, technology-savvy students seek an engaging hands-on interactive learning experience that is available in game-based learning. To increase teaching effectiveness, instructors must develop an understanding of the internal structure of digital game design as well as the limitations of technology (Kanthan & Senger, 2011). Research is lacking on the design aspects of digital games and related learning to undergraduate students (Tham & Tham, 2014). The lack of research and comprehension deter the use of digital gaming for instructional purposes.

OCG as a Supplemental Tool for Classroom Engagement: Indications of interest in digital game-based learning are noted in research studies across many disciplines. For example, significant gains over traditional teaching methods for both male and female students were reported when a 3D gam e-based learning system for teaching engineering content was assessed (Su & Cheng, 2013). The display of a positive attitude and engagement were higher for engineering students who used digital games, compared to the engineering students who learned via traditional teaching methods (Boeker, Andel, Vach, & Frankenschmidt, 2013). The use of digital game-based learning resulted in increased cognition for medical students over script-based instruction (Boeker et al., 2013). Digital games often provide a safe environment for students learning a second language thereby reducing anxiety and increasing willingness to communicate which directly affects language learning (Reinders & Wattana, 2015). Alternatively, digital games were not always found to inspire students in higher education. A group of college students in Singapore who were found to possess a high level of intrinsic motivation showed no increase in motivation or engagement due to the use of games (Tham & Tham, 2014). In fact, Singapore students who were unfamiliar with digital games-based learning experienced feelings of apprehension. Further assessments of student learning indicated the continued need to use a combination of lectures with digital teaching (Rondon et al., 2013). Familiarizing students with the technology requires extensive time, which further delays learning. Adjusting for these differences presents challenges for instructors (Holmes & Gee, 2016). Another factor that affects student acceptance of digital games in learning is the mindset of students accustomed to a passive style of learning through the lecture format (Herro & Clark, 2016). What would be the case in our university? This research therefore looks to investigate OCG as a supplemental tool to engage students in classroom instruction and coursework.

Building Learning and Work-Related Skills for Undergraduate Students: Digital games-based learning has been used to increase student retention, build teamwork skills and communication (Bodnar, Anastasio, Enszer, & Burkey, 2016). Furthermore, digital gaming technology provides the option to measure students' progress over extended periods of time due to the prolonged interaction and play with the games. To be effective at the university level, digital games must align with the course content and course objectives (Moylan et al., 2017). When appropriately designed, educational games have been shown to increase student engagement and participation (De-Marcos et al., 2014). Kuo and Chuang (2016) demonstrate the positive

impact of games in an online setting for promoting academic dissemination, effectively achieving the goal of enhancing engagement and motivation. Few studies examined the relationship between digital games and achievement for undergraduate students (Burgess, Stermer, & Burgess, 2012). Additionally, Clark, Tanner-Smith, & Killingsworth (2016) aimed to uncover the impact of a gamified instructional process on student engagement and the correlation between engagement and academic performance within a real classroom setting. The use of OCG as a supplemental tool in online courses has a positive influence on the motivation, academic achievement, and retention of undergraduate students pursuing a degree (Snow, 2016). The use of OCG as supplemental learning aids would promote students' confidence, satisfaction, interest, and effort (Tham & Tham, 2014). Therefore, this research is to investigate the influence of OCG on building learning and work-related skills for undergraduate students.

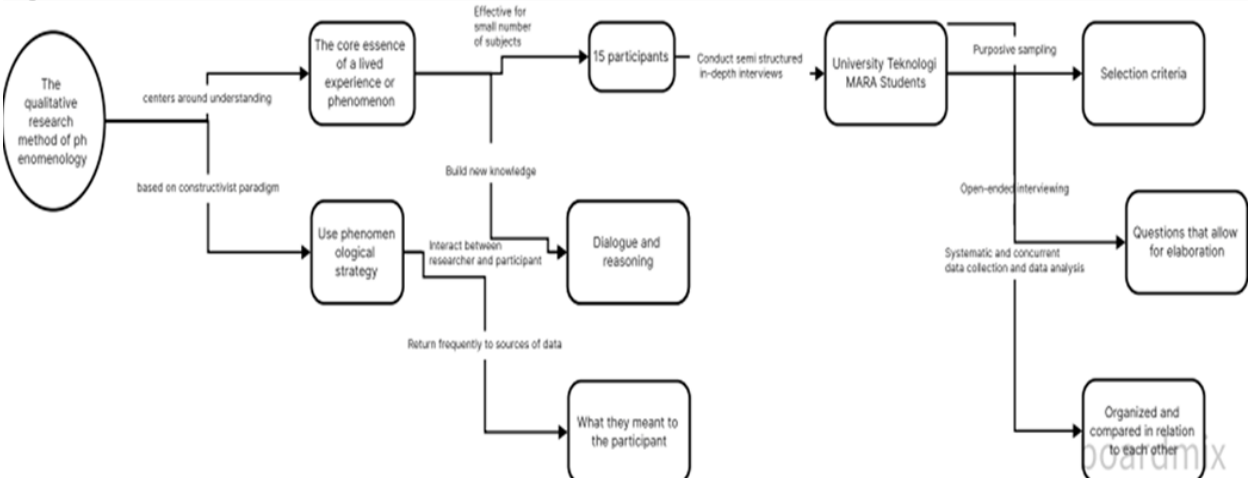
3. Research Methodology

The study will use a qualitative research approach, specifically the phenomenological method. This method is chosen because it's effective at uncovering the significance people attribute to the events they go through (Merriam & Tisdell, 2015). In the context of this study, the aim is to understand how online classroom games affect classroom dynamics and influence students' engagement, motivation for learning, and overall experience. Phenomenology is centered on comprehending the fundamental essence of a lived experience or occurrence. This essence can be sensed or felt by people from different viewpoints (Flood, 2010). The goal of phenomenology is to accurately capture how individuals who were part of the event went through it.

When explaining a phenomenological study, the emphasis is on clarifying the specifics of what individuals underwent and how they experienced it (Creswell & Poth, 2018). This study will follow the constructivist approach as researchers aim to grasp and rebuild the meanings that people, including the researcher, associate with the subject under investigation (Guba & Lincoln, 1994). Constructivist researchers develop knowledge by interacting with participants, utilizing dialogue and reasoning as their main investigation techniques (Guba & Lincoln, 1994). The researcher will then consistently revisit the data sources, seeking to comprehend what these sources meant to the participants and how those meanings align with the researcher's understanding (Rudestam & Newton, 1992).

Thus, for this study, semi-structured in-depth interviews will be conducted with 16 students from 4 programs in the Business and Management faculty. Phenomenology is effective in studying a small number of subjects – in this case, 16 participants – to identify the core of their experiences with the phenomenon and to produce patterns and identify relationships of meaning that build new knowledge (Creswell & Poth, 2018). The qualitative research methods to be used for this study include purposive sampling, open-ended interviewing, and systematic and concurrent data collection and data analysis procedures. Specifically, the grounded theory or constant comparative method (Glaser & Strauss, 1967) will be used to analyze the data and discover the influence of online classroom games on students' engagement, motivation toward learning and students' experience. The diagram below visually depicts the flow of the methodology process.

Figure 1



4. Data Analysis and Results

Analysis occurred in three phases. First, interview transcripts will be reviewed several times, searching for "recurring regularities'' (Merriam & Tisdell, 2015). Then researchers will highlight the quotes and phrases from the interviews that were significant to the study. Using the constant comparative method, the researcher will go back and forth among transcripts until categories emerge that are consistent, yet distinct (Glaser & Strauss, 1967). The researcher will name these categories, code the transcripts, and place sections in labeled folders representing each category (Bogdan & Biklin, 2003). Second, the researcher will bring together the coded interviews and look for relationships within and across the data sources. A table will be developed to compare various coded interviews. As tentative categories emerge, the researcher will test them against the data (Merriam & Tisdell, 2015). Finally, the researcher will integrate and refine the categories until themes solidify (Strauss & Corbin, 1998).

The study expects to find that online classroom games, by their interactive and engaging nature, can foster a deeper understanding of the subject matter, enhance critical thinking skills, and encourage active participation among students. This heightened engagement is likely to translate into better retention of information and improved application of knowledge in assessments and assignments. Furthermore, the study might indicate that the competitive elements inherent in many online classroom games could stimulate students' motivation to excel academically. The gamified learning environment may create a sense of challenge and accomplishment, thus encouraging students to invest more time and effort into their studies, ultimately leading to higher achievement levels. Additionally, the study might reveal that online classroom games have the potential to address various learning styles, allowing students to learn at their own pace and in ways that suit their preferences. This adaptability could contribute to a more comprehensive understanding of the material, potentially resulting in higher grades and overall academic success.

5. Conclusion

As the number of undergraduate students enrolled in higher learning institutions increases, along with the effect of the COVID-19 pandemic, higher learning institutions are pressured to develop effective strategies to not only engage but promote academic success for this population of students online. As a result, the demand for digital games in education for undergraduate students will continue to grow because of their potential role in academic achievement and student engagement.

Although this is a preliminary study, it will be able to make some significant contributions in terms of theory building towards assessing the improvement of quality teaching as well as enhancing students' learning abilities to become lifelong learners. As online classroom games offer a unique opportunity to make learning more enjoyable and immersive, it is expected to allow students to actively participate and take ownership of their education. These games provide instant feedback, personalized challenges, and rewards, which not only motivate students but also foster a sense of accomplishment and self-confidence. In a nutshell, this study is not only to explore student engagement but also helps to develop students' interpersonal skills and self - confidence with the face to face with the lecturers and classmates as it will be conducted in a fun and casual way where students will be more comfortable to participate. It is hoped that educational administrators, policy-makers, instructors, and decision-makers better understand the complex issues surrounding the educational needs of nontraditional students and how digital games support efforts to improve persistence, access, equity, retention, and persistence to obtain a quality education.

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Factors Affecting Work Life Balance among Administrator in a Public University during COVID-19

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Abstract: This study is conducted to examine the relationship between job stress, supervisor support and work attitudes toward work-life balance during Covid-19 among employees in an administration office at a Public University in Selangor. The independent variables of this study consist of job stress, supervisor support, and work attitude; whereas the dependent variable in this study is work-life balance. The quantitative research method is selected and a questionnaire is used as the research instrument to collect data. There are 110 samples selected from the Administration office (N=110). The data collected is analyzed by using Statistical Packages for Social Science Version 26.0 (SPSS Version 26.0) software. Data was then analyzed both descriptively and inferentially. The results revealed that all variables have a significant positive relationship between supervisor support and work attitude with work-life balance and a significant negative relationship between job stress and work-life balance. The study emphasized the need for organizations to review the relevance of work-life balance programs, policies and activities that support and encourage employees to reduce stress in a workplace. Supervisor support also has the impact of making a positive work attitude among employees. This study gives insight to the organization in designing an appropriate system to enhance work-life balance.

Keywords: *Work-life balance, job stress, supervisor support, Covid-19, work attitude.*

1. Introduction

New Straits Times on April 7, 2020, reported that the Coronavirus pandemic is influencing each feature of our day-by-day lives, including the manner in which we work. New Straits Times on April 16, 2020, reported that work from home (WFH) used to be a privilege offered by a handful of companies in the country, but now, with the Movement Control Order (MCO) in place, it has become the norm. We can see that the pandemic is affecting employment matters. Employees, including women and working parents, are having the most difficulty which leads to work from a work-from-home dilemma. Apart from the private sector, public universities are no exception in facing this coronavirus pandemic where universities have taken the initiative to allow employees from both administrative and academics to work from home. Working from home (WFH) refers to an employee who works from their home or another place of residence rather than from the office (Hart, 2021). During this pandemic, WFH is considered a new norm of employment. However, despite the advantages of implementing the WFH policy to curb the Covid-19 pandemic, it has created a certain challenge.

Working from home has long been thought to be a good way to improve employees' work-life balance (Nakrošienė, Bučiūnienė & Goštautaitė, 2019). However, during this pandemic, it has been revealed that the employees were actually facing blurred work-life boundaries (Pluut & Wonders, 2020). Working remotely has been a lifesaver for many employers; however, the blurred lines between work and home have increased employee stress and negatively impacted overall well-being (Douglas, 2021). Apart from that, working from home also leads to a poor work-life balance (Abdullah, 2020) which also causes disrupted work, family, and social life These significant changes may have resulted in a shift in exposure to work-life conflict (Schieman, 2021). While this situation has developed into problems or challenges towards employment in Malaysia, the aim of this study is to examine the relationship between job stress and work-life balance, to examine the relationship between supervisor support and work-life balance, and to examine the relationship between work attitude and work-life balance.

2. Literature Review

Work-Life Balance: Work-life balance is always a priority for everyone because it has a relation with a wide quality of life. The meaning of work-life balance is different for each thing (Lockwood, 2003). According to Lockwood (2003), the definition of work-life balance from the employee viewpoint is the dilemma of

managing work obligations and personal/family responsibilities while a work-family view refers to the degree to which an organization's community acknowledges and values its workers' family commitments and duties, which allows management which staff to work together to meet their personal and job needs.

According to Hasan (2017), the work-life balance or family-friendly job policies are considered to be one of essential needs, particularly in this era for any working person. To gain true happiness in life, individuals are now introduced to the concept of work-life balance apart from being satisfied or doing well at work. While Hossain (2018) contended, these days, there has been an increasing number of individuals investing more time in work-related tasks. Moreover, with the accessibility of different advancements and developments, people are working longer and pushing harder toward efficiency. In an unfavorable way, they tend to spend less time on other activities of their lives. Research by Robert (2007) indicates that new technology leads employees to work longer and be able to work at any place and at any time to show career commitment. The workload was the top contributor to job stress, burnout and work-life balance (Kelly, 2020). In addition, Nadeem and Abbas (2009) stated that the long working hours, work pressure, high requesting jobs, use of sophisticated technology made it hard for employees to keep a balance between their activity and work commitments. In contrast, Hobson (2001) stated that work-life balance issues are caused by the top 10 stressful life events. It does not include work-related activities, but it reflects the variety of important life and family-related incidents such as death, serious illness, divorce, and institutional detention.

Job Stress: According to Mansoor et al. (2011), "Stress is a condition which happens when one realizes the pressure on them or requirements of the situation are wider than they can handle, and if these requirements are huge and continue for a long period of time without any interval, mental, physical or behavioral problems may occur." Stress is anything or a situation where the person faces intense pressure that usually happens in the workplace known as job pressures such as short notices and deadlines, unnecessary health problems, family pressures and others. When people are faced with situations where the requirements of the work are so huge that they have difficulty to manage, it affects their mental being and disposition that will also contribute to physical and behavioral problems (Mimura & Griffiths, 2003; Rehman, 2012).

Perceived job threat-type stress applied more significantly and was a major indicator of work-life balance and work-life conflict scores than perceived work-type stress. Today's fact of working life is that workers are continually struggling to juggle their personal and job lives. It is always the effect or intervention of one on the other which leads to positive or negative 'spillover' in their attempt to reconcile both (Bell et al., 2012).

Unhealthy work environments affect employee's health both physically and mentally many organizations see stress as an indication of weakness and to avoid negative brunt, keep it hidden. Therefore this study looks forward to examining the relationship between job stress and work-life balance during COVID-19.
H1: There is a significant relationship between job stress and work-life balance.

Supervisor Support: Supervisor support is one of the resources that employees may need to cope with difficulties that stem from work–family conflict and family-work conflict (Karatepe, 2007). Moreover, supervisors serve as members of the company and are responsible for monitoring and assessing the success of employees. Employees consider the positive or negative attitude of their supervisor towards them as an indicator of the encouragement of the organization (Eisenberger et al., 1986). In addition, this indicates there will be an understanding of the level of support that the employee would expect of the organization in a wide variety of situations (Eisenberger et al., 1986). Hall (2007) stated that increased supervisor support also affects increases in job control, coworker support, collective efficacy, use of indirect coping mechanisms, and decreased job stress to employees.

According to Straub (2012), both colleagues and supervisors will help to minimize some of the organization's negative impacts. Co-workers have the right to temporarily relieve an employee from his or her work-related responsibilities to meet personal needs. The employee's pressure may decrease with the supervisor's support and the employee satisfaction may increase. Supervisors have the ability to control their employees whether they feel comfortable using work-life initiatives (Straub, 2012). In fact, recent findings have shown that expectations of supervisory assistance have a stronger effect on workplace performance compared with coworker support (Rousseau & Aube, 2010) or the provision of work-life balance policies alone (Allen, 2001;

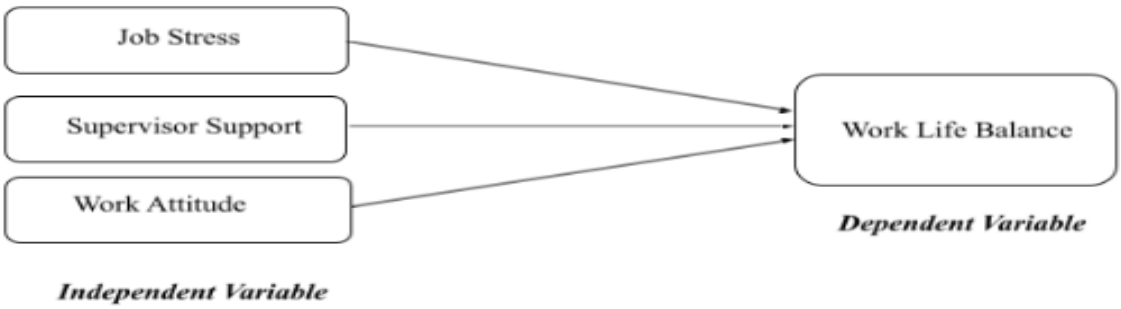
Kelly, 2008). Supervisors play a significant part in whether or not employees feel confident managing their roles in work and life (Hammer, 2005).

While supervisor support has a strong positive influence on the self-efficacy of employees (Ibrahim, 2018), Supervisor support also positively impacts job involvement and such influence is transmitted through job satisfaction (Elias & Mittal, 2011). This study aims to examine the relationship between supervisor support and the work-life balance of this administration office at a public university during COVID-19.
H2: There is a significant relationship between supervisor support and work-life balance.

Work Attitude: Noah & Metiboba (2012) refer to attitudes as propensities, or instincts, to respond to an event in a favorable or unfavorable way. The entity in the world around us may be just about anything. Employee happiness and behaviors are one of the main fields where workplace performance is assessed. Employee behaviors may provide useful insight into the efficacy of various management techniques. Job-related habits play a significant part in influencing the workplace job practices of managers (Noah & Metiboba, 2012). Many researchers agree that job attitude has a positive impact on performance (Manikandan, 2002). According to Robbins and Coulter (2005), attitudes are evaluation claims that have three components. The cognitive aspect is the values a person retains. The affective component is the mental or thinking portion of a disposition and the behavioral element is the deliberate component.

Work attitudes include participation in the workplace and responsibility to the supervisor for job-specific activities (Jawad, 2012). A substantial body of work has found that job attitudes are related to a number of activities that are important to the company, including role success, patriotism, innovative performance and competitiveness (Judge, 2012). Work-life balance affects the attitudes of the employees towards their organizations and lives. Work-life balance is particularly important when organizations have to manage highly technical professionals because their high commitment and loyalty are necessary for the organization's success (Scholarios & Marks, 2006). How does the work attitude in this administrative office affect the work-life balance during Covid-19? This study further examines the relationship between work attitude and work-life balance.
H3: There is a significant relationship between work attitude and work-life balance.

Figure 1: Conceptual Framework



3. Research Methodology

The research design for this study is descriptive, clarification and correlational that is set in an Administrative office of a Public University with a total of 110 respondents. The correlational method consists of three (3) independent variables which are job stress, supervisor support and work attitude that can influence work-life balance among employees. The non-probability sampling technique was used to select the respondents to participate in this study. This study adopted the survey approach for primary data collection. The questionnaire design includes 5 sections which are Sections A, B, C, D and E and it consists of 56 questions altogether. In this study, the data collected will key into the computer software IBM SPSS Statistics 26 which is easy to calculate research that is using quantitative study. The study of reliability, descriptive analysis, correlation and regression were conducted in the procedures of data analysis.

4. Findings and Analysis

Profile of Respondents: In total, Female respondents are 59 (60.8%) while male respondents are 38 (39.2%) of the population. In addition to that, in terms of age distribution, the highest number of respondents belongs to the age group of 31 - 35 years old with 32 (33%) respondents. As for the respondent's educational background 36 (37.1%) of respondents have a degree, 29 (29.9%) of respondents have a diploma, 14 (14.4%) of respondents with SPM qualification, followed by 10 (10.3%) have a PhD qualification and 8 (8.2%) of the respondent have Master. The majority of the respondents were married (83%). Other than that, the highest number of respondents in a group of less than 3 with 62 (63.9%), followed by group no kids with 23 (23.7%), 4 – 6 with 11 (11.3%) and more than 6 with 1 (1.0%). The majority of the respondents experienced 4 - 6 years of service which is 28 (28.9%) of respondents, followed by 23 (23.7%) of respondents in 7 – 10 years of service and 1 - 3 years of service which is 18 (18.6%) of respondents, 17 (17.5%) of respondents in 11 - 15 years of service and 11 (11.3%) of respondents is more than 15 years of service in organizational. Besides that, in this administration office, the majority of respondents work for a female immediate supervisor with 73 (75.3%) and 24 (24.7%) respondents work for a male immediate supervisor. 84 (86.6%) of the respondents prefer to work from the office while 13 (13.4%) of the respondents prefer to work from home.

Table 1: Descriptive Statistics, Cronbach Alpha, and Pearson Correlation of All Study Variables

Descriptive Statistics, Cronbach Alpha, and Pearson Correlation of All Study Variables

Variables	JS	SS	WA	WLB
JS	*(.74)*			
SS		(.96)		
WA			(0.71)	
WLB	-.350**	.513**	.426**	*(.76)*
Mean	3.55	2.68	3.77	3.62

Note: ** Correlation is significant at the 0.01 level (2-tailed);
Entries in parenthesis indicate Cronbach Alpha values.

The result in the table above shows the findings that supervisor support is strongly correlated with work-life balance (r=0.513, p<0.000) clearly indicates a significant positive relationship between supervisor support and work-life balance. These research findings demonstrate a correlation to Smith and Gardner (2007) which indicate that supervisor support is significantly positively related to work-life balance which is based on their correlation finding.

The relationship between work attitude and work-life balance is also seen to have a significant relationship. The relationship between work attitude and work-life balance is positively significant. The results show that (r=0.462, p<0.000) which indicates that there is a correlation between work attitude and work-life balance.

The relationship between job stress and work-life balance is seen to have a significant relationship. The relationship between job stress and work-life balance is negatively significant. The results show that (r=-0.350, p<0.000) which indicates there is a correlation between job stress and work-life balance. The negative correlation signifies that as the job stress increases, the work-life balance decreases and vice versa.

Table 2: Multiple Regression Analysis – Coefficients

Table 12: Multiple Regression Analysis – Coefficients[a]

	Standardized Coefficients Beta	t	Sig.	Tolerance
(Constant)		2.284	0.025	
Supervisor Support (IV)	0.264	2.245	0.027	0.521
Job Stress (IV)	-0.220	-2.215	0.029	0.730
Work Attitude (IV)	0.278	2.652	0.009	0.658

F value 15.300
Sig .000
Adjusted R2 .309
R2 .330

The R square value shows the percentage contribution of the independent variables from the dependent variables. As measured in the table above, the R square value is 0.330 which means that 33% of independent variables are job stress, supervisor support and work attitude. Hence, the 67 percent variation that influences work-life balance is explained by the other factors that were studied in isolation.

H1: There is a significant relationship between supervisor support and work-life balance

The above-mentioned hypothesis predicts a relationship between the variables, which indicates that supervisor support can affect the work-life balance of the employee. The previous study proved that support from supervisors creates a sense of reciprocity among employees, who then perform better, hence, support from supervisors is another crucial factor in the work-life balance (Baral and Bhargava, 2010).

Based on the findings of this research, the p-value of supervisor support is 0.027 which implies that the relationship of this variable is significant with the work-life balance as it is below 0.05 ($\beta = 0.264$, $t = 2.245$, $p = 0.027$). Therefore, H1 is supported implying that there is a significant positive relationship between supervisor support and work-life balance, which means that as the value of supervisor support increases, the work-life balance will also increase.

H2: There is a significant relationship between job stress and work-life balance

A relationship was found between job stress and work-life balance. The results are consistent with the previous studies showing the correlation between job stress and work-life balance. Work-life balance/work-family conflict affects job satisfaction, family satisfaction, life satisfaction, career satisfaction and job stress. (Adams, 1996; Fisher-McAuley, 2003).

Based on the findings of this research, the p-value of job stress is 0.029 which implies that the relationship of this variable is significant with the work-life balance as it is below 0.05 ($\beta = -0.220$, $t = -2.215$, $p = 0.029$). Therefore, H2 is supported implying that there is a significant negative relationship between job stress and work-life balance, which means that as the value of job stress increases, the work-life balance will decrease and vice versa.

H3: There is a significant relationship between work attitude and work-life balance.

Work attitude has a significant impact on work-life balance and the results are consistent with previous research findings. Previous research by Elsa (2010) found that employee positive perception and attitude toward work-life balance and job satisfaction is central to productivity for an institution. A study by Helmle (2014) found that work-life balance has a positive significant impact on employee performance. Employees with a positive mood with just limited work and limited home pressures are more likely to experience satisfaction with their work. Having a healthy work-life balance makes it easier for employees to perform their tasks more efficiently (Bataineh, 2019).

Based on the findings of this research, the significance value of work attitude is 0.009 which is less than 0.05. The value 0.009 implies that the relationship of this variable is significant with the work-life balance ($\beta = 0.278$, $t = 2.652$, $p = 0.009$). It shows that work attitude has significantly affected work-life balance. Therefore, H3 is supported where work attitude has a positive relationship on work-life balance.

5. Conclusion and Recommendations

This study was conducted to analyze the relationship between job stress supervisor support and work attitude toward work-life balance. Based on the findings of this study, it could be concluded that job stress, supervisor support and work attitude affect work-life balance. Supervisor support and work attitude have a positive significant relationship with work-life balance while job stress has a negative significant relationship with work-life balance. The most significant factor that influenced work-life balance was supervisor support due to the results being positively significant. To conclude the finding, all the hypotheses are accepted.

Quality work-life balance is desired by everyone. The organization must have knowledge of the factors that affect work-life balance such as supervisor support, work attitude and job stress to each of their employees. With this knowledge, the organization will be able to improve the quality of work-life balance among its

employees by holding effective activities and programs. Therefore, employees will be able to improve job satisfaction and work performance. This can benefit the organization.

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Issues Faced by Micro Businesses during COVID-19: The Integration of Lean Practices and TRIZ

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Abstract: This research illustrates the importance of micro-businesses in Malaysia and the country's economy. This is followed by the issues they face during COVID-19, including supply chain disruptions, profit loss and challenges in gaining financial aid, adjusting to online business, and retaining workers' motivation. To address these obstacles, the use of lean practices and TRIZ (Theory of Inventive Problem Solving) methodologies was suggested. Furthermore, past research on the issues that micro businesses face during COVID-19 and lean practices and TRIZ's potential to solve these issues are reviewed. Data collection will be conducted through semi-structured interviews, focus groups, observation, and document analysis, followed by data analysis through the thematic analysis method. Based on the qualitative analysis results, a model was suggested to demonstrate the association between the key themes emerging from the data. As the study unfolds, it is expected to unveil how lean practices synergize with TRIZ methodologies, enabling a dynamic and holistic response to the multifaceted challenges posed by the COVID-19 pandemic. By strategically aligning these two potent strategies, the model is poised to illuminate pathways toward enhanced operational efficacy, resilience in the face of supply chain disruptions, creative adaptation to the digital realm, and the nurturing of workforce motivation and engagement. As a conclusion, the integration of lean practices and TRIZ helps Malaysia's micro businesses enhance their operations and adjust to the issues in the current economic environment after COVID-19.

Keywords: *Micro Business, COVID-19, Lean Practices, TRIZ.*

1. Introduction and Background

The COVID-19 pandemic has led to unpredictable issues in micro-businesses in terms of financial sustainability, supply chain disruption, and workforce management (Sharma & Rai, 2023). Also known as micro-enterprises, micro-businesses denote small businesses with less than five employees and comparatively low capital investment. Nevertheless, these businesses have been essential in the global economy for many years as they create jobs, strongly contributing to employment, income, and economic growth. Overall, they are regarded as the backbone of the economy.

The World Bank (2020) stated that micro, small and medium enterprises (MSMEs) account for 90% of all enterprises, up to 50% of total employment, and 33% of GDP in numerous developing nations (Kilb & Mcwhirter, 2022). Based on the Small and Medium Enterprise Development Corporation (SMEDEC), micro-businesses in Malaysia constitute 98% of all registered businesses in Malaysia and over a third of the nation's employment. Micro businesses are crucial for Malaysia's economy (Andreastika et al., 2017). These businesses are also responsible for encouraging a stable economy and curbing unemployment. Currently, the government of Malaysia has applied a wide range of initiatives to aid the development of micro-businesses through financial assistance and training programs. These businesses have been targeted to increase the nation's GDP to 30% by 2020.

In Malaysia, micro businesses account for a large part of the economy, specifically 97.3% of all business establishments in 2019 (Seman et al., 2019). However, they receive a strong impact and obstacles from

COVID-19, which the government aims to manage. A decrease in profit is among the main issues in micro businesses during the pandemic. Specifically, the service and retail sectors have faced a decrease in demand after movement restrictions and decreased spending (Vinberg & Danielsson, 2021). The profit decrease is also attributed to lockdowns, which have disrupted business operations and services to customers. A study conducted by the small and medium enterprise development corporation (SMEDEC) in 2020 reported that micro businesses were the most affected group by the pandemic, with the majority reporting a decline in sales and revenue. Furthermore, the limitations in financial and technical resources lead to difficulties for micro businesses in adjusting to the changing market conditions and implementing successful approaches to manage crises (Devins et al., 2005). Despite the introduction of government support programs to financially aid the affected businesses, the program uptake is insignificant due to bureaucratic procedures and low awareness among micro-business owners (Topimin & Hashim, 2021).

Addressing the aforementioned issues, scholars and practitioners have proposed innovative solutions to assist micro businesses in recovering from the crisis (Fabeil et al., 2020). An example is the integration of lean practices and TRIZ, which are problem-solving methodologies implemented in many industries (Slim et al., 2021). Specifically, lean practices aim to identify and eliminate waste in business procedures, while TRIZ (Theory of Inventive Problem Solving) is a systematic innovation method emphasizing the application of inventive principles and patterns to mitigate complex issues (Al'tshuller, 1999).

Notably, the successful use of lean practices and TRIZ has taken place in many industries, including SMEs. Lean practices have been shown to boost effectiveness, cut costs, and improve consumer satisfaction in small and medium-sized firms (SMEs). Meanwhile, in another study conducted by Anuar et al. (2023), several SMEs have begun to enhance their operational performance by beginning a lean transformation, which takes a long time to effectively accomplish. Furthermore, the use of TRIZ has been found to improve innovation and product creation in SMEs (Caldera et al., 2019).

The integration of lean practices and TRIZ allows micro businesses to address the issues after COVID-19. To illustrate, lean practices assist in the optimization of procedures and reduction of costs, while TRIZ could offer a structured framework to innovatively identify and solve complex issues (Caldera et al., 2019). Despite the wide use of lean practices and TRIZ by many industries to increase effectiveness, decrease waste, and encourage innovation, there is an inadequate exploration into their implementation in the micro business context in the COVID-19 pandemic.

Besides, there is limited literature exploring the possible advantages of integrating lean practices and TRIZ for micro businesses during the pandemic. The issues faced by Malaysian micro-businesses during COVID-19 require further research. Thus, this research aims to investigate these issues and suggest an integration of the aforementioned methodologies to reach a solution. Following the extraction of empirical data from Malaysian micro businesses, this research aims to contribute to the literature on crisis management in micro businesses and offer practical suggestions for business owners and policymakers.

This review presents two contributions. Following the review of previous studies regarding the issues faced by micro-businesses in COVID-19, it is hoped that effective approaches to restoring these businesses could be identified. Overall, this review helps scholars gain a better understanding by integrating lean practices and TRIZ and improving micro businesses' operations and adaptability to the challenges in the current economic environment caused by COVID-19.

Therefore, the objective of the study is to unfold in a sequential manner, commencing with a thorough exploration of the existing literature pertaining to lean practices, TRIZ, and the micro business landscape in Malaysia. The structure of this article begins with a review of the existing literature on lean practices, TRIZ, and micro businesses in Malaysia. This is followed by the methods, research limitations, future research, and conclusion.

2. Literature Review

Lean Practices: Lean practices were originally proposed by Taiichi Ohno, an engineer at Toyota Motor Corporation, in the 1950s (Ohno, 1988). Ohno developed the concept of "Lean" as a way to improve efficiency and reduce waste in manufacturing operations. He observed that most manufacturing processes were filled with waste and inefficiencies, and he developed a set of principles and techniques to eliminate this waste and improve productivity. Subsequently, Ohno's ideas went through formalization and gained popularity under the name "lean manufacturing" and have been utilized in numerous industries around the world (Shah & Ward, 2003).

Lean practices have been applied to other sectors and industries, such as healthcare, service industries, construction, and the government. The concepts of this methodology can be applied to any companies or sectors that are targeted towards effectiveness, waste reduction, and higher value for customers. The extension of lean practices to other sectors is mainly attributed to its status as a management philosophy that could be implemented in all categories of companies, notwithstanding the size or industry (Akanmu et al., 2022).

Currently, the interest in the use of lean practices in micro businesses has increased. It was found that its use could increase effectiveness, productiveness, and consumer fulfillment. Given that the use of lean practices in micro businesses is not a clear procedure, a number of issues were detected (Caldera et al., 2019). Several research works recorded limited resources and capacity in micro-businesses, leading to challenges in applying lean practices. Besides, the knowledge of lean practices among micro business owners is lacking, making the sustainability of lean practices challenging.

Value Stream Mapping (VSM) is one of the primary lean practices for visualizing and analyzing the flow of materials and data in production. The VSM could assist in the identification of bottlenecks and enhance the aforementioned flow. Another key lean practice is Kanban, which is a pull-based production control system employed to control this flow. Notably, Kanban could enhance the responsiveness and effectiveness of the production. Apart from that, Total Productive Maintenance (TPM) is another lean practice that could be applied for improved performance of production processes. TPM is a maintenance strategy that involves all workers in maintaining the tools and amenities. According to Ahmad et al. (2016), TPM could increase the availability and performance of the tools, decrease downtime, and improve product conditions.

To address the issues and increase the performance of micro-businesses, several research works suggested adapting lean practices to the demands and limitations of micro-businesses. This adaptation could include simplifying lean practices, providing training and support, and workers' involvement in the application. The implementation of lean management in SMEs recorded that lean practices increased the productivity, standard, and consumer fulfillment in these categories of companies (Burawat, 2019).

The literature on the application of lean practices in SMEs was reviewed, leading to the finding that these practices made the same improvements in the aforementioned aspects in these categories of companies (Acahanga et al., 2006). In investigating the association of lean practices and organizational performance, a wide range of methodologies was used in these research works, such as survey research, case studies, and systematic literature reviews. It was suggested from the results that the application of lean practices could improve supply chain management, operational performance, service delivery performance, effectiveness, standard, and lead time. However, among the challenges in implementing lean practices in healthcare are resistance to change, inadequate management support, and limitations in resources.

It was suggested from the research that consumer fulfillment could moderate the association of lean practices and service delivery performance in hotels. Following that, lean practices could improve organizational performance in small and medium-sized enterprises. Overall, the results indicated that the implementation of lean practices could significantly improve numerous industries, although the barriers to this implementation should be taken into account.

Theory of Inventive Problem Solving (TRIZ): The Theory of Inventive Problem Solving (TRIZ) was created by Genrich Altshuller, a Russian engineer and inventor, in the 1940s and 1950s (Esad & Cicek, 2023). Based on Altshuller's observation, common solutions to numerous technical issues are present, which were identified through the development of a systematic method **(**Al'tshuller**,** 1999). This was followed by the identification of patterns and concepts applicable to solving various issues not only in the technical areas, but also in business, management, and other areas. After going through formalization as TRIZ, this methodology has been largely employed in numerous industries around the world.

The use of TRIZ could enhance the quality of manufacturing procedures by decreasing inadequacies, improving the condition, and boosting productivity. The effective integration of lean practices and TRIZ could be achieved through improved performance of small and medium-sized enterprises (SMEs) (Sojka, & Lepšík, 2020). It was found that this integration could lead to SMEs' improvement in terms of operational productivity, reduction of cost, and increase in profit. Meanwhile, Feniser et al. (2017) research found that applying TRIZ in SMEs could increase the company's innovation performance by producing new ideas and enhancing product design.

The contradiction matrix is among the primary instruments in TRIZ, which is employed for identifying and analyzing the main cause of an issue. In this case, the requisites or factors leading to the issue are identified. Based on a study in the Journal of Engineering Design, a contradiction matrix could enhance the condition of the problem-solving procedure and the efficacy of the produced solutions (Esad & Cicek, 2023). The 40 Inventive Principles is another instrument in TRIZ, which is a set of concepts that could be applied to develop new solutions to the corresponding issue. In addition, the use of these concepts could develop more innovative and successful solutions in comparison to traditional problem-solving approaches (Shie et al., 2022). Besides, the use of TRIZ-based heuristic models, Axiomatic Design, and other TRIZ tools was found to be effective in identifying and resolving contradictions, generating innovative ideas, and enhancing the overall system performance.

In summary, TRIZ is a problem-solving methodology that can help individuals and companies seek issues to be solved creatively and effectively. It comprises a set of instruments and approaches, including the contradiction matrix and 40 Inventive Principles that have been proven to successfully generate more efficacious and functional solutions in comparison to traditional problem-solving approaches.

Micro Businesses in Malaysia: The history of Malaysia's micro-businesses could have originated from the early phase of the nation's economic growth. In the 1950s and 1960s, the Malaysian government initiated an economic growth program to increase industrialization and reduce the reliance on exports of raw materials. This program subsequently contributed to the development of SMEs, which is crucial in the nation's economic growth.

In the 1970s and 1980s, the government provided continuous support to the development of SMEs through diverse programs and guidelines. These initiatives emphasized improved access to finance, training, and market prospects for SMEs (Rashid et al., 2022). In the 1990s, the government presented a new policy framework for supporting the growth of SMEs. This framework also highlighted the significance of SMEs as the primary factor leading to economic development and employment. Besides, the government made various measures to improve SMEs' competitiveness (Afsharghasemi et al., 2013)

In recent years, the Malaysian government provided continuous support to the development of SMEs and micro businesses through a wide range of initiatives. To illustrate, the government has aimed to boost the contribution of micro businesses to the nation's GDP to 30% by 2020 (Zaidi et al., 2023). This is followed by the implementation of diverse policies for supporting the development of micro-businesses by offering financial assistance, training programs, and market opportunities offered by Small and Medium Enterprises Development Corporation (SMEDEC)

Notably, the Malaysian government has carried out its crucial responsibility in supporting the development of the nation's micro businesses. The government's support to these businesses is provided through the following methods:

- Financial assistance: The Malaysian government has held numerous financial assistance programs to support the development of micro-businesses. To illustrate, the government offers loans and grants to micro businesses through establishments including the SMEDEC and Malaysia External Trade Development Corporation (MATRADE)
- Training and development programs: The Malaysian government has conducted numerous training and development programs for the development of micro-businesses. To illustrate, the government offers training programs through establishments including the National Entrepreneurial Group Economic Fund (TEKUN) and MATRADE.
- The government also offers access to training and development programs for the improvement of these businesses' expertise and competitiveness. This initiative is fulfilled through numerous training programs in the accounting, marketing, and business management fields.

It is also noteworthy that the micro business sector in Malaysia is progressive, which is attributed to diverse elements, including economic conditions, guidelines, and technological developments. Thus, taking the most current data and research into account is crucial in investigating the micro business sector in Malaysia.

Toyota Production System House: The Toyota Production System (TPS) House is a model created by Toyota Motor Corporation, which represents its production system (Ohno, 1988). The model consists of two pillars, namely Just-in-Time (JIT) and Jidoka, followed by a basis of constant enhancement (kaizen) and respect for individuals (Chiarini et al., 2018). JIT emphasizes the production of goods or services in the needed amount at the required time, while Jidoka emphasizes the identification of inadequacies and halting the production line to avoid the production of defective goods. Furthermore, there has been wide adoption of TPS House by manufacturing organizations worldwide to enhance effectiveness, decrease waste, and increase the standard (Liker & Morgan, 2006). Its concepts are also applicable to non-manufacturing industries and micro businesses, specifically in the COVID-19 pandemic.

By combining lean practices including JIT and Jidoka with TRIZ (Theory of Inventive Problem Solving), micro businesses could enhance their procedures and recognize new prospects for development in the pandemic. Lean practices could also assist businesses in reducing waste, improving productivity, and responding to changing demands, while TRIZ could assist businesses in generating innovative solutions to complex issues (Azadegan et al., 2013).

In conclusion, the TPS House offered a valuable framework for micro businesses' adaptability to the obstacles emerging COVID-19 pandemic. The integration of lean practices and TRIZ allows micro businesses to increase their strength and competitiveness in a frequently evolving business environment.

3. Research Methodology

To maintain the exploratory and subjective nature of this study, an interpretive approach was employed, making the engagement with the actors important in gaining an understanding of the meaning. Kaptein and Dalen (2000) stated that exploratory studies are suitable for interpretive investigation, with actors being highlighted in the phenomena investigation.

Qualitative Research Design: This research employed a qualitative research design to determine the obstacles of micro-businesses during COVID-19 and suggest the integration of lean and TRIZ to solve issues in micro-businesses. A qualitative research design is suitable for this research as it enables a thorough investigation into the experiences, viewpoints, and meanings of the respondents. Notably, this method is effective in gaining an understanding of a complex situation that aims to further understand the subject under study instead of testing a hypothesis. The selection of this approach was attributed to the delicate subject matter of philosophical beliefs and this research nature.

Sample and Data Collection: Participants will be involved through purposive sampling, ensuring that they have undergone the situation under study. The inclusion criteria comprised the development of micro-businesses of over one year, the business registration under the Companies Commission of Malaysia, and its location in the Northern Region. Another factor considered in the selection of subjects is the level of

knowledge or experience, availability for interviews, willingness to participate, and ability to communicate freely and truthfully. Data will be collected through semi-structured interviews, focus groups, observation, and document analysis. This process was audio-recorded and transcribed verbatim.

Data Analysis: The data will be analyzed through a thematic analysis approach. Thematic analysis is a flexible and iterative process that involves the identification and organization of patterns and themes in the data. Furthermore, the analysis involves the following steps: (1) familiarising with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the final report (Vaismoradi et al., 2013).

4. Proposed Model

Based on the findings of the qualitative analysis, a model is proposed to illustrate the relationships between the key themes emerging from the data. The model is an integration of lean practices and TRIZ to offer a visual representation of the condition under study.

The Integration of Lean and TRIZ: The integration of lean practices and TRIZ for the improvement of micro-businesses could be made in the following ways:

- Lean practices are focused on identifying and eliminating waste in business processes, which may include unnecessary steps in production, excess inventory, or excessive production. Meanwhile, TRIZ is a problem-solving methodology involving inventive concepts to seek solutions to complex issues. The integration of lean practices and TRIZ allows micro businesses to find waste and employ TRIZ concepts to seek innovative solutions to remove it.
- TRIZ could also be employed to find possible roadblocks in the implementation of lean practices. To illustrate, when a micro business is facing challenges in carrying out lean manufacturing procedures due to limited space, TRIZ could be employed to seek inventive solutions, including the reconfiguration of the workspace or the implementation of a virtual manufacturing procedure.
- Lean practices and TRIZ could also be combined to improve quality control. Lean practices emphasize continuous improvement and waste reduction, while TRIZ could be used to identify and eliminate sources of defects or quality issues in a product or service.
- Another method of integrating lean practices and TRIZ is the use of lean principles to streamline processes, while TRIZ is used to identify opportunities for innovation. To illustrate, a micro business could employ lean principles to reduce the time taken to produce a product, followed by the use of TRIZ to identify the methods of adding new features or functionality to the product to distinguish it from competitors.

The integration of lean practices and TRIZ could increase the efficiency, innovation, and competitiveness of micro-businesses in their respective markets. By combining the focus on waste reduction and continuous improvement with the problem-solving principles of TRIZ, micro-businesses can seek innovative solutions to complex problems and improve the quality and streamline processes.

5. Conclusion

This study aims to propose an effective method to address the challenges of micro-businesses and propose an integration model of lean practices and TRIZ to address the challenges in micro-businesses in SMEs. Lean practices and TRIZ are the methods with the potential to solve some of these challenges. Given that many of the issues faced by Malaysian micro-businesses during the pandemic have led to the loss of sales and profits, this situation has a particularly negative impact on micro-businesses. To illustrate, obtaining financial assistance is a challenge as government assistance programs were created primarily for large businesses and SMEs, leading to the difficulty faced by many micro-entrepreneurs in accessing them. Furthermore, micro businesses with inadequate digital skills, technologies, and infrastructure for selling and delivering services online are struggling to adapt to the online business environment. They also find the procurement of goods and parts needed for operation challenging due to the supply chain disruptions caused by the epidemic. This is followed by challenges in maintaining employees' morale due to many of them facing unemployment or being forced to work from home.

The theoretical and managerial implications of this research are significant for micro businesses operating during COVID-19. The expected results of this research offer noteworthy insights into the obstacles in micro businesses and provide guidelines for addressing these obstacles by integrating lean practices and TRIZ. This study involved both managerial implications for micro-business managers and theoretical implications for studies on innovation and business resilience. The practical and theoretical implications of this research will be thoroughly elaborated in the following sections.

Theoretical Implications: Some theoretical implications are present in the expected results of this research. First, the integration of lean practices and TRIZ would offer a framework for the improvement of micro-business procedures and the development of innovative solutions to complex issues during COVID-19. This condition indicates that the application of lean practices and TRIZ does not only take place in manufacturing industries but also in non-manufacturing industries and micro businesses.

This research emphasized the significance of constant enhancement and flexibility in inconsistent and frequently changing business environments. Micro businesses with the ability to adapt at a fast rate and enhance their procedures have a higher possibility of survival during crises.

Third, this research offers insights into the obstacles in micro businesses during COVID-19, which include interference with supply chains, consumer's changing behavior, and financial limitations. With insights into these obstacles, researchers and practitioners may further create targeted interventions for supporting micro-businesses during crises.

Managerial Implications: The expected findings of this study also have several practical implications for managers of micro businesses. First, managers should consider incorporating lean practices and TRIZ into their operations to increase productivity, decrease waste, and innovatively develop solutions to complex issues. This action could involve a reconsideration of traditional business models and procedures to improve adaptability to fluctuating market conditions. Second, managers should make their improved and flexible operations their priority. This measure may require training and development programs for workers to encourage a culture of constant learning and enhancement. Third, managers should be supported by the government and non-governmental companies to solve the issues emerging after COVID-19, in which financial aid, training and development programs and access to new markets and supply chains may be involved.

It can be concluded that the integration of lean practices and TRIZ offers a noteworthy framework for micro businesses' adaptability to the obstacles of COVID-19. It is suggested from theoretical implications that lean practices and TRIZ may be employed in various industries, while managerial implications elaborate that managers should make improved and flexible operations their priority and obtain support from external sources. Thus, this article contributes to the review of past research regarding the obstacles in micro businesses after COVID-19. It is also hoped that successful methods of microenterprise recovery will be identified.

In general, this review may improve researchers' understanding of how lean methods and TRIZ can be used to strengthen micro businesses' operations and responses to the challenges of the economic situation emerging after COVID-19. To ensure that these factors are in line with national and international requirements, advances, and technological progress, cooperation between policymakers, administrators, and businesses is essential. In this case, effective mechanisms should be developed to promote cooperation among ministries, agencies, and law enforcement. Subsequently, a space could be created for testing the TRIZ integration method and lean principles that are compatible with advancing modern technologies and the emergence of new forms of global trade.

Future studies are suggested to empirically examine how the integration of TRIZ and lean principles could improve operations in many industries and help companies adapt to the current economic climate. It is also recommended that future research works are statistically conducted, with a focus placed on respondents from multinational companies in Malaysia or other countries.

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Pro-Environmental Behavior Decisions in Face Mask Usage: A Pilot Study

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Abstract: Human behavior and interaction with their surroundings vary from one another. Different people may engage and behave pro-environmental based on their beliefs and understanding of the consequences of environmental problems for themselves. The theory of planned behavior (TPB) and value belief norm theory (VBN) suggest that an individual perceives environmental pollution effects could influence their decision-making in daily activities. This study aimed to examine people's behavior in using face masks and their perception of environmental consequences by integrating the TPB and VBN into a single conceptual framework. This study confirms that sub-factors, including biosphere, altruism, egoistic, awareness of consequences, and personal norms, are among the predictors that explain pro-environmental behavior in Malaysia. Additionally, the cultural factor significantly mediates the behavior. A questionnaire pilot survey was conducted among 50 visitors in a coastal area in Peninsular Malaysia. The Cronbach alpha test and descriptive analysis confirm the direct and mediatory effect of the causal of the variables in the TPB and VBN theory of pro-environmental behavior when making decisions in face mask usage. The research results validate the proposed TPB and VBN theory model linkages to clarify pro-environmental behavior.

Keywords: *COVID-19, face mask, pro-environmental, waste, behavior.*

1. Introduction and Background

The emergence of the global spread of the coronavirus disease (COVID-19) pandemic has attracted global attention to the danger of the virus. The World Health Organization (WHO), the National Centers for Disease Control, governments, and relevant authorities have announced various guidelines, including using face masks to reduce the disease associated with COVID-19. During the COVID-19 pandemic, these institutions have also suggested using either surgical face masks or non-medical face masks, which are commercial masks of cloth or cotton, as a preventive measure when an active individual is in risk areas such as in close or confined places. In January 2020, Malaysia had its first case acquired from a traveller. Subsequently, from three cases that occurred in the earlier year, the number of cases due to the outbreak has increased. As of October 11, 2022, there are 4,856,217 cases, and 36,403 deaths (KKMNOW, 2022). Since then, all Malaysians have been obligated to use face masks and gloves, while many countries were temporarily banned from exporting protective masks due to the COVID-19 pandemic. During this critical situation, the Malaysian government demanded that face mask manufacturers focus their production of protective masks for the local market.

While the consumption of face masks in society is imperative for health reasons, at the same time it has resulted in various environmental issues such as the increase in waste generation. Global warming, urban water, and air pollution, as well as loss of biodiversity, are among the threats to sustainable development (Parkinson, 2020; Arkorful et al., 2021). Malaysia has reported that as of July 13, 2022, 84% of Malaysians claimed they wore facemasks, particularly in public places during the COVID-19 outbreak.

According to the Department of Statistics Malaysia (2022), clinical waste increased to 43.9 percent in 2021 to 57,400 tonnes compared to 39,900 tonnes in 2020 (see Figure 1). The report also showed that three states had recorded the largest amount of clinical waste, namely Selangor (13,000 tonnes), Sarawak (8,300 tonnes) and Kuala Lumpur, amounting to 5,900 tonnes. One of the reasons for the spike in clinical waste is the use of personal protective equipment (PPE) such as face masks. This report indicates that society's extensive use of clinical waste, including face masks, leads to a massive amount of waste that causes environmental damage.

Ariffin and Zakili (2019) highlighted households' use and consumption of clinical waste as contributing to hazardous environmental and human health risks. Additionally, Sullivan et al. (2021) study reported that

improper and unregulated disposal of surgical face masks could not only transmit disease but also adversely impact the environment and potentially human health because of the material compound of the masks' waste. Little is known about the number of face mask disposals. Sangkham (2020) reported that an estimation of daily face masks in Malaysia amounts to 7,049,901 pieces, contributing to 35.41 tons per day. As shown in Figure 1, the statistic refers to clinical waste, including face masks.

Figure 1: Total and Growth Rate of Clinical Waste in Malaysia from 2002- 2021



(Source: DOSM, 2022)

As waste and environmental pollution is one of the concerning issues globally, face mask waste can profoundly affect the status of society's behavior. Nevertheless, we know little about face mask usage and pro-environmental behavior among Malaysians. This missing information could help government agencies and society to improve the level of environmental awareness culture and elevate the environmental best practices among societies in Malaysia. This study could help health and waste management agencies implement policies and standards regulating face masks in the country.

2. Literature Review

Improper handling of clinical or surgical waste can increase the risks of disease transmission directly or indirectly in the environment. Sullivan et al. (2021) study reported that improper and unregulated disposal of surgical face masks cannot only transmit disease but also harm the environment and potentially human health because of the material compound of the masks' waste. Any reactive residues attached to the masks' waste may dissolve with surroundings, moisture droplets or chemical elements, leading to severe health hazards. A recent study by Kampf et al. (2020) found that the coronavirus can survive on material surfaces such as metals, glass, and plastic for a maximum of 9 days. The study indicates that the threats can significantly affect lives, particularly in developing countries with poor waste management (i.e. face mask disposal, and management strategies).

According to Arkorful et al. (2021), discarding face masks could lead to cost implications and increase environmental waste. Considering the need for environmental sustainability and the need to promote health and well-being during the pandemic times, individual willingness to wear a surgical face mask or washable face mask is pertinent to ensure the success of a country in sustaining the environment and social well-being whilst combating COVID-19 virus that can be transmitted by the microorganism on the face mask waste. Some face mask waste can be littered in our surroundings without considering the pile of other waste simultaneously.

People's behavior in weighing the predicted costs and advantages has a common influence on their decisions. It concerns people's intents and behavioral characteristics throughout transitions. The cost or financial impact of one's decision to utilize a face mask is crucial. Economic losses resulting from the choice of product type and quality throughout this phase are frequent. Similarly, it has been discovered that in the case of face masks, cost considerations are one of the variables that can affect how much the users are willing to spend. Face masks are now voluntary when engaging in everyday outdoor activities. According to Hartanto and Mayasari (2002), the association between high face mask expenses and unfavorable user behavior (i.e., frequent face mask replacement, use of high-quality face masks, or use of washable/cloth masks) may result

in face mask usage not being adhered to. As a result, the public's decision regarding the type of face mask depends on norms (i.e., social conventions and behavior) and commitments (i.e., self-principles for individual acts) regarding choices that could impact environmental and health issues.

Environmental sustainability may be hampered by a number of issues, including social culture. The nature and background of society can vary, resulting in various beliefs and behaviors regarding maintaining a safe and clean environment. According to Patwary, Omar and Tahir (2020) and Azlan et al. (2020), Malaysia has been described as a collectivist society, which suggests that Malaysians are concerned with protecting the interests of the group in exchange for loyalty and that belonging to the group is more important than standing alone (i.e., individualist). Since society may be worried about the environment and cost, will imply to them, this collectivism-individualism component may also impact society's behavior. According to a study by Allison et al. (2021), culture can influence the use of face masks. People who reside in a nation with strict cleanliness regulations, such as many Asian nations, will probably think about using a high-quality face mask (such as a surgical mask, N95, or comparable) to stop the virus from spreading. On the other hand, people in nations with poorer face mask compliance might have distinct attitudes and behaviors about using face masks.

3. Research Methodology

To determine the underlying theories that support the direct relationship between the variables of the study, and the moderating effect of culture on the relationship between the predictor variables—attitude, environmental consciousness, social norm—and the criterion variable—the perceived behavioral intention of Malaysian society in deciding against the use of face masks—this study uses a compilation of literature review papers. To address bigger issues and offer solutions, this study maps the body of research on using face masks and environmental worries. The literature review-identified constructs were created for each variable group. Figure 2 depicts the theoretical framework of the current study.

This research was conducted as a pilot survey study using a questionnaire as the primary form of data collection. The survey was performed on a community in a coastal area of Peninsular Malaysia. The data were collected through individual meetings and online platform survey questionnaires. A random sampling technique was used to approach the respondents. All respondents must be above 18 years old. The minimum age criteria are required to ensure the ability of the respondents to purchase a face mask and self-assessments in making a decision. For sampling, the researchers randomly select a subset of the community in the coastal area from the population. A total of fifty questionnaires were filled and completed during the session.

A two-section questionnaire was developed based on literature and a theoretical framework for pro-environmental face mask usage decisions. The first section is on the participants' demographic information, such as age, gender, educational level, occupation and state. The second section illustrated items that are applied to measure the variables of the theoretical models. Before this pilot study, a group of panel experts was approached to assess the proposed list of items. The panel of experts is among the executives of environmental agencies in Malaysia. The questionnaires were completed and validated by the panel experts without comments. A pilot study test was conducted further to check the validity and reliability of the questionnaire. Statistical Package for Social Sciences (SPSS) version 28.0 was used for the reported statistical analyses.

4. Results

To test for significant variations caused by various demographic factors, we employed one-way ANOVA and bivariate correlation between attitude, environmental consciousness, social norm, perceived behavior, and culture with the decision to wear face masks. The statistical significance was set at $P < 0.05$ for all analyses.

Table 1: A Summary of the Constructs Observed in the Pilot Test

Construct	N	Mean	Standard deviation
Attitude	50	4.2350	0.61943
Environmental consciousness	50	4.1660	0.57057
Social Norm	50	3.7100	1.00216
Perceived behaviour	50	4.2527	0.51106
Culture	50	4.2440	0.84275

Table 1 results indicate that the primary influence in the decision to use a face mask is 'perceived behavior', which indicates that the construct plays a vital role in influencing an individual decision to use a face mask. This is followed by 'culture' and 'attitude'. To determine whether the respondents are pro-environmental, the study shows that 'environment consciousness' scores higher than the 'social norms' factor.

Results in this study showed, as hypothesized that environmental concern for self, others and the environment were related to self-awareness and consequences belief. Additionally, as hypothesized, each TPB construct corresponds to the environmental values postulated in VBN. Also, consistently, cultural factor mediates individual attitude, consciousness, social norms and self-perceptions towards environmental concern.

H1: Attitude influence towards an individual decision on face mask usage.

An individual attitude has been indicated as a positive influence by the respondents. Eighty-two percent of the respondents perceived attitude in promoting face masks should be encouraged in Malaysia. They believe that the attitude of wearing a face mask can mitigate the risk of health disease and benefit society.

H2: Environmental consciousness influences individual decisions on face mask usage.

Regarding environmental consciousness, eighty percent of the respondents know that face masks can contribute to the increasing amount of waste in Malaysia. This finding shows that the respondents acknowledge that most face mask use in the country is non-biodegradable. This finding is interesting is because only half of the respondents willing to use reusable face masks. Nevertheless, the finding shows that the respondents agree that having an appropriate way for facemask waste disposal is essential. In addition, the respondents believe educating society about face mask repurpose is good. Based on this understanding, further study should be undertaken.

H3: Social norms influence individual decisions on face mask usage.

As discussed in this paper, social norms have been perceived as one of the factors that can influence the decision of an individual to use a face mask. This finding, however, does not consider social norms to have a significant impact on individual decision-making. Therefore, to provide more substantial evidence, further investigation should be conducted.

H4: Perceived behavior influence individual decision on facemask usage.

Perceived behavior regarding air pollution and effective measurement for the disease has become the primary reason for an individual to use face masks. The finding reveals that the use of face masks includes the hygienic factor. Nevertheless, a minority of the respondents feel that the frequent face mask change does not guarantee the reduction of unhealthy air. This might be due to the cost of purchasing the face mask.

H5: Culture can moderate a positive influence between attitude, social norms, environmental consciousness and perceived behavioral control factors toward individual decisions on face mask usage.

Findings from this pilot study reveal that the majority of the respondents believe that culture can affect and influence an individual decision to wear a face mask. They believe continuous reminders from the authorities, persistence in sharing beliefs and values about wearing face masks, and internalization of the consequences can create a more excellent civic orientation and efficient self-monitoring culture.

Discussion: Findings from this analysis indicate that the constructs developed from the TPB and VBN theory are relevant. This shows that the decision on face mask type to use and environmental consciousness exist in

society. Most respondents have a positive attitude towards face mask usage and pro-environmental behavior. This means that despite the cost of buying a face mask, which can be an additional burden to the users, a face mask remains one of the best ways to curb the spread of contagious diseases. This is because face masks are handy and easily kept in their bags. The respondents agreed that the attitude of using face masks should consider its consequences on the environment whilst protecting their health. Regarding choice, reusable or disposable face masks, only half of the respondents are willing to use reusable face masks, while others prefer to use disposable face masks. Additionally, many of the respondents recognize the need to understand more about repurposed and biodegradable face masks so that they are aware of the impact of it.

The results obtained from these tests are consistent with previous studies such as Lee et al. (2022) and Stern (2000), which confirm that the TPB and VBN theory model can be integrated into a single theoretical framework to predict an individual attitude and behavior towards pro-environmental. By integrating these two models, this study enables us to determine the value that initiates the causal chain of the decision to use the face mask. This study reveals that individuals are more likely to be environmentally-behavior if society is continuously educated with updated information about environmental damages due to people's behavior. In the analysis, the pivotal role of attitude, social norms and perceived behavior links with environmental consciousness. In other words, this study indicates the importance of promoting environmental consciousness in the TPB model and demonstrates its significant role in determining the type of face mask use. From the VBN lens, an individual might form a strong belief and positive attitude towards sustainable actions and explain a strong belief that they can respond with a pro-environmental attitude. Additionally, the moderating role of culture in the values-intention relation described the individual to validate the biosphere, orientation and altruism values in promoting pro-environmental behavior (Barbarossa et al., 2017).

5. Managerial Implications and Recommendations

This study reveals that face mask waste contributes to the increase in waste in Malaysia, and all face mask material is non-biodegradable. To create a higher level of civic values among Malaysians, three recommendations can be identified here. First, to elevate education and awareness about the impact of face mask waste on environmental damage. This study suggests that promoting messages about responsibility to nature is crucial to improving the use of face masks. Secondly, further initiatives must be taken by the relevant authorities to improvise the material components used in making the face masks, and finally, face mask waste disposal management should be considered.

The limitation of this paper is that the focus is on the usage of face mask behavior. This could have been widened to include other one-time clinical equipment waste, given that individuals could have used other personal protection equipment (PPE) as part of their household waste, such as disposal gloves, syringes, or needles, and electronic waste such as batteries, gadgets or electric sockets. Second, this study is limited to one of the coastal areas in Malaysia; thus, the variation of results is limited. In terms of the implication, this study suggests that the social norm towards pro-environmental face mask usage decisions is still low in Malaysia.

Conclusion: This study aims to examine the factors that contribute to the pro-environmental behavior of an individual in making decisions about face mask usage in a coastal area of peninsular Malaysia. A theoretical model was developed to test the reliability and validity of the construct measurement to identify the relationships. Significant findings were revealed in this study of which the external environment, culture, plays a crucial role in influencing individual behavior. This paper concludes that an individual decision to use a face mask is subject to their awareness regarding the dangers of the disease in a given circumstance. An individual tends to use a face mask when surrounded by people or peers wearing a face mask (i.e., social norm). Cultural factor behavior, such as continuous reminders from authorities and persistent beliefs and values about wearing face masks, can also shape the individual behavior and perceived use of face masks.

Interestingly, the study reveals that surgical and washable face masks are essential and can be used alternately; however, knowledge about the proper disposal of surgical face masks and hygienic reusable face masks must be emphasized in society. The result from a review of previous literature regarding waste disposal and environmental pollution allowed us to achieve the first objective of the study: to identify the internal factors that can influence the public decision on the use of face masks in response to COVID-19

endemic settings through the integration of TPB and VBN lens. This enables us to unveil how the TPB and VBN are used in studies on pro-environmental individual actions and to develop a fundamental theoretical framework as a recommendation to help researchers use this theory in the psychological aspect. The second objective of this paper is to identify whether culture is a moderating factor that can be used in exploring further insight as reasoning on the similarities and differences in pro-environmental behavior and to understand whether the theories predict intention and behavior.

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The Influence of Personality Traits on Ethical Behavior of Police: The Mediating Effect of Ethical Leadership

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Abstract: Unethical behavior by police officers continues to garner a lot of attention. Engagement in such conduct will tarnish police reputation as law enforcers who are responsible to protect the welfare of society. Hence, fostering ethical behavior among police officers should be encouraged. However, there is a dearth of in-depth knowledge in existing literature, providing a sufficient explanation contributing to the ethical behavior of police officers. The purpose of this study is to assess the influence of the reciprocal relationship between personal factors and environmental factors on behavioral outcomes. By employing the Social Cognitive Theory (SCT) as an underpinning theory, this present study intends to examine the influences of personal factors, namely personality traits, on the ethical behavior of the police. This study also introduces ethical leadership as a mediating variable to fill the knowledge gap in the existing literature.

Keywords: *Ethical Behavior, Personality, Big Five Model, Ethical Leadership, Police.*

1. Introduction and Background

The Sustainable Development Goals (SDGs) define a future development agenda for the year 2015–2030 to encourage the international community to move toward a globally sustainable future in the next few decades. Against this backdrop, SDG 16 calls for peace, justice, and strong institutions. SDG 16 emphasizes the rule of law at the national and international levels with an approach to accountability and transparency that prioritizes the eradication of corruption. The demand for transparency has emerged in the areas of governance and is predominantly targeted at government and financial institutions. Governance Transparency in many countries in the world is measured through the Corruption Perception Index (CPI) established by Transparency National (TI). CPI measures the perception of corruption in the public sector for their 180 participating countries.

Malaysia exhibits a fluctuating trend in the CPI score. A CPI score ranks countries based on how allegedly corrupt their public sectors are perceived to be (Transparency International, 2022). According to the President of Transparency International Malaysia (TI-M), Dr. Muhammad Mohan, Malaysia's score decreased from 51 in 2020 to 48 in 2021. Specifically, the country's CPI scores serve as a standard for its level of governance. Poor governance reflects a deteriorating level of national transparency and integrity. The decrease in score may suggest the need to enhance current measures and approach to encouraging ethical behavior across a variety of social sectors such as the public sector, political parties, law enforcement, the media, and business.

Ethics, regardless of rank or institution, is the ultimate predictor of accountability and trust. Ethics is essential for professionals of all professions, including in the sector of law enforcement. It is even more important for law enforcement officers to behave ethically in their day-to-day delivery of work as their role is to uphold the law and safeguard the interest of society. Engagement in unethical behavior demonstrated a disregard for ethical requirements as well as a disregard for the principal role of good governance in one country. This situation is perhaps even more worrying if it will erode public confidence in government and public service.

Police ethics are the most influential aspect of public trust in police services (Mathura, 2022; McDaniel, 2019; Wu & Boateng, 2019). Accountability of police exists when they act pretty and wisely, administer, the law equally to all citizens, and act morally (Westmarland & Conway, 2020). In Malaysia, there is an increasing and consistent complaint by the public about police misconduct. Public complaints of police misconduct have preceded any other law enforcement agencies. Royal Malaysia Police (RMP) received the highest number of complaints in 2022 which has been the highest in a decade (Enforcement Agency Integrity Commission,

2022). Therefore, there is a crucial need for highly ethical police officers. Hence, it is important to investigate factors contributing to ethical behavior among police which serve as the primary basis for this study.

2. Literature Review

Ethical Behavior: Ethical behavior of employees is the important key success to for the organization. Trevino, Weaver & Reynolds (2006) defined ethical behavior as "individual behavior that is subject to or judged according to generally accepted moral norms of behavior". Importantly, employee ethical behavior contributes to an organization's meaningful existence, prosperity, vitality (Nguyen, Wu, Evangelista & Nguyen, 2020), and financial performance (Sarfo, Zhang, O'Kane, Podgorodnichenko, Osei-Fosu, 2022). Further, ethical practices at various levels in the organization (co-worker and managerial) lead to employees' organizational commitment (Roszkowska & Mele, 2021) job embeddedness (Roszkowska & Mele, 2020) organizational citizenship behavior and constructive performance (Sarfo et al. 2022). Towards employees, ethical behavior may enable employees to feel an alignment between their values and the values of the organization. These feelings make workplace ethics an integral part of fostering teamwork among employees. Employees who act ethically will build trust in their immediate surroundings. As a result, employee trust established via constant ethical behavior will save the company money.

Recently, due to recurring company and unethical behavior of employees in the organization, the focus on ethics study by managers and scholars has increased significantly (Fairchild, 2018 & Sigh, 2015). Because previous research has focused on unethical behavior and its consequences rather than ethical behavior, the purpose of this study is to demonstrate the integration of personal and environmental factors in predicting ethical behavior to shed light on the importance of ethical issues, as this type of research is scarce (Hassan et al., 2022; Fairchild, 2018; Kolk, 2016; Hough, 2015). Several theoretical perspectives have been presented by different researchers to underpin the studies of ethical behavior in different contexts that may result in diverse results. Hence, guided by Social Cognitive Theory (SCT), this study could examine personal and environmental factors that contribute to ethical behavior in the law enforcement context. While previous studies have yielded a variety of results, it is still unclear which initiatives will be effective, and the findings of this study likely highlight the need for coordinated action at all levels to foster ethical behavior in an organization (Loacker, 2022; Ferrer, Harrison, Ferrell & Hair, 2019; Roszkowska & Mele, 2021; Sarfo et al. 2022).

Social Cognitive Theory as Underpinning Theory: The theory underlying this research is Social Cognitive Theory (SCT) by Albert Bandura (1986). Bandura's perspective has been applied to a wide range of topics, such as personality development and functioning, the understanding and treatment of psychological disorders, organizational training programs, education, health promotion strategies, advertising, and marketing, and many more. Triadic Reciprocity which represents the co-interaction of personal, environmental, and behavioural factors is core to this theory (Bandura, 1986) and acts as a regulator and influencer of human behaviour. SCT proposes that morality and other psychosocial factors (such as working conditions, climate, leadership, etc) explain how moral reasoning governs moral conduct (Wood and Bandura, 1989). Thus, social cognitive theory adopts an interaction perspective to moral phenomena and presents a framework in which personal factors, and environmental factors all operate as interacting determinants that influence each other in determining outcomes (Bandura, 1986).

Based on SCT, this study uses internal cues (personality traits) and external cues (ethical leadership) that could act as an influencer of employee behavior specifically in ethical behavior. As stated in SCT, individuals inside an organization are impacted by internal and external signals, which motivate them to engage in ethical behavior (Abdullah, 2019; Beauchamp, Crawford & Jackson, 2019). Furthermore, an employee with ethical behavior may continually regulate their behavior by self-assessing their ethical action that suits the ethical environment they are engaged (Ozyilmaz, Erdogan & Karaeminogullari, 2018; Boateng, Adam, Okoe & Anning-Dorson, 2016; Ng & Lucianetti, 2016). SCT also posits that ethical action influences the environmental context in which the behavior occurs. Accordingly, when employees perceive or observe the ethical behavior of their leaders or co-workers, it results in the notion that the organization supports an ethical climate, which in turn motivates ethical behavior.

Personality Traits**:** Personality is defined as an individual's preferred way of behaving, thinking, and feeling (Sutton, 2018). It is an essential and diverse source of information and understanding about human behaviors and attitudes (Simha & Parboteeh, 2020); Seigried-Spellar & Lankord, 2018). Individuals are motivated by their choices, personalities, and socially recognized values from their surroundings. The Big Five Model of Personality Traits by McCrae and Costa (1987) has emerged as a breakthrough in the field of personality. It includes five unique factors, defined as Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The correlation found by analyzing personality traits and a wide variety of variables can be important and valuable for research to predict future behavior by individuals.

The attribute of openness to experience refers to individuals actively searching out unusual or even entirely new experiences, with a proper propensity to enjoy different ideas and methodologies (McCrae and Costa 1987; Giluk and Postletwaite, 2015). A study by Parks-Leduc, Feldman & Bardi, (2015) and Giluk and Postlethwaite, 2015) indicates a finding that individuals with a "higher level of moral reasoning" are more open. In line with the study conducted by Jalal & Naveeda (2019), openness to experience and Islamic work ethics were found to have a positive relationship and become a significant new contribution to personality study and ethical behavior. Therefore, it can be hypothesized that:
H1a: There is a relationship between openness to experience and ethical behavior**.**

Conscientiousness is defined as the "tendency for individuals to be organized, goal-directed and followers of norms and rules (MacCann, Duckworth & Roberts, 2009). In line with Kalshoven et al. (2011), this personality attribute is divided into dependability and achievement, with the former referring to a person being profound, careful, responsible, and structured, and the latter referring to hard-working individuals who virtually always satisfy conditions and expectations. Moon, Khaltar, Lee, Hwang & Yim (2020) showed that conscientious persons tend to act ethically not only for themselves but also for the others around them. Likewise, Witt et al. (2002) proved that these individuals are inclined to take responsibility, while several other scholars (Roberts & Hogan 2001; Lodi-Smith & Roberts 2007; McFerran et al. 2010) linked them with general honesty and pro-social behavior and decisions. Therefore, it can be hypothesized that:
H1b: There is a relationship between conscientiousness and ethical behavior.

Scholars defined extraversion as the factor, which manifests as "confident self-expression, surgency, assertiveness, social extraversion, and power (John & Srivastava, 1999). There are a few reasons that enable scholars to agree that extraversion demonstrates a positive association with ethical behavior. First, extravert individuals experience less role ambiguity and stress than non-extraverts due to clear job objectives, higher job responsibilities, and greater clarity regarding work role expectations (Koodamara, Prabhu, Suhan & Narayanan, 2021; Rai & Kumar, 2012). Second, individuals with high levels of extraversion have good social networking with others as they are sociable, active, and positive (Servidio, 2019). These personality traits are likely to motivate them to be ethical. Third, extroverts tend to experience positive affect and demonstrate warmth, proactive and assertiveness (Helle, DeShong, Lengel, Meyer, Butler & Mullins-Sweatt, 2018). Fourth, extravert individuals, are likely to display a higher sense of security because of their proactive nature. Therefore, it can be hypothesized that:
H1c: There is a relationship between extraversion and ethical behavior

Agreeableness refers to a person having qualities like cooperativeness, self-sacrifice, trust and good-naturedness (Costa & McCrae, 1992). Scholars posit that agreeableness is positively associated with the ethical behavior of employees (Anwar & Shah, 2019; Bhat & Bhat, 2018; Deng & Qian, 2017) because of some theoretical justifications. First, prior research showed evidence of a positive relationship between agreeableness and job performance (Koodamaran et al., 2021). Moreover, agreeable individuals may justify ethical behavior due to their strong desire to build a positive relationship with others and therefore, they tend to avoid conflict (Simha & Parboteean, 2019). Consequently, the present hypothesis has been developed:
H1d: There is a relationship between agreeableness and ethical behavior

The last personality trait is neuroticism. Neuroticism individuals display irrational ideas, and they become less creative than emotionally stable individuals (Rothmann & Coetzer, 2003). Neuroticism is negatively related to managerial performance because those who are neurotic poorly cope with stress. Prior research has also shown that neuroticism is negatively associated with trust because neurotic individuals are

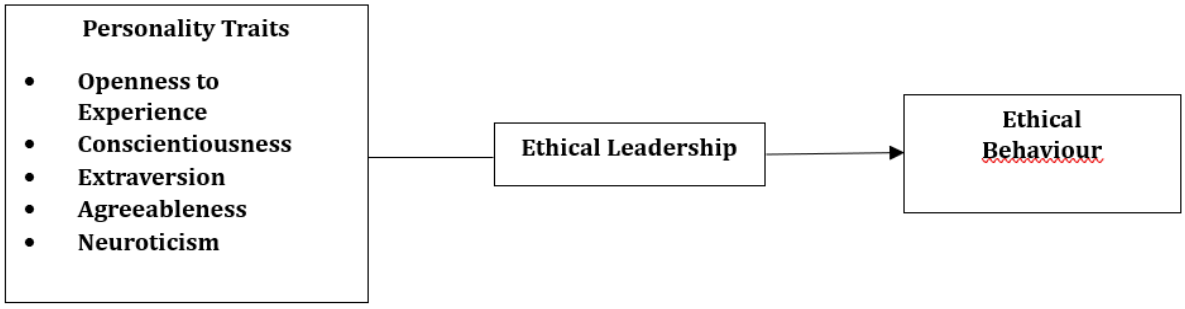
emotional, and therefore, they may not familiarize themselves with a social community (Bhagat, Wu & Chang, 2019). Further studies have also shown that there is a positive association between neuroticism and unethical behavior such as plagiarism, fraud, or misconduct among employees (Niederhauser, 2019; Helle et al. 2018). Therefore, the present hypothesis has been developed:
H1e: There is no relationship between neuroticism and ethical behavior.

Ethical Leadership: The ethical quality of leadership is regarded to be particularly essential since such qualities are expected to have a favorable impact on organizational behavior (Trevino et al., 2014; Brown et al., 2006). Previous research has demonstrated that ethical leadership affects organizational citizenship behavior (OCB), organizational commitment (OC), supervisor satisfaction, and perceived leader effectiveness (Shahzad, Raja & Hashmi; 2021; Tuffley, David & Antonio, 2017; Walumbwa and Schaubroeck, 2009; Ozbag, 2016; De Hoogh & Den Dartog, 2008). Due to the leader's ability to influence employee and organizational behavior, it is crucial to comprehend the personality characteristics linked with ethical leadership. More recently, several studies have linked personality traits and attributes to leader ethical behavior, providing a substantial empirical foundation for the argument that traits do matter in the prediction of ethical leadership phenomenon (Kalshoven et al., 2011). Based on this idea, in this study, five factors of the personality model are used as a base to link to personality characteristics of ethical leadership. The Big Five taxonomy comprising extraversion, agreeableness, openness to experience, conscientiousness, and neuroticism is one of the most researched and well-established taxonomies of personality (Aydogmus, Camgoz, Ergeneli & Ekmekci, 2018). In addition, personality traits have remained central in predicting the leadership style of an individual. Based on this justification, this research employs this taxonomy to investigate its impact on ethical leadership.

The Mediation Effect of Ethical Leadership between the Relationship of Personality Traits and Ethical Behaviour. Ethical leaders are predicted to deliver ethical direction to employees. These employees imitate such behavior by observing their leader's role-model actions, decisions, and subsequent consequences. This is since, ethical leaders integrate ethical concepts with leadership skills and place a high priority on accomplishments to promote ethical actions that contribute to the organization's achievement (Talib, Bibi & Zamzam, 2019). It has been stated that in the organization, ethical leadership becomes more visible to followers when they are seen to set laws and regulations and develop behavioral expectations. Attitudes of followers then will be influenced by how they perceive their leader's approach and react to this. As a result, ethical leaders act as a mechanism to develop an ethical climate and direct the behavior of followers to be ethical. Thus, the following hypothesis is proposed:
H2: Ethical leadership will mediate the relationship between personality traits and ethical behavior.

Research Framework: Figure 1 presents the summary of the relationship between personality traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism). The indirect path relationship explains the mediating effect of ethical leadership on the relationship between personality traits and ethical behavior.

Figure 1: Conceptual Framework



3. Research Methodology

This study employed purely quantitative research. The target population of this study involves police members in Bukit Aman Royal Malaysia Police Headquarters, Kuala Lumpur, and Selangor Contingent Police Headquarters. The sampling frame for this study is the total number of police according to rank. The purposive sampling technique is used to gather 250 respondents as the study's sample. Non-commissioned police officers are selected to participate in the survey. This study will use questionnaires as survey instruments. Instruments are adapted from the previous study. The Big Five Personality Traits by John & Srivastava (1999) will be used to measure personality traits. Meanwhile, the Ethical Leadership Scale by Brown et al., (2005) will be used to assess the mediating effect and instrument to examine ethical behavior adapted from Ferrel & Gresham (1985). The self-administered questionnaire will be distributed among police officers via hand and post to collect the data. Participants will be invited via email through the Corporate Communication Division, Bukit Aman Police Headquarters, Kuala Lumpur. The email included the intention of the study together with an attachment of research ethics approval. Consent forms for participants will be collected before the survey is conducted.

4. Results and Discussion

The result of this study will make several noteworthy contributions to understanding the personality influence on the ethical behavior of police officers. There is a scarcity in the literature pertaining to individual factors (specifically personality) influencing positive behavior (ethical behavior) among the police. The abundance of past studies examines the influence of personality traits on the negative behavior of the police such as police misconduct, police brutality, and police corruption (Schwartz, 2020; Malik &Qureshi, 2021; Hong, 2017). Apart from that, the Big Five dimensions of personality traits remain underexplored in a policing context. Moreover, in addition, most of the past research associates personality traits with the output of job satisfaction, job performance, job stress and police performance (Hussain, Majeed & Husain, 2023; Petasis & Economides, 2020; Batilmurik, Sudiro, Noermijati & Rohman, 2020; Massod, Rafique, Qaisar & Musarat, 2017) making the individual output remain under investigate. Finally, this study will provide a new perspective on nurturing positive behavior by employing the dimension of Big Five personality traits and will be an alternative technique to sustain the ethical behavior of police officers by utilizing mechanisms in the psychological dimension of personality.

5. Managerial Implications and Recommendations

This study will have some valuable implications for organizations, HR practitioners, and policymakers with respect to the selection, training, and development of police officers. Police institutions should pay special attention to the aspect of ethics and morality of police in the initial stage of recruitment. All applicants can be given a series of personality tests to assess their temperament and personal values. The results from the personality test can be utilized to reveal personality patterns and are useful in recruiting new police officers. Additionally, this study provides a baseline on matching personality traits and expected behavior of police officers. Besides that, personality assessment provided in training can enhance knowledge of ethics and professionalism in policing and foster the development of new initiatives to promote more ethical behavior and decision-making. Future research on personality may investigate the distinct aspects of police personality of new recruits from the alpha generation and compare the distinction of their personalities to create a new mechanism that suits them in nurturing ethical behavior. Furthermore, dyadic research is recommended to allow the researcher to investigate and compare the influence of the leader's response and the subordinate response regarding ethical conduct, which is very relevant for the study of ethical behavior.

Conclusion: In conclusion, the purpose of this study is to investigate the influential factors that contribute to the ethical behavior of police officers in the Royal Malaysia Police Force. This study examines personal characteristics (personality traits) and their relationship to ethical behavior using SCT as the underpinning theory. Furthermore, the effect of ethical leadership as a mediator between the relationships of personality traits has been investigated. This study's population consists of police officers from Kuala Lumpur and Selangor. Data were collected via a self-administered questionnaire that was physically distributed to the appointed officer in charge, and permission to conduct a survey was granted by the Bukit Aman Police

Headquarters in Kuala Lumpur. The result of this study will contribute to the literature in the policing context and become an alternative technique to sustain ethical behavior by utilizing the psychological dimension of an employee's personality.

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Money Management Behavior among Adults in Indonesia

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Abstract: Money management refers to the process of managing one's financial resources effectively to maintain a stable financial position. This study was conducted to determine the factors that influence money management behavior. Questionnaires are distributed among adults in Indonesia and analyzed by using IBM SPSS software. The result found that financial literacy, financial behavior, social media, parental education, and spiritual intelligence have a significant and positive influence on money management behavior. Clear insight into the importance of saving can lead to better money management behavior. The findings indicate that more efforts should be made to inculcate money management behavior among Indonesian citizens.

Keywords: *Money Management Behavior; Spiritual Intelligence; Financial Literacy; Financial Behavior; Social Media; Parental Education; Indonesia.*

1. Introduction and Background

Money, in its essence, is a universal-recognized and accepted medium of exchange that serves as the lifeblood of modern economic systems. It is an indispensable tool that facilitates the exchange of goods, services, and resources, enabling economic transactions and fostering economic growth. Money is considered as a limited yet critical need of resources (Md Kassim et al., 2022). Beyond its economic functions, money can drive ambition, entrepreneurship, and innovation, while its absence or scarcity can lead to financial stress, inequality, and social unrest. Moreover, money affects human behavior, influencing spending patterns, consumption choices, and the overall well-being of individuals and communities. Therefore, money needs to be managed well for people to fulfill their needs. By referring to Sundarasen et al. (2016), money management can be defined as the ability of an individual to recognize, analyze, manage, and discuss personal funds as to gain financial well-being.

Money management is about making informed judgments to allow effective decisions in terms of utilizing and managing money (Komal et al., 2017). When an individual faces money problems, it will surely have an impact on social issues such as theft, gangsterism, drugs, and even suicide (Kurukullam, 2019). Hence, money management among adults is one of the critical agenda that we must focus on. This study was conducted as to determine the factors that affect money management behavior among adults in Indonesia. It provides a clear platform to determine whether financial literacy, financial behavior, social media, parental education, and spiritual intelligence are the contributing factors that affect adults' money management behavior.

2. Literature Review

Theoretical Framework for Money Management Behavior: The traditional microeconomic approach to saving and consumption choices assumes that a completely rational and well-informed person will spend less than his income at times of high salary/wages to have more savings during challenging times (for instance, after retirement). According to Modigliani and Brumberg (1954) and Friedman (1957), an individual is assumed to set up his ideal saving and decumulation patterns to smooth marginal utility over his lifetime.

Money Management Behavior: Money management behavior includes a wide set of actions related to the administration of budget, such as spending, saving and investing. Many economic and sociopsychological factors, which reflect human priorities, preferences, and personality qualities, have an impact on this behavior (Onofrei et al., 2022). Effective money management not only empowers individuals to meet their immediate financial obligations but also lays the groundwork for future financial security and prosperity. It

involves making informed choices about spending, saving, and investing, with an emphasis on balancing short-term desires with long-term financial goals.

A healthy money management behavior can be reflected based on the attitude of an individual in managing incoming and outgoing money and managing loans as well as investments (Herawati et al., 2018). Hence, by cultivating healthy financial habits and exercising discipline and prudence in managing money, individuals can reduce financial stress, build an emergency fund, achieve financial independence, and plan for a comfortable retirement.

Young adults must manage money as it could help to positively improve their financial well-being, especially in lowering their high debts (Waranyasathid & Htin, 2020). Sundaresan et al. (2016) also mentioned that financial literacy contributes to the financial freedom of an individual apart from having an impact on money management behavior.

Financial Literacy: To make wise financial decisions and eventually achieve individual financial well-being, a person has to have a mix of awareness, knowledge, skills, attitudes, and behaviors known as financial literacy (Sugiharti & Maula, 2019). Financial literacy enhances the financial development and economic growth of a country. Those individuals who have a higher amount of fiscal proficiency will have the ability to understand the importance of reserve funds (Zulfaris et al., 2020).

Financial literacy had an impact on money management. The application of financial literacy to personal financial management makes people wiser in dealing with personal finances (Rosa & Listiadi, 2020). Those who have strong financial literacy can make it easier for people to make financial decisions. In the era of stagflation as today, we are always involved in complex financial decision-making. Those who have a lack of understanding of the situation will be haunted by various financial problems such as having high debt that cannot be repaid as well as having no social security (Md Kassim et al., 2019). Therefore, since every individual has responsibilities toward financial security, financial literacy itself is deemed to be very important during this current era.

Individuals with financial literacy have a better awareness of money management and are financially independent. Financial illiteracy also has an impact on society since financially literate people would have effective spending, better financial planning, able to control expensive borrowing and better debt management (Waranyasathid & Htin, 2020; Lusardi, 2019). Based on this discussion, this study hypothesizes the following:
H1: Financial literacy has a significant effect on money management behavior among adults.

Financial Behavior: Financial behavior is a result of one's financial knowledge and self-confidence (Ramalho & Forte, 2022). It includes investment behavior, savings behavior, credit usage, and expenditure behavior (Rahman et al., 2021). Every individual's financial behavior is important since it has a direct impact on that person's capacity to meet expectations (Arofah et al., 2018). Hence, financial responsibility can be increased through improving an individual's behavior. Responsible financial behavior includes creating a budget, setting aside funds for savings, controlling spending, investing, and fulfilling financial obligations on time (Susanti et al., 2017).

A positive attitude towards money will assist people to make better financial decisions which eventually demonstrate a better way of managing money (Hidayat & Nurdin, 2020). An individual with good financial behavior will consider the future impact, be able to positively manage their financial situation, prioritize their money in accordance with their needs, equally balance their income and expenses, set aside some cash for savings and investments, and make the appropriate capital structure decisions. Based on this discussion, this study hypothesizes the following:
H2: Financial behavior has a significant effect on money management behavior among adults.

Social Media: Members of the millennial generation have turned social media into an important medium for numerous purposes (Yanto et al., 2021). They are highly dependent on internet technology (Kurnia, 2020). In Indonesia, the number of users of social media is increasingly higher which makes social media deemed to be

necessarily important (Pertiwi, 2019). Social media enables users to interact socially without regard to time, location, or distance using the internet network (Oktaviani, 2019). In addition to purchasing featured products or observing the design and layout of displayed advertisements, consumers may occasionally use social media to gain financial knowledge.

Social media has a positive influence on consumer behavior (Godey et al., 2016). It affects an individual's financial attitude (Trisuci & Abidin, 2022; Yanto et.al, 2021). Besides, social media significantly influences teenagers to invest (Ladamay et al., 2021). This demonstrates that a person's urge for consumption will rise with the intensity of their social media use. The results from these studies can be used as the basis for the following proposition:
H3: Social media has a significant effect on money management behavior among adults.

Parental Education: Parents should play important roles in the financial socialization of their children as to ensure that they have good financial behavior (LeBaron et al., 2020). The impact of parental socialization is more evident when the children who have been educated to save money from younger days, learn and broaden that behavior until they are adults (Kadir & Jamaluddin, 2020).

The parent factor method reflects the awareness and closeness of the parents towards their children (Alekam et al., 2018). Parents' money management behavior can have a significant impact on how their children behave as consumers. The most effective socialization agent for shaping children's behavior is their family (Herawati et al., 2018). The children's financial behavior improves with the parents' socioeconomic standing. Money management and family financial education are connected through financial literacy (Fajriah & Listiadi, 2021). Individuals' financial literacy facilitates the interaction between family financial education and early acquired financial literacy, allowing for the effective application of this knowledge in their money management behavior. Parents can assist in directing their emerging adult children toward financial stability and independence by calculating suitable methods for earlier family financial discussions which can help to make them ready for financial survival (LeBaron et al., 2020).

Parents should oversee the financial difficulties of their children and assist them on how to cope with the financial issues (Mien & Thao, 2015). Being blessed with parents and family members who are close to the children, can facilitate and assist them to handle their spending income, investment, and saving effectively (Bamforth et al., 2018). Md Kassim et al. (2021) encouraged parents to teach and motivate children to manage and master how to save money from a younger age. Based on this discussion, this study hypothesizes the following:
H4: Parental Education has a significant effect on money management behavior among adults.

Spiritual Intelligence: An individual's capacity to comprehend the significance of life as it is lived in society is referred to as spiritual intelligence. If an individual has spiritual intelligence, they will usually have flexibility when tackling any issues in life. Positive attitudes including a sense of duty, independence, and honesty in all actions are characteristics of those with spiritual intelligence. Hence, it stands to reason that someone with spiritual intelligence ought to be able to handle their money wisely (Hariani & Andayani, 2019).

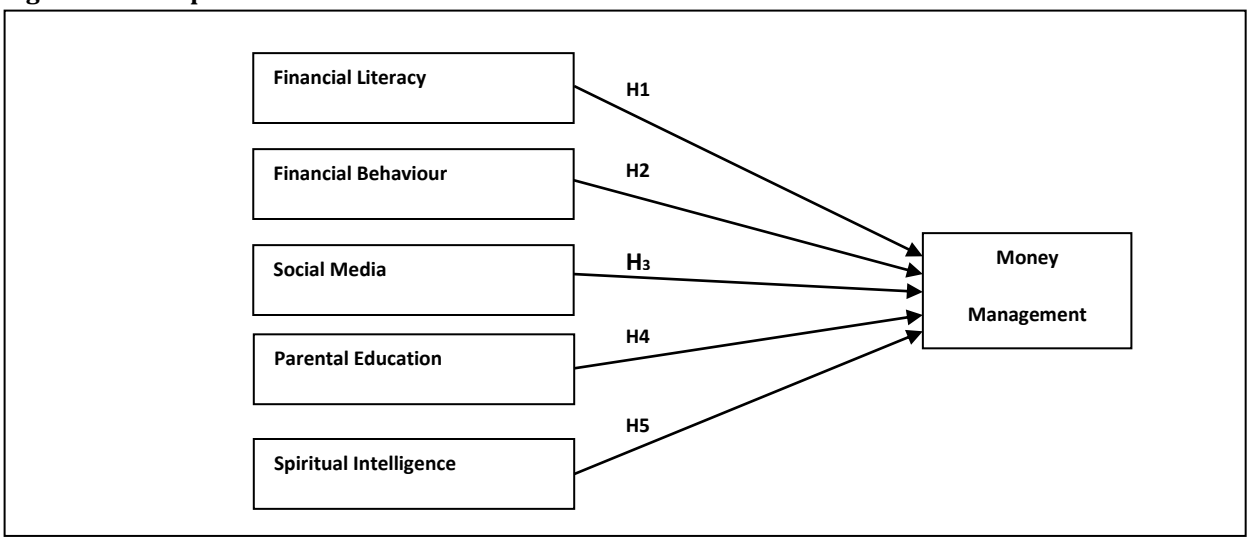
Spiritual intelligence can assist an individual with critical reasoning. Spiritual intelligence can develop an individual to have a more comprehensive, and meaningful purpose for himself. Demonstrating spiritual intelligence in managing family finances ensures a positive attitude which includes responsibility, autonomy, integrity, and maximization of financial freedom (Faridawati & Silvy, 2019).

Money management is significantly influenced by spiritual intelligence (Parmitasari et al., 2018). With the presence of all signs of spiritual intelligence within an individual, it will eventually form strong financial management abilities. In addition, every person should possess a strong spiritual intelligence as this ensures that they make informed decisions when it comes to financial well-being (Hariani & Andayani, 2019). Spiritually intelligent individuals are typically skilled at showing gratitude and selflessness. To accomplish a more fulfilling life goal, every individual is expected to be able to manage and optimize the values of wisdom

in financial management. The results from previous studies can be used as the basis for the following proposition:
H5: Spiritual Intelligence has a significant effect on money management behavior among adults

Conceptual Framework: Figure 1 portrays the proposed framework for factors influencing money management behavior among adults in Indonesia.

Figure 1: Conceptual Framework



3. Research Methodology

Overview of Research Design: This study is an explanatory study on the factors influencing money management behavior among adults in Indonesia. The quantitative method is employed by past researchers as these empirical assessments consist of numerical measurement and analysis. To test the relationship between the adults' money management behavior and the five factors influencing it (financial literacy, financial behavior, parental education, social media and spiritual intelligence), a deductive approach will be adopted by conducting research, based on the existing theories and research.

Data Collection Procedure: The sampling frame of this study is adults in Indonesia between the age of 25 – 55. In collecting the data, the study was based on the convenience sampling method which refers to those who are conveniently available to respond (Bougie & Sekaran, 2019). According to Statista Research Department (2023), in the year 2021, the total population of adults in Indonesia comprised over one hundred and eighty-three (183) million which approximately contributes around sixty-six (66) percent of its total population. Surprisingly the Gross Domestic Product (GDP) per adult in Indonesia approximately amounting to six thousand (6000) U.S. dollars in that particular year.

A total of 408 valid questionnaires were obtained from the survey, which is equivalent to 91 percent out of 450 targeted respondents. The total of 408 respondents is considered to be representative and sufficient at a 95-confidence level for the population range of 10,000,000 to 100,000,000. Furthermore, it is also recommended a minimum size of 250 respondents for research that has about three to six variables. Hence, based on recommendations from previous research, it seems the sample size obtained from this research study can be considered sufficient.

Survey Instruments: The questionnaire consists of two (2) parts. Section A contains general questions related to age, gender and education level. Part B consists of items related to financial literacy, financial behavior, parental education, social media and spiritual intelligence and money management behavior. All items are based on a five-point Likert scale whereby (1) denotes as "strongly disagree" to (5) "strongly agree".

The constructs for each variable are adapted from past studies. Financial literacy and financial behavior variables consist of six (6) and five (5) statements respectively which were designed by Bona (2018). The social media variable consists of five statements which were adapted from Cao et al. (2020). The parental education variable consists of five statements which were adapted from Husnawati (2017). While for spiritual intelligence variable, consists of five statements which were designed by Susanti (2021).

Research Model: To further investigate the linkages between financial literacy, financial behavior, parental education, social media and spiritual intelligence toward money management behavior, a standard multiple regression model was adopted in this research analysis. The regression model is defined based on the following equation: $Y = \alpha + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + e$

Where:
Y = money management behavior among adults in Indonesia, X1 = financial literacy, X2 = financial behavior, X3 = parental education, X4 = social media and X5 = spiritual intelligence. The study predicts that β1, β2, β3, β4 and β5 have a positive association with money management behavior.

Preliminary analysis was conducted to test the reliability of each scale by calculating Cronbach's alpha for each item separately. The reliability coefficient test portrays how well the items positively correlated with one another as highlighted by Bougie and Sekaran (2019). According to Hair et al. (2019), the construct is considered reliable when Cronbach's alpha value is at 0.7 and above. The study shows that the lowest Cronbach's alpha is at 0.777 and the highest value is at 0.911, which indicates a high level of internal consistency. Hence, the internal consistencies are considered acceptable as the values exceed the suggested threshold.

4. Results and Discussion

Descriptive Statistics: Table 1 summarizes the demographic characteristics of the respondents based on the following profiles such as gender, age and education level. The result indicates that the respondents are majority females (73.0%) compared to males (27.0%). As for age, most of the respondents are between 31 – 55 years old (67.0%) and 25-30 years old (33.3%). Table 1 also shows the education level of each respondent whereby most of the respondents are Degree holders (65.2%), Diploma (25.3%), Foundation (5.6%) and Master/Ph.D. holders (3.93%).

Table 1: Respondents' Profile

Profile	Characteristics	Frequency	Percentage
Gender	Male	110	27.0
	Female	298	73.0
	Total	**408**	**100.0**
Age	25 – 30	135	33.3
	31 – 55	273	67.0
	Total	**408**	**100.0**
Education Level	Foundation	23	5.6
	Diploma	103	25.3
	Degree	266	65.2
	Master/PhD	16	3.93
	Total	**408**	**100.0**

Factors Affecting Money Management Behaviour: This section discusses the findings of the study which is to identify the factors that may influence money management behavior among adults in Indonesia.

Table 2: Factors Influencing Money Management Behaviour

Variable	B	Beta	t-statistics	Sig.
Constant	1.583		2.052	.041
Financial Literacy	0.228	0.268	6.502	.021
Financial Behaviour	0.175	0.178	4.298	.030
Social Media	0.153	0.199	6.339	.036
Parental Education	0.208	0.192	5.642	.017
Spiritual Intelligence	0.355	0.241	8.289	.038

By Referring to Table 2, financial literacy is statistically significant and has an impact on money management behavior ($t = 6.502$; $p < .05$). Therefore, this finding leads to the acceptance of H1. This indicated that financial literacy significantly influences the money management behavior of adults in Indonesia. Perhaps, students who have significant knowledge of finance are more likely to have the ability to realize the importance of saving. This result is consistent with previous studies such as Md Kassim et al. (2020) whereby they suggested that financial literacy is essentially related to students' saving behavior. In addition, various discoveries, for instance, Hamid and Loke (2021) suggested that financial literacy helps students with money management skills, especially in reducing overspending and impulsive buying, especially for wants' products rather than needs' products.

Next, the result shows that there is a positive association between financial behavior and money management behavior ($t = 4.298$; $p < .05$). Therefore, this finding leads to the acceptance of H2. This indicated that financial behavior significantly influences the money management behavior of adults. Perhaps, appropriate financial behavior helps to reduce overspending on unnecessary and irrelevant items and subsequently assists in saving more money in the future. This result is similar to the finding in a previous study conducted by Hidayat and Nurdin (2020). They showed that an appropriate attitude towards money will help an individual to make better financial decisions, which provides a better way of approaching money. The presence of a high level of financial behavior can help to control an individual's desires, maintain self-discipline, and delay gratification within them.

Following that, H3 was also supported as social media has significantly influenced money management behavior among adults in Indonesia ($t = 6.339$; $p < .05$). This finding indicates that social media influences money management behavior. Supported by a previous study conducted by Yanto et al. (2021), social media also positively influenced an individual's financial attitude. Ladamey et al. (2021) also suggested that social media significantly affected teenagers in Jakarta, especially in investment decisions.

Next, hypothesis H4 was also supported as parental education significantly influences money management behavior among adults in Indonesia ($t = 5.642$; $p < .05$). This finding indicates that adults in Indonesia perceived parents to influence their money management behavior. Due to the diverse backgrounds of parents as well as different income groups, parents' involvement in mentoring financial skills was strongly related to the money management behavior of adults during their younger age. In addition, for many young adults, leaving home is an indicator of financial independence or a transition to financial independence. This result supported a previous study by Alekam et al. (2018) whereby parents' money management behavior can have a significant impact on how their children behave as consumers. Herawati et al. (2018) further supported that the most effective socialization agent in shaping an adult during their young age is their family.

Finally, the result of this study shows that the association between spiritual intelligence and money management behavior is evidently positive ($t = 8.289$; $p < .05$) and it is statistically significant at a 1% level. Therefore, this finding leads to the acceptance of H5. This indicated that spiritual intelligence significantly influences money management behavior among adults in Indonesia. The reason is that spiritual intelligence presence within an individual will eventually form strong financial management abilities. Every individual is expected to be able to manage and optimize the values of wisdom in managing their finance.

5. Conclusion

Practicing and implementing good money management practices can be extremely challenging. This study provides empirical insight by identifying whether financial literacy, financial behavior, social media, parental education, and spiritual intelligence are the contributing factors that affect adults' money management behavior. This study proves that spiritual intelligence has the highest score and is considered as the most significant determinant in accommodating adults' money management behavior.

Further, this study also evidently proves that financial literacy is one of the contributors to shaping adults' money management. The importance of being financially literate consistent with the previous study conducted by Md Kassim et al. (2022), Hamid and Loke (2021), Waranyasathid and Htin (2020), and Lusardi (2019). Due to this, it is crucial for financial education in early adults to embed financial literacy as part of the curriculum at all levels of education in Indonesia. Having proper financial literacy among adults will eventually help them to make informed judgments in their financial decisions, especially in saving money. Financial illiterate would lead to financial problems when younger adults are unable to manage their income, savings, as well as their credit efficiently in the future. Therefore, as to overcome all these issues, it is important to focus on personal financial education in the education system in Indonesia.

Based on this study, also indicates that other factors also influenced money management behavior such as financial behavior, parental education, and social media. Due to this, more efforts need to be implemented especially by each of the individual adults, the government, parents, and educators. More campaigns on the awareness of saving and financial literacy, as well as financial management workshops, are encouraged to be organized. Having those activities will surely assist in creating awareness of the importance of saving money. Given the evidence portrayed in this study, a lot of mediums are available for future research. The study would be enhanced if included gender, age, locality, and level of study as the moderating variables.

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Management of Gamified Lesson: Understanding Aesthetics and Acceptance among Learners

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Abstract: Joyful learning evokes happy feelings and subsequently induces positive academic achievement. With the rise of mental health issues due to intense study among students, gamification has recently grown in popularity among academic institutions to make learners happier, more engaged and ultimately improve learning outcomes. However, the management of gamified lessons has been a problem for years for all education levels on a varying basis. Nowadays, it is increasingly recognized that not all learners are acceptive of gamified lessons for learning. Drawing on a survey of 283 students of higher learning institutions, this study found that aesthetics, perceived ease of use, perceived usefulness and perceived enjoyment have a favorable impact on the intention to accept gamification in learning among learners. This study is contributing to under-investigated scholarly works of suitable conditions under which gamified lesson best takes place with regards to aesthetic and learners' acceptance that would be beneficial for effective management of gamification.

Keywords: *Gamification Acceptance, Aesthetics, Perceived Ease of Use, Perceived Usefulness, Perceived Enjoyment.*

1. Introduction

Previously academic lessons in learning institutions were held in and outside the classroom only. During the last couple of years, gamification has been the talk of the town as a means to support learning experiences for higher education institutions (Alhammad & Moreno, 2018). Gamification in education involves incorporating game elements into learning (Swacha, 2021). Kahoot, Duolingo, Brainscape and Virtual Reality are some of the gamification tools used in academic courses from elementary, primary school and secondary schools up to higher learning institutions. According to Khaldi et al. (2023), gamification promotes "desired behaviors of less distraction and better involvement in the course". A study conducted by Murillo-Zamorano et al. (2021) has shown that gamification encourages learners to be more active in learning. Students learning using game-based learning attain a new learning experience that improves their motivation and learning process (Alshammari, 2020) by putting forward "similar experiences as games" do (Huotari & Hamari, 2017). However, students have been found to discard game-based learning when it requires more time, effort and prefer minimal effort (Squire, & Barab, 2004). Gamification does not bring a similar effect to everyone (Gokuüna & Gursoy, 2019). Due to the fact that gamification largely depends on users and context (Hamari, 2013) and has been problematic in raising learners' attention to all fields of education, an understanding of game design aesthetics and learners' acceptance are the key factors towards successful gamification operationalization.

2. Management of Gamification in Teaching and Learning

Generation-based research acknowledges that "Generation Z, may require a new approach to learning than past generations" (Jones et al., 2007). Today's generation enjoys playing activities for learning and grows up playing more games compared with previous generations, it is apparent that the teaching and learning needs to be changed toward game-based delivery to better suit Gen-Z and the succeeding generation's way of life. Nowadays, gamification has an important position in the education setting to make learners engage and perform more profoundly in learning. Effective management of gamification is necessary, or otherwise, it could ultimately bring opposite learning outcomes to what was originally intended. However, there is still little focus given to the matter of whether all learners are acceptive of gamification in regard to game design (aesthetic). In common, pedagogy in many learning environments presumes that all learners have alike characteristics (Kamunya & Mirirti, 2020). Noticeably, there is no one-size-fits-all gamified lesson that

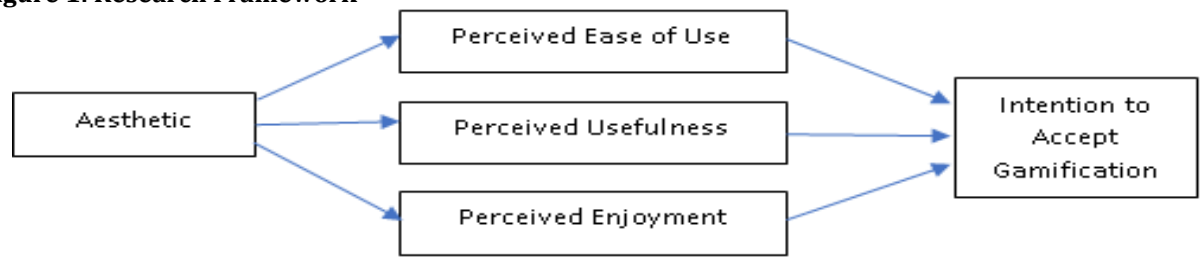
possibly works for all learners in real life. Some educational games developed are either too easy or too difficult (Verdugo & Belmonte, 2007) and students have been identified to reject gamified lessons when they require more time, effort and is preferring for minimal effort (Squire & Barab, 2004). According to Hamari (2013), gamification is largely depending on users and context. Yet most gamification projects are not working because user's personal needs are being given thought (Schöbel & Söllner, 2016). Conflicting needs among learners may cause some are accept gamification in learning and others to reject it, putting the success of gamification operationalization at risk. Further, the success of educational game applications is subject to their continued use (Bhattacherjee, 2001). However, Andrea et al. (2021) argue that there has been a problem in raising learners' attention to all fields of education. Therefore, understanding the aesthetic and learner's intention to accept gamified lessons in teaching and learning is deemed appropriate.

Underpinning Theoretical Framework: The acceptance of technology can be predicted by the Technology Acceptance Model (TAM) proposed by Davis in 1989. Perceived ease of use and perceived usefulness are the two most studied factors in understanding technology acceptance. Perceived Enjoyment is one of the additional recognized factors that also influence technology usage behavior. This study examining aesthetics as an additional variable is believed to contribute to gamification acceptance that has not been much explained by existing scholarly works. Previous research acknowledges that perceived ease of use is the key to acceptance. Perceived ease of use is the degree to which a person thinks using a specific system would be effortless (Davis, 1989). When people think that the technology is difficult, tiresome, or time-consuming, it is quite likely that they will reject the technology (Thong et al., 2002). People much likely prefer technology that is simple to use and requires little effort. Apart from perceived ease of use, perceived usefulness also is found impactful on people's acceptance behavior. According to Davis (1989), "perceived usefulness is the degree to which a person believes that employing a system would improve his or her ability to accomplish a job".

When people think that technology is benefiting them to carry out their tasks effectively and efficiently, most likely they will be more acceptive towards accepting of the technology. According to Lee and Lehto (2013), "intention to use and actual use of the technology of an individual is directly impacted by the perceived usefulness. Prior scholarly works had acknowledged factors other than perceived ease of use and perceived usefulness to explain people's behavior towards technology among others perceived enjoyment and aesthetics. Perceived enjoyment is the degree to which the activity of using the computer is seen as enjoyable independent of any predicted performance results (Park et al., 2012). The joyful feeling while learning using gamified lessons also impacts the decision to gamify. According to Wei et al. (2011), joyful learning makes students feel happy in the learning process. Meanwhile, the aesthetic is related to the individual's impression regarding the visual appearance of an interface (Rosmansyah et al., 2020). With previous scholarly work evidencing aesthetics able to affect learners' motivation (Farhan et al., 2019), a study on the relationship between aesthetics, perceived ease of use, perceived usefulness, perceived enjoyment, and acceptance towards gamification is deemed appropriate.

Research Framework: The Technology Acceptance Model (TAM) (Davis, 1989) has been used to predict the user's acceptance of new technology. Figure 1 illustrates the research framework developed to understand the intention to accept gamification among learners. In this study, Perceived Ease of Use (PEU) refers to a person's perception that using the game for learning will require minimal effort. Perceived Usefulness (PU) refers to the user's perception that the use of the technology could enhance their performance. Gamification Acceptance (GA) is the intention to accept gamification for learning. Aesthetic (AE) and Perceived Enjoyment (PE) are added to the framework to explain aesthetics and enjoyment associated with intention to accept gamification in learning.

Figure 1: Research Framework



Hypotheses: This study made attempts to examine the mediating factors of perceived ease of use, perceived usefulness, and perceived enjoyment in the relationship between aesthetics and intention to accept gamification in learning. Therefore, the following hypotheses were postulated; (i). **H1:** Aesthetic positively affects perceived ease of use, (ii). **H2:** Aesthetic positively affects perceived usefulness, (iii). **H3:** Aesthetic positively affects perceived enjoyment, (iv). **H4:** Perceived ease of use positively affects intention to accept gamification, (v). **H5:** Perceived usefulness positively affects intention to accept gamification, (vi). **H6:** Perceived enjoyment positively affects intention to accept gamification, (vii). **H7:** Perceived ease of use mediates the relationship between aesthetics and intention to accept gamification, (viii). **H8:** Perceived usefulness mediates the relationship between aesthetic and intention to accept gamification and (ix). **H9:** Perceived enjoyment mediates the relationship between aesthetics and intention to accept gamification.

3. Methodology

In this study, undergraduate students enrolled in a Bachelor of Business Administration program at a higher learning institution in Malaysia make up the study's population. Responses are obtained through judgmental sampling. Only student with prior experience in gamified lesson is eligible to be the respondent of the survey. The choice of judgmental sampling is appropriate as this study only obtained information from specific responses (Cavana et al., 2001). The questionnaire was divided into two sections. The first section comprised questions about the demographic details of the respondents. The second section was instruments that examined aesthetics, perceived ease of use, perceived usefulness, perceived enjoyment, and gamification acceptance in learning. Informed consent was obtained from all students after ethical approval from the university ethics committee.

4. Data Analysis

Demographic: A total of 283 questionnaires were collected through an online survey. Table 1 represents the respondents' demographic profile in terms of gender, age and academic year. The respondents of this study comprised 73.1 % female and 26.9% male. The majority of the respondents were aged between the age of 21 to 24 years old and were studying in Year 1.

Table 1: Respondent Demographic

Demographics	Respondents (n=283)	Percentage (%)
Gender		
Male	76	26.9
Female	207	73.1
Age		
20 years old and below	96	33.9
21-24 years old	184	65
25 years old and above	3	1.1
Year		
Year 1 (Part 1 and 2)	136	48
Year 2 (Part 3 and 4)	75	26.5
Year 3 (Part 5 and 6)	72	25.5

Partial Least Squares Structural Equation Modelling: Structural Equation Modelling Partial Least Square (SEMPLS) was used to predict the relationship between variables and test the study hypotheses (Hair et al., 2019).

Measurement Model: The assessments of the measurement model involving internal consistency (reliability), convergent validity (loading ≥ 0.7 and average variance extracted ≥ 0.5), composite reliability (≥ 0.7) and discriminant validity for the indicators (Hair et al., 2017).

Figure 2: Measurement Model

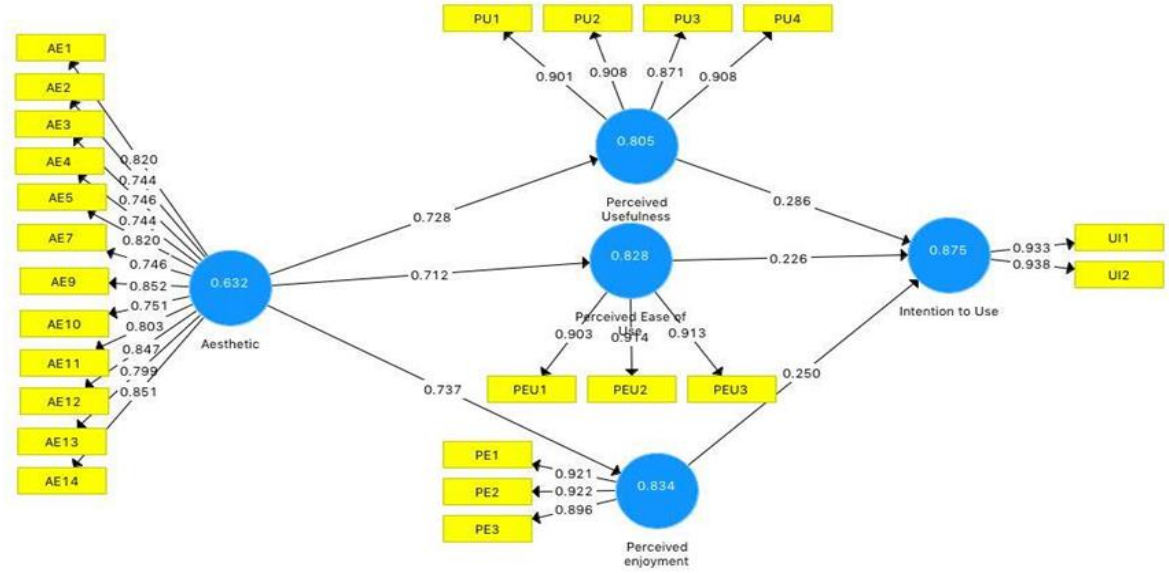


Table 2: Measurement Model

Construct	Items	Loadings	CR (>0.7)	AVE (>0.5)
Aesthetic	AE1	0.82	0.954	0.632
	AE2	0.744		
	AE3	0.746		
	AE4	0.744		
	AE5	0.82		
	AE7	0.746		
	AE9	0.852		
	AE10	0.751		
	AE11	0.803		
	AE12	0.847		
	AE13	0.799		
	AE14	0.851		
Perceived Enjoyment	PE1	0.921	0.938	0.834
	PE2	0.922		
	PE3	0.896		
Perceived Ease of Use	PEU1	0.903	0.935	0.828
	PEU2	0.914		
	PEU3	0.913		
Perceived Usefulness	PU1	0.901	0.943	0.805
	PU2	0.908		
	PU3	0.871		
	PU4	0.908		
Intention to Accept Gamification	GA1	0.933	0.933	0.875
	GA2	0.938		

Discriminant validity was assessed based on the HTMT criterion suggested by Henseler et al. (2015) and Franke and Sarstedt (2019). A stricter criterion is denoted by an HTMT value of ≤ 0.85, whereas a lenient criterion is denoted by ≤ 0.90. Table 3 shows that all the HTMT values were lower than ≤ 0.85; hence, signaling these five constructs are easy to understand by the respondents and the measurement items for all constructs are valid and reliable.

Table 3: Discriminant Validity

Construct	Aesthetic	Intention to Accept Gamification	Perceived ease of use	Perceived usefulness	Perceived enjoyment
Aesthetic					
Intention to Accept Gamification	0.695				
Perceived ease of use	0.768	0.71			
Perceived usefulness	0.78	0.712	0.846		
Perceived enjoyment	0.793	0.69	0.781	0.755	

Structural Model: Next, the structural model was assessed to determine the accuracy of the model's estimations and the significance of the hypothesized variables' relationships. According to Hair et al., (2019) suggestion, the path coefficients, standard errors, t-values, and effect size (f^2) of the structural model were tested through a bootstrapping procedure of 5,000 samples. R^2 values of 0.26, 0.13 and 0.02 indicate substantial, moderate, and weak explanatory power of the model (Cohen, 1992). The results in Table 4 revealed R^2 values of 0.506, 0.529 and 0.542 representing 50.6 percent of the variance in perceived ease of use (PEU), 52.9 percent of the variance in perceived usefulness (PU) and 54.2 percent of the variance in perceived enjoyment (PE) is explained by aesthetic (AE). With regards to gamification acceptance (GA), the result of R^2 showed that 46.8 percent of the variance is explained by all three mediators (PEU, PU and PE) and thus presented substantial explanatory power of the model for all constructs.

With regards to the effect size (f^2), the values of 0.02, 0.15 and 0.35 represent small, medium, and large (Cohen, 1992). Thus, the results show that aesthetics exerts a large effect on all three variables of perceived ease of use (PEU) (f^2 = 1.029), perceived usefulness (f^2 = 1.129) and perceived enjoyment (f^2 = 1.192). In contrast, those three variables (PEU, PU and PE) exert a weak effect on the intention to use with f^2 = 0.034, 0.057 and 0.054. For assessing the study hypotheses, the cut-off t-value of the one-tailed test for 5% (a = 0.05) significant level is 1.645 (Ramayah et al., 2018). Table 4 shows a summary of the hypothesized relationships among the constructs. Aesthetic positively affects perceived ease of use (β= 0. 712, t = 21.428, p < 0.01), perceived usefulness (β= 0. 728, t = 23.799, p < 0.01) and perceived enjoyment (β= 0.737, t = 21.747, p < 0.01). Thus, H1, H2 and H3 were supported. Additionally, perceived ease of use (β= 0.226, t = 2.896, p < 0.01), perceived usefulness (β= 0.286, t = 3.607, p < 0.01), and perceived enjoyment (β= 0.25, t = 3.364, p < 0.01), also significantly affect gamification acceptance and thus, H4, H5 and H6 were accepted.

Table 4: Direct Relationship

	Relationship	β	SE	*t*-value	LL	UP	f^2	Decision	R^2
H1	AE -> PEU	0.712	0.033	21.428	0.658	0.765	1.029	Supported	0.506
H2	AE -> PU	0.728	0.031	23.799	0.669	0.773	1.129	Supported	0.529
H3	AE -> PE	0.737	0.034	21.747	0.676	0.788	1.192	Supported	0.542
H4	PEU -> GA	0.226	0.078	2.896	0.094	0.352	0.034	Supported	0.468
H5	PU -> GA	0.286	0.079	3.607	0.162	0.422	0.057	Supported	
H6	PE -> GA	0.25	0.074	3.364	0.123	0.363	0.054	Supported	

Mediating hypotheses were examined by bootstrapping the indirect effect with 5000 resamples as suggested by Preacher and Hayes (2008). Table 5 presents a summary of all three mediating relationships. Overall, perceived ease of use (β= 0. 161, t = 2.865, p < 0.01), perceived usefulness (β= 0.208, t= 3.656, p < 0.01) and perceived enjoyment (β= 0. 185, t = 3.352, p < 0.01) mediate the relationship between aesthetic and

gamification acceptance. In addition, the 95% confidence intervals bias-corrected shows intervals extending over 0, which confirmed these results, and thus H7, H8 and H9 were supported.

Table 5: Mediating Relationship

Hypothesis	Relationship	β	SE	*t*-value	LL	UP	Decision
H7	AE->PEU-> GA	0.161	0.056	2.865	0.059	0.281	Supported
H8	AE->PU-> GA	0.208	0.057	3.656	0.121	0.357	Supported
H9	AE->PE-> GA	0.185	0.055	3.352	0.068	0.288	Supported

5. Discussion and Conclusion

Discussion: Gamification is all about fun. As the inclusion of game-based learning in higher learning institution settings is in its infancy phase, it is deemed appropriate to research what affects leaner's acceptance. In this study, the researchers investigate the effects of gamification design (aesthetic) on learner's perceived ease of use, perceived usefulness, perceived enjoyment, and subsequent intention to accept game-based learning. Via an online survey among 283 students of higher learning institutions, the result indicates that aesthetics is a motivator for accepting gamification in the context of learning. In the academic setting, gamification is aimed at assisting learners towards better learning experiences, greater learning satisfaction, and higher engagement. In this study, AE is found to have positive effects on PEU (β= 0. 712, t = 21.428, p < 0.01), implying that the design of the game influences the degree to which learners believe that using the game for learning would be free from effort. AE is found to have positive effects on PU (β= 0. 728, t = 23.799, p < 0.01), denoting that the design of the game influences the degree to which learners believe that using the game for learning would enhance learners' performance. AE too is found to have a positive effect on PE (β= 0.737, t = 21.747, p < 0.01), implying that the design of the game influences the degree of fun experienced by learners. Further, PEU has a positive effect on GA (β= 0.226, t = 2.896, p < 0.01), which implies that the degree to which learners believe that learning using gamification is effortless and important in influencing them to accept game-based learning.

Other than PEU, PU also exerts a positive effect on GA (β= 0.286, t = 3.607, p < 0.01), denoting that the degree to which learner believes that using gamification for learning would enhance his/her academic performance, influences the degree to acceptance among learners. This result is consistent with the positive effect of PE on GA (β= 0.25, t = 3.364, p < 0.01), denoting that the degree of fun and pleasure experienced by users influenced the degree of acceptance among learners. To sum up, this study shows that AE, PEU, PU and PE significantly and positively affected GA among the learners, confirming acceptance towards gamification (GA) among learners in higher learning institutions largely depending on the studied variables above. All findings are aligned with past studies that indicate gamification improves student enjoyment (Forndran & Zacharias, 2019) and that a good aesthetic design can enhance the users' acceptance of online learning (Farhan et al., 2019; Korableva et al., 2019). The study provided evidence that learners are acceptive of gamified lessons when the game designs are simple, purposeful and amusing. As such learning institutions should critically take into consideration the circumstances of game elements when designing teaching and learning activity. This study was limited to understand the management of gamified lessons from a student perspective whereas effective teaching and learning through gamification is only possible when the right pedagogy, skillful educator, conducive learning environment and many more factors take place.

Conclusion: Although gamification is publicly recognized for delivering better learning experience**s**, engagement, and academic performance, the notion can only be real, if the learners are acceptive to the game-based learning. To sum up, learning institutions must place more focus on aspects of the gamification design as to attract learner acceptance towards gamified lesson**s** and ultimately attain the expected academic result.

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Understanding the Association of Sleep Disorders with Nursing Productivity in Malaysia

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Abstract: This study examines the relationship between sleep disorders and productivity, specifically absenteeism and presenteeism, among nurses in Malaysia. Poor sleep quality is prevalent in modern societies, leading to functional impairments, reduced quality of life, and increased healthcare costs. The research objective is to assess the impact of sleep disorders on nurses' productivity by analyzing their absenteeism and presenteeism levels. This present study is correlational in design since it is intended to describe the relationship between sleeping disorders and nurses' productivity comprising absenteeism and presenteeism. The study used stratified sampling to select the respondents for the study since two private hospitals were involved in the study. The list of nurses was provided by the hospital management to facilitate the selection process. The questionnaire was personally distributed to the selected employees by the researchers. At the end of the data collection period, a total of 200 sets of the questionnaire were received, indicating a 100% response rate. The study's contribution lies in adding to the understanding of the crucial link between sleep disorders and productivity in the nursing profession. By emphasizing the adverse effects of sleep disturbances on nurses' efficiency, the research underscores the importance of targeted interventions and policy measures to support healthcare professionals' well-being and productivity. The implications extend to healthcare management and policymakers, urging them to prioritize sleep health and consider strategies that mitigate the impact of sleep disorders on nursing staff. To advance this field, future research should focus on larger sample sizes and diverse populations to comprehensively explore the broader implications of sleep disorders on productivity. Such studies can lead to more effective measures for improving the work environment, reducing absenteeism, and enhancing overall patient care and outcomes.

Keywords: *Sleep Disorders, Absenteeism, Presenteeism, Nurses, Productivity, Malaysia.*

1. Introduction and Background

Nursing is highly recognized for its commitment to patient care, but it also comes with significant stress due to demanding job requirements, high expectations, and the obligation to work rotating shifts and nights. Nurses encounter extra obstacles, such as severe workloads, unpredictable hours, a lack of support, and problematic work relationships (Er, & Sökmen, 2018; Babapour et al., 2020).

Recent research has raised concerns about poor sleep quality among nursing practitioners all over the world. According to research conducted in Malaysia, married nurses, particularly those with children, suffered higher sleep difficulties because of family duties (Chien et al., 2013). Similarly, in Malaysia, nurses working on shifts reported a greater prevalence of sleep disorders (Roszkowski & Jaffe, 2012).

Studies undertaken in the United States, Taiwan, Norway, and China revealed that poor sleep quality is common among nurses. In the United States, 77.4% of nurses polled from six hospitals reported poor sleep quality. In Taiwan and Norway, sleep disorders affected 57.0% and 32.4% to 37.6% of nurses, respectively. In Malaysia, 57.8% of nurses reported sleep problems (SM Nazatul et al., 2008). In China, 63.5% of tertiary hospital nurses reported poor sleep quality, with 54.8% experiencing severe sleep issues (Dong et al., 2020). These findings highlight the need to address sleep-related issues to improve the well-being and performance of nursing practitioners worldwide.

Sleep disorders represent a cluster of conditions that disrupt natural sleep patterns and are commonly encountered in clinical practice. Poor sleep quality can profoundly disrupt various physiological, cognitive, interpersonal, and affective processes, significantly impacting an individual's overall health, safety, and quality of life (Karna, Sankari, & Tatikonda, 2020). For nursing professionals working in round-the-clock hospital wards, research has unveiled a significant association between shift work sleep disorder and detrimental outcomes. These outcomes include work accidents, decreased job performance and satisfaction,

psychological distress, impaired cognitive functioning, and a decline in the overall quality of healthcare service delivery (d'Ettorre, Pellicani, Caroli, & Greco, 2020). The link between high stress levels and poor sleep quality among nursing professionals has been established in various studies, highlighting the need for interventions that promote better sleep satisfaction and efficiency (Bilgiç, Çelikkalp, & Mısırlı, 2021).

The prevalence of poor sleep quality among nursing professionals raises concerns about their overall well-being and job performance. To enhance the quality of nursing care and improve nurses' well-being, targeted interventions are necessary to address sleep-related concerns. Promoting better sleep satisfaction, duration, and efficiency can lead to significant benefits for nursing professionals' physical and mental health. Additionally, it can contribute to the reduction of absenteeism and presenteeism, two critical challenges faced by the nursing and healthcare sectors (Lee, Mu, Gonzalez, Vinci, & Small, 2021). Absenteeism and presenteeism can be impacted by nurses' sleep status, affecting their effectiveness and overall productivity.

Sleep disorders and poor sleep quality are prevalent among nursing professionals and have a profound impact on their well-being and job performance. The high stress levels and challenging work environments in the nursing profession contribute to these sleep-related concerns (Segon et al., 2022). To address these issues, targeted interventions are necessary to promote better sleep satisfaction, duration, and efficiency among nursing professionals. By focusing on sleep health, the nursing profession can enhance overall productivity, reduce absenteeism and presenteeism, and ultimately improve the quality of healthcare services provided to patients.

The work performance of an organization's personnel has a significant impact on its productivity. Poor performance can lead to reduced output quality and quantity. To maximize human resources' potential, organizations must identify and address factors contributing to poor employee performance. Proactively managing these factors can improve overall productivity and yield better results. In this context, presenteeism and absenteeism play crucial roles. Principally, presenteeism refers to employees coming to work despite being unwell, which can hinder their productivity. Absenteeism, on the other hand, involves employees being absent from work, leading to direct and indirect costs for the organization. This study focuses on nurses working at selected hospitals in Kuala Lumpur. As reported by Jawahir et al. (2021), nurses form the biggest number of healthcare professionals in Malaysia which are 102,564 nurses in both private and public sectors constituting almost 50% of healthcare professionals. Many issues related to nursing such as insufficient staff in the workplace, inadequate skill mix, excessive nurse migration, low job satisfaction, stressful experience, poor retention, and high turnover were reported as not being often overlooked and needing attention (Jawahir et al., 2021).

A recent study has clarified that absenteeism refers to workers' absence from work on scheduled working days, caused by various reasons (Mat Saruan et al., 2020). On the other hand, presenteeism occurs when employees come to work despite feeling sick due to physical or mental health issues. Both absenteeism and presenteeism significantly affect an organization's expenditures (Nowak et al., 2022). Absenteeism leads to direct costs, such as expenses for hiring replacement workers, and indirect costs, like productivity loss due to the absence of the worker and their co-workers or supervisors. Presenteeism, though physically present, results in reduced productivity due to health issues and increases the risk of accidents and infectious diseases in the workplace (Shan et al., 2021). Managing these issues is crucial for ensuring a productive and healthy workforce.

Hence, from the perspective of medical and health management, as the present study confirmed (Nowak et al., 2022; Mat Saruan et al., 2020; Jawahir et al., 2021) the nurses' presenteeism causes a decline in their physical and mental health and their job performance and ultimately leads to productivity loss and increases organizations' costs to cover it. Indeed, Bae's (2021) recent study highlights the significance of considering both presenteeism and absenteeism in analyzing work productivity loss. By understanding and addressing these aspects, organizations can effectively improve overall productivity and foster a more efficient and motivated workforce.

Therefore, this study aimed to investigate the effects of sleeping disorders on productivity among nurses which are represented by absenteeism and presenteeism among nurses in Malaysia.

2. Literature Review

Sleeping disorder is a common problem affecting individual performance in terms of productivity at the workplace. Sleep disorder among adults is a common problem that may further deteriorate their ability to think cognitively, thus jeopardizing their judgment at the workplace. To the extent, the problem of sleep disorder has caused a loss in monetary form to various sectors such as the health system, productivity losses, accident loss as well as individual well-being (Streatfeild, Smith, Mansfield, Pezzullo, & Hillman, 2021). This phenomenon has caused various impacts on other individuals' health, mental, and regulation of their emotions in their daily lives (Kansagra, 2020).

Problems with sleep are prevalent among healthcare workers, including nurses, doctors, and other healthcare workers. Sleep problems are linked to absenteeism and presenteeism, which are associated with work productivity. A study among Malaysian adults using the Pittsburgh Sleep Quality Index (PSQI) found that most of the respondents were found to have inadequate hours of sleep per day (Farah, Saw Yee, & Mohd Rasdi, 2019). The finding was further supported by another study conducted in Egypt among nurses, using the same PSQI had found more than 70% of the respondents who were in the shift working hours experienced sleep disturbance as compared to the morning shift nurses (Ahmed & Hamed, 2020). Many of the healthcare workers who have shift working hours in their lives experienced this sort of sleep disturbance thus impacting their daily lives (Åkerstedt, 2003). Sleep deprivation among nurses was considered one of the common occupational hazards because of the shift working hours of the profession itself. Apart from that, the high workload at the hospital has caused healthcare workers such as nurses to sleep deprivation due to the ever-demanding job at the workplace (Marvaldi, Mallet, Dubertret, Moro, & Guessoum, 2021). Nonetheless, sleep disturbance among workers especially nurses was found to cause various after-effects such as patient quality of care and health outcomes which the utmost importance in healthcare services delivery (Kowalczuk, Krajewska-Kułak, & Sobolewski, 2021). In other words, this phenomenon may cause various consequences to the individual experiencing it as well as the people whom they serve at the workplace or home, especially in a life-saving workplace such as a healthcare setting.

There are a few consequences of sleeping disorders that may impact individual productivity. Among them are absenteeism and presenteeism. Absenteeism is defined as illness-related absence from work because of the worker's health status at that time while presenteeism is the effort to continue attending to work even though the worker is currently experiencing health declining due to health-related factors (Kinman, 2019; Markussen, Røed, Røgeberg, & Gaure, 2011). Both factors were noted to cause a loss of productivity and further increase the worker's stress level at the workplace which hindered the organization from operating effectively (Van Der Feltz-Cornelis, Varley, Allgar, & De Beurs, 2020). A study at several companies in Tokyo, Japan which compared workers that have shorter and longer sleeping hours found a positive relationship between sleep disorders and presenteeism among their workers (Ishibashi & Shimura, 2020). From Malaysia's perspective, a study among healthcare workers, nurses and doctors found psychological and demographic factors that increase the likelihood of sleep disturbance (Ganasegeran et al., 2017). Another study among adult Japanese workers on the association between sleep disturbance measured using popular PSQI found a relationship between sleeping disorder and the workers' presenteeism (Furuichi et al., 2020). Interestingly, a study among inflammatory rheumatoid arthritis found that sleeping disturbance may escalate presenteeism but not absenteeism which is normally associated with older and higher BMI patients (Guła, Kuszmiersz, Gąsowski, Haugeberg, & Korkosz, 2023).

Moreover, several demographic variables such as age, gender, and even marital status play significant roles in sleep disorders, absenteeism, and presenteeism. Evidence shows that females might have more sleep problems than males, and married nurses were found to have shorter sleep duration and sleep latency compared to single nurses, which contributes to sleep problems (Van Nguyen & Liu (2022, Hwang & Yu (2021). Studies show that sleep problems are significantly associated with absenteeism and presenteeism (Firat, et al., 2019; Baek, et al., 2022). Firat and colleagues (2019) found that younger age and female gender were found to be associated with absenteeism, along with poor sleep quality. Also, delays to work were linked to younger age, poor sleep quality, parasomnia, and sleepiness. When both absenteeism and delay to work were present, it became important to consider sleep disorders such as sleepiness, poor sleep quality, and

parasomnia. Evaluating and addressing these sleep-related issues could lead to improved worker well-being and potentially yield additional benefits, such as increased productivity and reduced work-related costs.

Many healthcare workers suffer from sleep problems, particularly insomnia, that may lead to work absenteeism and decreased performance (Sadeghniiat-Haghighi, et al., 2021). It is therefore reasonable in this present study to infer that gender and marital status may influence the sleep quality and performance of healthcare workers, particularly nurses, due to the nature of their profession, which requires working shifts.

3. Research Methodology

This present study is correlational in design since it is intended to describe the relationship between sleeping disorders and nurses' productivity comprising absenteeism and presenteeism in a private hospital in Malaysia. The study used stratified sampling to select the respondents for the study since two private hospitals were involved in the study. The list of nurses was provided by the hospital management to facilitate the selection process. The questionnaire was personally distributed to the selected employees by the researchers. At the end of the data collection period, a total of 200 sets of questionnaires were received, indicating a 100% response rate.

The questionnaire items were adapted from the existing research instrument developed by previous researchers. As defined by the previous author, sleeping disorder refers to clinical conditions that are a consequence of a disturbance in the ability to initiate or maintain the quantity and quality of sleep needed for optimal health, performance, and well-being (Kiley, Twery, & Gibbons (2019). Therefore, the items measuring this construct reflect its definition. The sample item is, "Do you feel restless when you wake up in the morning?". The item was assessed using a 5-point Likert scale ranging from 1 = never to 5 = almost every day. A total of six items were used to measure the quality of sleep.

Absenteeism refers to missing work due to health conditions (Ozminkowski, et al., 2004). Josias (2005) defines absenteeism as a failure of an employee to report to work, despite the reason. The items used to measure this construct were also adapted from the existing validated instrument developed by previous authors. The sample item is, "Have you taken any long-term sick leave during the last 6 months due to sleeping disorders? The item was assessed using a 5-point Likert scale ranging from 1 = never to 5 = almost every day. A total of six items were used to measure absenteeism.

Presenteeism can be defined as a decrement in performance (efficiency, quality, speed, or volume) associated with remaining at work while impaired by health problems (Burton, et al., 1999). The questionnaire items were also adapted from the previous research work that reflects its definition. The sampled item to measure this construct is, "I found decision-making more difficult". The item was assessed using a 5-point Likert scale ranging from 1 = never to 5 = almost every day. The reported Cronbach's alphas for all three sets of questions are very good: exceeding the suggested threshold value of 0.7. A total of six items were used to measure presenteeism.

Data analysis was performed using descriptive statistics, factors analysis, reliability analysis, correlation analysis, and t-test. T-test analysis is meant to explore the potential influence of demographic variables on the main variables, sleeping disorder, absenteeism, and presenteeism.

4. Results

Data analysis for the present study starts with a descriptive analysis to examine the distribution of data. Table 1 shows the results of the descriptive analysis. Regarding gender, as expected, the majority of respondents are female (147 nurses or 73.5%) while only 53 respondents or 26.5% are male nurses. Most respondents are aged below 35 years old. This is also reflective of the nature of work at the hospital; providing patient's care 24/7 while they are in the hospital.

Most of the respondents are diploma holders (157 nurses or 78.5%) as this is the requirement for them to enter into this noble profession. Most of the respondents are staff nurses (139 individuals or 69.5%) followed

by nursing practitioners (48 nurses or 24.0%). Most respondents had less than 5 years of job experience. This is reflected in their marital status as most of them are still single (114 nurses or 57.0%) compared to those who are married (86 nurses or 43.0%).

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

Table 1: Demographic and Geographic Information Pertaining to Respondents (n=200)

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	53	26.5%
Females	147	73.5%
Total	**200**	**100%**
AGE		
Below 25	55	27.5%
25-30	91	45.5%
31-35	44	22.0%
36-40	8	4.0%
46-50	2	1.0%
Total	**200**	**100%**
EDUCATION		
Bachelor degree	28	14.0%
Diploma	157	78.5%
STPM	2	1.0%
SPM	13	6.5%
Total	**200**	**100%**
JOB POSITION		
Staff Nurse	139	69.5%
Chief nurse	11	5.5%
Nurse practitioner	48	24.0%
Others	2	1.0%
Total	**200**	**100%**
JOB EXPERIENCE		
Less than 1 year	42	21.0%
1-5 years	126	63.0%
6-10 years	21	10.5%
11-15 years	9	4.5%
16-20 years	2	1.0%
Total	**200**	**100%**
MARITAL STATUS		
Single	114	57.0%
Married	86	43.0%
Total	**200**	**100%**

A principal component factor analysis with varimax rotation was performed to examine the dimensionality of the items measuring the construct. Table 2 shows the results of factor analysis for the independent variable, which is a sleeping disorder. A total of six items were used to measure sleeping disorder and the results show that all six items were loaded into one component, confirming the unidimensional nature of the construct as proposed by the previous author.

The six items explain 61.64% of the variance in the model, which exceeds the suggested value of 60%. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy of .781 shows that the samples are adequate for factor analysis to be conducted. Similarly, the Measure of Sampling Adequacy (MSA) supports this claim with values ranging from .731 to .856. All six items were used to represent the construct of sleeping disorder in the subsequent analysis.

Table 2: Results of Factor Analysis for the Independent Variable

		Component 1
Do you feel restless when you wake up in the morning?		.868
How often do you have difficulty staying asleep?		.854
How often do you take a nap during commuting time or lunch break?		.787
How often do you feel very drowsy when you are at work?		.751
How often do you wake up too early and can't fall asleep again?		.749
Do you feel difficulty waking up in the morning?		.686
% variance explained		61.64
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.781
Bartlett's Test of Sphericity	Approx. Chi-Square	651.771
	df	15
	Sig.	.000
MSA		.731-.856

A principal component factor analysis was also performed to examine the dimensionality of items measuring productivity construct, comprising absenteeism and presenteeism. Table 3 presents the results of the factor analysis. Originally, there were six items measuring absenteeism and presenteeism. After factor analysis, the items loaded on their respective components were originally conceptualized, confirming their validity. A group of six items loaded on component 1, reflecting absenteeism, and another group of six items loaded on component 2, representing presenteeism.

The total of 12 items explained 81.2% of the variance in the model with the first component explaining 42.2% and another component explaining 39%. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy of .871 shows that the samples are sufficient to proceed with the analysis. The MSA values are in the range of .825 and .916, indicating enough samples (variations) for each item. The results of factor analysis provide support for the goodness of measure of nurses' productivity that comprises absenteeism and presenteeism.

Table 3: Results of Factor Analysis for the Dependent Variables

	Component 1	2
Have you taken any long-term sick leave during the last 6 months due to sleeping disorders?	.906	
Have you taken any sick leave during the last 6 months due to sleeping disorders?	.905	
Have you taken any emergency leave during the last 6 months due to sleeping disorders?	.903	
Have you taken a half-day leave during the last 6 months due to sleeping disorders?	.888	
Have you taken any annual leave during the last 6 months due to sleeping disorders?	.884	
Have you been absent from work during the past 6 months due to sleeping disorders?	.856	
I found decision-making more difficult.		.893
I had a problem concentrating.		.885
I had to go to work at a slower pace.		.883
I had to seclude myself.		.880
I had to put off some of my work.		.851
Others had to take over some of my work.		.768
% variance explained (81.20)	42.2	39.0
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.871
Bartlett's Test of Sphericity	Approx. Chi-Square	2818.842
	df	66
	Sig.	.000
MSA		.825-.916

Table 4 shows the results of correlation and reliability analyses. With regard to the reliability coefficient of the construct, the items measuring sleeping disorders have Cronbach's alpha value of 0.874, which is higher than the suggested value of 0.7. Cronbach's alpha value for absenteeism is 0.959 and Cronbach's alpha value for presenteeism is 0.944. Items measuring both constructs are highly reliable to measure the intended constructs. Sleeping disorder has the highest mean score with the value of 2.83 while the lowest mean value is for absenteeism, which is 2.08, indicating the distribution of the score.

Regarding the relationship between sleeping disorder and absenteeism, it is positive and significant ($r = .530$, $p < .01$), indicating a linear relationship between both constructs. Similarly, the sleeping disorder also shows a significant positive relationship with presenteeism ($r = .430$, $p < .01$). The findings provide additional empirical support that sleeping disorders can affect productivity through absenteeism and presenteeism, especially among nurses. The findings are consistent with the earlier studies (Firat, et al., 2019; Hajo, et al., 2020; Fernández-Martínez, et al., 2020; Sadeghniiat-Haghighi, et al., 2021).

Table 4: Results of Correlation and Reliability Analyses

No	Variables	Mean	SD	1	2	3
1	Sleeping Disorder	2.83	.86	(.874)		
2	Absenteeism	2.08	.95	.447**	(.959)	
3	Presenteeism	2.71	.87	.530**	.430**	(.944)

Notes: **. Correlation is significant at the 0.01 level (1-tailed). N=200. Cronbach's alphas are in the parentheses along the diagonal.

Additional analyses (t-tests) were performed to explore the influence of selected demographic variables on the main variables in the study. From Table 5, gender does not have any significant influence on the studied variables. The results provide evidence showing that sleeping disorder, absenteeism and presenteeism happen to all nurses regardless of their gender. It contradicts the common understanding among the public that females normally have a higher tendency than male to experience sleeping disorders, absenteeism and presenteeism (Firat, et al., 2019).

Table 5: Results of T-Test (Gender as the Test Variable)

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Sleeping Disorder	Male	53	2.82	.92	.13
	Female	147	2.83	.84	.07
Absenteeism	Male	53	2.15	.74	.10
	Female	147	2.05	1.02	.08
Presenteeism	Male	53	2.54	.82	.11
	Female	147	2.77	.88	.07

Table 6 shows the results of the t-test, exploring the role of marital status in influencing the studied variables. Single nurses have a higher tendency to experience presenteeism than married nurses. The findings imply that single nurses tend to engage in less productive work such as slower decision-making, less concentration at work, self-isolation, putting off some work, and asking others to take over some of their work than married nurses. The most probable reason for this occurrence is that single nurses are less concerned about their jobs than married ones. Married nurses have to think about their families before pursuing unproductive behaviors (Kang & Lee, 2022).

Table 6: Results of T-Test (Marital Status as the Test Variable)

	Marital	N	Mean	Std. Deviation	Std. Error Mean
Sleeping Disorder	Single	114	2.90	.79	.07
	Married	86	2.73	.94	.10
Absenteeism	Single	114	1.98	1.00	.09
	Married	86	2.22	.87	.09
Presenteeism*	Single	114	2.83	.84	.08
	Married	86	2.55	.88	.09

5. Managerial Implications and Recommendations

The present study provides empirical evidence on the association between sleeping disorders and nurses' productivity, particularly absenteeism and presenteeism in the Malaysian context. The findings enrich the existing knowledge on the said association and can be further enhanced by adding some other important variables, extending the scope of the study, exploring other causes of sleeping disorders, utilizing other instruments measuring sleeping disorders, and others. These suggestions, when implemented, can establish the nomological net of the construct.

Regarding the managerial implications of the findings, actions need to be taken by the hospital management to reduce the effect of sleeping disorders. A properly designed work schedule can reduce its impact on sleeping disorders. Nurses should not be assigned a double shift unnecessarily. No nurse should work more than 12 hours per day. Contract nurses should be employed if there is an insufficient number of nurses working for a particular hospital. In addition, management should provide training for nurses on meditation and yoga exercises to reduce stress and promote relaxation in the workplace and enhance sleep at home.

Conclusion: Quality sleep is important for nurses to enhance their productivity. Due to its importance, the present study was undertaken to examine the relationship between sleeping disorders and productivity, which is measured through absenteeism and presenteeism. Using 200 samples from the selected hospitals, the findings of the study prove the significant association between sleep disorder and absenteeism and between sleep disorder and presenteeism. As nurses' jobs require them to be always alert, the hospital management needs to ensure that their staff do not experience sleep disorders and can concentrate on their jobs. By reducing the intensity of sleeping disorders, it is expected that nurses can enhance their productivity by reducing absenteeism and presenteeism.

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The Exalted Islamic Ethics towards Conquest of Fintech

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Abstract: Ethics is the conduct that is transmitted from the understanding of norms into a person's attributes. The essential of exalted ethics, especially regarding Shariah compliance has a strong basis of knowledge as it depends on the Quran and Sunnah. The delivery of knowledge for Islamic Finance while possessing Islamic Ethics is vital for weighing Shariah compliance in a holistic manner for the conquest of Finance Technology (FINTECH). It is important to note that numerous prior researchers have done most of the research that regards Islamic Ethics. The secondary data of the Maqasid al-Syariah variables from Islamic financial institutions of specified sectors is to be taken for assessment. The partial least squares structural equation modelling (PLS-SEM) method was the main statistical technique to be employed in this study. This study fits its real purpose by offering an accurately precise mode of Islamic Ethics in influencing the accomplishment of Islamic Fintech. In particular, the study of Islamic Ethics influences the direction of the religious aims as well as the accurate application of Islamic Fintech.

Keywords: *Islamic Fintech, Islamic Ethics, Islamic Finance, Maqasid al-Syariah Index.*

1. Introduction and Background

The first step is the most crucial in the journey of Islamic Fintech and being in the right environment really does wonders. One of the biggest challenges according to the Islamic Fintech survey includes unsupported regulatory infrastructure and deprived Islamic finance understanding among consumers and regulators (IFN FintechSurvey, 2020). FinTech has an impact on conventional banks and their Islamic counterparts. This is because Islamic banks are facing competition from an expanding number of Islamic and non-Islamic FinTech businesses. After all, they could act as both alternatives and complements. Although most FinTech instruments are flexible enough to adapt to the needs of the Shariah market, the implication of ethical banking based on Syariah law is important to identify compared to conventional counterparts in the sphere of banking and money lending (Todorof, 2018). The technology setting through Islamic Ethics provides an inimitable chance to re-position Islamic finance and provide better solutions to cover the incapacity of Islamic Banking and Finance staff. To accomplish the Islamic FinTech, the assimilation of Islamic ethics will offer a balanced guideline as it has precise sanctions (Zin et al., 2017). The study of the accomplishment of Islamic Fintech through detailed discussion of Islamic Ethics through Maqasid al-Syariah proposes insight and solutions into the implementation of the standard.

The Maqasid al-Syariah variables, which integrate the notions of ethical, social, and Fintech from financial report performance, are crucial for this study. Without focusing on the Maqasid al-Syariah, the majority of the Islamic Financial market's performance studies measure financial performance using the conventional element of performance. Additionally, these conventional benchmarks fall short of measuring Maqasid al-Syariah-based performance, which is the only way to accurately identify Islamic Financial institutions (Salah, Khaled & Dzikri, 2020). The Maqasid al-Syariah Index (MSI), was first created by Mohammed, Razak, and Taib (2008) to assess the performance of IBs in accordance with Maqasid al-Syariah.

Research Questions

- How does the key factor of Islamic ethics affect the accomplishment of Islamic Fintech?
- What is the model that offers an accurate illustration of the precise mode for the overall performance of the Islamic Fintech?

Objectives of Research

- To examine the key factors of Islamic ethics that affects the accomplishment of Islamic Fintech.
- To analyze the model that offers an accurate illustration of the precise mode for the overall performance of the Islamic Fintech.

2. Literature Review

The Accomplishment of Islamic Fintech: In this study, the accomplishment of Islamic Fintech referred to ethical process and value proposition that execute the conduct of procedures, information, experience, context and interpretation of Islamic finance and banking into the technology used. Conforming to Todorof (2018), the most important Shariah principles that applied to Islamic Fintech include the interest of the community taking precedence over the interests of the individual, relieving hardship takes precedence over promoting benefit and policy on loss and harm according to Islamic ethics.

The emergence of fintech and the growing adoption of fintech solutions in Islamic financial services offer an inimitable chance to re-position Islamic finance and streamline its value proposition towards social finance (Oseni & Ali, 2019). The researchers further stated that from the Shariah perspective, the ethics cover maqaṣid al-shariah will continue to be relevant in the accomplishment of Islamic fintech, as the maslahah provided by the new technologies trumps any other argument that seeks to preserve the traditional financing methods.

Islamic Ethics: According to Hameed (2009), the importance of ethics in Islam is obvious when God said to Prophet Muhammad in chapter 68 (Surah al-Qalam) of the Quran, verse 4: "And verify, you (O Muhammad) are on an exalted standard of character" (Translation by Yusuf Ali)**.** Tafseer by Ibn Kathir: "Allah gave him the exalted character, which included the qualities of modesty, kindness, bravery, pardoning, gentleness and every other good characteristic." Equally reported by Sahih Muslim, Book 6, Hadith 168: "Aishah (RA) said: The character of the Messenger of Allah (SAW) was the Qur'an."

Islamic ethics are based on rational approaches as aligned with revelation in which revelation offers the truth whilst rational approaches lead to accepting and gratitude for truth. (Abuznaid, 2009) Ethical financial and investment services serve real-world economic needs, based on the principles of legality, justice, equality, and distribution (Bulatova, 2019). Islamic FinTech is based on the ethics of Shariah and can lead the finance world better as Islamic Fintech offers the values of transparency, accessibility and ease of use. The ethics of Islamic FinTech include fetching proper regulation, good research from educational institutions and providing trained personnel (Rabbani et al., 2020). The roles of ethics in Islamic Fintech during the Covid-19 cover the areas of use of Fintech for Islamic social contributions including Waqf, Zakat and crowd funding, the increased role of Islamic Microfinance institutions, the channel on necessities like health, food and education as well as on social responsibility and solidarity (Hassan, Rabbani & Ali, 2020). Thus, the implementation of Islamic ethics in Fintech may become a much clearer distinction between Islamic banks and Conventional banks (non-Islamic banks).

A) The roles of Education: Fintech is essential for the existence of Islamic finance and education is required as a way for accomplishment (Aji et al., 2020). According to Rabbani et al. (2021), a major objective of Islamic finance is, as a concept itself, to provide useful financial services to people at all levels. According to Arafah & Nugroho (2016), the ethical commitment in Islamic Financial Institutions should come from all those who have, an interest in the organization, including investors, creditors, management, and staff members. The knowledge comes through the vision and missions that should explicitly serve social functions, government regulations that demand the implementation of social functions and agreements and MOUs between investors and creditors.

The conjunction between Fintech and Islamic ethical finance can potentially build a robust and successful at the input level, for instance, as stated by Khan et al. (2017) even if Islamic Banks give preference to the legality of trades which can lead to unethical outcomes, there is the need for education and awareness that will ensure Islamic Fintech performance remain ethical within the moral teachings of Islam. In this new era, should Islamic Fintech attest to be incompetent in witnessing the ethics of doing business, or else regulators

can interfere in the market and issue binding laws in promoting ethical standards for the welfare of the sector and society (Khan et al., 2017). Therefore, education can be used to help achieve ethical values required of new era challenges.

B) The roles of Welfare: Islamic social finance pertains to Islamic institutions such as zakat (obligatory charity), sadaqah (voluntary charity), waqf (endowment), cooperation, such as qard (loan) and takaful (insurance). Moreover, socially beneficial investments are also included by means of sukuk (bonds), crowd funding and Islamic microfinance organizations tackling poverty by giving out qard hassan (Haji-Othman et al., 2020). Islamic social finance tools must be integrated into the government's fiscal and monetary policies to assist the poor and vulnerable in society.

The empirical evidence that relates Fintech to social innovation in Islamic ethics tells us that Islamic Financial Contributions bolster existing economic power through a variety of tools and products to manage the spill-over effects of COVID-19 (Rabbani et al., 2021). There is no room in Islam to justify any cover-up of deceptive financial behavior. Quran condemns all forms and shapes of false assertions, unfounded accusations, concoctions and false testimony as stated in chapter 43 (Surah az-Zukhruf) of the Quran, verse 20: “Ah!") they say "If it had been the will of (Allah) Most Gracious We should not have worshipped such (deities)!" of that they have no knowledge! They Do nothing but lie!” (Translation by Yusuf Ali)
Tafseer by Ibn Kathir: “The truth of what they say and the arguments they put forward, they tell lies and fabricate untruths.”
Therefore, welfare can be used to help achieve ethical values required of new era challenges.

C) The Roles of Justice: The Islamic financial system refers to the detailed and comprehensive process of handling the flow of money according to Islamic rules (Osman et al., 2019). In light of the Islamic Financial Institution's commitment to adhering to Islam, an analysis must be undertaken into whether it complies with the basic Syariah requirements. According to Jamaruddin and Markom (2020), Islamic Fintech is seen as a means of injecting Shariah elements into Fintech to make it compatible with Islamic Finance as well as to work within the Islamic banking framework.

Four requirements must be met as part of the commitment of stakeholders to prevent ethical violations in Islamic finance: (1) qualify in describing the legal and formal organizational ethics; (2) should be transparent, easily supervised and monitored by the community; (3) should benefit both the community and the institution itself; and (4) should provide financial services that can reach the entire community. One of the ethics of economic activity is related to justice and the prohibition of cheating as stated in chapter 83 (Surah Al-Mutaffifin) of the Quran, verses 1-3:
“1. Woe to those that deal in fraud. 2. Those who when they have to receive by measure from men exact full measure. 3. But when they have to give by measure or weight to men give less than due.” (Translation by Yusuf Ali)

Tafseer by Ibn Kathir: “The meaning of the word Tatfif here is to be stingy with measurement and weight, either by increasing it if it is due from the others or decreasing it if it is a debt. Thus, Allah explains that the Mutaffifin those whom He has promised loss and destruction, who are meant by "Woe'' are (Those who, when they have to receive by measure from men,) meaning, from among the people demand full measure, they take their right by demanding full measure and extra as well. (And when they have to give by measure or weight to (other) men, give less than due.) meaning, they decrease. Verily, Allah commanded that the measure and weight should be given in full.”

As referred to Rabbani et al. (2020), among the major issues in analyzing Fintech studies in Islamic banking, researchers find out whether agents are acting in their clients' best interests. Using blockchain technology, the researcher proposes an accountability monitoring process for the Islamic bank (agent) to guarantee transparency as an act of justice. Nevertheless, smart contracts have neither been embraced by the law nor regulated by the government in most of the countries where Islamic Banking is practiced (Rabbani et al., 2020).

Islam welcomes any innovation and disruption that does not violate its basic ethics and principles (Hassan et al., 2020). As stated by Todorof (2018), with the onset of FinTech in Islamic banking, its general competitiveness and inclusiveness can be significantly increased through the incorporation of a larger number of products and services, reduced prices, and the closing of the credit gap, which has been present in many Islamic countries. As referred by Ahmed et al. (2019), Shariah has supported the development of the Muslim economy by fostering innovation and creativity, as well as, the progression of the Islamic banking system has added value creation and ethics. Therefore, justice can be used to help achieve ethical values required of new era challenges.

Theories Underpinning the Conceptual Framework: Most of the relevant theoretical models are based on Al-Quran and Sunnah as well as the approachable related references. In Islam, many verses of the Quran stress the relationship between faiths and performing through man's conduct. The theoretical framework of Islamic Ethics based on chapter 16 (Surah An-Nahl) of the Quran, verse 89:
"One day We shall raise from all Peoples a witness against them, from amongst themselves: and We shall bringthee as a witness against these (thy people): and We have sent down to thee the Book explaining all things, a Guide, a Mercy, and Glad Tidings to Muslims)". (Translation by Yusuf Ali)

Tafseer by Ibn Kathir: "(And We revealed the Book (the Qur'an) to you as an explanation of everything,) Ibn Mas`ud said: "﴾Allah﴿ made it clear that in this Qur'an there is complete knowledge and about everything.'' The
The Qur'an contains all kinds of beneficial knowledge, such as reports of what happened in the past, information about what is yet to come, what is lawful and unlawful, and what people need to know about their worldly affairs, their religion, their livelihood in this world, and their destiny in the Hereafter".

The Divine Command Theory: Divine command theory first offered by Glenn Graber (1973), in his study argues that logically nor linguistically of the nature of right and wrong is tied to theology in a certain sense epistemologically dependent, which in this context refers to Jewish and Christian religions that are claimed to be divine. According to this theory, both Jewish and Christian religions define right and wrong ethics as related to moral obligation according to God's command. This theory has created some serious problems for believers and non-believers alike. Atheists reject the theory because they believe God does not exist. If God does not exist, then it makes no sense to base ethics on God's commands. However, religionists disagree with this theory due to etiological concerns. As Socrates pointed out, it is not clear whether conduct is right because God commands it, or whether God commands conduct because it is right. Because it is not clear in the first place why humankind exists, the theory is rejected. (Al-Aidaros et al., 2013).

Unlike other religions, Islam clearly explains the reason for life in the state that it is a complete religion having a profound understanding of every aspect of life, evidently as stated in chapter 18 (Surah Al-Kahf) of the Quran, verse 110:
"Say: "I am but a man like yourselves (but) the inspiration has come to me that your Allah is one Allah: whoever expects to meet his Lord let him work righteousness and in the worship of his Lord admit no one as partner." (Translation by Yusuf Ali)
Tafseer by Ibn Kathir: This is what is meant by seeking the pleasure of Allah alone with no associate or partner. These are the two basic features of acceptable deeds: their intent is for the sake of Allah alone and are done in accordance with the way of the Messenger of Allah".

Even in much earliest time, Al-Shafi'i (d.820) the Islamic scholar in his book "Principles of Jurisprudence" mentioned divine command reasoning in ethics which encompasses all the approachable ethics related to human beings (Kelsay, 1994). Hence, for Muslims, what is right and wrong is clearly espoused through the word of Allah (Al-Quran 16: 89) and the Sunnah of the Prophet Muhammad. These are two important foundations that Muslims believe in the fact that conduct is right if Allah s.w.t. or His Prophet Muhammad commanded it, and the belief that Allah knows what is right and wrong and has dictated it for the Muslims to follow. (Al-Quran 58:7; Al-Qadrawi 2015).
In the study, the employment of Islamic Divine Command Theory provides the strict command on how the use of Fintech should encompass the benefits of all levels of society and ensure the fulfillment of social well-being.

3. Research Methodology

Sampling and Data Collection: Since the purpose of this research is to identify the accomplishment of Islamic Fintech through the Maqasid al-Syariah Index in Malaysia, the samples were selected based on the following criteria to meet the objection of this study. Samples should be listed in the main market of Bursa Malaysia and Syariah compliance. The selection was made mostly because of its credentials and properly documented annual reports. A total of 7 companies were selected. The companies include:

- Al-Salam Real Estate Investment Trust [S]
- Ame Real Estate Investment Trust [S]
- Axis Real Estate Investment Trust [S]
- Bimb Holdings Berhad [S]
- Bursa Malaysia Berhad [S]
- Syarikat Takaful Malaysia Keluarga Berhad [S]
- Rce Capital Berhad [S]

Data Analysis: Through the data that have been collected, the performance ratio will be conducted for the general analytical overview of Maqasid al-Syariah. The reliability test will be conducted to examine whether it is dependable and accurate among measurements, then generate all results by using PLS-SEM.

Quantitative Method: The quantitative method aims to quantify the ethical and social indicators and analyze Islamic Financial Institutions' performance in achieving Maqasid al-Syariah. Thus, after extracting information related to the MSI from IF's annual reports, the index is constructed based on several indicators, dimensions, and elements illustrated in Table 1. Accordingly, the index was conducted as a measurement by using PLS-SEM to see the correlation. The MSI is used as a benchmark to identify Islamic Fintech's score of best practice in the Islamic financial market.

Table 1: Maqasid al-Syariah Index Variables

Variables	Dimension	Element	Performance Ratio
Education	D1. Advancement of Knowledge	E1. Education Grant	R1. Education grant or scholarship/Total expenses
		E2. Research	R2. Research expense/ Total expenses
	D2. Installing new skills and improvement	E3. Training	R3. Training Expense/ Total expenses
	D3. Creating Awareness of Islamic Banking	E4. Publicity	R4. Publicity Expense/ Total expenses
Justice	D4. Fair Returns	E5. Fair returns	R5. Profit Equalization Reserve (PER)/Net or Investment Income
	D5. Cheap products and services	E6. Functional Distribution	R6. Mudharabah and Musharakah Modes/ Total Investment Modes
	D6. Eliminations of negative elements that breed injustice	E7. Interest-Free Product	R7. Interest-free income/ Total Income
Welfare	D7. Profitability	E8. Profit ratios	R8. Net Income/Total Assets
	D8. Redistribution of income and wealth	E9. Personal income	R9. Zakat**/Net Asset
	D9. Investment in the real vital sector	D9. Investment in the real vital sector	R10. Investment in the real economic sector/ Total investment

Note: The table shows the Maqasid al-Syariah variables. The MSI table has been adopted from Mohammed, Razak, and Taib (2008).

According to Table 1, The MSI is the sum of independent variables of the study. Each performance ratio represents an element and dimension to determine Islamic FinTech. These consist of education, justice and welfare, and are operationally defined. Each of these three concepts or variables is then translated into broader characteristics or dimensions (D) such as the advancement of knowledge and installing new skills and improvement. Finally, the dimensions are translated into measurable behaviors or elements (E), as shown in Table 1. According to the above MSI, there are 10 performance ratios; however, this study also includes the Fintech performance ratio by Yudaruddin (2023) to clearly illustrate the relation between ethics and Fintech. Consequently, the results are illustrated in Table 2.

Table 2: Maqasid al-Syariah Index Variables for Each Companies

		AL-SALAM	AME	AXIS	BIMB	BURSA	TAKAFUL	RCE
R1	Education grant	0.00240	0.00300	0.00090	0.00010	0.00020	0.00052	0.00430
R2	Research	0.00370	0.00290	0.00080	0.02110	0.00010	0.00060	0.00600
R3	Training	0.00250	0.00270	0.00013	0.07430	0.00030	0.00060	0.00290
R4	Publicity	0.04890	0.00320	0.02580	0.06470	0.37800	0.00940	0.04200
R5	Functional Distribution	0.00520	0.00520	0.56400	0.00820	0.76900	0.00910	0.24820
R6	Profit ratio	0.02570	0.08060	0.04470	0.02400	0.05330	0.27580	0.10990
R7	Personal Income	0.00260	0.00001	0.00001	0.00014	0.00180	0.00064	0.00163
R8	Investment in real economic sector	0.47840	0.46550	0.26780	0.00660	0.23100	0.00022	0.60800
R9	Fair returns	0.00911	0.00840	0.00410	0.22770	0.13710	0.13280	0.05920
R10	Interest-free product	0.22620	0.26480	0.27040	0.54700	0.65700	0.20700	0.22580
R11	Fintech payment	0.05300	0.07540	0.02380	0.06330	0.19950	0.02020	0.00380
R12	Fintech Distribution	0.01750	0.04460	0.02220	0.00570	0.09080	0.00200	0.00020

Note: The table shows the *Maqasid al-Syariah* variables and Fintech performance ratio. The MSI table has been adopted from Mohammed, Razak, and Taib (2008) and the Fintech Performance ratio has been adopted from Yudaruddin (2023).

4. Results and Discussion

This Variance Inflation Factor (VIF): A connected measure of collinearity is the Variance Inflation Factor (VIF) (Hair et al., 2011). In the context of PLS-SEM, a VIF value of 5 and higher indicates a potential collinearity problem (Hair et al., 2011).

Table 3: Result of Collinearity (VIF)

Education -> Islamic Fintech	1.295
Justice -> Islamic Fintech	1.299
Welfare -> Islamic Fintech	1.122

Based on Table 3 above, this study accessed Education, Justice and Welfare as predictors for Islamic Fintech. As can be seen, the VIF value is below the threshold of 5 means the collinearity among the predictor construct is not the critical issue in the structural model.

Path Coefficient: The path coefficient test was performed to examine the significance of the path relationship in the inner model.

Table 4: Path Coefficients

	Path Coefficients
Education -> Islamic Fintech	-0.458
Justice -> Islamic Fintech	0.52
Welfare -> Islamic Fintech	0.086

A path coefficient that is close to +1 represents a strong positive relationship (Hair et al., 2014). Based on Table 4 above, the most important driver for Islamic Fintech is justice (0.52), followed by welfare (0.086), and education (-0.458) which indicates a negative relationship.

Limitation of the Study: One of the limitations of this study was the usage of limited data on a few companies selected.

Discussion: The findings on the significant relationship between education, justice and welfare and the accomplishment of Islamic Fintech are very meaningful for future research related to Islamic Fintech. Findings on the positive significant relationship between welfare and justice in the accomplishment of Islamic Fintech are in line with previous studies on demonstrated results by Bulatova (2019), Rabbani et al. (2021) and Hassan, Rabbani & Ali (2020). Hence, this study combines these entire concepts of the Maqasid al-Syariah Index as an Islamic ethics illustration with the Fintech performance ratio to obtain better significant results.

5. Managerial Implications and Recommendations

Suggestion for Future Study: The research will be meaningful if the data can be gathered for both quantitative and qualitative techniques in which to complement each other and execute the result. Moreover, future research should enlarge the scope of the study regarding the genuineness of the allegation.

New Model: The findings of this research can enhance the accomplishment of Islamic Fintech in managing the ethics of Islamic Finance in Malaysia and provide a better understanding and illustrate the precise mode for the overall performance of the Islamic Financial market. Therefore, this study is significant to the government's Shared Prosperity Vision 2030 which has identified the digital economy and Islamic finance as key catalysts.

Conclusion: The overall findings provide new empirical contributions to academia, more research needs to be conducted to establish the link to the benefits to industry and society as a whole. Therefore, the study of education, welfare and justice as the Maqasid al-Syariah Index through detailed discussion would propose insight and solutions into the implementation of the Islamic Fintech's standard.

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A Study of Literature and Practical Gaps in e-Wallet Acceptance: The Case of Malaysia

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Abstract: The purpose of this article is to identify the existing research gaps in the literature and the practicality of e-wallet acceptance studies in Malaysia. A systematic literature review (SLR) of peer-reviewed journal articles was carried out by the researchers, based on two major databases, namely, Scopus and Web of Science. In total, 60 articles published from January 2017 to April 2021 were reviewed which revealed the research gaps. Several research gaps are identified in the literature and practicality. The article offers suggestions for future research, including how to prioritize understudied subjects and incorporate other points of view. As a result, this study offers new researchers to learn more about the rapidly growing acceptance of e-wallets. Future research can also address these gaps and enhance the level of acceptance for e-wallets globally for a sustainable future. By identifying the factors that influence people's decision to accept e-wallets, researchers can help companies design better services and marketing campaigns. This will require some practical and theoretical implications, primarily demonstrating some nourishment in realizing the cashless society vision.

Keywords: *Fintech, e-Wallet, Acceptance, Cashless, Sustainable Development.*

1. Introduction

Fintech 1.0, which focuses on infrastructure, is the period between 1886 and 1976 when it first started to permeate the financial sector. By leveraging railroads and telegraphs during that time, they introduced technology into the financial sector, which helped to speed up the process of sending financial data across international borders. From 1967 to 2008, fintech developed into Fintech 2.0, which transitioned the financial sector's activities from analog to digital. The banking sector's adoption of fintech at the time followed the climate of digitization. Online banking had already been developed since 2008 and was being introduced at the time. Fintech 3.0 is also the point at which a new player joins the financial industry and challenges the established system. In this instance, an e-wallet was introduced due to the growing use of smartphones and the Internet. Apple Pay debuted in 2014, whereas Google Wallet did so in 2011. Both user acceptability and the use of Fintech are undergoing growth, evolution, and improvement.

Malaysians anticipated receiving MyKad, a card that can be used as an e-wallet, ATM card, and for other transactions when Fintech 3.0 launched the financial sector there in 2011. With the advent of the Internet of Things (IoT), big data, artificial intelligence (AI), and blockchain technology, Fintech 3.0 in Malaysia keeps expanding and getting better. Mobile wallets, mobile payments, blockchain, crypto currencies, crowd funding, lending, artificial intelligence (AI), the market, Islamic fintech, and remittance are the main areas of focus for Malaysian fintech companies. The most popular Fintech applications in Malaysia are mobile wallets and electronic payments (Bakri et al., 2023). There are 294 Fintech businesses in Malaysia for the year 2022, including ones that deal with e-wallets, payments, marketplaces, prop tech, insurtech, Islamic fintech, KYC/reg tech, blockchain/crypto currency, wealth tech, crowd funding, lending, remittance, and artificial intelligence data (Fintech News Malaysia, 2022).

The development of Fintech in Malaysia, including electronic payments and online banking, has helped to boost the country's technological productivity. Innovating new ideas in financial services and increasing public knowledge of the industry, fintech was at the forefront of this upheaval. Additionally, it encouraged users to look for services that were straightforward, user-friendly, real-time, and accessible (Abu Daqar, Arqawi, and Karsh, 2020). In Malaysia, there are 14 subcategories of fintech, with e-wallets being the most dominant. In 2022, there will be 43 electronic wallets in Malaysia, with the sector accounting for 19% of the country's Fintech sector, according to a report by Fintech News Malaysia. If we look closely at the Malaysian e-wallet market, we can see that in 2017 and 2018, the number of businesses joining the digital wallet

movement reached its pinnacle, with well-known brands like Samsung Pay, Alipay, Boost, Touch 'n Go, GrabPay, and WeChat Pay.

E-wallets, or electronic wallets, are a type of Fintech that utilizes the internet and are used as an alternative to traditional payment methods. In certain circumstances, e-wallets can be used to replace cash, such as facilitating transactions without retaining a large amount of currency, reducing the time needed to calculate transactions, expediting payments, increasing security, and lowering the risk of loss. One of the most popular and innovative services launched in 2017 was e-wallets, which allow the secure storing of bank card information on a mobile device. These services can then be used to undertake numerous activities like paying bills, transferring money, and shopping (AlKubaisi and Naser, 2020). Digital money storage is the most well-known Fintech application for users who lack bank accounts. To enable clients to execute a variety of transactions without the need for a regular bank account, banks have introduced e-wallets. The popularity of e-wallet applications has been considerably boosted by the widespread use of smartphones and their high penetration rate. The study by Abu Daqar et al. (2020), which pointed out that the e-wallet's great penetration across multiple generations positions it as a significant Fintech application and capable of improving e-banking services via digital devices, notably smartphones, demonstrated this fact.

In addition to the analogy to a physical wallet, an e-wallet provides advantages and features including nearly infinite storage, location awareness, and easy sorting or searching of contents, making it a more tempting alternative to the physical wallet. Environmental advantages include the reduction or elimination of travel as well as the abolition of paper receipts, business cards, and other paper artifacts. Due to its major effects on Malaysia's business model, financial markets, and payment system, the idea of an e-wallet has garnered a lot of attention (Abdul Rahman et al., 2022). E-wallets are a preferred option among other digital alternatives since they allow for payments to be made from any location (Tikku & Singh, 2023). Additionally, an e-wallet is a service for secure digital currency exchanges provided by various institutions to raise people's standards of living (Wei et al., 2023). Whether such a cashless network would eventually supplant our actual wallets is an intriguing subject. The researchers suggest the answer is yes, even though there are still numerous difficulties in getting rid of deeply ingrained habits and company procedures. It's critical to investigate what influences Malaysians' willingness to accept e-wallets as a form of payment together with the continuous expansion of e-wallet providers in Malaysia, particularly in the payment industry. The acceptance of cashless transactions is becoming more widespread in Malaysia, as the evolution of money is fuelled by technical advancements and the digital world, as well as the rollout of COVID-19.

The study on e-wallet acceptance in Malaysia may assist in accomplishing sustainable development goals, especially by encouraging financial inclusion and lowering the use of paper-based payment methods like cash and cheques. Malaysia is a prime location for e-wallet adoption among consumers due to its high rate of smartphone and internet penetration, huge population of young people who are tech-savvy, and highly banked population. Bank Negara Malaysia has taken the initiative to join the e-wallet community to reduce the use of paper-based instruments. As system developers, they must ensure the benefits of ease of use, usefulness, and confirmation so that users are satisfied experiencing a user-friendly and useful system. Experts should comply with and respond to changes swiftly. Sustainable Development Goal 8 (SDG Goal 8), which aims to provide sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all, can be furthered by encouraging the use of e-wallets in Malaysia. By fostering societal equality regardless of income gaps, it also addresses SDG Goal 10 (Economic Planning Unit, 2021). Promoting financial literacy while fostering financial inclusion can result in long-lasting improvements in helping people meet their financial objectives.

This article aims to investigate the factors responsible for the acceptance of electronic wallets by identifying the possible gaps in the underlying theory and previous empirical literature through a systematic literature review. In addition, the researchers have presented the major problems of this innovative product and the importance of solving these problems for sustainable development in Malaysia.

This article extends the literature on electronic wallets in several ways. First, it examines the introduction and development of e-wallets, which seem to have had a significant impact on communities and businesses in recent years. Secondly, it highlights the key issues and the importance of addressing these issues for

sustainable development in Malaysia. Third, the methodology of this article was presented to identify gaps based on the previous literature review using systematic searching strategies. In this way, the researchers identified several gaps in the literature and in practice based on the underlying theory of TAM and previous literature reviews by providing a clearer picture of the confirmation of the factors that play a crucial role in users' decision to accept the e-wallet. Finally, the article provides a detailed insight into the conclusions and recommendations that can be used by future researchers to further investigate and add to the existing literature on e-wallet studies.

2. Key Issues in e-Wallet Acceptance Literature

The researchers contemplate that the study related to the acceptance of e-wallets is necessary especially in Malaysia to help promote the aspirations of the government to create cashless transactions among Malaysians. Based on that, the researchers have made a review of the gaps found in previous e-wallet studies to help and facilitate future researchers to continue studying this matter. Numerous countries, including Malaysia, are striving to transition into cashless societies by 2050 and to attain regional leadership in the digital economy by 2025. The issue, though, is the general lack of acceptance in society, which makes it difficult to realize these goals. To mitigate this, the government is implementing several initiatives and programs targeted at improving societal well-being and encouraging Malaysians, particularly those in the B40 group, to adopt e-wallets (Hanif, 2020). However, despite these initiatives, acceptance is still subpar and falls behind the use of cash and credit cards (Goh, 2020). This low-income community's reluctance to adopt digital technology is not a result of a lack of desire but rather is a result of their limited incomes, which are only adequate for subsistence due to the pervasive poverty (Lee et al., 2021). Although technology can lead to social and economic gains, the study emphasizes that the adoption of technology cannot be assumed, especially among the most underprivileged and illiterate communities. It is significant to identify the determinants and their impact on the acceptance of e-wallets from the viewpoint of Malaysian users because research on predictors of e-wallet acceptance in the Malaysian context is still limited (Jin et al., 2020).

Additionally, Malaysia's population rose from 32.4 million in 2018 to 32.7 million in 2020. In terms of total population, there are 3.2 million non-citizens and 29.5 million citizens (90.2%) (Fintech, 2021). The use of smartphones is expected to expand by 28.82% between 2015 and 2020, which is consistent with the pattern of the Malaysian population's growth. This positive correlation should also have a similar effect on Malaysians' acceptance of e-wallets. However, in 2021, most Malaysians largely favor cash (64 percent), credit cards at 21 percent, and the remaining 15 percent through e-wallets (Worldpay Global Payments Report, 2021). Since over 52 million credit and debit cards are now in use, the majority of Malaysian customers operate in a cash-based culture and exhibit a general cautiousness, which could pose challenges to the widespread adoption of e-wallets by consumers (Hoh, 2021).

Further, the current level of acceptance within the given timeframe continues to be modest. Despite Malaysians having had access to digital payments and cashless solutions for a while now (Ariffin et al., 2020), a sizeable fraction of Malaysians have not yet fully embraced these procedures. This scenario is exacerbated by the lack of knowledge about the benefits of e-wallets (Abdullah et al., 2020). Moreover, a lack of confidence in cashless or electronic payment systems could potentially be attributed to the lack of acceptance. Low-security precautions and inadequate electronic security for e-wallets are the main issues that prevent their acceptability (Noor Ardiansah et al., 2020; Singh & Srivastava, 2020). According to research, discomfort makes it far more difficult for micro-merchants to embrace cashless payment systems (Prianandа et al., 2020). Plus, Malaysians' current low acceptance of e-wallets is related to worries about being exposed to advanced cyber security threats during online transactions (Abdullah et al., 2020).

Studies associated with e-wallet acceptance are also deemed important because various viewpoints focus on technology acceptance. The Technology Acceptance Model (TAM), among other studies in this field, examines people's attitudes, user beliefs, and behavioral intentions toward using technology. According to Hwang, Al-Arabiat and Shin (2016), acceptance is more important than intention since it considers the actual use of the facility and provides an exhaustive overview of how end users behave when using an e-wallet. As such, based on the above points, the researchers suggest TAM as the underpinning theory and adaptation of previous empirical studies to investigate determinants towards e-wallet acceptance.

The Importance of Addressing These Key Issues for Sustainable Development: The digital economy has grown substantially because of fintech, especially in emerging nations like China, India, Thailand, and Indonesia (Al Nawayseh, 2020). The beginnings of fintech can be found in the 1950s, when ATMs replaced tellers and credit cards were introduced to simplify daily transactions (Tun-Pin et al., 2019). By 2020, Fintech investments are anticipated to attain a global value of about US$40 billion. With the positive improvements that the Malaysian start-up ecosystem has shown thus far, it is plausible that consumers will continue to recognize and explore the benefits that Fintech offers. Statistica reports that the country's fintech transactions this year amounted to just US$6.37 million, whereas the global total was US$769.3 billion (Surendra, 2017). According to Tun-Pin et al. (2019), this signifies that organizations would benefit from Fintech development in terms of customer engagement and business strategy development. Furthermore, according to the Economic Planning Unit (2021), Fintech can help achieve SDG 10-Reduced Inequalities by fostering societal equality regardless of income disparities and empowering Malaysia to meet the challenges of a volatile, unpredictable, complex, and uncertain (VUCA) environment (Yeoh, 2019).

The social targets in enhancing people's well-being through financial inclusion are one of the reasons e-wallet payments have gained a great deal of attention (Nam et al., 2023). E-wallets have transformed the way individuals and companies execute business, and it has been noted that they have the potential to increase financial inclusion while simultaneously narrowing the associated gender and rural gaps (Koomson et al., 2021). E-wallets are seen to have possessed a significant impact on business in recent years. Financial inclusion refers to the availability of cost-effective and practical financial goods and services to individuals and businesses, catering to their diverse requirements for transactions, payments, savings, credit, and insurance. These services ought to be provided in an ethical and sustainable manner. An alternative to traditional payment methods like cash or credit cards has been offered by electronic payment systems. Several countries are moving towards digital currencies, and some may even think about doing away with traditional paper money in the future.

The Malaysian government has started a few initiatives and programs because it acknowledges the significance of e-wallets. By aggressively encouraging the use of e-wallets through the establishment of the Interoperable Credit Transfer Framework (ICTF) policy in 2018 and the subsequent launch of the digital economy plan MyDIGITAL in February 2021, the government has demonstrated its commitment to advancing the goal of a cashless society. In MyDIGITAL, the Malaysia Digital Economy Blueprint's plans to propel Malaysia's economic development into a technologically advanced state are delineated. The Twelfth Malaysia Plan 2021-2025 (RMK-12), which aims to achieve Wawasan Kemakmuran Bersama 2030, relies substantially on MyDIGITAL. To lead the nation in the digitization of ethnicity, the former prime minister announced the Digital Economy Blueprint. The 10-year plan seeks to establish Malaysia as a regional leader in the digital economy and transform it into a high-income, digitally-driven country (Economic Planning Unit, 2021). The development of new technologies, however, is one of the most crucial approaches toward achieving these objectives and closing the technology gap between developed and developing countries.

Aside, from the best of researchers' knowledge, there has not been much-restricted analysis done to date regarding the lower-income acceptance of e-wallets, even though adoption is growing quickly in Asian countries. The low level of acceptability among individuals poses challenges for government initiatives to promote the usage of e-wallets, especially in the low-income population. Furthermore, this technology may help social and economic circumstances, but adoption is not certain, particularly among the least educated and most economically impoverished populations. People who are unbanked are more likely to live in remote locations that are disconnected from formal financial institutions and have irregular or low incomes (Ky et al., 2021). Additionally, acceptance studies have shown to be essential in predicting whether new goods and services will succeed or fail.

3. Methodology

Based on the underlying principle of TAM and previous literature reviews, researchers have determined where there are gaps in the study of e-wallets. Based on systematic searching techniques, the prior literature was reviewed. To ensure rigorous and structured searching, this technique was created based on three subprocesses: identification, screening, and eligibility. As extended as all database searches can be

reproduced, this method can be accurately documented in the review. The process of finding synonyms, related terms, and variations of the study's main keywords is known as identification. All datasets were searched from January 2017 to April 2021 using advanced searching techniques such as the Boolean operator, phrase searching, truncation, wild card, and field code functions separately. The following main and enriched keywords were used to conduct the searches across all databases from January 2017 to April 2021: ("ACCEPTANCE*" OR "ACCEPT*" OR "ACCEPTING*" OR "ACCEPTED" OR "ADOPTION*" OR "ADOPT" OR "ADOPTED") AND ("CASHLESS" OR "E-PAYMENT*" OR "ELECTRONIC PAYMENT*" OR "ONLINE PAYMENT*" OR "ON-LINE PAYMENT*" OR "E-WALLET*" OR "ELECTRONIC WALLET*" OR "ELECTRONIC MONEY").

Gusenbauer & Haddaway (2020) who confirmed the searchability of these two search sources identified two databases, Scopus, and Web of Science, as the top databases for searching related articles and documents for the review. A total of six (6) sources yielded supporting databases. The sources used were Google Scholar, DOAJ, MY Jurnal, Research Gate, Mendeley, and university libraries. 320 articles have been produced because of the identification procedure in the major and supporting databases. 233 items were eliminated during the screening phase because they did not match the requirements for inclusion, leaving 87 articles for the eligibility procedure. The third step, eligibility, involves manually reviewing all the retrieved articles to make sure that all still fulfill the requirements following the screening process. Only 60 articles were selected for review out of the remaining 27 that had duplicate records in different databases.

4. Gaps in e-wallet Acceptance

Based on a systematic search review of previous literature and theory from TAM, the researchers have identified some gaps in the study of e-wallet acceptance that can be used for future studies. Literature and practical gaps found in the review include those mentioned in the article discussion below: -

Gaps in Literature: Firstly, prior studies by Aditia et al. (2018), Qi et al. (2021), and Setiawan et al. (2018) indicated that Perceived Usefulness (PU) exhibits an insignificant association with technology adoption, while Perceived Ease of Use (PEOU) might wield a more substantial impact on system acceptance compared to PU. Drawing from this literature analysis, the study primarily adopts the Technology Acceptance Model (TAM) as the foundational theory, focusing on variables like PEOU and Attitude (ATT) as mediators. Additionally, other independent variables drawn from prior research include Security (AlKubaisi and Naser, 2020; Al-Dmour et al., 2021; Wamba et al., 2021; Kamis et al., 2022), Government Intervention (Aji et al., 2020; Kennedyd et al., 2020; Liébana-Cabanillas et al., 2020; Shen et al., 2020), Social Influence (Abdullah et al., 2020; Al-Saedi et al., 2020; Kamis et al., 2023; Odoom & Kosiba, 2020; Soodan & Rana, 2020; Yang et al., 2021), and Trust (Hossain et al., 2019; Hariguna et al. 2020; Singh and Srivastava, 2020; Lisana, 2021; Yang et al., 2021).

Secondly, for a comprehensive understanding of eWA determinants in Malaysia, there has been a scarcity of studies focusing exclusively on acceptance. While studies such as Abdullah (2020), Malik and Annuar (2021), and Mohamad Anuar et al. (2020) have concentrated on intention, and Teng and Khong (2021) have explored adoption, there is a notable dearth of research on acceptance. Beyond Malaysia's boundaries, similar gaps exist, with studies concentrated on intention in Vietnam (Do & Do, 2020; Phan et al., 2020; Tran Le Na & Hien, 2021), Indonesia (Latupeirissa et al., 2020; Yang et al., 2021), Cameroon (Wamba et al., 2021), and India (Soodan & Rana, 2020). Hence, this study endeavors to address the gap in acceptance, as it is perceived as a more dominant factor than intention, involving users' experiential interaction with the facility, even if used just once. Acceptance offers a comprehensive understanding of end-users' responses while employing e-wallets (Hwang et al., 2016).

Thirdly, the research landscape has witnessed several investigations into the effect of PEOU on various facets, such as cashless payments (Subawa et al., 2021), Fintech (Abu Daqar et al., 2020), electronic payment systems (Al-Dmour et al., 2021; Alshurideh et al., 2021), mobile payment (Kennedyd et al., 2020; Liébana-Cabanillas et al., 2018; Lisana, 2021; Lu & Lu, 2020; Mew & Millan, 2021; Singh & Srivastava, 2020; Tounekti et al., 2021), m-wallets (Tran Le Na & Hien, 2021; Wamba et al., 2021), and e-wallets (AlKubaisi & Naser, 2020; Duy Phuong et al., 2020; Kamis et al., 2023; Latupeirissa et al., 2020; Malik & Annuar, 2021; Munthali, George & Xuelian, 2020; Simatele & Mbedzi, 2021). However, to the best of the researchers' knowledge, limited attention has been given to investigating the direct relationship between PEOU and eWA.

Fourthly, existing studies have demonstrated that technology acceptance or intention correlates with PEOU, SC, SI, TR, and ATT variables (Alkhowaiter, 2020; Botchey et al., 2020; Chellapalli & Srinivas Kumar, 2020; Murari et al., 2020; Simatele & Mbedzi, 2021). However, the role of government intervention in eWA remains underexplored in the literature. Additionally, while Singh et al. (2020) introduced SI as a moderating variable in the relationship between user-perceived satisfaction and mobile wallet recommendation, this study extends SI to serve as a determinant influencing ATT. Nevertheless, a gap remains, where prior studies, such as Latupeirissa et al. (2020), Li et al. (2019), Patil et al. (2020), Singh and Sinha (2020) and Widayat et al. (2020), have employed ATT as a mediator in the context of technology behavioral intention or adoption, but not specifically in the context of acceptance.

Moreover, although ATT as a mediator has been explored by Al Khasawneh and Shuhaiber (2013) in SMS advertising acceptance, no investigation has been conducted in the realm of eWA. Hence, this study aims to bridge the gap between ATT (mediator) and eWA, as ATT's significance has been affirmed and theorized in TAM-related research as a substantial predictor of information system usage (Davis, 1989; Karahanna et al., 1999; Taylor, S. and Todd, 1995).

Gaps in Practicality: Despite rapid growth in developing countries, empirical research on eWA for low-income populations is still limited and little has been studied. To the best of the researchers' knowledge, previous related studies conducted by Abu Daqar et al. (2020), Alshurideh et al. (2021), Lisana (2021), Phan et al. (2020), and Subawa et al. (2021) were based on demographic (age and gender), professionals in private and public service (Abdullah et al., 2020; Hariguna et al., 2020; Latupeirissa et al., 2020; Singh & Srivastava, 2020; Yang et al., 2021), merchants and retailers (Ariffin et al., 2020; Odoom & Kosiba, 2020; Singh & Sinha, 2020). This investigation holds significant importance, particularly considering the alarming rise in low-income groups due to the COVID-19 pandemic. The number of poor households increased to 639.8 thousand in 2020, up from 405.4 thousand in 2019 (Department of Statistics Malaysia, 2022). This escalation in low-income households underscores the government's potential burden in supporting the adoption of e-wallet technology. Notably, literature specifically exploring e-wallet acceptance among low-income groups in Malaysia is relatively scarce. This study aims to address this gap, especially considering the global trend toward cashless economies and technological advancement, while ensuring the inclusion of the low-income segment (B40).

In Malaysia, the low-income (B40) group, being the largest, plays a pivotal role in achieving the objective of a cashless society. Malaysians are categorized into three different income groups: Top 20% (T20), Middle 40% (M40), and Bottom 40% (B40). These values may increase or decrease year-to-year, depending on the country's GDP, which is why the median household income is used as the determinant. Household income refers to the total income received (accumulated) by members of households, both in cash or in kind that occurs repeatedly within the reference period (within a year or more frequently) household income. The income range for B40, M40, and T20 differs according to the state, however, the researchers will follow the national definition, where the income range for B40 is below RM4,850; RM4,850 to RM10,959 for M40, and above RM10,959 for T20 (Department of Statistics Malaysia, 2021). The population can be selected based on the three (3) main justifications: being among the largest income threshold groups in Malaysia, being the recipients of various forms of government financial assistance, and accounting for household distribution by docile, where a majority of households experienced a decline in income and dropped to a lower income group.

5. Conclusion and Recommendations

In conclusion, the recommendations and insights derived from this study are poised to facilitate the latest advancements in this field. The results of the researchers' study provide a modus operandi for identifying research gaps, thus enabling scholars to conduct literature reviews more rigorously, efficiently, and effectively in the future.

This gap study is a guide or reference for future researchers in identifying what factors contribute to the acceptance and use of e-wallets. To build the framework, the researchers identified the relevant justificatory knowledge. As prior methodological literature was rather silent on how research gaps were identified, we

conducted a literature review analyzing 60 papers to search for explicit or implicit knowledge on this topic. The researchers hope that this article provides researchers guidance for the essential task of identifying research gaps in a more rigorous, effective, and efficient manner. Further, the researchers hope that this article serves as a starting point for a scholarly debate on the important, yet understudied, topic of rigorously identifying research gaps in literature reviews.

Nevertheless, this article has several limitations and therefore offers numerous opportunities for further research. First, the approach of analyzing the literature reviews in terms of how they reveal research gaps has not always yielded the desired results. This aspect requires further scrutiny, as it is pivotal for the identification of research gaps. Secondly, the process of verifying research gaps could be more data-driven. While the researchers believe that this article provides substantial arguments for the inclusion of this process, the aspect certainly requires further examination. Therefore, there is a need for greater collaboration between researchers, policymakers, and practitioners to ensure that research on e-wallets is translated into effective policies and programs that can address the root causes of e-wallet acceptance.

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Affective Design Components of Educational Application for Children

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Abstract: Affective design of educational applications mainly for children is vital to ensure that the learning process can be successfully delivered to the children. Understanding children's preferences in designing the educational application is important as it could induce a positive experience and ensure they are engaged with the application. Even though there are various kinds of educational applications in the market, the interface design specifically for children is still questionable. Therefore, the purpose of this study is to identify the affective design components and elements of educational applications that are specifically appropriate for children and cater to their learning needs. This study employed a qualitative approach that comprised two activities; (i) works of literature searches retrieved from two main databases, and (ii) constructing the components and elements using thematic analysis. The findings revealed two components which are affective interface design and content.

Keywords: *Children Computer Interaction (CCI), Affective design, Assistive technology, Educational application, Child-Centered Design (CCD) Approach.*

1. Introduction

Technology provides tremendous benefits to every person in this world. The advancement of technologies enables both normal and disabled people to perform their daily activities. However, Assistive Technology (AT) is unable to assist those with disabilities on its own. Assistance is required to ensure that AT might be utilized effectively (Akcil, 2018). Moreover, using AT in an educational setting could ensure the student's learning needs, particularly those with disabilities (Sandoval-Bringas et al., 2021). Nowadays, AT is not only limited to support physically but also to support digitally. Digital support is any electronic equipment or application that can support people with disabilities to enhance their capabilities in doing their job tasks or any regular activities. Despite various devices and auxiliary technology in the market, the computer remains the primary and essential tool for disabled people to do their work, study, and communicate (Markova & Byalmarkova, 2021). This includes providing the affective interface design.

An interface design that is understandable and usable is very important for the users. Furthermore, understanding the uses of the application before its development is crucial due to the requirements are different. Interface design for children is different from that of adults, and similarly, the interface design for normal people also differs for people with disabilities. Despite the fact that the interface was created with children in mind, each age group has different needs (Giraldi et al., 2021). The level of cognitive load that can be handled by the individual is different from one another. Too much information on the interface might put a burden on certain individuals. The mixture of affective and cognitive aspects in the interface design could enhance the usability and user acceptance of the product (Prastawa et al., 2019). Moreover, Prastawa et al. (2019) also mentioned that to ensure that the application is usable, the two aspects namely affective and cognitive must be taken into consideration even though these two work interdependently.

The major core of the interface design is to ensure that the application is usable and accepted by the users. Research that had been conducted by Latiff et al. (2019) states that many good applications in the market still experience losses due to the fact that the interface designs are unattractive, too complex, too broad, and not focused on the children as the end user. Moreover, little attention has been given to the interface design that focuses on the affective aspect especially applications developed mainly for children. Therefore, this study attempts to identify the affective components and elements of interface design of an educational application mainly for children based on previous works of literature.

This paper is divided into several parts where the literature review explains the previous studies on affective design that relates to the concept of Kansei, Kansei Engineering, how Kansei Engineering relates to the study and previous applications that focused on children as the users. The methodology describes the activities involved in finding the works of literature, followed by the results and discussion, as well as the conclusion and future work of the study.

2. Literature Review

Affective Design based on the Concept of Kansei: Affective design in the concept of Kansei engineering was introduced at first in the automotive industry to assist in designing cars that could evoke the user's positive feelings (Nagamachi, 1995). After that, the area had been expanded to other industries like manufacturing, electronics, and the educational sector as well. Kim et al. (2016) carried out research on a smartphone that focused on the appearance and applications inside. This explained that the affective aspect could not only be used to study the appearance of the product but also the software applications. Furthermore, Lokman (2013) stated that people react positively when they look at something attractive and appealing. When this happens, they tend to pay more attention and have an interest in using it. The usability and functionality of the product come later. Additionally, the users of the products tend to look at the product first, then they have a perception towards the product, and lastly, they react or use it accordingly (Prastawa et al., 2019). This justified that, a product that could evoke a user's positive feeling has the advantage.

The study that had been conducted by Prastawa et al. (2019), stated that affective design factors influenced the learning process as it could impact the emotion of the learner. The study also made a comparison between e-learning and e-commerce websites regarding affective and cognitive factors on usability. The result revealed that the affective factor influenced more on the usability of the e-learning website more than the e-commerce website. The affective indicators highlighted in the study are color, brightness, harmoniousness, salience, appeal and pleasantness, comfort, reliability, and attractiveness. Meanwhile, cognitive indicators are error prevention, interactivity, feedback and help, learnability, readability, memorable, easy navigation, logical navigation, u-site direction, and easy-to-go-back option. Therefore, this indicated that the affective factor is significant to the websites or any applications that incorporate educational content.

On the other hand, Han et al. (2001) revealed that the usability factor for the products was related to the performance and image or impression. Performance could be categorized into three aspects; the first one was the thought and understanding of the product itself (perception or cognition), second, the time taken to learn how to use the product and memorize it (learning or memorization), and finally the reaction towards the product (control or action). Meanwhile, an image or impression also could be classified into three categories namely, basic sense, description of the image, and evaluative feeling. Basic sense relates to the direct impression of the characteristics of the image that the user looked at. Description of the image means how the users describe the image based on their experience. Lastly, evaluative feeling describes how the users make a judgment or evaluate the products to express whether they like or dislike the products. Similarly, Kim et al. (2016) also conducted research based on the three phases of affect namely primitive, descriptive and evaluative. Additionally, the study considered the three levels of appraisal which are sensory-motor, schematic, and conceptual level. The findings of the study revealed that the appearance of the smartphone involved three phases. However, the smartphone application excluded the primitive phase due to the reason that the applications had customization features.

Kansei Engineering (KE): In the past, the manufacturer designed a product based on its design plan regardless of consumer demand or preference. Some products cannot be sold well due to the lack of consideration for customer preferences. Kansei Engineering (KE) was developed by Nagamachi to create new products that are ergonomic consumer-oriented technology (Nagamachi, 1995). In KE, the development of the new product takes into account the consumer's psychological feelings and image, and translate those feelings and image into a product. Industries that employed KE in the product development process are automotive, construction machines, electric home appliances, office machines, house construction, costume, and cosmetic industries (Nagamachi, 2002).

The manufacturer that employed KE would break down the zero-level concept of product development into several sub-concepts until they managed to highlight a suitable physical feature that matches the

characteristics of the sub-concepts. The process then continued with the ergonomic test until the product design concluded (Nagamachi, 2002). Those steps involved Kansei Words (KWs) at the beginning of the phase. Lokman & Kamaruddin (2010) identified 820 KWs that falls into forty-three cluster which is called as Kansei Affinity Cluster. Among the clusters are creative, decent, elegant, happy, inferior, trustworthy, sad, technological, weird, negative perception, and positive behavior. Meanwhile, examples of KWs identified are inspiring, appealing, arousing, enjoyable, incapable, optimistic, depressing, user-friendly, boring, conservative, and persistent.

How Kansei and Kansei Engineering (KE) relate to the Study: This study makes an effort to adapt the KE concept in designing an educational application for children. The KE concept takes the user's psychological state and image and then transforms those into the product. It is believed that users tend to examine the item first before beginning to use it if they sense something that might draw them to it. The study attempted to elicit favorable sensations in users when they looked at the item. One of the issues the researchers may confront is figuring out how the children feel and perceive the things that they look at. Therefore, the researchers must ascertain the preferences of children for the interface design before developing the application. This is necessary to guarantee that a favorable or positive feeling could be evoked. Moreover, comprehending the Kansei Words in the Kansei Affinity Cluster like enjoyable and optimistic could assist the researchers in making sure that the children could feel the positive feeling while interacting with the application.

Reviews of Existing Educational Applications: The educational applications that could foster students in their learning activities are essential. Even though there are so many educational applications that are available in the market but still a new form of research must be conducted to ensure that the applications developed are tailored to the specific needs of the children. The interface design that is suited for all children must take into account as the interface is different for adults.

Latiff et al. (2019) developed a mobile learning application that focused on children. The design of the application takes into consideration the eight design elements namely Navigation, Text, Image and Icon, Audio, Content, Colour, Input or Output Support, and Feedback. The elements have resulted from the thorough study carried out by the researchers and expert validation. SugarCad Kids is a 3D modelling software program that focuses on the recent graphic user interface concept. The program was developed by Giraldi et al. (2021) and the target users were children aged three to seven years old. The development of the program followed the User-Centered Design (UCD) approach as the primary method for the Child-Centered Design (CCD). Other than that, the program also used a Human-Centered Design (HCD) approach. The focus of the program's development was to design an interface that was suitable for the children who were equipped with the criteria of understanding, enjoyment, friendliness, and intuition. Gasah et al. (2019) conducted research that focused on developing an e-learning application that could induce positive emotions in children while learning. The e-learning application focused on the kindergarten syllabus like the alphabet, numbers, shapes, and colors. The major concerns of the development were regarding the positive and negative emotions towards the layout, color, and typeface.

Besides, Sandoval-Bringas et al. (2021) developed an educational application for visually impaired children to learn Braille signs. It is a type of mobile learning application that incorporates gamification elements so that the children can experience fun learning and motivate them through the learning process. The interaction method of the application is the touch screen, vibration, and sound. Meanwhile, Othman et al. (2020) researched an application that allows low-vision children to learn Mathematics subject through playing games. The application was developed for Android tablets and the target users are low-vision children aged seven years old. The storyline is related to conflicts between animals in the animal kingdom. Users need to complete various challenges that involve mathematical operations to go to the next level of the game. Rewards and positive feedback were given to the users when they managed to complete each task. Another educational application that used the game as a method to increase the learning process is by Riza et al. (2020). The labyrinth game, especially for blind children, consisted of four aspects namely (i) the characteristics of the blind, (ii) the problem-solving learning model, (iii) the lesson plan, and (iv) the concept of the story. The labyrinth game developed positive feelings as they enjoyed and felt excited while using the

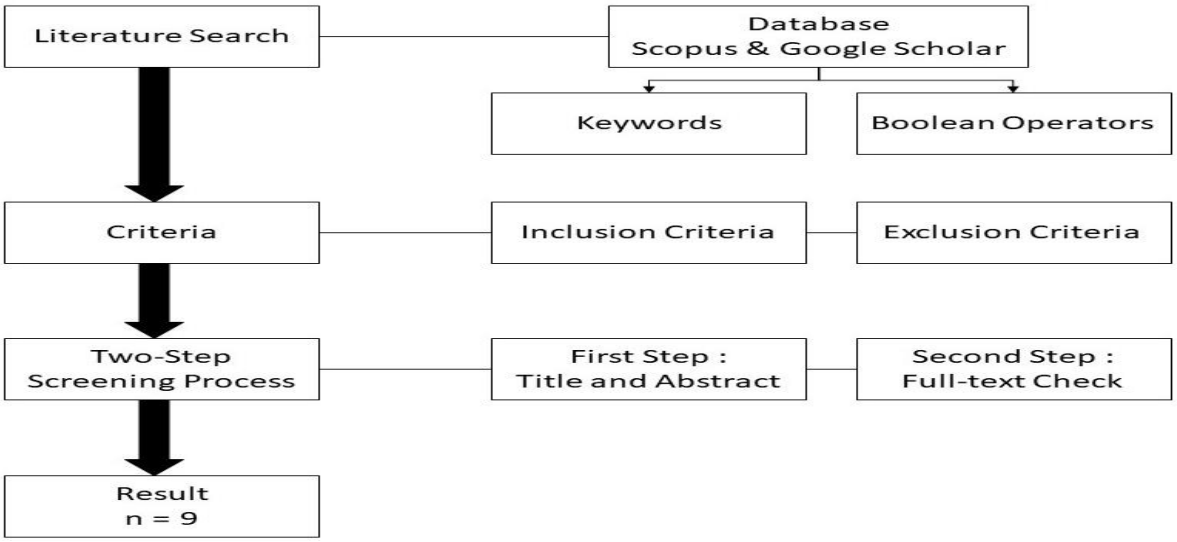
game as the learning media. Furthermore, the examination of attitudes and knowledge revealed an improvement following the use of the game.

Other than that, Groba et al. (2021) developed an educational application called ASD Module, specifically for autistic children. The ASD Module was built with the idea known as the perspective and the central axis was the autistic person, with the activities and interests of that person's life arranged around that perspective. The activities were scheduled, for education, leisure, communication, and computer access. The research aimed to identify the elements to support the interface design for autistic children and also to assist them in understanding their lives. Digital games can be an effective tool for children with special educational needs to improve socialization, learning, and professional activities. They can aid in the development of skills for object classification, observation, and self-control. Markova & Byalmarkova (2021) identified several requirements when developing digital games for children with intellectual disabilities. The development should take into consideration in terms of the elements of the interface design of games. The elements highlighted were clarity of the image and transitions, presence of the boundaries of the objects, color design, number of objects in one window, roles, interactivity, game levels, and options for sound selection. The findings of the research revealed that three factors could have an impact on the users. The factors are game content, game structure, and game mechanism. Having, reviewed the identified existing educational applications for children this study extracts the components and elements of affective design principles through the methodology as describes in the next section.

3. Methodology

The study used Scopus and Google Scholar as the main databases to find works of literature. Several keywords and a combination of Boolean Operators were used in the literature search which are *affective, design principles, multimedia,* and *children*. The Snowball technique was also used in finding the relevant articles. There were certain inclusion and exclusion criteria to be matched during the search of the articles. The inclusion criteria were (i) the articles must be from the year 2019 to 2022, (ii) the articles must discuss the design principles for children not only limited to normal children but also disabled children, and (iii) the design principles highlighted should for all kind of devices. The exclusion criteria were (i) articles that discussed design principles, not for children, (ii) articles written in languages other than English, and (iii) articles below from the year 2019. The relevancy of the articles has been carried out through the two-step screening process. The first screening process involved checking through the title and abstract. Next, the articles that resulted from the first screening process would be further examined. The second step of the screening process was to read the contents. As a result, nine articles were chosen for the final analysis. Figure 1 shows the process of literature search and retrieval of relevant articles.

Figure 1: A Process of Literature Search and Retrieval of Relevant Articles



Thematic analysis was used to categorize the interface design principles for children. A total of twelve elements had been identified and the elements were grouped into two which are design principles and content. The elements under design principles were image or graphic or animation, text, audio or voice, color, layout, visual complexity, information displayed, and navigation. Meanwhile, elements of content were storyline, feedback, activity or difficulty level, and reward. The next section discusses the results gathered from the review process.

4. Results and Discussion

This section highlights the elements found in the previous works of literature by dividing them according to the two major components which are affective design principles and content. The elements for each of the components are also being discussed. Table 1 shows the matrix table of the components and elements found in the literature.

Table 1: Summary of Components and Elements

NO	AUTHOR	YEAR	PRODUCT / APPLICATION	DESIGN PRINCIPLES								CONTENT			
				IMAGE / GRAPHIC / ANIMATION	TEXT	AUDIO / VOICE	COLOUR	LAYOUT	VISUAL COMPLEXITY	INFORMATION DISPLAYED	NAVIGATION	STORYLINE / CONTENT STRUCTURE	FEEDBACK	ACTIVITY / DIFFICULTY LEVEL	REWARD
1	Betania Groba, Laura Nieto-Riveiro*, Nereida Canosa, Patricia	2021	Computer application for children with ASD	/	/	/	/	/	/	/		/		/	
2	Gergana V Markova and Petya Y Byalmarkova	2021	Digital games for children with intellectual disability	/	/	/	/	/	/				/	/	
3	Laura Giraldi, Mirko Burberi, Francesca Morelli, Marta Maini,and Lorenzo Guasti	2021	SugarCad Kids	/	/		/				/		/		
4	Sandoval-Bringas et al.	2021	Mobile Application to Learn Braille Symbols (games)		/	/					/		/	/	
5	E Song, N M Suaib, A J Sihes, R Alwee and Z Mohd Yunos	2020	Mathematics Game			/						/	/	/	
6	Othman et al	2020	Serious game prototype (mathematical subject) for low vision children	/	/	/						/		/	/
7	Riza et al (2020)	2020	Labyrinth Game	/	/	/	/				/	/		/	
8	Halimatus Saadiah A. Latiff, Rozilawati Razali, Fatin Filzahti Ismail	2019	Mobile learning application	/	/	/	/			/	/	/	/	/	
9	Magrizef Gasah, Nurul Hidayah Mat Zain, Aslina Baharum	2019	E-learning application	/	/	/	/	/				/			

Affective Design Principles

Text: According to Latiff et al. (2019), any serif or San serif fonts with a single story on the letters 'a' or 'g' like Comic Sans MS should be used. Moreover, single-story letters are the kind that are typically introduced at the preschool level which is simpler for children to understand. The researchers also mentioned that a font size change function should be added to the application to increase readability especially if the users are visually impaired children. Gasah et al. (2019) mentioned that the recommended font type for children aged four to five years old was Tahoma or Century Gothic because the font was readable and understandable. Additionally, Gasah et al. (2019) discovered that using a certain type of font could induce certain emotions in the children such as Tahoma (Joy), Comic Sans Ms (Excited), Palatino (Interest), and Felix Titling (Admiration).

The selections of font type, size, and formatting are significant to children with disabilities. Different types of disabilities would prefer a different set of types, sizes, and formatting. According to Groba et al. (2021), children with ASD prefer lowercase letters, and calligraphic-linked styles like Comic Sans or Edelfontmed, and the size must be large. Meanwhile, low-vision children prefer Serif font type and the size must be at least 18 points (Othman et al., 2020). This is consistent with the research conducted by Riza et al. (2020) regarding font type and size where the visually impaired people could understand better with certain font types only and the size should be large enough to be seen. The highlighted font types were Arial, Comic Sans, Verdana, and Tahoma. Additionally, text formats like italics underscores, and text that has a distance of adjacent letters should be avoided as it could make them face difficulties in reading. Besides, the use of upper and lower case, 1.5 spacing, and simple words could assist them in grasping information while learning.

Image, Icon, Animation and Character: Children process information in a visual setting more effectively than verbal information. The information could be grasped easily when it is supported by images or pictures. Besides, the usage also could motivate the children to continue to use it. A picture is more realistic, and relatable to their daily lives (Groba et al., 2021), and the cartoon drawing style is preferable (Latiff et al., 2019). Moreover, putting together visuals and words has a greater impact on the children (Groba et al., 2021). The image must be sharp and in some cases, the presence of borders around the image could resolve the problem of difficulties in recognizing the image when the image blends with the background color (Markova & Byalmarkova, 2021). Moreover, images that have less saturation are preferable (Groba et al., 2021). Some applications use icons, however, sometimes the icons are a bit confusing. Therefore, the text reference must be added to the icons for easy interpretation (Giraldi et al., 2021) as the children are still learning to read and recognize the alphabet (Latiff et al., 2019). The application might be more appealing if it used simple animation rather than static images. For example such as the animation could be activated when a finger or cursor hovers over or touches the animation (Giraldi et al., 2021). Object speed is also crucial as low vision children require slow speed and must be in the same direction (Othman et al., 2020).

Apart from that, the application also should have a character to support children in the learning process. The character must possess a good quality attitude as it could increase the interaction between the children and the application, and give motivation to the children to continue using the application. The character must be intelligent, eager to learn, and able to move, speak and show expressions (Latiff et al., 2019). Moreover, the usage of cartoon drawing for the background or picture of the application was more suitable to gain the attention of the children while using the application (Gasah et al., 2019).

Color: The selection of color according to the age group of children is important as it could give a pleasant feeling to them. Certain colors could evoke certain emotions in children. Positive emotions like happiness could be triggered when using Yellow color, Natural (Green), Earthy (Brown), Clean (White), and Neutral (Grey) (Gasah et al., 2019). It is necessary to choose the colors that children can easily identify such as pastel and bright colors (Latiff et al., 2019). Furthermore, for normal children aged 3 to 7 years old, neutral colors for the background and homogeneous colors for the action icon are more suitable (Giraldi et al., 2021). Color plays an important role in the learning process. However, if it is not being used wisely, it might become a distraction or problem for disabled children. Color serves specific purposes such as to enhance the information displayed and also for categorization. The background color must be different from the foreground color and any images on top of the background color (Groba et al., 2021). Riza et al. (2020) used bright letters on a dark background and dark letters on a white background. Color contrast can assist low-vision children in differentiating the objects in any application.

Meanwhile, for the categorization, the color could work as the color coding for the various set of instructions such as red color for the exit button and green color for the help button (Groba et al., 2021). Striking colors could only be used to emphasize important information on the screen (Latiff et al., 2019). Besides, there is a need to allow the children to change the layout's color as some of them might face problems with color recognition (Markova & Byalmarkova, 2021). Moreover, allowing children to change color based on their liking could boost their desire to learn (Latiff et al., 2019).

Audio (Sound / Music / Voice Command): Audio is significant to convey information to the users. The main function of the audio is to make the application lively and interesting. (Latiff et al., 2019) stated that audio

relates to the background music and sound effects of the application. The distinction between background music and sound effects is that the former refers to any music played while a user using the application, while sound effects denote any sounds added to make an application more engaging. However, it was advisable to use background music and sound effects that are incorporated with the learning theme. The background music chosen must be the one that could instill the excitement of using the application in the children. Audio also could serve other functions such as giving feedback and providing instructional support to the users (Song et al., 2020). Moreover, instructions provided using audio must be clear (Othman et al., 2020).

Gasah et al. (2019) stated that the instructions using a real human voice were preferable to the computer or robotic voice as the children might face problems in understanding the learning content. However, the option can be given to the children whether to turn on or turn off the sound as some normal children (Latiff et al., 2019) and disabled children found this as a disturbance (Markova & Byalmarkova, 2021). Other than that, Sandoval-Bringas et al. (2021) suggested that binaural sound where the sound that has different frequencies could be added to the application to accommodate the capacities of visually impaired children. Riza et al. (2020) developed audio-based games where the audio in the game could enhance the atmosphere of the game's storyline and assist in giving the material for the mathematical formulation process. Moreover, the authors also ensured the clarity and the speed of the audio was acceptable.

Voice Command: Some of the elements like buttons and menus should be equipped with sound or voice commands. The sound should be played one at a time (Othman et al., 2020) due to some disabled children, especially low-vision children face difficulty in understanding the content if multiple sounds are played simultaneously. The voice command could be a recorded human voice or the use of speech synthesis. Autism children prefer software that has speech synthesis for the voice command as it is believed could ease communication between the software and the children (Groba et al., 2021). Besides, the educational application that manages to understand human speech and allows users to execute tasks using voice commands is also appreciated (Sandoval-Bringas et al., 2021).

Navigation: One of the basic features that the application must have is navigation. The application should allow easy movement from one point to another on the same screen and also to the other screen. The menu design should be simple and preferable with audio (Othman et al., 2020). (Latiff et al., 2019) had highlighted some descriptions regarding navigation. The descriptions were the navigation (i) should be simple, easy to understand, and easy to remember, (ii) consistent on every page, (iii) the rule is not more than three clicks to get to the content page, and (iv) scrolling should be avoided.

Layout or Placement of the Elements: All the elements on the screen must have a consistent distribution and follow a left-to-right organization. Other than that, the wording that is being used together with the visual must be located at the bottom of the visual. The reason is to allow children to focus on the visual first and then read the wording to understand better (Groba et al., 2021). According to Gasah et al. (2019), children preferred a layout that followed the standard layout, using a grid, portrait, or landscape layout. Meanwhile, the dissatisfied layout was the layout that had more whitespace and complex layout as those could lead to the emotion of boredom and confusion.

Information Displayed: Multimodal representation is where more than one sensory channel is being used. It is thought that the usage of multimodal representation like the integration of visual and auditory information could aid children to absorb the information presented easily (Groba et al., 2021). Nevertheless, the information could be presented in a graphic format and the size must be big enough (Othman et al., 2020) depending on the users of the application. Furthermore, a simple screen design (Othman et al., 2020), reducing information on the screen (Groba et al., 2021), and only displaying necessary information (Latiff et al., 2019) could help children to focus as the cognitive load is less. Therefore, the "rest page" should be offered in the application as the page works to ease children's minds after absorbing information (Latiff et al., 2019).

Visual Complexity: The information that can be processed by the PWDs is different from one another. As highlighted by Groba et al. (2021), the visual complexity must be reduced to ensure that the children are focusing on the main elements of the screen. Too many elements on the screen might distract children's

attention from the information that is being delivered. Some of the applications provide working space for the children to work on. Therefore, the number of elements on the screen must not hinder this working space (Markova & Byalmarkova, 2021).

Content (Storyline, Feedback, Activity/Difficulty Level, Reward): A good application is not only concentrated on the design principles but also the content of the application. An effective educational application could evoke users' positive emotions and keep them motivated to learn (Song et al., 2020; Markova & Byalmarkova, 2021). The content of the educational application must correspond with the school syllabus of the targeted children. For example, children aged four to five years should consist of syllabi like Alphabet, Number, Shape, and Colour (Gasah et al., 2019). In addition, these can be accomplished by having an exciting storyline, offering the level of difficulties, and providing positive feedback for every achievement (Song et al., 2020). Latiff et al. (2019) also emphasized the content structure of the application which is introductory and learning content, training, games, quizzes, or time-based assessment. Furthermore, the suggested delivery method for the introductory and learning content was storytelling or using character as the instructor. Before starting the games or activities, the program must also offer tutorials. This makes it easier for children to comprehend how the game or activity is played. Othman et al. (2020) highlighted that if the educational application is in the form of gamification, then an interesting storyline and fun game could engage the children with the application. The storyline should be incorporated with background audio. The level of difficulties or challenges must be matched with the target user's ability. Not only that, the level of difficulties like low, medium, and high levels also must be added for all content, quizzes, and games in the application (Latiff et al., 2019).

Feedback is a vital component especially when the application is an educational application as it is believed that it could reinforce new abilities and strengthen existing knowledge of the children while interacting with the application. Giving immediate feedback for every activity like feedback concerning progress, encouragement, and support could increase children's engagement and trustworthiness towards the application (Latiff et al., 2019). In addition, various methods of feedback should be supplied such as text, audio, and video feedback. Positive feedback can be in the form of a reward or result displayed on a screen (Markova & Byalmarkova, 2021). The reward must be in an attractive form to motivate users to continue with the application (Othman et al., 2020). Moreover, the application mechanic that could automatically generate the next activities based on the progress made by the users should be put into consideration (Sandoval-Bringas et al., 2021). Children's performance in every assessment also must be shown in the application to gauge their level of comprehension of the course material (Latiff et al., 2019).

Besides, the language chosen also plays an important role in making the content easy to understand (Othman et al., 2020) and it is recommended to use simple language (Latiff et al., 2019). Besides, a bilingual language also could be offered like using Bahasa Melayu as the native language and English as the foreign language (Gasah et al., 2019). This is due to the fact that not all children mastered a foreign language.

5. Conclusion

Designing an interface that is suitable for children is vital to make a learning process take place. Interface design for children is different as compared to adults as it has certain criteria that need to be considered. This paper contributed to finding the affective components and elements that are suitable for children when designing an educational application for them. It is believed that when the design is in accordance with the children's preferences, it could evoke a positive feeling and as a result, children could learn better. The positive feelings could make them engaged with the application and motivate them to continue using the application. The negative feeling of difficulty understanding the application must be avoided as it could lead to a bad learning experience while navigating through the application for the children. This study contributed to an affective interface design for the children. There were two main components identified namely the design principles and the contents. Each component has its elements that could foster positive feelings in the children while learning using the application. Future works of the study will focus on evaluating the gathered components and elements through an expert review method before proceeding with the development of affective educational applications for children.

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A Proposed Framework for the Relationship between Emotional Intelligence and Employee's Performance: Mediating Role of Job Demand

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Abstract: In the realm of employee performance, emotional intelligence (EI) plays a pivotal role. Research has consistently shown that EI is positively correlated with employee performance. It acts as a critical predictor, influencing how well employees perform in their roles. Emotional intelligence encompasses one's ability to perceive, express, understand, and manage emotions. When employees possess high EI, they are better equipped to navigate the challenges and dynamics of the workplace. As there are scarcity of research that explains the mechanism describing the EI-Employee's Performance relationship, this study proposed the potential role of job demands as an important mediator in this relationship. Job demands include factors like workload, stress, and time pressures. Employees with high EI tend to handle these demands more effectively, leading to reduced stress and burnout consequently increasing job performance. In summary, emotional intelligence serves as a reliable predictor of employee performance and is crucial for maintaining a motivated and high-performing workforce, ultimately benefiting the organization as a whole.

Keywords: *Emotional Intelligence, Employee's Performance, Job Demand, Self-Awareness, Self-Management.*

1. Introduction

The performance of employees is of great importance in a firm. Employee performance is a complex notion that encompasses the anticipated organizational results arising from an employee's behavior that further classified into three categories which are task performance, contextual performance, and adaptive performance (Sonnentag et al., 2016). While several elements may impact an employee's performance, recent studies have highlighted the significance of Emotional Intelligence (EI) as a crucial indicator of workers' success. According to Davis (2019), EI in the workplace has a favorable impact on employee performance, retention, and occupational stress. Companies that prioritize the development of EI in their workplace are enjoying higher levels of profitability, as stated by Khalili (2012). Due to its significant impact on organizational outcomes, employee performance has garnered considerable attention from academics focusing on factors that enhance organizational performance.

Prior research has shown a strong correlation between an employee's performance and their positive emotional intelligence. In the current dynamic and volatile job market, exacerbated by the economic downturn, employees are not only required to maintain a satisfactory level of work performance but also to actively seek opportunities to increase their worth inside a company. As a result, employees are anticipated to work more hours, managing impractical deadlines and other bureaucratic processes in their endeavor to contribute to the achievement of the organization's strategy to maintain competitiveness and survival in its respective sectors. Nevertheless, the persistent demand placed on workers has a substantial effect on their emotional well-being, leading to a continuous rise in work-related depression (Krishnan et al., 2018; Mokhtar et al., 2022).

Based on the National Health Morbidity Survey (NHMS) 2019, the prevalence of depression among adults in Malaysia is statistically estimated to be 2.3 percent. This translates to almost half a million individuals, or 1 in every 3 Malaysians, experiencing mental health problems. According to statistics, the rate of Malaysians experiencing mental health problems has increased thrice from 10.7 percent in 2005 to 29.8 percent in 2015 (S.N.Chua, 2020). According to the 2020 research by Relate Malaysia, around 29 percent of employees in businesses suffer from mental health issues. This means that in a medium-sized firm with 200 workers, around 60 employees are likely to experience symptoms of depression, anxiety, or stress. An identified stressor that has been extensively researched is the apprehension of job loss, which therefore leads to a reduction in income (Tusl et al., 2020).

This alarming data reveals that the majority of employees are working in conditions that subject them to mental stress caused by work-related demands, which may lead to numerous performance issues within a company. This has been substantiated by previous research, which identified two primary challenges encountered by the hotel industry: extensive working hours (Arnieyantie et al., 2022) and inadequate remuneration (Scott-Halsell et al., 2008), resulting in elevated rates of employee turnover and absenteeism. Additionally, the Malaysian hotel business has the greatest turnover rate, as published by the Ministry of Human Resources. The performance of hotel frontline personnel is increasingly crucial as it sets a standard for the hotel business to thrive in terms of service quality. Therefore, employees must be able to function optimally. While several studies have examined the direct correlation between different EI variables and various organizational outcome factors, few studies have concentrated on comprehending the underlying mechanism that explains this association. Therefore, the objective of this study was to comprehend the mediating functions of job demand in the correlation between EI and employee performance.

2. Literature Review

Emotional Intelligence: Researchers have spent decades investigating why a high intelligence quotient (IQ) alone does not guarantee academic or professional success. The term emotional intelligence (EI) was introduced by Mayer and Salovey in 1990. This notion gained significant popularity as it provided an explanation and proof for the phenomenon where individuals with high IQ often fail, while others with lower intellects excel in their respective industries. Initially, EI was described as the capacity to observe and differentiate one's own and others' emotions, and to use this knowledge to direct one's thoughts and behaviors (Mayer & Salovey, 1990). Mayer and Salovey developed a paradigm that encompasses three key abilities for effectively managing and harnessing emotions; appraisal and regulation of emotion, regulation of emotion and utilization of emotion. Nevertheless, as a result of disregarding the aspect of cognitive processing in relation to emotions, Mayer and Salovey modified the theory to encompass the capacity to accurately and effectively perceive and express emotions, comprehend emotions and possess emotional knowledge, utilize emotions to enhance cognitive processes, and regulate emotions in oneself and others (Mayer et al., 2008; Mayer & Salovey, 1990; Salovey & Pizarro, 2003). The four branches of the ability model are described as perceiving emotions, using emotions to enhance cognitive processes, comprehending emotions, and regulating emotions (Mayer et al., 2004).

The Goleman's competence model was derived from the influence of Salovey and Mayer's work. In 1995, Goleman gained widespread recognition for his four-branch model of Emotional Intelligence (EI), which he later expanded into twenty emotional competencies in his book "Emotional Intelligence: Why it can matter more than IQ." Goleman introduced many personality qualities such as trustworthiness, teamwork, and collaboration, among others. He firmly believed that these emotional skills are not innate abilities, but rather can be cultivated and improved through time (Goleman, 1995). In addition, Goleman's suggested competence model illustrates how an individual's capacity to develop self-awareness, self-management, social awareness, and relationship management abilities directly correlates with their successful performance in the workplace (Goleman, 1998). The thorough description of his model consists of four branches:

a) **Self-Awareness:** Emotional self-awareness, accurate self-awareness, Self-confidence.
b) **Self-Management:** Self-control, Trustworthiness, Conscientiousness, Adaptability, Achievement drive, Initiative.
c) **Social Awareness:** Empathy, Service orientation, Organizational awareness.
d) **Relationship Management:** Developing others, Influence, Communication, Conflict Management, Leadership, change catalyst, Building bonds, Teamwork & collaboration.

Goleman (1998) proposed a model of Emotional Intelligence (EI) that illustrates how an individual's capacity to develop and use EI skills directly impacts their performance in the workplace. The contention posits that emotional competence, such as customer service or conflict management, is an acquired aptitude rooted in emotional intelligence, which yields exceptional job performance. For instance, an employee who is very emphatic does not guarantee effective customer service if they do not possess the necessary customer service abilities. The twenty competencies mentioned above have been identified as contributing to performance improvement. These competencies are generated from distinct neurological processes and stem from the cognitive domain of ability.

Emotional Self-Awareness, the first element of EI, refers to the ability to recognize and understand one's own emotions, strengths, shortcomings, and values. Emotional Self-Management, the second component of EI, refers to an individual's capacity to regulate challenging emotions such as worry and anger to minimize impulsive emotional reactions. This talent enables individuals to efficiently manage and control their emotions, impulses, and actions. The third component of EI is Social Awareness, which pertains to an individual's ability to empathize with others, comprehend their feelings, and demonstrate sensitivity toward social dynamics. The last element of EI is Relationship Management, which refers to the ability to establish and sustain positive relationships, effectively address problems, and inspire and influence others.

The idea of performance based on EI examines the qualities that differentiate exceptional performers from those who are ordinary. For example, research has shown that a large number of managers who possess Accurate Self-Assessment tend to excel in their performance because they have a clear understanding of their strengths and weaknesses. They tend to actively seek criticism and derive valuable lessons from their mistakes. Star performers acknowledge their weaknesses and actively seek opportunities to collaborate with individuals who possess complementary skills to develop in those areas (Boyatzis, 1982). Moreover, research conducted among small company owners and workers has shown that those possessing a heightened level of self-discipline and a better understanding of the circumstances occurring in their lives are less prone to experiencing anger or depression when confronted with work-related stress, and are also less inclined to resign from their positions. Research has shown that optimism plays a vital role in achieving sales growth, along with other accomplishments (Schulman et al., 1995).

3. Employee's Performance

The performance of employees is crucial for organizations to maintain high levels of performance and a competitive edge. Job performance encompasses the specific behaviors and activities of an employee that contribute to the organization's success in attaining its objectives (Carpini et al., 2017; Viswesvaran & Ones, 2000). Employee performance refers to the level of work effort that individuals devote to their jobs, and it is a crucial aspect of a workplace as it directly impacts the success of a company. Motowidlo et al. (1997) introduced two essential categories of employee behavior that are crucial for the success of an organization which are task performance and contextual performance. Task performance refers to the specific behaviors that directly contribute to the production of products or services or actions that offer support to an organization's technological core. Contextual performance refers to individual behaviors that are not directly linked to the primary task functions. These behaviors may include volunteering for additional task activities that are not formally part of the job or demonstrating extra enthusiasm when necessary to successfully complete one's own tasks (Motowidlo & Van Scotter, 1994). Notably, the demands of organizations to succeed in this rapidly evolving and competitive market have shifted their attention toward the notion of sustainable performance. Sustainable performance encompasses the interplay between an organization's commercial performance and its environmental, economic, and social performance (Al-Abbadi & Abu Rumman, 2023).

The performance of employees is a vital component in determining the success of any firm. Gaining insight into the determinants that impact it may result in enhanced efficiency, job satisfaction and overall organizational efficacy. Antecedents are the circumstances or situations that came before and have an impact on a certain result, such as the performance of employees in their jobs. For example, workers who are driven and engaged tend to achieve higher performance levels in their jobs. Motivation may arise from internal variables such as job satisfaction or external ones like as rewards and recognition (Kundi et al., 2020). Furthermore, job satisfaction significantly impacts employee job performance. Satisfied employees are more inclined to exhibit productivity and commitment towards their work (Alegre et al., 2016).

Moreover, the degree of employee adaptability in shifting circumstances also has an impact on their work performance. Adaptable employees who possess the ability to acclimate to changing situations and acquire new proficiencies often thrive in their positions. This adaptive performance according to (Park & Park, 2019) is contingent upon several elements such as training and support. Moreover, the psychological well-being of employees might have a substantial influence on their job performance. Kundi et al. (2020) further asserted that variables such as stress levels, work-life balance, and mental wellness might impact performance results. Furthermore, the research also discloses that the level of commitment shown by employees towards their

firm is directly correlated with their work performance. Employees who have a strong emotional connection to their employment are more inclined to exert additional effort and exhibit high levels of performance. The interconnectedness of these factors might collectively influence an employee's work performance. For instance, a person who is driven and content is more inclined to embrace new challenges and maintain a strong commitment to their career. Prior research has shown a correlation between employee performance and a range of organizational outcomes.

In addition to comprehending distinct factors that influence work performance, prior research also examines the consequences of employee performance. Latif et al. (2013) found that high employee performance has the potential to enhance employee morale and engagement, resulting in a favorable work atmosphere that promotes teamwork and collaboration. To summarize, the performance of employees has extensive implications for the success of a business, including factors such as productivity, customer satisfaction, innovation, and overall growth and competitiveness. It is important for an organization's long-term success to ensure that employees are motivated, satisfied, and competent in carrying out their responsibilities.

Emotional Intelligence and Employee Performance: Empirical research has consistently shown that EI has a considerable impact on employee performance (Dhani et al., 2016; Krishnan et al., 2018; Zainal et al., 2018). According to Davis (2019), EI in the workplace may significantly enhance employee performance, increase retention rates, and reduce occupational stress. Research has also shown that there is a positive correlation between ability EI and employee performance (Grobelny et al., 2021). The results are in line with the study conducted by Mohamad & Jais, (2016) and Yoke & Panatik, (2015), which both showed a substantial correlation between EI and teacher's job performance. As stated by Carrillo (2019), employees who exhibit high EI abilities are more capable of effectively fulfilling their job responsibilities. Othman & Syed Muhsin, (2020) corroborate this assertion, as their research demonstrates a positive correlation between EI and employee performance. Specifically, their study reveals that those with greater emotional intelligence tend to exhibit higher levels of performance, while those with lower emotional intelligence tend to exhibit lower levels of performance. This indicates that if a company does not observe adequate EI among its employees, it may result in work-related stress, which in turn affects individuals' intentions to leave their jobs and their satisfaction in their work (Panatik et al., 2012). Hence, it is essential for organizations to acknowledge the crucial impact of EI in cultivating human capital, which ultimately results in a workforce that excels in performance (Mohamad & Jais, 2016).

Job Demand: In the ever-changing environment of the modern workplace, both workers and employers need to comprehend the aspects that impact employee performance. The Job Demand-Resource (JD-R) Theory is a well-known theoretical framework that provides insights into how different job demands and resources might affect employee's well-being and job performance. The Job Demand-Resources (JD-R) Theory, formulated by Bakker and Demerouti, provides vital insights toward comprehending the correlation among job demands, resources, and employee's well-being. The JD-R Theory proposes that each work is distinguished by distinct demands and resources, and the manner in which people perceive and engage with these elements impacts their well-being and performance (Bakker, A. B., & Demerouti, 2016). The hypothesis emphasized that an abundance of job demand might result in pressure and unfavorable consequences, such as burnout, fatigue, and diminished job satisfaction, if not offset by sufficient resources. However, this proposed study will concentrate on work demand as the mediator capable of explaining the association between EI and employee performance.

Job demands include the physical, psychological, social, and organizational elements of a job that need continuous exertion and energy consumption. Job demands include several factors such as workload, time pressure, emotional demands, and cognitive demands. When people have enough resources to handle them, moderate levels of job demands may operate as motivating elements, promoting growth and development (Schaufeli & Bakker, 2004). Nevertheless, an overwhelming workload, if not addressed, may result in burnout, diminished focus and decreased productivity. Furthermore, there exists an intricate correlation between job demand and employee engagement. Optimal levels of job demand may enhance engagement by offering people a feeling of challenge and growth. However, overly high levels of demand can overpower employees and result in disengagement (Bakker et al., 2014).

In the hospitality industry, employees are often known as emotional labor workers due to the distinct and challenging nature of their jobs. This word refers to those who are required to manage their emotions and expressions as an essential aspect of their employment. Employees in this field must continually demonstrate warmth, understanding, and friendliness, even in difficult circumstances. Their responsibilities include generating favorable visitor experiences, managing complaints with tact, and maintaining a pleasant disposition. The act of managing and regulating one's emotions may be both gratifying and challenging. It entails repressing authentic feelings while displaying the intended ones, which may result in tension and exhaustion. Nevertheless, when conducted proficiently, emotional labor increases client satisfaction and loyalty. Hospitality employees are classified as emotional labor workers because of the inherent emotional requirements of their positions. They are not only offering services; they are creating unforgettable experiences by emotionally connecting with visitors. Although this position may provide satisfaction, it also comes with distinct difficulties that need support from employers and a prioritization of employee wellbeing. EI enables employees to effectively manage their emotions and exhibit appropriate emotional responses, hence enhancing the ability of hospitality professionals to provide exceptional service. Therefore, by acknowledging the need to offer sufficient resources and effectively handling excessive demands, firms may establish a healthier and more efficient work environment.

The Mediating Role of Job Demand in the Workplace: Job demand acts as a mediator by intervening in the relationship between independent variables (factors that influence outcomes) and dependent variables (the desired outcomes). Several studies have investigated the function of job demand as a mediator in different study situations. Huang et al. (2022) investigated the role of job demand in mediating the connection between job resources and career calling, which ultimately impacts job satisfaction in the healthcare industry. The results suggest that job demands have a detrimental impact on job satisfaction, which diminishes as work-family conflict and emotional work needs grow. In a similar vein, Kloutsiniotis & Mihail, (2020) found that the connection between an employee's perception of high-performance work systems and emotional exhaustion is positively influenced by job demands, such as excessive workload and conflicts between work-family conflicts. On the other hand, the study results also showed that job demands might have a negative effect on the link between both categories since high-performance work systems have been shown to decrease job demands. Empirical study has substantiated the importance of job demands as a mediator in the relationship between empowerment-focused Human Resource Management (HRM) and work engagement, as shown by (Van De Voorde et al., 2016). Studies have shown that job demands have a role in the link between HPWS and burnout (Kilroy et al., 2016) as well as emotional exhaustion (Oppenauer & Van De Voorde, 2016).

Similarly, EI has garnered much attention in the workplace because of its potential influence on employee performance. A recent study has specifically aimed to comprehend the function of job demand as a mediator in the correlation between EI and employee performance. Weinzimmer et al., (2017) conducted research to examine how work-family balances (job demand) mediate the relationship between EI and employee performance. Research has shown that the balance between work-family responsibilities acts as a mediator in the connection between EI and the performance of employees. This implies that job demand is a critical factor in converting EI into improved performance results. Employees who possess a high level of EI are able to efficiently handle the job demands, which leads to improved performance. To summarize, while the role of job demand as a mediating factor in the association between emotional intelligence and employee performance is not clearly stated, more research is necessary to investigate the precise function of job demand as a mechanism that explains this relationship.

Proposition Development: Empirical evidence demonstrates that Emotional Intelligence (EI) has a substantial impact on the performance of employees in many organizational contexts. Nevertheless, the level of job demand, including workload and work-family conflicts, may significantly impact employee performance. Given the theoretical explanation provided above, it is proposed that further study be conducted among employees in the hospitality industry:

Proposition A: Emotional Intelligence is positively related to employee's job performance in the hospitality industry.

Proposition B: Job demand mediates the relationship between emotional intelligence and employee job performance in the hospitality industry.

Figure 1: Proposed Relationship between Emotional Intelligence, Job Demand and Employee's Performance

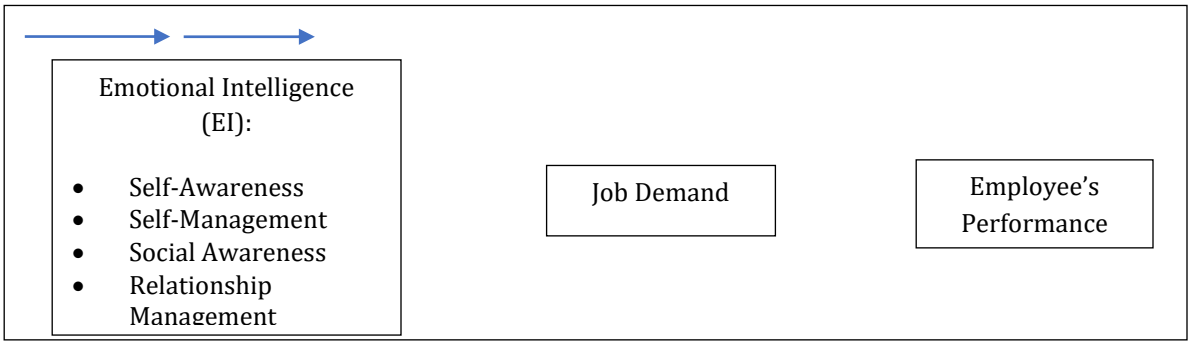


Figure 1 illustrates the hypothesized link between the constructs that have been investigated. This is a conceptual framework that demonstrates the impact of EI on employee performance. Furthermore, the mediating role of job demand on the relationship between both dimensions is also carried out in this proposition.

4. Discussion and Conclusion

The impact of EI on employee performance is significant in the hospitality sector. EI and employee performance are positively correlated among hospitality professionals, according to many research. A meta-analysis of these studies found a substantial association between the two variables. Beyond only examining the direct link between the two variables, there has been recent interest in examining the function of work demands as a mechanism that explains the relationship between EI and employee performance. In this connection, job demand operates as a mediator, influencing the way that EI affects performance. EI for example, may improve employee's ability to handle the emotional labor needed in hospitality positions. In conclusion, the proposed research must be conducted to determine conclusively how emotional intelligence, with work demands acting as a mediator in this connection, may have a substantial influence on employees' performance in the hospitality business. Therefore, this study proposed a framework for the role of Job Demand act as a potential mediator in the EI-Employee's Performance relationship. Without a doubt, the results may provide the organization with specific guidelines for fostering and advancing EI abilities in its employees, which will eventually boost customer service, satisfaction, and overall organizational performance.

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The Impact of Live-Streaming Shopping Characteristics on Behavioral Intention of Shoppers

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Abstract: Currently, live-streaming shopping has become one of the popular approaches to conducting business. Businesses shift from traditional online shopping to live-streaming shopping approach because of the benefits that live-streaming shopping could offer. This paper aims to study the impact of live-streaming shopping characteristics on behavioral intention among shoppers. Researchers used literature analysis and a Stimulus-Organism-Response (S-O-R) framework as the methods of the study. The findings showed that all characteristics had a positive impact on the behavioral intention of shoppers. The limitation of the study was the researcher focused only on the Stimulus and Response of the framework; the Organism factor of the framework was omitted.

Keywords: *Live-streaming, Characteristic, Online shopping, Behavioral intention.*

1. Introduction

Purpose of Inquiry: This conceptual paper is intended to investigate the impacts of live-streaming shopping characteristics on the behavioral intentions of shoppers. The answer to the inquiry question will be based on the literature analysis and Stimulus-Organism-Response (S-O-R) framework. However, the study only focuses on the stimulus and response, whereas the organism is not the research focus. In past years, online shopping has increased tremendously. Online shopping has become a powerful method to purchase products as customers do not have to go to physical stores to shop and also due to the fact of Covid-19 pandemic. However, traditional online shopping had several challenges like lack of interactivity and communication between sellers and shoppers. Moreover, the description of the product is not comprehensive and the image of the product is in a static format. Therefore, most of the sellers started to change their marketing strategy by using platforms that offer live-streaming features. The purpose of this paper is to investigate whether live-streaming shopping characteristics have an impact on the behavioral intention of shoppers.

Statistics: The current trend shows that shoppers purchase online not only through ordinary e-commerce websites but also more focused platform which is social media commerce. Due to the growth in popularity, most companies now are moving to social media platforms to promote their products. Statistics showed that China has the highest rate of shoppers using social media commerce; meanwhile, the majority of shoppers in the United States were youngsters aged 18 to 24. Furthermore, 50.7% of shoppers were using Facebook as the main platform to shop followed by Instagram (47.4%), YouTube (33.9%), TikTok (23.9%), SnapChat (18.8), and Twitter (18.5%). 40% of shoppers tend to purchase because of the platform itself and 49% of shoppers are influenced by the influencer's recommendation (Baluch, 2023). The increasing rate of shoppers in social media commerce is believed to be related to the live-streaming feature provided by social media platforms. The most popular live-streaming platform was Facebook Live (55%), and the least popular was Pinterest TV (14%). Even though Facebook Live was the most popular but the seller preferred to use Instagram for live-streaming. The most common products chosen by sellers were apparel and fashion (36%), followed by beauty (8%) and fresh food (7%) (Cother, 2023).

Live-Streaming Shopping: Live-streaming is one of the recent methods to sell products via online platforms. The technology is embedded into social media platforms, allowing sellers to perform their business activities, especially to promote and market their products to customers. Examples of social media platforms that support live-streaming are Instagram Live, Facebook Live, TikTok, and many more. The live-streaming has become a promising approach and favorable to sellers and customers due to the multimedia functions offered by the platforms. The multimedia functions provided are streamers could broadcast themselves, interact with the viewers in real-time using a chat box and at the same time viewers could send virtual gifts as support to

the streamers (Ma, 2021). Two ways communication between streamers and viewers could lead to the intention to purchase the products as the information is considered to be delivered effectively and the involvement and engagement between both parties lead to positive experiences (Ma, 2021). Even though live-streaming shopping has become trending in today's world, whether the approach could influence the behavior of the shoppers is still unclear. Therefore, to understand the characteristics of live streaming is significant to this study as the aim of this study is to investigate whether live-streaming characteristics could have a positive impact on the behavioral intention of the shoppers.

2. Conceptual Framework

This study adapted the conceptual framework by Gu et al. (2023) that highlighted the effects of live-streaming shopping characteristics on behavioral intention among shoppers. The original conceptual framework is based on the S-O-R model where the characteristics act as the stimuli (S), momentary and reflective states act as the organism (O), and behavioral intention as the response (R). However, as we have mentioned in the purpose of inquiry part, the scope of the study is on the stimuli and response. The characteristics of live-streaming shopping comprise five variables, namely information richness, interactivity, vividness, social presence, and newness. Meanwhile, the dependent variable, which is the behavioral intention, emphasizes the continuous participation intention of shoppers that leads to purchasing the product. The conceptual framework describes the relationship between these two.

Information Richness: Online shopping platforms that use live streaming have gained popularity, especially in industries where product demonstrations, personal interactions and real-time engagement play a significant role. For instance, beauty and cosmetics brands often use live streaming to demonstrate makeup application techniques, skincare routines and product usage. Live streaming can be used to showcase the products, interact with potential buyers and answer questions. However, despite these remarkable features, several challenges can prevent customers from purchasing online products such as uncertainty about the product quality, trust and security concerns, returns complexity, limited payment options and inability to see or touch the products. Therefore, to overcome these barriers, businesses need to focus on the information richness in digital content as it plays a crucial role in shaping online experiences and enhancing the decision-making process. According to Wu & Chen (2016), information is the richness and completeness of product descriptions in an online shopping platform.

Similarly, Zhu, Li, He, & Hong (2020) described that information richness includes the capacity for instant feedback, the capacity to transmit multiple clues, language variety and the capacity to provide personal attention. The research study by Hao, Haitao & Xiaoxu (2021) also found that the effectiveness of social shopping features enhances the consumers' purchase intention as it can enhance perceived product quality. Furthermore, Chesney, Swee-Hoon, Dobele & Hoffmann (2017) also found that information richness is an expression of trust to the customers as accurate and reliable information builds credibility. When customers find trustworthy information in digital content, they are more likely to trust the source. Well-presented and relevant information captivates the buyer's attention, encourages interaction and eventually increases engagement. In addition, information-rich content such as articles, videos and tutorials empower individuals to acquire new knowledge and skills conveniently. On the other hand, if customers cannot get complete information about a product, they might buy a product that does not meet their needs because they lack of understanding of its features, benefits or limitations.

This can result in dissatisfaction, return refunds, negative reviews and impact the business's reputation. Incomplete and inaccurate information erodes trust between customers and the business. Indeed, customers who feel misled due to incomplete information are more likely to share their negative experiences through online reviews and word-of-mouth. With the emergence of many social media platforms nowadays, businesses should emphasize the benefits of interactive communication during live streaming. This suggests that to mitigate these negative outcomes, businesses should prioritize accuracy and complete information accessibility. For instance, a comprehensive product description, high-quality images and visuals, FAQs and customer support and reviews and testimonials help customers make informed purchasing decisions. In summary, information richness is the cornerstone of digital content. Hence, businesses that prioritize providing complete and accurate information are more likely to build trust, foster positive customer experiences and drive long-term success.

Interactivity: Interactivity between sellers and customers is an important characteristic that contributes to a successful online shopping process. A real time-interactivity is considered as the most the most unique feature of live-stream shopping platforms which allows consumers to engage with the seller (Joo & Yang, 2023). In fashion and apparel, for instance, live streaming is commonly used to showcase new collections, demonstrate outfit combinations, and provide styling tips through live videos. Viewers can ask questions, get instant feedback, and purchase items directly from the stream. Therefore, interactivity between the sellers and the potential customers can take several forms and serve several purposes. A good online shopping platform should offer a variety of communication options, allowing customers to choose the level of interactivity that suits them best. The best example of a live streaming feature in TikTok Live allows the sellers to broadcast live video content to their followers in real time. TikTok Live enables sellers to interact with their audience directly, respond to comments, answer questions, showcase talents and share experiences. At the same time, the viewers can interact with the live stream by sending comments, likes, and gifts to support the seller.

This is supported by Liu et al (2022) who reveal that with live streaming potential online consumers can learn about new products, ask questions, receive answers and interact with other consumers. Interestingly Joo & Yang (2023) also stated that customers can interact and chat with the seller during the live-stream. The role of online chat is to enhance the buying process by focusing on business-related discussions (Rytsy & Jonna Pauliina Koponen, 2019). Their study also reported that online shopping platforms can create a positive, convenient and trustworthy shopping environment that encourages repeat business and customer loyalty. During the live stream, customers will take the opportunity to interact actively with the hosts with concerns related to sales, for instance requesting information on the product description, pricing solutions for specific problems, asking how to make a purchase and other queries. Research findings by Sharma, et al (2019) also point towards the important characteristic of web interactivity in online shopping as communication and information provided can expedite the decision-making process. This is consistent with the study by Chen et al (2021) as the interactions between buyer-seller drives the buyers' purchase intention in online shopping platform. In summary, with the rise of social media in the e-commerce industry, live-streaming has become one of the trends. Our smart consumers perceived that the traditional shopping environment is boring and absence of proof to help them to conform during the purchasing process. Instead, they are more interested in a medium that can speed up the purchasing process by communicating and interacting with the seller. Hence, interactivity can be deemed as an important characteristic in live-streaming shopping.

Vividness: Another characteristic of live-streaming shopping is vividness. Vividness can be defined as the exhibition of target products using different camera angles, as well as the personalization of product presentation in response to specific requests from customers (Jiang & Benbasat, 2007; Mollen & Wilson, 2010). Vividness can also be referred to as a measure of how customers perceive the wide variety and depth of sensory cues and dimensions that a product's presentation offers (Cheng, 2020). In the world of e-commerce platforms, it is common to use textual descriptions and images as the main ways to show potential customers what products are for sale. However, these methods fail to effectively convey the dynamic attributes and tactile experiences of items to the audience (Jiang & Benbasat, 2007; Mollen & Wilson, 2010).

The viewers of a live shopping stream are unable to physically interact with the things being sold; however, they can communicate their needs and ask the live streamer questions via a chat room. The streamer can explain, exhibit, or display these products based on the requirements of viewers during the live streaming process, and answer these queries by employing engaging and vibrant ways in a live video. It is important to keep in mind that vividness can affect how much someone enjoys something and that this can be a good thing. This is because customers can have a better emotional experience when they can see a clear picture of a product, which gives them a stronger sense of immersion when they are shopping (Gu et al., 2023). Therefore, the incorporation of vividness in the context of live-streaming commerce enhances the level of understanding and perception of product information among viewers. By closely examining the visual and audio elements of streamers' presentations, viewers can develop a stronger connection to a product by gaining a more complete understanding of its tactile, visual, and olfactory qualities (Bao & Zhu, 2023).

A higher degree of vividness often suggests the existence of a greater number of informational signals and sensory pathways that possess the capacity to stimulate the senses of individuals (Jiang & Benbasat, 2007). Therefore, customers are more capable of recognizing and valuing the quality and value of a seller's goods or service as a result of this (Bao & Zhu, 2023). Thus, it is imperative to concentrate on the stimulation derived from online product presentation, specifically interactivity and vividness, within a live purchasing stream (Cheng, 2020).

Social Presence: Live-streaming shopping is a dynamic e-commerce approach that combines real-time video streaming with interactive features to engage customers and facilitate product purchases. An interactive shopping experience is created since viewers may leave feedback and ask questions during the live session and get immediate responses from the sellers (Zhou et al., 2018). As a result, this creates a social presence among the parties involved. According to Gu, Cheng, and Shen (2023), social presence can be thought of as one of the characteristics of live-streaming shopping. Social presence refers to how people perceive other people's presence through the live-streaming platform and how this perception affects their interaction with others in virtual spaces (Shen, 2012). As a result, it helps create a sense of connection and engagement among participants. Li, Wang, and Cao (2022) suggest that social presence in live-streaming shopping is important because it positively affects impulse buying, influences consumers' purchase behavior, and enhances shopping enjoyment, trust, and viewer engagement.

Newness: According to Liu et al. (2022), live-streaming shopping provides novel interactions that stimulate immediate purchase intentions and enhance consumers' perceptions of the overall value of a featured product while reducing uncertainty. As compared to traditional online shopping, this streaming commerce offers customers several innovative features such as real-live interaction with the sellers and other viewers (Gu, Cheng & Shen, 2023). By enabling viewers to ask questions and receive immediate responses from the seller, live commerce creates an engaging and unique shopping experience for consumers to discover and purchase products (Gu, Cheng, and Shen, 2023). Wongkitrungrueng and Assarut (2018) stated real-time interactions with the seller help potential customers obtain comprehensive and high-quality information about the featured product before making more informed purchasing decisions. As a result, customers' loyalty and trust towards the brand as well as online sellers can therefore be increased.

Behavioral Intention (Purchase Intention) through Live-streaming Shopping: The term "live-streaming" refers to an electronic medium platform that broadcasts online in real time. This type of platform is used to connect with specific audiences for a variety of different reasons (Apasrawirote & Yawised, 2022). With the increasing popularity of live-streaming platforms, standard social commerce has changed in many ways. In traditional Internet shopping, customers can only learn about products through pictures and written descriptions. On the other hand, live streaming shopping has given streamers, who sell goods online, the ability to show off their goods through real-time videos, giving buyers a lot of information about the products they're interested in (Sun et al., 2019; Wongkitrungrueng & Assarut, 2020).

To effectively predict customer behaviors, it is imperative to have an in-depth understanding of the attitudes, perceived values, and internal motivations that ultimately lead to the tendency to engage in an online purchase (Apasrawirote & Yawised, 2022). According to the Theory of Planned Behavior (TPB), the concept of behavioral intention refers to the underlying motivational factors that drive a specific course of action, leading to the manifestation of behavioral intention and subsequent demonstration of observable behavior. The evident example of behavioral intention can be seen in the execution of apparent behavior (Beck & Ajzen, 1991).

In the context of live streaming, "purchasing" is used to describe a viewer's propensity to make an internet purchase during a live broadcast (Apasrawirote & Yawised, 2022). A study conducted by Zhu, Liu, Li, Jiang, & Zhu, (2023) reveals that the distinct characteristics of multi-dimensional product demonstrations and video interactions not only expedite consumers' acquisition of pertinent product information but also create a more immersive shopping experience and also enhancing social presence, thus making online shopping a more pleasurable endeavor. The findings were also consistent with the study conducted by Cai & Xu, (2011) and Shin, (2013). Other findings by Moon, Kim, Choi, & Sung, (2013) reveal that the way in which individuals in an audience and livestream viewers engage with one another has the potential to enhance the strength of one's

social profile. The perceived level of happiness and utility among live-streaming viewers significantly influences their behavioral intentions.

Another factor that could have influenced customers' behavior is the utilization of content marketing strategies and the involvement of influencers. According to findings conducted by Apasrawirote & Yawised (2022), both factors have demonstrated a favorable influence on customer perceptions. Additionally, the perceived value and attitude of the client exerted an impact on their behavioral intention. Furthermore, the findings strongly support the notion that behavioral intention plays a crucial role in shaping individuals' intention to make online purchases.

3. Results and Findings

For this conceptual paper, the literature is a valuable source of new information and insights. Based on the literature, all characteristics of live streaming which are information richness, interactivity, vividness, social presence, and newness had a positive impact on the behavioral intention of the shoppers. The main difference between live streaming shopping with traditional online shopping is that the later cannot maintain the engagement between sellers and shoppers due to the lack of information provided on the website or platform, static image of the product, and there is no two-way communication between sellers and shoppers. Cother (2023) mentioned that educational content was really important to persuade shoppers to purchase the product. Generally, traditional online shopping is using a web-based application where the information must be balanced with the images to avoid information being loaded. As a result, the product descriptions are unclear. That is why, shoppers nowadays favor platform that has live-streaming features. Some of the companies even hired influencers to promote the products using live-stream platforms. This shows that social presence and interactivity are positively related to the behavioral intention that leads to the purchase intention (Ma, 2021). The influencers or the sellers could provide detailed explanations, demonstrate the product, enhance the uniqueness of the product, and accept questions from the potential shoppers. Thus, could lead to purchase intention among shoppers.

4. Conclusion

Live-streaming shopping brings new perception to the sellers. The multimedia features that the live-streaming platforms had, provide greater benefits to sellers and shoppers. This paper contributed to the knowledge regarding the importance of the use of platforms that have live-streaming features. The knowledge could change sellers' perspectives towards traditional online shopping mediums with live-streaming shopping. However, this paper is only limited to the five characteristics of live-streaming shopping. Future studies will focus on the collection of data and analysis among respondents that performed live-streaming shopping based on the five characteristics previously, and focus on certain social media commerce that offer live-streaming features.

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The Relationship between Person-Job Fit, Employee Engagement and Turnover Intention: A Proposed Framework

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Abstract: Past studies have identified the existence of a positive relationship between individual employees and their respective jobs as well as current organizations which resulted in more favorable attitudes and behaviors of employees. Although various types of research have been conducted on the person-job fit (P-J fit), few researches that discussed the relationship between P-J fit and turnover intention particularly in identifying the mechanisms that may help to explain these relationships. Thus, this study focuses on outlying the propositions on the potential role of employee engagement as a mediator between P-J fit and one aspect of organizational outcomes (turnover intention). Social Exchange Theory and Job Characteristic theory are adopted in explaining the relationships among the variables. Lastly, suggestions for future studies are proposed.

Keywords: *Person-job fit, person-organization fit, employee engagement, turnover intention.*

1. Introduction

There is huge interest in investigating the interaction between the workers and the work environment as the environment might potentially influence the employees' attitudes and behaviors. Researchers have defined person-environment fit (P-E fit) as the degree to which a human being and the characteristics of the environment match (Dawis, 1992; Kristof-Brown, Sharjeel, Sharjeel, Muhammad Imran, Mehwish and Fevzi, 2021, Zimmerman and Johnson, 2005). This theory examines the compatibility of one individual employee with the various systems of the work environment (Kristof-Brown, Jansen and Colbert, 2002). The theory identified distinct building blocks within the construct of P-E fit that are person-vocation fit (P-V fit), person-organization fit (P-O fit), person-job fit (P-J fit), person-individual fit (P-I fit) as well as person-team fit (P-T fit) (Caplan, 1987; O'Reilly, Chatman and Caldwell, 1991; Kristof-Brown, 1996; Cable and Judge, 1996). However, according to Kristof-Brown, Zimmerman and Johnson (2005), there are already a lot of researchers who have reviewed this type of fit but there is a need for future studies conducting research on the multidimensional construct of P-E fit which comprises of P-V fit, P-O fit, P-J fit, P-T fit as well as P-I fit as these dimensions fit different phase of employment (pre-recruitment, recruitment, selection, socialization as well as tenure).

According to Common, the way an individual employee reacts to the work environment has been predicted to fit the various organizational outcomes such as job satisfaction, staff turnover, tenure, organizational citizenship behavior, organizational commitment, absenteeism as well and employee performance (Kristof-Brown, Zimmerman and Johnson, 2005). Saks (2006) has highlighted in his research findings that the relationship between the antecedents of job characteristics, perceived supervisor support, perceived organizational support, rewards and recognition, distributive justice and procedural justice; and the consequences of organizational commitment, job satisfaction, intention to quit as well as organizational citizenship behavior; seems to be mediated by employee engagement. Although various studies focused on examining the direct relationships between various P-E fit variables and various organizational outcome variables, fewer studies have been focused on understanding the mechanism that explains these relationships. Thus, this paper was aimed at understanding the mediating role of employee engagement in the relationship between P-J fit and turnover intention.

2. Literature Review

Turnover Intention: Employee turnover often results from employees' ongoing search for better and more satisfying job opportunities. There are two types of turnover as highlighted by Price (1977). Those are voluntary turnover which refers to the situation where the employee, on their own accord, decides to terminate their organizational membership (Boswell, Boudreau and Tichy, 2008); and involuntary turnover which refers to the employee termination that is under the organization's control (Cao, Chen and Song, 2013). However, the most accurate construct in predicting the employees' actual turnover is the turnover intention which refers to the voluntary willingness of the current employees to permanently withdraw from a particular organization (Breuklen, Vlist and Steensma, 2004). Past studies have shown various antecedents of turnover intention. A recent Meta-analytic study involving studies which are published between 1998 and 2018 shows job satisfaction, organizational commitment and empowerment as the main predictors of turnover intention (Ozkan, Elci, Karabay, Kitapci & Garip, 2020).

Person-Job-Fit: Although being classified as different dimensions P-J fit is closely related to P-V fit. However, P-J fit has been narrowly defined to the extent that only focuses on the job and task performed at work with the characteristics of an individual (Kristof-Brown, Zimmerman and Johnson, 2005). Besides, the jobs that were assigned to the employees should be fitted with their personalities, skills and talents as they will be more focused and motivated (Martin, 2005). There are two basic conceptualizations of P-J fit as conceptualized by Edwards (1991) – the demands-abilities fit and needs-supplies fit. Demands-abilities fit explains the situation in which the employees' skills, knowledge and abilities match with the requirements of the jobs performed. Meanwhile, needs-supplies fit explains the situation in which the needs, preferences or desires of an individual employee are matched with the various jobs performed. Kristof-Brown et al. (2005) have highlighted in their research that these P-E fit dimensions are salient in the different phases of an individual employee's employment. P-J fit is relevant at the phase of job searching and will be important at the phase of job selection as well as during the process of socialization. However, all five dimensions of P-E fit including P-J fit seem to be relevant during the long-term tenure that will affect the individual level outcomes of withdrawal as well as intention to quit, satisfaction and commitment.

Employee Engagement: According to Harter and Adkins (2015), engaged employees are referred to as those who are enthusiastic and involved deeply in their workplace. Bates (2004) and Richman (2006) highlighted that employees today seem to be disengaged deeply as engagement has been on the decline stage. Employee engagement and turnover intention have critical impacts and implications for human resource management practices, which might affect the productivity as well as the overall performance of the organizations. Bakker, Albrecht and Leiter (2011) explained that engagement can be conceptualized with commitment, organizational citizenship behavior, job satisfaction and employee turnover intentions. Unal and Turgut (2015) have analyzed employee engagement under two dimensions organizational engagement and work engagement. In comparison to previous studies (e.g., Halbesleben, 2010) that discussed work engagement in relation to individual resources and jobs assigned. However, employee engagement is widely related to organizational engagement and has more accepted conceptual measures and definitions as compared to work engagement (Unal and Turgut, 2015).

Social Exchange Theory: As suggested by Saks (2006), organizational engagement antecedents can be recognized by the theory of Social Exchange (SET). SET theory basically can explain the interrelationship between P-J fit, employee engagement and employees' turnover intention. In explaining the SET, Blau (1964) believes that obligations will be generated once there are interdependent interactions between different parties in an organization. When economic and socio-emotional resources are received by the employees from their superiors, they will respond with a positive attitude to repay the organization which can be measured through their level of engagement. In response to the resources given to them, they will bring cognitive, physical and emotional resources to their respective organization. By linking the SET with the P-J fit, it can be conceptualized that when employees have a positive match with the job and task assigned, the obligation to reciprocate will be created. In which, they will reciprocate in terms of giving their utmost level of engagement (Saks, 2006). Consequently, past studies (e.g., Saks, 2006; Juhdi, Pa'wan and Hansaram, 2013) have supported this reciprocity concept that resulted in favorable behavioral and organizational outcomes, such as low employee turnover.

Job Characteristic Theory: Job Characteristics Theory (Hackman and Oldham, 1976) briefly explains the relationship between the characteristics of jobs and the responses of the individual in doing their job. Hackman and Oldham (1976) have highlighted five main dimensions of job (skill variety, task identity, task significance, autonomy and job feedback) that propose three psychological states (experience meaningfulness of work, experience of personal responsibility and knowledge of the work's actual results) leading to beneficial personal and the respective work outcomes. Which, the absence of any one of these three psychological states will weaken several outcome variables such as internal motivation, growth and job satisfaction, quality work performance, absenteeism, work effectiveness and turnover? The essential proposition in this theory is that if the job is low motivating potential, subsequently, the outcomes will be low, and the employees will have unfavorable feelings about doing their job. This can be related to the model proposed in this study, in which, if the employees are not compatible with the job assigned to them, their engagement towards the organization and work will subsequently be low thus leading to the unfavorable organizational outcomes of high turnover among the employees.

3. Proposition Development

Previous studies in the Asian context have reported that there is a negative significant relationship between person-job fit and turnover intention of employees working in Beijing, China (Guan et al., 2010). Apart from that, research conducted by Biswas and Bhatnagar (2013) found the mediating role of employee engagement in the P-J fit, P-O fit and employee engagement relationships which shows that the antecedents of P-J fit and P-O fit can predict employee engagement. In the context of an Asian study, Guan et al. (2010) who have conducted research among the employees of various organizations in Beijing, China have highlighted the finding that there is a significant negative relationship between P-J fit and turnover intention.

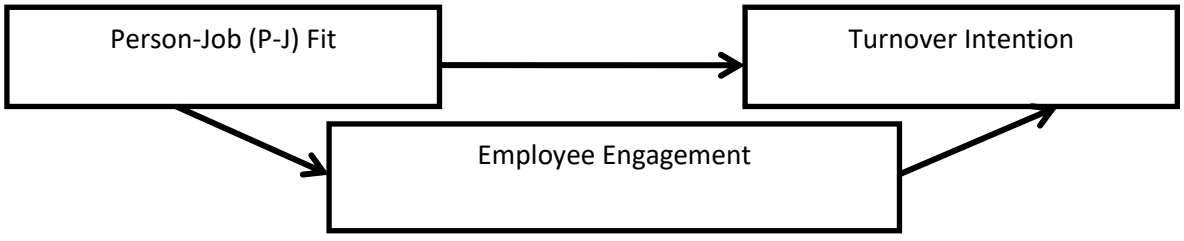
Besides, the theories of P-E fit, SET (Blau, 1964) and Job Characteristics (Hackman and Oldham, 1976) also give literature support on the subsequent relationships among P-J fit, employee engagement and turnover intention. On the other hand, Saks (2006) found the mediating role of employee engagement on the relationship between the antecedents of job characteristics and the consequences of intention to quit. In addition, Juhdi, Pa'wan and Hansaram (2013), confirmed the role of employee engagement as an important mediating variable in their study. Based on the above literature review and the theoretical discussion, we proposed the following.

Proposition A: P-J fit is negatively related to employee turnover intention.

Proposition B: Employee engagement mediates the relationship between P-J fit and employee turnover intention.

Figure 1 shows the proposed relationship between the constructs that have been explored. It is a proposed model that illustrates the influences of P-J fit on employees' turnover intention. The mediating role of employee engagement on the P-J fit and turnover intention relationship is also conveyed.

Figure 1: Proposed Relationship between Person-Job Fit, Employee Engagement and Turnover Intention



4. Discussion and Conclusion

P-E fit is one of the critical and central topics to be discussed in managerial psychology (Seong and Kristof-Brown, 2012). Researchers (e.g., Kristof-Brown, 1996; Edwards, 1991; Spokane, Meir and Catalano, 2000;

Verquer, Beehr and Wagner, 2003) have examined how P-E fit theory relates to various outcomes of job satisfaction, occupational choice, organizational commitment, job performance, employee wellbeing and turnover intention. When employees perceive the P-J fit in an organization, their attitudes, emotions and behaviors will positively react.

As can be understood through the SET, the reciprocal relationship between the organization and employee will enhance the level of employee engagement which can predict the various organizational outcomes such as turnover intention. Additionally, Job Characteristic theory also supported the importance of these relationships among the variables investigated in this study. Taking all together, the variable of P-J fit is expected to predict employee engagement and employee engagement has been recognized as one of the strong predictors of organizational outcomes such as turnover intention. Thus, the proposed relationship is that engagement mediates the relationship between P-J fit and turnover intention.

Since the mediating relationship of employee engagement between P-J fit and turnover intention has been less discussed, this study fills the research gap. In which, P-J fit, employee engagement and turnover intention have been discussed in a single framework. To confirm the proposed mediation model in this study, empirical studies are strongly recommended. Besides, as there is little literature discussed on the relationship between the other dimensions of P-E fit (e.g., person-vocation, person-individual, person-team) with regard to employee engagement and turnover intention, there is a need for more research on these relationships.

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Examining the Work Engagement-Organizational Citizenship Behavior Link: The Moderating Role of Employee Personality

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Abstract: Although previous researchers have paid significant attention to the effect of employee work engagement on employee involvement in organizational citizenship behavior (OCB), only a few have specifically examined the joint effects of employee work engagement and employee personality on employee involvement in OCB. Drawing upon the Social Exchange Theory, this study specifically examined the role of employee personality (agreeableness) as a moderator in the work engagement-OCB relationship. A total of 646 employees from three public healthcare institutions in Malaysia participated in this study. Moderated hierarchical regression results indicated a positive effect of work engagement with OCB and a significant interaction between work engagement and agreeableness personality in predicting OCB. However, the effect of work engagement on OCB was stronger for those respondents low in agreeableness than for those high in agreeableness personality, contrary to the hypothesis. Managerial implications and directions for future research are discussed.

Keywords: *Work Engagement, Organizational Citizenship Behavior, Employee Personality, Agreeableness.*

1. Introduction

Organizational citizenship behavior (OCB) is one type of non-task-related employee behavior of employee that has captured the attention of both academicians and practitioners in recent years. OCB is found to benefit both employers and employees and has contributed greatly to organizational effectiveness (Casu, Mariani, Chiesa, Guglielmi & Gremigni (2021), Walz & Niehoff, 1996). OCB deals with the positive behavioral aspects that are neither stated in the job description nor enforced by the employment contract. Examples of OCB include helping new employees, volunteering at work, being punctual, and enhancing the reputation of the organization. OCB enhances coworker and managerial productivity, serves as an effective means of coordinating activities between team members and across work groups, and enhances the organization's ability to adapt to environmental changes (Organ, Podsakoff & MacKenzie, 2006, Yaakobi & Weisberg, 2020).

Studies on OCB in Malaysia have been conducted on employees in different types of industries such as services and manufacturing in the private and public sectors (Ishak, 2005; May & Ramayah, 2009; Krishnan et al., 2010, 2013). However, studies on OCB targeting employees in the health sector, particularly nurses in the public health sector are very scarce and deemed very important as this sector contributes significantly to the economic growth of the country. Nurses in the Malaysian public health sector were more relevant as respondents in this study because past research has reported that employees in the public sector have a greater degree of involvement in OCB in comparison to the private sector (Sharma, 2011). In addition, public hospitals or public healthcare centers are still the preferred healthcare providers in Malaysia because of the low charges and much-improved facilities at the new hospitals. The public healthcare sector is also facing critical challenges in sustaining the growth of the industry, in terms of retaining trained personnel and the increasing number of litigations. As such, it is deemed imperative for nurses in the public healthcare sector to display extra-role behaviors that will help to continuously improve service delivery, and significantly improve productivity and overall organizational effectiveness.

A review of the literature shows that OCB has been studied in-depth to determine its antecedents as well as its consequences. Although many studies have examined the direct relationship between various job attitudes and OCB (Belwalkar et al., 2018; Gahlawat & Kundu, 2020; Jain & Rizvi, 2020; Krishnan et al., 2014; Pletzer 2021; Shimamura et al., 2021), studies examining the moderating mechanism in the relationship between work engagement and OCB are scarce (Su & Hsiao, 2005; Krishnan et al., 2017). This study intended to

investigate the moderating role of employee personality (agreeableness) in the work engagement-OCB relationship. Although it is important to identify and examine the role of primary situational antecedents (i.e. work engagement) on OCB, examining the moderating role of employee personality in the work engagement-OCB link will contribute to the existing body of knowledge in OCB.

The social exchange theory (Blau, 1964) and norms of reciprocity (Gouldner, 1960) were anchored as the main theories explaining the relationship between work engagement and OCB in this study. Social exchange refers to voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do bring from others. Reciprocating a favor received from another person functions as the starting mechanism of the exchange relationship. Favorable results of initial exchange transaction results in the development of trust, which is an integral aspect of the social exchange relationship. Employees who experience favorable work situations such as enriched and motivating jobs, good social support, and less demanding work environment, will be more engaged in their work and reciprocate by being involved in voluntary actions and helping behaviors such as OCB.

2. Literature Review

Organizational Citizenship Behavior: Smith et al. (1983) introduced the notion of OCB as discretionary behavior that goes beyond one's official role and is intended to help other people in the organization or to show conscientiousness and support towards the organization. Organ (1988, p.4) later defined this concept as: "an individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system and that in aggregate promotes the effective functioning of the organization. From the above definitions, OCB can be construed as a positive behavior that is neither stated in the job description nor enforced by the employment contract.

The literature on OCB shows that many dimensions were introduced to measure the constructs of OCB (Podsakoff et al., 2000). Since the introduction of OCB, Organ (1988, 1997 & 2018) has expanded the conceptualization of OCB into five distinct dimensions namely, altruism, courtesy, conscientiousness, civic virtue, and sportsmanship. Altruism refers to the same helping behavior (helping specific others) as described by Smith et al. (1983). Courtesy denotes the behaviors that reflect basic consideration for others (e.g. letting one's coworkers know where they can be reached/consulting others before taking action). Conscientiousness is a pattern of going beyond minimal levels of attendance, punctuality, and conserving resources, and involves being a "good citizen" at the workplace. Civic virtue is somewhat different from the other dimensions because the target is the organization, or sometimes the work group, and the dimension pertains to constructive involvement in the political process of the organization (e.g. keeping abreast of issues involving the organization/keeping up with important matters within the organization). Sportsmanship reflects behaviors that an employee does not engage in, such as tolerating inconveniences without whining and grievances (e.g. not complaining about trivial matters).

Williams and Anderson (1991) examined the OCB dimensionality issue further and came up with a two-dimensional view: organizational citizenship behavior directed toward individuals (OCBI), and organizational citizenship behavior directed toward the organization (OCBO). The factor analytic evidence from their study demonstrated that the items used to measure OCB loaded best onto their two-dimensional view of OCB. However, it is important to mention that these two dimensions, OCBI and OCBO, were largely based on Organ's (1988) five dimensions. Williams and Anderson (1991) suggested that Organ's (1988) five dimensions be reduced to the two dimensions they proposed; OCBI comprises altruism and courtesy, and OCBO encompasses conscientiousness, civic virtue, and sportsmanship. A review of the literature shows that OCB has been studied in-depth both to determine its antecedents as well as its consequences. Studies have identified a number of predictors of OCB, including job attitudes (Shore & Wayne, 1993), interpersonal trust/loyalty to the leader, (Podsakoff et al. 1990) task characteristics (Krishnan et al., 2013; Todd & Kent, 2006), job crafting (Gong et al. 2018), workplace spirituality (Belwalkar et al., 2018), and spiritual leadership (Pio & Elia, 2018).

Work Engagement and Organizational Citizenship Behavior: Employee work engagement has received increasing research attention over the past ten years (Balasubramanian & Lathabhavan, 2017; Coffeng et al.,

2014; Engelbrecht et al., 2017; Salanova & Schaufeli, 2008; Schaufeli, Bakker, & Salanova, 2006; Schaufeli & Salanova, 2007). The work engagement construct has been defined in many different ways. In the academic literature, a number of definitions have been provided. Kahn (1990, p.694) defined personal engagement as "the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances". Kahn (1990, 1992) further emphasized that engagement is to be psychologically present when occupying and performing an organizational role.

On the other hand, burnout researchers defined engagement as the opposite or positive antithesis of burnout (Maslach, Schaufeli, & Leiter, 2001) and claimed that engagement is characterized by energy, involvement, and efficacy, the direct opposite of the three burnout dimensions of exhaustion, cynicism, and inefficacy. Schaufeli et al. (2002, p.74) defined engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption". The authors further stated that engagement is not a momentary and specific state, but rather, it is a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior.

Literature shows that two streams of research provide models of employee engagement. In his qualitative study on the psychological conditions of personal engagement and disengagement at work, Kahn (1990) found that there were three psychological conditions associated with engagement or disengagement at work: meaningfulness, safety, and availability. In other words, workers were more engaged at work in situations that offered them more psychological meaningfulness and psychological safety, and when they were more psychologically available. May et al. (2004) empirically tested Kahn's (1990) model, found that meaningfulness, safety and availability were significantly related to engagement.

The other model of engagement comes from the burnout literature which describes job engagement as the positive antithesis of burnout, noting that burnout involves the erosion of engagement with one's job (Maslach et al., 2001). The researchers identified six areas of work-life that lead to burnout and engagement: workload, control, rewards and recognition, community and social support, perceived fairness, and value. They argued that job engagement is associated with a sustainable workload, feelings of choice and control, appropriate recognition and reward, a supportive work community, fairness and justice, and meaningful and valued work. Like burnout, engagement is expected to mediate the link between these six work-life factors and various work outcomes. Both Kahn's (1990) and Maslach et al.'s (2001) models indicate the psychological conditions or antecedents that are necessary for work engagement.

The conditions of engagement in both Kahn's (1990) and Maslach et al.'s (2001) models reflect the economic and socio-emotional exchange resources within the Social Exchange Theory (Blau, 1964). When employees receive these resources from their organization, they feel obliged to repay the organization with greater levels of engagement. In terms of Kahn's (1990) definition of engagement, employees feel obliged to bring themselves more deeply into their role performances as repayment for the resources they receive from their organization. When the organization fails to provide these resources (e.g. motivating job characteristics, social support, conducive work environment), individuals are more likely to withdraw and disengage themselves from their roles. Thus, the amount of cognitive, emotional, and physical resources that an individual is prepared to devote to the performance of one's work role is contingent on the economic and socio-emotional resources received from the organization.

Based on the above discussion on the theoretical and empirical research related to this study, the researchers proposed the following:
Hypothesis 1: Work engagement is positively related to OCB.

Moderating Role of Employee Personality: Since it is widely agreed that employee involvement in extra-role behavior such as OCB arises from both employee attitudinal factors and personal factors (Krishnan et al., 2010, 2013; Macey & Schneider, 2008), it is imperative to include personality factors in the study of OCB. Employee job attitude is not solely responsible for controlling or shaping the extent to which individuals display OCB in their work. Various studies have shown the direct effect of employee personality on employee involvement in OCB. Employee personality factors also function as reciprocal determinants of extra-role

behaviors and contribute to shaping the environment (Bandura, 1978). In line with this argument, one type of employee personality variable namely agreeableness was explored as a potential moderator in the relationship between work engagement and OCB.

There has been a consensus among organization behavior researchers that the five-factor model of personality (Barrick & Mount, 1991, 2005; Costa & McCrae, 1992, 1997), is one of the most prominent models in contemporary psychology to describe the most salient features of personality. The big five personality dimensions can be divided into five factors: extraversion, agreeableness, conscientiousness, openness, and neuroticism (Costa & McCrae, 1992). Of these five factors, conscientiousness and agreeableness have the most obvious theoretical connections with OCB and have been the subject of most dispositionally-based OCB research (Digman, 1990). Given that most OCB researchers have focused on conscientiousness and agreeableness among the Big Five, we focused on agreeableness personality to examine its direct and moderating role. Agreeableness is the tendency to be trusting, compliant, caring, considerate, generous, and gentle. Such individuals have an optimistic view of human nature. They are sympathetic to others and have a desire to help others; in return, they expect others to be helpful. In essence, agreeable individuals are pro-social and have a communal orientation toward others (Costa & McCrae, 1992; John & Srivastava, 1999).

Literature shows that employee personality was found to play both, as a direct predictor or as a moderator in OCB studies. For example, agreeableness and conscientiousness were found to have a positive relationship with OCB (Ilies et.al., 2009). Recently, more studies have been conducted to examine the moderating role of personality disposition in various job situations- work outcome relationships (Srivatsa & Pathak 2020). For example, Ballout (2009) examined the moderating role of self-efficacy in the relationship between career commitment and career success and found that career commitment predicted both objective (i.e. salary level) and subjective (i.e. career satisfaction) career success but only for employees with average to high self-efficacy, not for those with low self-efficacy. Comeau and Griffith (2005) support the notion that personality variables interact with environmental variables such as structural interdependence to impact the levels of OCB. On the other hand, Ilies et al. (2006) investigated the interactive effects of personality traits and experienced states on intra-individual patterns of citizenship behavior. The results of their study demonstrate that agreeableness moderated the intra-individual relationship between state positive affect and daily reports of citizenship behavior. Highly agreeable employees exhibited more consistent patterns of citizenship behavior, such that their performance of OCB was less dependent on their state of positive affect. Based on the above discussion of the theoretical and empirical research related to this study, the researchers proposed the following:

Hypothesis 2: Employee personality (agreeableness) moderates the relationship between work engagement and OCB.

Sub Hypothesis 2a: Agreeableness moderates the work engagement-OCB relation, such that the relation between work engagement and OCB will be stronger when employees are high in agreeableness than when they are low in agreeableness.

3. Methodology

Sample and Procedure: Respondents of this study consist of nursing and clinical employees holding non-supervisory jobs in two public hospitals in Malaysia. A total of 800 questionnaires were personally distributed to the targeted employees through their hospital supervisors. A total of 36 nursing supervisors from these hospitals were responsible for the distribution and collection of the questionnaires from their respective subordinates. The respondents were involved in various operations in the wards, clinics, units and centers in the hospitals such as the Pediatric Clinic, Ear Nose & Throat Clinic, Skin Clinic, Eye Clinic, Oncology and Gynecology Clinic, Physiotherapy Unit, Occupational Therapy Unit, Palliative Care Unit, and the Day Care Center. This study employed the convenience sampling method in selecting respondents and a survey research design was chosen for this study. Data on employees' perceived work engagement, personality (agreeableness) and involvement in OCB were collected cross-sectionally, using structured research questionnaires.

Before distributing the study questionnaires, a pilot study was conducted to assess; i) whether the items were easy to understand, and ii) the appropriateness of the questionnaire design. As the questionnaire used in this

study was based on the western culture in previous studies, a pilot test was deemed important to validate its appropriateness to the Malaysian scenario before the actual data collection. Since the original survey instrument was developed in English, the English scale was translated into the Malay language and then re-translated into English by two bilingual (English and Malay) scholars. A total of 100 nurses participated in the pilot study. It was agreed that most of the items were clear and easy to understand. None of the items for the three main study variables (OCB, work engagement, and agreeableness) in this study were revised because the respondents found them to be clearly stated. Therefore all the items that measured the main study variables in this study were adopted and administered to the targeted employees.

Self-administered questionnaires were used to collect data on employee's perceptions of work engagement, personality and their involvement in OCB. The nursing supervisors' help was sought to distribute and collect the questionnaires from their subordinates. All questionnaires distributed were collected personally by the researcher from the nursing supervisors for six weeks. A longer time was taken to collect some of the questionnaires distributed because some nursing supervisors could not be contacted due to various reasons such as annual leave, pilgrimage or attending courses. Respondents participated voluntarily and they were also told that they were free to withdraw from the study at any time without penalty. The anonymity of the respondents was also assured.

Measures: This study adopted the Organizational Citizenship Behavior Scale developed by Lee and Allen (2002) to measure OCB. All the 15 items of this scale were adopted without any modification. This 15-item scale used a 5-point Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate) to measure helping behaviors that benefit a specific individual (OCB-I) and the organization as a whole (OCB-O). Lee and Allen (2002) reported the reliabilities of .83 (OCB-I) and .88 (OCB-O). Although researchers have widely used the five dimensions of OCB proposed by MacKenzie, Podsakoff and Fetter (1993), most studies on OCB used either the overall measure of OCB or the five main dimensions by Mackenzie et al. (1993). In this study, the overall measure of OCB was used. OCB items that were retained after the confirmatory factor analysis were summed to form a composite score for the OCB construct in this study. Examples of items in this scale are "I help others who have been absent" and "I offer ideas to improve the functioning of the organization". This study reported a coefficient alpha reliability of .84 for the composite score for OCB. Chien and Su (2009) reported a coefficient alpha reliability of .94 for their composite score for OCB.

Work engagement was measured using a 9-item questionnaire designed by Schaufeli et al. (2006). These items assessed three main dimensions of work engagement namely vigor, dedication and absorption in their jobs. A sample item is "at my work, I feel bursting with energy". Participants indicated their responses on a 5-point Likert-type scale from 1(strongly disagree) to 5 (strongly agree). This study has reported a coefficient alpha reliability of .89 for work engagement.

This study adopted Goldberg's (1992) Big Five IPIP with a 10-item questionnaire to measure agreeableness. A sample item is "I sympathize with others' feelings". Participants indicated their responses on a 5-point Likert-type scale from 1 (very inaccurate) to 5 (very accurate). This study reported a coefficient alpha reliability of .73 for agreeableness.

Data Analysis: The data was analyzed using the Statistical Package for Social Sciences (SPSS) for Windows Version 20.0. A hierarchical multiple regression was conducted to investigate the hypotheses. Before conducting the multiple regression, data was screened for violations of the assumptions of normality, linearity, homoscedasticity and multicollinearity (Tabachnick & Fidell, 2007). The bivariate relationship between all the study variables was investigated using the Pearson product-moment correlation coefficient.

A moderated hierarchical regression was conducted to test the moderation effects of agreeableness on the relationship between work engagement and OCB (Hypothesis 2). There were three main steps (Cohen & Cohen, 1983) involved in the moderated regression analysis. In Step 1, the hypothesized independent variable was entered. In Step 2, the moderator variable (agreeableness) was entered. In Step 3, the interaction terms were entered. Any significant increase in the variable explained, as shown by R^2 in Step 2 and the corresponding significance value for beta would indicate the direct relationship between the moderating variable (agreeableness) and the dependent variable. Any significant increase in the variable

explained, as shown by R^2 in Step 3 and the corresponding significance value for beta would indicate the moderating effect of agreeableness on the relation between the independent variable and the dependent variable. According to Sharma et al. (1981), if the interaction term is statistically significant and the coefficient of determination value (R square) increases, a pure moderating effect is then present. On the other hand, if there is no significant difference in Step 2 and Step 3 of the moderated regression analysis, a quasi-moderating effect is present.

The significance of the interaction was determined by examining the significance of the increment in criterion variance that is explained by the interaction term. To examine the nature of this interaction, the interaction effect was plotted using the values of one standard deviation below and above the mean for both the predictor variable and moderator variable (Cohen & Cohen, 1983; Aiken & West, 1991). To reduce the multicollinearity among the main effect variables and their interaction terms, the scores on work engagement (independent variable) and agreeableness (moderator variable), and their interaction term were mean-centered (Aiken & West, 1991).

4. Results

A total of 800 questionnaires were distributed and 681 were returned. Out of the 681 survey forms that were returned, 35 cases with several missing values were removed, leaving a final research sample of 646 cases that were then used in the final analysis. Of the 646 respondents, 97.4% were female and 2.6 % were male. The gender population was imbalance because females were the dominant workforce holding clinical jobs in hospitals. In terms of ethnic composition of the respondents, 93.3% comprised of Malays, 3.9 % comprised of Chinese, 2.3 % comprised of Indians and the rest were from other ethnic groups. About 74% of the respondents were married, 19 % were not married, and 91% held higher school certificates and diploma qualifications. The age range of the participants was 23 to 58 years, with an average age of 36 years (sd = 8.4). The mean organizational tenure was 8 years (sd = 7.1).

Table 1 shows the value of means, standard deviations, internal reliabilities and correlations among the variables. The mean value of the study variables was above 3.5. The Pearson product-moment correlation analysis shows that most of the variables were strongly correlated with one another. As can be seen, work engagement was correlated with organizational citizenship behavior, and with agreeableness personality. Work engagement was also positively related to OCB and agreeableness personality. In general, the correlations were small to moderate, suggesting that common source variance was not a major problem in these data.

Table 1: Means, Standard Deviations, Correlations and Reliabilities

Variables	M	SD	1	2	3
1. Work Engagement	4.04	0.51	(.89)		
2. OCB	3.91	0.52	.58**	(.84)	
3. Agreeableness	4.18	0.48	.26**	.39**	(.73)

Note: Values in parentheses along the diagonal represent coefficient alphas. *p<0.05; **p<0.01

Interaction between Work Engagement and Agreeableness on OCB: Equation 1 in Table 2 shows the results of the regression analysis conducted to test hypothesis 2. Work engagement was entered in Step 1, explaining 38.5% of the variance in OCB. This result revealed a significant positive relationship between work engagement ($p<0.05$) and OCB. Thus, hypothesis 1 is fully supported in this study. After entering the agreeableness personality variable in Step 2, the total variance explained by the model as a whole was 44.1%, $F(2, 643) = 254.0$, $p<0.001$. The agreeableness personality measure explained an additional 5.7 % of the variance in OCB, after controlling for work engagement, with an R squared change of 0.057. In the final step (Step 3), the main interaction term was entered. The addition of this interaction term accounted for only an additional 0.6% of the variance ($\Delta R^2 = 0.006$, $p<0.05$). This result revealed a significant interaction between work engagement and agreeableness ($p<0.05$) in predicting OCB. Thus, hypothesis 2 is supported in this study.

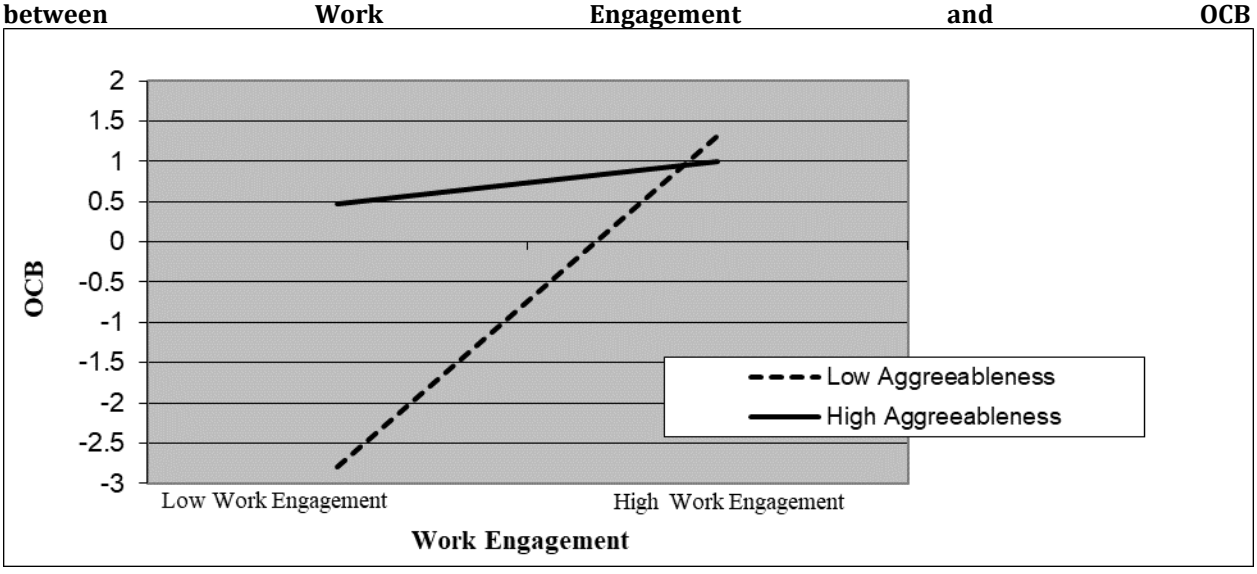
Table 2: Moderated Regression Results for the Interaction Effect of Work Engagement and Agreeableness on OCB

Equation	Variable OCB	Step 1 B	Step 2 B	Step 3 B
1	Step 1. Main effect.			
	Work engagement (MWE)	0.56***	0.49***	1.05***
	Step 2. Main effect. (moderator)			
	Agreeableness (MPA)		0.29***	0.86***
	Step 3. Interaction effect			
	MWE x MPA			-0.14*
	R^2	0.385	0.441	0.447
	Adjusted R^2	0.384	0.440	0.445
	F	402.9***	254.0***	173.1***
	ΔR^2		0.057	0.006

Note: N=646; unstandardized coefficients are reported; *p<0.05; two tailed; **p<0.01; two tailed; ***p<0.001; two tailed †p<.05, one tailed.

The impact of work engagement on OCB at different levels of agreeableness (high agreeableness and low agreeableness) was further explored to answer hypothesis 2a. Hypothesis 2a postulates that agreeableness personality moderates the work engagement-OCB relations, such that the relationship between OCB and work engagement will be stronger when employees are high in agreeableness than when their agreeableness is low. Following the moderated regression procedures outlined by Cohen and Cohen (1983), the nature of the interaction between agreeableness personality and perceived autonomy was plotted. The moderating effect of agreeableness in the relationship between autonomy and OCB is shown in Figure 1. It can be seen that the regression slope is steeper for low agreeableness than for high agreeableness. This shows that a low agreeableness personality was found to amplify the positive relationship between work engagement and OCB. These results indicated that the effect of work engagement on OCB was stronger for those respondents with low agreeableness (-1 SD from the mean) than for those with high agreeableness (-1 SD from the mean) contrary to the hypothesis. Thus, hypothesis 2a is partially supported in this study.

Figure 1: **Graphical Representation of the Moderating Effect of Agreeableness on the Relationship between Work Engagement and OCB**



5. Discussion & Implications

The main purpose of this study was to examine the moderating role of employee personality in the relationship between work engagement and OCB. As hypothesized, the results showed support for the direct effect of work engagement on OCB (Hypothesis 1). The findings of the significant positive effect of the work engagement variable on OCB are consistent with several research results. (Ng & Tay, 2010; Krishnan et al., 2010, 2013). This study has also provided further support from an interactionist perspective in the development of employee work behavior (OCB). It was found that employee involvement in OCB was jointly predicted by dispositional (agreeableness personality) and attitudinal (work engagement) variables. Importantly, the findings of this study show that agreeableness moderates the relationship between work engagement and OCB (Hypothesis 2). The present findings are consistent with a study by Liu et al. (2008) that shows agreeableness moderated the perceived meaningfulness of the job-OCB relationship.

However, contrary to expectations, the relationships between work engagements with OCB were found to be stronger for low agreeable employees compared to high agreeable employees, contrary to hypothesis 2a. In other words, a low agreeableness personality amplifies the positive impact of work engagement on employees' intention to help their colleagues. It is expected that those who are low in agreeableness are less friendly and uncooperative, less courteous; and as a result would not be likely to express their dedication by helping others as they are less empathetic. Rather, they would be more likely to focus on their task performance.

However, in this study, the influence of work engagement on OCB was more prominent among employees with low agreeableness personalities compared to those with high agreeableness personalities. In other words, an employee who is highly engaged in his/her job tends to display more OCB despite being a low agreeable employee. This finding seems to contradict earlier findings by Liu et al. (2008) which show that the relationship between a situational variable (empowering leadership) and employee OCB, was stronger for high agreeable employees compared to low agreeable employees (also see Colbert et al., 2004; Krings et al., 2009). Although this finding may contradict theoretically, it might have a significant contribution to the personality and OCB literature.

One possible reason for this is that compared to employees who are highly agreeable, those who are lowly agreeable are more likely to be task-goal-oriented. To achieve their task goals, they may tend to be less friendly, more outspoken and more competitive. Despite carrying this personality, they may still engage in helping behavior towards their peers because by doing so they may also accomplish their own task goals if the goals are to be achieved collectively with their peers as prevalent in the hospital work context. Helping behaviors such as helping others who were absent and giving time to help peers with work-related problems, are some of the ways to help the peers achieve their task goals and at the same time achieve one's own task goals.

In the nursing profession, many tasks performed by nurses involve effective collaboration or joint action with their peers for example, transporting patients from one unit to another, making up the bed of the patients, and dressing the patients. Nurses may also need to be less agreeable to achieve their task goals when their job involves interdepartmental tasks. For example, a nurse may receive instructions from supervisors of other departments despite receiving work instructions from their supervisors. Although they may receive work instructions from supervisors from other units, they need to ensure that they have completed their department tasks first before taking on other responsibilities. To achieve this, they may have to be less agreeable (outspoken and competitive) so that they are not overpowered by supervisors from other departments. Perhaps by being less agreeable, nurses may have a better opportunity to complete their assigned tasks which will eventually increase their level of motivation. As a result of this, they may display helping behaviors towards their peers. Work environmental factors such as the organizational pressure to achieve task goals, and the demanding job situation in the nursing field nowadays may also have influenced nurses to exhibit low agreeable personalities.

An obvious implication of this study is that employees' engagement in their work and their personality matters at the workplace, particularly with regard to promoting their involvement in extra-role behaviors

such as OCB. This study has demonstrated that engaged employees will actively participate in helping behavior such as OCB if they have an agreeable personality disposition. Specifically, this study found that the relationship between work engagement and OCB amplifies for employees who possess a low level of agreeable personality compared to those who pose high level of agreeable personality. Therefore, employers who wish to increase employee involvement in OCB need to take into consideration this specific personality in their employee selection process. Employees with less agreeable personalities are represented by employees who are outspoken and competitive.

Limitations and Suggestions for Future Research: Although this study has provided some important insights into the relationship between work engagement and OCB, we acknowledge that there are also some limitations. First, the sample used in this study was almost homogenous with mostly female respondents (over 95%). Further, the respondents in this study were mainly registered staff nurses employed at public hospitals in Malaysia. This has implications for the generalizability of our research findings to employees in other sectors of the economy. Thus, future studies should replicate our study using samples drawn from different occupations and types of work with even gender distribution. Second, the current study employed a cross-sectional design in which data were collected from respondents at a single point in time. One of the weaknesses of this method is that it does not allow us to draw a firm conclusion regarding the causal direction of the relationships among the predictors and outcome variables. Given this limitation, future research should examine the relationships among the variables using longitudinal designs that examine the continuity of the response. Finally, this study has focused on only one type of employee personality as a moderator in the work engagement-OCB relationship. Future research can be extended by examining other potential personality variables such as job conscientiousness or self-efficacy.

Conclusion: This study has provided empirical evidence for linking employees' work engagement and their involvement in OCB. This study found strong support for the direct effect of work engagement on OCB. This study revealed that employee personality (agreeableness) moderates the relationship between work engagement and OCB. Specifically, this study found that the relationship between work engagement and OCB amplifies for employees who possess a low level of agreeable personality compared to those who possess a high level of agreeableness personality.

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A Conceptual Paper on the Effects of Green Intellectual Capital on Business Sustainability

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Abstract: Businesses today are placing greater emphasis on sustainability and environmental concerns. More and more firms are making sustainability their top priority to stay ahead of their competitors. Since we now operate in a knowledge-based economy, intangible assets have emerged as an essential measure for evaluating a company's competitive advantage. Academics developed the notion of green intellectual capital (GIC) to encourage firms to care more about their environmental impact. In this conceptual paper, we aim to investigate the relationship between Green Intellectual Capital and the sustainability of a business. The goal of this study was to present a literature review on the impact of Green Human Capital (GHC), Green Structural Capital (GSC), and Green Relational Capital (GRC) on business sustainability. Despite the growing importance of GIC research in developing countries, scholars have devoted little attention to the subject, particularly in the Malaysian context. The findings indicate that all three concepts of Green Intellectual capital positively influence the sustainability performance of businesses.

Keywords: *Business sustainability; Green intellectual capital; Green Human Capital; Green Structural Capital; Green Relational Capital.*

1. Introduction

Over the past century, rapid industrialization has caused major environmental issues like climate change, water pollution, and deforestation (Boso, Adusei, & Demah, 2022; Wang & Juo, 2021). Business corporations must acknowledge the need to protect the environment as business is dependent on nature for the resources they need to provide customers with goods and services (Ullah et al., 2021). This has led many businesses to implement green strategies in their activities. Organizations can attain a competitive advantage over their counterparts by developing strategies that prioritize both profit optimization and environmental conservation (Commer, Sci, Chaudhry & Chaudhry, 2022). Nonetheless, many businesses are unclear about the necessary measures and strategies to implement. Furthermore, one could argue that government environmental restrictions are insufficient for effectively implementing sustainable business practices (Yusoff, Omar, Kamarul Zaman, & Samad, 2019a). Therefore, for organizations to effectively adapt to the present trend of environmental shift, it has become vital for them to come up with an innovative strategic strategy that goes beyond the domain of optional considerations and assumes a pivotal position in the operations of all entities (Ray & Grannis, 2015; Yusoff, Omar, Kamarul Zaman, et al., 2019a).

According to Allameh & Abbas, (2011), since we are living in an economy that is based on knowledge, the importance of intangible resources as a strategic competitive advantage has exceeded that of tangible resources. Yadiati, Nissa, Paulus, Suharman & Meiryani, (2019) in their studies stated that the literature on intangible assets has primarily focused on establishing their association with monetary, social, and economic factors. However, their connection with environmental performance remains relatively understudied. Academics have come up with the concept of green intellectual capital (GIC) as the determinant for businesses to be more aware of their impact on the environment (Jadoon, Ali, Ayub, Tahir, & Mumtaz, 2021). Chen, (2008) introduced the term GIC as "the total stocks of all kinds of intangible assets, knowledge, capabilities, and relationships, etc. about the environmental protection or green innovation at the individual level and the organizational level within a company". Chen, (2008) undertook a comprehensive investigation of green intellectual capital, identifying three key components: green human capital (GHC), green structural capital (GSC), and green relational capital (GRC).

Green human capital (GHC) encompasses the collective knowledge, skills, capabilities, experience, attitude, wisdom, creativities, and commitments possessed by employees, specifically in relation to environmental

preservation and the development of green innovation (Chen, 2008; p.277). According to Wang & Juo, (2021), if a company effectively implements the concept of GHC, the employees will possess adequate knowledge and skills to address environmental concerns. Thus, with the existence of qualified GHC, organizations' readiness to generate business benefits can be enhanced. According to the management literature, the presence of qualified GHC can enhance an organization's readiness to generate business benefits. This is due to the fact that a more knowledgeable workforce possessing superior green skills is better equipped to address environmental concerns, which in turn can help sustain economic performance (Pellegrini, Rizzi, & Frey, 2018).

The second component in GIC is Green Structural Capital (GSC). Chen (2008; p. 277) defines green structural capital as the summation of "capabilities, commitments, knowledge management systems, reward systems, information technology systems, databases, managerial mechanisms, operation processes, managerial philosophies, organizational culture, company images, patents, copyrights, and trademarks, etc. about environmental protection or green innovation within a company." The provision of organizational support by green structural capital is crucial for establishing management mechanisms and systems that help the incorporation of environmental technological knowledge and the incorporation of environmental initiatives across the firm (Amores-Salvadó, Cruz-González, Delgado-Verde, & González-Masip, 2021).

The third component of GIC, Green Relational Capital (GRC) is defined as "the stocks of a company's interactive relationships with customers, suppliers, network members, and partners about corporate environmental management and green innovation, enabling it to create fortunes and obtain competitive advantages" (Chen, 2008; p. 277). The utilization of green structural capital can provide the required support to steer the organization's ecological endeavors. Prior research has indicated that a company possessing robust green structural capital is likely to achieve optimal outcomes in terms of environmental strategy (Amores-Salvadó et al., 2021; Mansoor, Jahan, & Riaz, 2021). Even though the study of GIC in developing countries is becoming more important, researchers haven't paid much attention to the topic, especially in the Malaysian context. Limited study has been conducted to establish a connection between the role of GIC and the sustainability of businesses. This can be attributed to the novelty of the concept, which is still in the explorative stage. Thus, through reviews of the literature, this study is expected to fill up the inconclusive research gap on the effect of GIC on business sustainability and thus provide more understanding of the effectiveness of GIC towards business performance and business sustainability subsequently.

Need of the Study: The purpose of this article is to investigate the impact that green intellectual capital (GIC) has on the long-term viability of businesses. A review of the pertinent literature will serve as the foundation for our response to the inquiry. Although research on GIC in developing nations is becoming increasingly significant, scholars have not focused a great deal of attention on the topic, particularly in the context of Malaysia. So far, there has been very little discussion on the role of GIC in business sustainability as it is a relatively new concept and is still in an explorative stage. Among the studies worth mentioning are the following studies (Ahmad Yahya, Arshad, Kamaluddin, & Wan Abdullah, 2022; Suki, Suki, Sharif, Afshan, & Rexhepi, 2022; Yong, Yusliza, Ramayah, & Fawehinmi, 2019; Yusoff, Omar, & Kamarul Zaman, 2019). According to the extant literature, the influence of GIC on a company's performance is likely to be contradictory. The particular impacts of GIC dimensions on performance, however, remain ambiguous (Chaudhary & Kumar, 2021). Thus, this study aims to fill the knowledge gap in the existing literature.

This research is anticipated to yield numerous insights. With the likelihood of positive associations between GIC and business sustainability, organizations should be able to leverage their intangible assets as a strategic business strategy to achieve sustainability performance. This research is also anticipated to have theoretical implications. In addition, it is anticipated that this research will contribute to the scant literature on the relationship between GIC and business sustainability.

Objectives of the Study: This study aims to investigate the effect of intangible resources on the sustainability of businesses. To achieve this goal, the following specific objectives will be addressed.

To determine the correlation between the dimensions of Green Intellectual Capital (GIC), namely Green Human Capital, Green Social Capital, and Green Relational Capital, and the concept of Business Sustainability.

2. Underpinning Theory

The theoretical root of the study is founded on the fundamental principles of the resource-based view (RBV), intellectual capital view (ICV) and "knowledge-based view". The Resource-Based View (RBV) theory explains the process by which a firm can leverage strategic resources and/or capabilities to attain a competitive edge (Agyabeng-Mensah & Tang, 2021). Organizations can improve their sustainability performance and long-term viability by incorporating sustainable practices and resource management into their strategies. Given the significance of organizational assets and resources in aiding a company's productivity and growth, the usability of an organization's intangible assets is critical in improving its overall performance (Yadiati et al., 2019). Additionally, scholars have reached a consensus that the sustainability of organizations is also heavily dependent on intangible assets (Obeng, 2019) which in turn, guarantees their competitive edge. These intangible assets are known as intellectual capital. According to certain scholars, the Resource-Based View (RBV) theory is inadequate in providing a comprehensive depiction of competitive advantage (Sheikh, 2021).

Therefore, the attainment of environmental resources and capabilities should be incorporated to achieve a competitive edge in contemporary and future business environments (Hart, 1995). However, according to Hart (1995)'s Resource-Based View (RBV) fails to recognise the interdependence of the natural environment and the theory. Empirical evidence suggests that organizations having larger amounts of Intellectual Capital tend to have superior levels of operational excellence in comparison to those with lower resources of Intellectual Capital (Jiao, Zhang, He, & Li, 2022). The Intellectual Capital View (ICV) is more detailed than the Resource-Based View (RBV), as it considers three resources that are conceptually linked to an organization's competitive advantage: human capital, relational capital, and structural capital. (Astuti & Datrini, 2021). Knowledge-based view theory on the other hand explicated that an organization's knowledge is the most valuable strategic asset because it can be used to create intangible assets (in this case, intellectual capital assets) that can be used to gain a competitive advantage and fuel both organizational and financial growth (Benevene, Buonomo, Kong, Pansini, & Farnese, 2021).

3. Business Sustainability

The concept of sustainability is presently a topic of discussion and inquiry in various research endeavors worldwide. This has resulted in the proliferation of diverse conceptual interpretations, tailored to the specific objectives of each research undertaking. In 1987, the World Commission on Environment and Development (WCED) released a seminal publication entitled "Our Common Future," also known as the Brundtland Report. The document has set the groundwork for a comprehensive framework of sustainability, which aims to find a balance between the underlying conflicts between protecting the environment and pursuing development goals. In the report, sustainability was defined as the “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987).

In addition, the triple bottom line principle is a means of distinguishing the threefold nature of sustainability, which includes the social, environmental, and economic aspects (Yong, Yusliza, Ramayah, Farooq, & Tanveer, 2022). Achieving sustainability within an organization requires the development and execution of plans and policies that go beyond only pursuing financial profits. It is essential to integrate a genuine concern for the environment into the organizational structure, encompassing the preservation of ecological balance and the responsible exploitation of natural resources. It is crucial to recognize that these discussions should not be interpreted as unnecessary expenditures, but rather as a manifestation of the institution's commitment to the well-being of its members and the wider society (Suki et al., 2022). In line with this concept, it is crucial to assert that for a company to be regarded as sustainable; it must not only emphasize profitability but also consider the societal and ecological implications of its choices. In the context of this study, business sustainability refers to the organizational goal of maximizing profit and fostering social development while considering environmental factors (Galpin, Whittington, & Bell, 2015). Based on this concept, sustainability encompasses three dimensions, namely economic, social, and environmental. Economic performance refers to financial performance, whereas environmental performance seeks to reduce environmental damage and resource depletion. Social performance refers to the well-being of stakeholders, including customers, societies, and employees.

Green Intellectual Capital: Intellectual Capital (IC) was introduced by John Kenneth Galbraith in 1969 with Tom Stewart popularizing it in 1991 (Yusoff, Omar, Kamarul Zaman, & Samad, 2019b). The IC concept has generated a great deal of discussion, resulting in a plethora of literature across multiple disciplines. Despite the abundance of academic discussions around the concept of IC, the suggested definitions of IC exhibit a remarkable level of metaphorical similarity with each other. Based on the literature, the term "intangible capital" (IC) refers to all an organization's intangible resources that make it possible for the organization to create value and gain a competitive advantage. With regard to the increased environmental awareness among the stakeholders (Chang & Chen, 2012), strategy scholars reveal that the intellectual capital perspective fails to acknowledge the relationship between a firm and its natural environment (Jirakraisiri, Badir, & Frank, 2021). Yong et al., (2019) state that the Brundtland Report of 1987 mandated that companies operating in a highly competitive global marketplace must embrace environmentally responsible practices to improve their competitiveness and sustainability. According to Chang & Chen, (2012) possessing environmental knowledge is a prerequisite for the development of sustainable intellectual capital. The GIC framework is the same as the IC framework. The IC approach considers sustainability as one of multiple intangible assets, but the GIC approach sees it as the emphasis and a catalyst for knowledge generation and management (Alvino, Di Vaio, Hassan, & Palladino, 2021).

The GIC concept allows for the incorporation of environmental considerations into overall organizational management. Huang & Kung, (2011) argue that GIC makes a difference in organizations that have chosen to be focused on sustainability. This is because environmental awareness alone cannot assure sustainability and effective environmental management necessitates the use of both tacit and explicit knowledge. GIC helps organizations that have chosen to prioritize sustainability to succeed. GIC can ensure alignment between an organization's strategic decisions, operational side, culture and values, and its intangible assets and capacity to generate innovation (Chang & Chen, 2012; Chen, 2008; Russo & Fouts, 1997). Since GIC focuses primarily on non-economic objectives, it encourages long-term sustainable thinking within the company Benevene et al., 2021). It is crucial to underline the importance of this element since it is difficult for a company's green management to boost profitability in the short term, which discourages both management and stakeholders from taking more actions toward sustainability (Chen, 2011). This research will use three components to explain GIC: green human capital (GHC), green structural capital (GSC), and green relational capital (GRC) (Chen, 2008).

Green Human Capital: Human capital is widely acknowledged as a crucial resource for the attainment of organizational success, owing to the indispensable role played by employees in ensuring the survival and prosperity of businesses within the contemporary, rapidly evolving business environment (Shah, Ahmed, Ismail, & Mozammel, 2021). According to the theoretical framework of the Resource-Based View (RBV), an organization's enduring competitive advantage is primarily contingent upon the intrinsic nature of its internal resources and capabilities. Research by Nejati, Rabiei, & Chiappetta Jabbour, (2017) in Agyabeng-Mensah & Tang (2021) the knowledge, skills, and abilities of employees are essential for the successful implementation of sustainable practices and serve as a competitive advantage. In light of the necessity for businesses to cultivate green innovation and green management in response to external environmental pressures, Chen (2008) introduces the groundbreaking idea of "green human capital."

This concept incorporates, among other things, the integration of employees' environmental knowledge, skills, abilities, experience, attitude, wisdom, creativity, and commitments regarding environmental protection or green innovation (Chang & Chen, 2012). Green human capital (GHC) encompasses the intellectual capital of individual employees that is aligned with environmentally conscious practices (Chang & Chen, 2012). This form of capital has the potential to ease the transfer of information among firms in an efficient manner (Chang & Chen, 2012). Businesses with high GHC may provide their staff with the necessary green skills and competencies, enabling them to make good and meaningful contributions to environmental protection, decision-making, and problem-solving (Jirakraisiri et al., 2021). While recognizing the significance of human capital in attaining sustainability, limited scholarly investigations have been conducted to explore the correlation between greenhouse gas emissions (GHC) and business sustainability (BS).

Green Structural Capital: According to Chen (2008), Green Structural Capital (GSC) can be defined as an accumulation of various elements within an organization that encompass its organizational capabilities,

commitments, knowledge management systems, managerial philosophies, organizational culture, company images, patents, copyrights, and trademarks. These components are intrinsically linked to the pursuit of environmental protection or the advancement of green innovation within the organizational context. GSC comprises a variety of hierarchical assets that are required for efficient environmental protection. Organizational capabilities, information management systems, executive decision-making tools, incentive structures, legal licenses and trademarks, administrative components, educational technology infrastructure, organizational culture, brand reputation, copyright protection, and databases are examples of these assets (Ali et al., 2021). Organizations endowed with strong structural capital find themselves in a setting that fosters employees' inherent desire for continuous knowledge acquisition, hence improving the company's overall capabilities (Shah et al., 2021).

In addition, the lack of GSC will have a negative impact on the company's performance because it hinders the implementation of environmentally sustainable practices. In broader terms, GIC management must establish an organizational culture that is capable of producing and accumulating knowledge pertaining to environmentally sustainable practices (Benevene et al., 2021). Previous research has demonstrated that the presence of green structural capital has a beneficial influence on performance outcomes. For example, a study conducted by Chen (2008) and Firmansyah (2017) revealed that there's a relationship between green structural capital (GSC) and competitive advantage. Yong et al. (2019) reported that GSC has a positive impact on the sustainability of businesses. A further study conducted by Huang and Kung (2011) also discovered that GSC has a favorable impact on environmental competence and actions associated with commitment. Although there's evidence that GSC has positively impacted many organization outcomes, very few researchers have tried to investigate the relationship between GHC and business sustainability (BS).

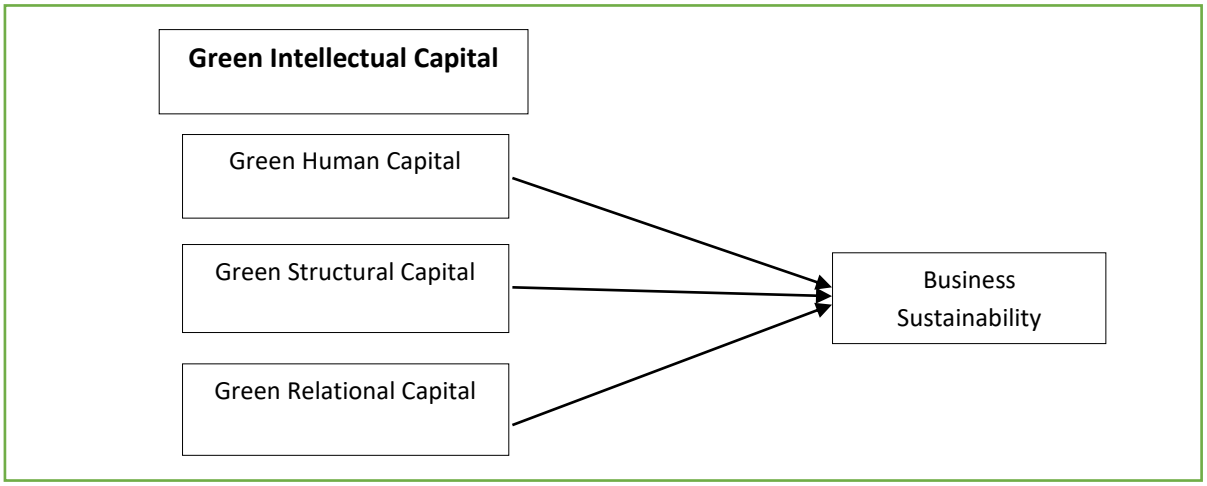
Green Relational Capital: GRC refers to a company's interactions with key stakeholders in the corporate environment management process, as well as its utilization of green innovation to generate wealth and gain competitive advantage (Ullah et al., 2021). GRC is characterized as a type of knowledge obtained from the formation and management of stakeholder relationships. It consists of connections with institutions, suppliers, customers, partners, and other members of networks for green innovation and environmental management, all of which have led to long-term operations. These organizations have enabled sustained operational actions over a long period of time (Chen, 2008; Yong et al., 2019; Yusliza et al., 2020). These relationships are founded on trust developed between partners through previous interactions (Baycan & Öner, 2022). According to Welbourne (2008), GRC has emerged as a vital strategic asset that enables an organization to effectively develop a strong market position.

According to one study (Sadiq et al., 2022; Yong et al., 2019; Yusliza et al., 2020), a hospitality firm can generate and improve green products and services by integrating green knowledge and skills of employees with green resources derived from network relationships (i.e., green relational capital). Therefore, when a hospitality organization embraces a strategy approach that prioritizes green innovation, it has the potential to acquire green relational capital through its network connections (Wang, 2022). According to Yu and Huo (2019), GRC practices have a notable influence on the business performance of companies operating within the manufacturing industry. This approach enables the organization to prioritize sustainable product development and implement green production practices. Through the use of environmental sustainability practices, the organization is able to enhance its business performance (Yusliza et al., 2020). Despite the existence of empirical evidence indicating a positive influence of GRC on many organizational outcomes, there remains a dearth of research particularly investigating the association between GRC and business sustainability (BS).

4. Proposed Framework and Conclusion

This research aimed to establish a link between the aforementioned theories to conceptualize the intangible assets that contribute to corporate sustainability. The term "green intellectual capital" was created by integrating the concept of "green" with the traditional concept of intellectual capital. Based on the review of the literature, the proposed model is depicted in Figure 1.

Figure 1: Conceptual Framework on the Relationship between GIC and Business Sustainability



It can be concluded that, in ensuring the sustainability of businesses, priority should be focusing on the skills, expertise, commitments, organizational structure and the growing expectations and relations from stakeholders. This study highlighted various literature and revealed the components of Green Intellectual Capital (GIC) and its positive effects on business sustainability. Understanding the effects of GIC on business sustainability is critical for generating a competitive edge for the organization's future through Green Human Capital (GHC), Green Structural Capital (GSC), and Green Relational Capital (GRC). Organizations will be able to uncover new sources of competitive advantage to sustain their business by focusing on the implications of GIC components in various business operations.

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A Conceptual Review of the Determinants of Employee Innovative Work Behavior

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Abstract: The increasing prevalence of digitalization, competitive markets, quick environmental changes, and the imperative of organizational sustainability have necessitated business organizations to adopt innovative practices. Hence, all organizations must foster a culture of innovative work behavior among their employees to ensure the organization's ongoing survival and advancement. Nonetheless, comprehensive studies that methodically scrutinize the different factors affecting IWB within a unified theoretical model are insufficient. This research is a literature review to find and analyze factors that influence innovative work behavior. The findings of the literature review or existing research indicate that psychological empowerment, employee engagement, self-efficacy, knowledge sharing, perceived organizational support, climate for innovation, HRM practices, and transformational leadership have consistently demonstrated strong associations with employee IWB in various studies. This study additionally proposes a novel conceptual framework that examines the interplay between psychological empowerment, employee engagement, self-efficacy, knowledge sharing, perceived organizational support, climate for innovation, HRM practices and transformational leadership, with a specific focus on their impact on IWB. This framework holds potential for future investigations conducted by other scholars.

Keywords: *Innovative Work Behaviour, Innovative Work Behavior, IWB, HRM Practices, Leadership Style.*

1. Introduction

In recent years, there has been a growing interest in research studies centered on innovative work behavior (IWB) (Hassan & Ghias, 2021). There seems to be no slowdown in IWB research because there has always been a need for innovation in all aspects of life (Hassan & Ghias, 2021). Its popularity could be attributed to the general openness of modern society to new ideas and innovations. As a result, innovation is now a must for almost all types of businesses. To maintain the long-term viability and achievement of an organization in complex and ever-changing contexts, it is imperative for management to actively pursue innovative strategies for their enterprises (Salam & Senin, 2022). Moreover, it plays a pivotal role in the European Union's overarching strategy for fostering globalization and cultivating a society centered on knowledge and innovation (Grošelj et al., 2021). In addition, the presence of a highly competitive market has led to the recognition of knowledgeable workers as a crucial factor in driving innovative outcomes (Hebbaz et al., 2023). Therefore, it is imperative to grasp the significant reliance of organizations on the IWB of their employees to foster innovation.

Additionally, as the business landscape continues to evolve unpredictably, the significance of an employee's IWB is steadily gaining recognition as a crucial element for boosting organizational efficiency and competitiveness (Afsar et al., 2020). This is mainly because the success of organizations is predominantly dependent upon the capability of their employees to take part in IWB (Afsar et al., 2020). In addition, Wissmann, (2021) states, that employees hold significant value as a crucial asset inside an organization and failing to leverage the innovative potential of employees would constitute a significant loss to their organization. The cultivation of IWB equips individuals with the necessary abilities to uphold a competitive advantage and ensure organizational stability (AlEssa & Durugbo, 2021).

Prior research has indicated that both scholars and professionals have demonstrated significant interest in exploring IWB (Afsar & Umrani, 2020; Al-Omari et al., 2019; Carlucci et al., 2020; Gashema, 2021; Javed et al., 2020; Mohammed Afandi & Mohd Effendi Ewan, 2020; Odoardi, 2018; Park & Kim, 2022; Zhang et al., 2021). The need to investigate this subject arises from the contemporary competitive landscape of the business

world, which has fostered a challenging environment (Kustanto et al., 2020). Therefore, businesses must know how to encourage and support employees' IWB. Hence, it is imperative to establish a framework for improving IWB (Ranihusna et al., 2021). The primary objective of this review was to analyze the fundamental mechanisms through which individual factors, environmental factors, and leadership styles impact individual work behavior (IWB).

Numerous academics have conducted studies investigating the factors affecting IWB such as leadership style (Bin Saeed et al., 2019; Iqbal et al., 2022; Joo et al., 2023; Stanescu et al., 2020; Sudibjo & Prameswari, 2021), proactive personality (Yang et al., 2020), personal values (Purc & Lagun, 2019), perceived organizational support (Sulaiman et al., 2019), organizational climate (Ali et al., 2020), cultural intelligence (Afsar et al., 2020), employee engagement (Ali et al., 2022), knowledge sharing (Nguyen et al., 2020), HRM practices (Bos-Nehles & Veenendaal, 2019) and external factor (Zhang et al., 2021). Despite its significance, understanding the factors that drive this behavior remains fragmented and uneven (Stankevičiute et al., 2020). Although several studies have been conducted to identify the causes of IWB, no study has yet drawn a complete picture of the variables that play a role in shaping IWB. A systematic review has been done by Al-Omari et al., (2019); AlEssa & Durugbo, (2021); Srirahayu et al., (2023) however a clear framework which identified factors that have robust finding have not been clearly defined. Thus, this study will provide a framework on antecedents of IWB which significantly relate to IWB. Previous study has state that there are 3 categories that support IWB, namely: leadership, organizational and individual.

2. Literature Review

Innovative Work Behaviour: In the beginning, it was Farr and Ford (1990) who established the idea of innovative workplace behaviors (IWB). The term "IWB" refers stands for an individual's proactive behavior aimed at initiating and implementing innovative and advantageous ideas, processes, products, or procedures. Later Scott & Bruce, (1994) refer IWB to as a collection of activities that are focused on identifying, nurturing, altering, accepting, and putting into action ideas. Numerous scholars have made efforts to establish a comprehensive definition of IWB. However, the prevailing definition in the existing literature is the one put forth by Janssen (2000). According to Janssen, IWB refers to the deliberate actions undertaken by employees to generate, introduce, and implement novel ideas within the context of their work, whether in a group setting or within an organizational framework, with the ultimate aim of enhancing performance.

Later few other researchers came up with their definition. Example de Jong & Hartog (2007) refer to IWB as the deliberate actions undertaken by individuals to introduce or implement novel ideas, products, processes, and procedures inside their respective work roles, units, or organizations. In other words, Yuan & Woodman, (2010) said, IWB can be defined as the process of initiating, developing, realizing, and implementing novel ideas with the potential to enhance products, services, processes, and work methods. Similarly, Xerri & Brunetto (2013) described innovative work behavior as a process aimed at enhancing problem-solving efficiency and effectiveness inside the workplace. Recently Farrukh et al., (2022) defined IWB as the actions of individuals and teams within an organization that result in the development and implementation of novel services/products, tasks, or work-related ideas that improve organizational outcomes. Table 1 represents the key definition of IWB over the years:

Table 1: Key Definitions of IWB

IWB Definitions	Authors
IWB is defined as an individual's behavior that attempts to initiate and intentionally introduce new valuable ideas, processes, goods, or procedures.	Farr & Ford, (1990)
Innovative work behavior stands for an individual's proactive behavior aimed at initiating and implementing innovative and advantageous ideas, processes, products, or procedures.	Scott & Bruce, (1994; Ven, (1986)
The intentional efforts of employees to generate, implement, and utilize novel concepts at the workplace, either individually or collectively, to enhance organizational performance	Janssen, (2000)
IWB refers to the deliberate implementation and utilization of concepts, methods, goods, or systems within a specific function, team, or institution.	Dorenbosch et al., (2005)

A set of actions focused on introducing a valuable and beneficial idea, to enhance both individual employee and overall organizational performance	de Jong & Hartog, (2007)
The creation, acceptance, and execution of innovative concepts in products, technologies, and operational techniques by staff members.	(Yuan & Woodman, 2010)
Innovative teacher behavior teachers involve executing novel ideas. This behavior includes watching, hearing, and modifying new concepts, formulating an action plan, critiquing and reassessing, tweaking the original idea, and seeking supportive collaborators.	Messmann & Mulder, (2012)
A sophisticated and uncommon conduct in which employees advocate for innovative concepts, steer clear of conventional mindsets, and question authority by challenging existing norms.	(Kanter, 1988; Kessel et al., 2012)
Innovative behavior is characterized as a series of steps involving the exploration, development, and implementation of new ideas and solutions to address present challenges.	Park, Song, Yoon and Kim (2013)
Innovative work behavior "as a process that should improve the efficiency and effectiveness of problem-solving in the workplace".	Xerri & Brunetto, (2013)
Employees conceive, invent, develop, apply, promote, realize, and modify new ideas to improve their role performance in organizations.	(Thurlings et al., 2015)
Innovative behavior refers to the actions taken by an individual in the workplace to generate and implement new ideas, leading to the development of novel processes and products.	(Binnewies et al., 2007; Lukes & Stephan, 2017)
The deliberate integration and use of new ideas, processes, products, or methods in a specific organizational unit, aimed at bringing substantial advantages to either the organization itself or the broader community.	(Odoardi, 2018)
Employees intentionally work toward achieving the organization's goals by generating, overseeing, and executing innovative ideas that provide a competitive edge and contribute to long-term stability.	(Bawuro et al., 2018)
The innovative actions of employees concentrate on the journey of innovation, such as participating in inventive tasks, rather than the end products like new goods, which fall outside the realm of creativity	(Qi et al., 2019)
Innovative work behavior refers to a set of actions that enable employees to think creatively to enhance job performance, as well as streamline processes and routines.	(Samma et al., 2020)
Innovative Work Behavior (IWB) is the collective efforts of individuals and teams within an organization to bring forth new services, products, tasks, or ideas that enhance overall innovativeness and yield positive results.	(Farrukh et al., 2022)

3. Research Methodology

After conducting a thorough and methodical examination of existing scholarly works, the authors concentrated on published research that encompassed the literature pertaining to employee innovative work behavior, innovative work behavior and individual innovative behavior. The review used a combination of Google Scholar and manual searches, as well as computerized keyword searches, in the most important business source databases such as Scopus, Science Direct, WOS, Springer Link, and Emerald from 2018 to 2023.

Factors of Innovative Work Behavior: Since Scott and Bruce (1994, 1998) introduced the idea of "Innovative Work Behaviour," the number of publications that make use of IWB has increased consistently. Scholars argue that IWB has a considerable impact on organizational performance, making it a topic of interest for both academics and business leaders (Choi et al., 2021; Jankelová, Joniaková, et al., 2021). As a result, a business that seeks a continual flow of individual innovation must ensure that its personnel are both willing and capable of innovating (De Jong & Den Hartog, 2010). Aligned with the increasing recognition of the significance of individual innovation, previous scholarly works have investigated the determinants that impact individual innovative work behavior (IWB) (Bawuro et al., 2018; Contreras et al., 2020; Saraih et al.,

2019). However, the findings in this field are still limited and inconclusive. As a consequence innovation has moved to the forefront of organizational study and practice, demanding more investigation of IWB.

A significant amount of study has focused on examining the elements that contribute to innovative behavior in the workplace, to enhance our understanding of this phenomenon(De Jong & Den Hartog, 2010; Yuan & Woodman, 2010; Bos-Nehles et al., 2017; Sulistiawan et al., 2017; Ab Rahman & Ismail, 2018; Bawuro et al., 2018; Riaz et al., 2018; Aishah Hashim et al., 2019; Bin Saripin & Kassim, 2019; Purc & Lagun, 2019; Saraih et al., 2019; Siregar et al., 2019; Widodo, 2020; Contreras et al., 2020; Hashim, 2021; Hosseini & Haghighi Shirazi, 2021; Zhang et al., 2021). However, the findings are still insufficient and conclusive due to different regions, industries and cultures. Hence, the objective of this study is to provide a comprehensive framework encompassing many factors that have been consistently found to significantly impact individual work behavior (IWB). In reviewing previous literature, variables that support innovative work behaviour have been identified. A closer look at these variables shows that they are connected to factors at the individual, leadership, organizational, human resource practices and external levels.

Individual Factor: According to Scott & Bruce (1994) the fundamental element for establishing a high-performance organization is the presence of workers who exhibit innovative behavior within the workplace. Thus, many organizations are looking at the factors influencing employee IWB. There are many individual factors have been studied on IWB. Among the individual related factors that have been studied relating to IWB include perceived role clarity (Kundu et al., 2020), emotional intelligence (Andrabi & Rainayee, 2020), psychological capital (Yonla et al., 2019), self-efficacy (Santoso & Heng, 2019; Siregar et al., 2019), personal values (Purc & Lagun, 2019). Among all the factors studied psychological empowerment is one of the most studied factors on employee IWB due to its different findings (Abdullatif, 2016; Almulhim, 2020; Helmy et al., 2019; Kustanto et al., 2020; Nasir et al., 2019; Rahman et al., 2014; Sinaga et al., 2021; Yasir et al., 2021). Meanwhile self-efficacy is proven to be one of the most influential factors of IWB (Siregar et al., 2019; Santoso & Heng, 2019).

Competency, ability to innovate and readiness to change seem to be a growing factor studied by researchers in recent years (Carvalho et al., 2023; Sengupta et al., 2023). Besides some factors like employee engagement (Ali et al., 2022; Bannay et al., 2020), organizational commitment (Akhtar et al., 2019; Arsawan et al., 2022), emotional intelligence (Andrabi & Rainayee, 2020; Malik, 2021), proactive behavior (Nurjaman et al., 2019; Yang et al., 2020) are also significantly correlated with employee IWB.

Leadership Factor: There are various leadership styles have been studied on IWB such as Transformational leadership, Transactional leadership and Laisser-Faire leadership (Alheet et al., 2021; Khan et al., 2020; Afsar & Umrani, 2020; Bawuro et al., 2018; Chatchawan et al., 2017; Gashema, 2021; Grošelj et al., 2020; Sinaga et al., 2021; Tan et al., 2021) Ethical Leadership (Wen et al., 2021; Hashim, 2021) Inclusive Leadership (Alshoukri et al., 2020; Javed et al., 2020; Bannay et al., 2020; Javed et al., 2019) Entrepreneurial Leadership (Li et al., 2020) and Servant Leadership (Cai et al., 2018). According to a recent systematic literature review by AlEssa & Durugbo, (2021) and El Alfy & Naithani, (2021) found that leadership studies dominate research related to IWB and transformational leadership (TL) is the most studied style of leadership linked to IWB.

Afsar & Umrani (2020) found employees' innovative work behavior was positively influenced by transformational leadership, while motivation to learn mediated the transformational leadership–innovative work behavior link. The study also indicated that task complexity and the innovation climate moderate the association between transformational leadership and workers' innovative work behavior. While other studies state inclusive leadership styles closely relate to IWB (Aboramadan et al., 2022; Javed et al., 2020). On the other hand (Grošelj et al., 2021; Schuckert et al., 2018) found authentic leadership has a significant impact on IWB.

Organizational Factor: According to Damanpour (1991) organizational factors play a critical role in the innovation process. Various studies have focused on the organizational factor of employee IWB. Previous studies tested perceived organizational support on IWB (Chatchawan et al., 2017; Afsar & Umrani, 2020; DOĞRU, 2018; Masyhuri et al., 2021; Mustika et al., 2020; Qureshi et al., 2020; Riaz et al., 2018; Susilo, 2019). While some scholars investigate Organizational Climate for Innovation and IWB (Ali et al., 2020; Izzati, 2018;

Munir & Beh, 2019**;** (Bos-Nehles et al., 2017; Contreras et al., 2020;). Meanwhile, Knowledge sharing also became one of the most interesting areas studied with IWB (Akram et al., 2020; Ibus, Wahab, & Ismail, 2020; Işık et al., 2021; Kmieciak, 2020; Mustika et al., 2020; Nguyen et al., 2019; Yasir et al., 2021).

There is also evidence shows organizational culture positively relates to employee IWB (Jankelová et al., 2021; Khan et al., 2020; Mutonyi et al., 2021; Saraih et al., 2019; Nazir et al., 2018). While other researchers have focused on HRM Practices (Bos-Nehles & Veenendaal, 2019; Stankevičiute et al., 2020; Yasir & Majid, 2020 Koednok & Sungsanit, 2018; Saraih et al., 2019; Majid, 2020; Saraih et al., 2019; Bos-Nehles et al., 2017). Chatchawan et al., (2017) in their study reported several research in Thailand and globally have discovered that team climate inventory, learning orientation, transformational leadership, and organizational supportiveness are all characteristics that influence innovative behavior. Bani-Melhem et al. (2018) reported a positive effect of workplace happiness and co-worker support on employee IWB. Table 2 below represents factors that affect employee innovative work behavior.

Table 2: The Antecedents of IWB 2018 - 2023

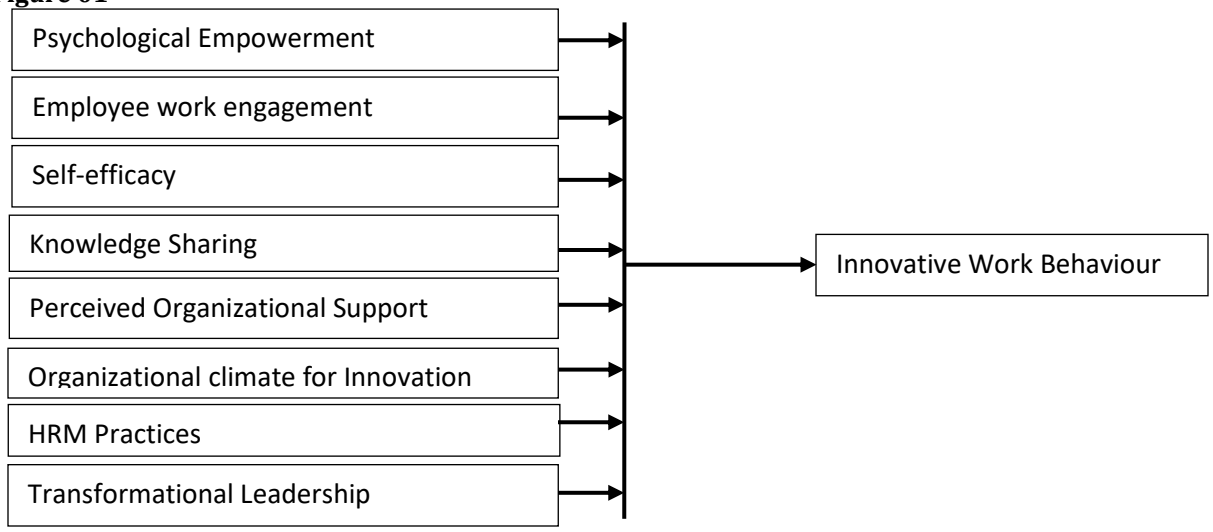
Category	Factors	Author
Individual	Psychological Empowerment	(Aldabbas et al., 2021; Almulhim, 2020; Bin Saeed et al., 2019; Grošelj et al., 2020; Helmy et al., 2019; Khan et al., 2019; Khan et al., 2021; Kustanto et al., 2020; Mahendri et al., 2022; Nasir et al., 2019; Park & Kim, 2022; Prabowo et al., 2018; Rahman et al., 2014; Sinaga et al., 2021; Stanescu et al., 2020; Swaroop & Dixit, 2018; Yadav et al., 2023; Yasir et al., 2021; Zhang et al., 2021)
	Perceived role clarity	(Kundu et al., 2020)
	Social Capital	(Heliawaty et al., 2020)
	Emotional Intelligence	(Andrabi & Rainayee, 2020; E. Khan et al., 2021; Malik, 2021)
	Proactive Behavior	(Gultom et al., 2022; Khan & Dukhaykh, 2022; Nurjaman et al., 2019; Yang et al., 2020)
	Psychological Capital	(Gashema, 2020, 2021; Mutonyi et al., 2021; Yonla et al., 2019)
	Self-Employment	(Yonla et al., 2019)
	Hope	(Namono et al., 2021)
	Humor	(Johari et al., 2021)
	Trust	(Afsar et al., 2020; Afsar & Masood, 2018)
	Competency	(Carvalho et al., 2023; Siregar et al., 2019)
	Self-efficacy	(Siregar et al., 2019), (Afsar & Masood, 2018; Choi et al., 2021; Hashim, 2021; Ibus, Wahab, Ismail, et al., 2020; Islam et al., 2022; Oppi et al., 2020; Santoso & Heng, 2019)
	Personality Trait	(Saraih et al., 2019)
	Personal Values	(Purc & Lagun, 2019)
	Readiness to change	(Sengupta et al., 2023; Tan et al., 2021)
	Agile learning	(Jo & Hong, 2022)
	Learning goal orientation	(Hebbaz et al., 2023; Sukumarl Koednok, 2023)
	Psychological Safety	(Xu & Suntrayuth, 2022)
	Work Engagement/Employee engagement	(Afsar et al., 2020; H. Ali et al., 2022; Bannay et al., 2020; Contreras et al., 2020; DOĞRU, 2018; Hosseini & Haghighi Shirazi, 2021; Jena & Memon, 2018; Jo & Hong, 2022; Khan & Dukhaykh, 2022; Ranihusna et al., 2021; Swaroop & Dixit, 2018; Vithayaporn & Suwaree Ashton, 2019)
	Employees Thriving	(Riaz et al., 2018; Shah et al., 2020)
	Organizational Commitment	(Arsawan et al., 2022; Bawuro et al., 2018; Hashim,

		2021; Mutonyi et al., 2021; Nazir et al., 2018; Siregar et al., 2019)
Leadership	Transformational leadership	(Alheet et al., 2021; Khan et al., 2020; Afsar & Umrani, 2020; Bawuro et al., 2018; Gashema, 2021; Grošelj et al., 2020; Sinaga et al., 2021; Tan et al., 2021)(Afsar & Masood, 2018; Alnajjar & Hashim, 2020; Alshahrani et al., 2023; Arsawan et al., 2022; Bednall et al., 2018; Bin Saeed et al., 2019; Bin Saripin & Kassim, 2019; Contreras et al., 2020; Ferdinan & Lindawati, 2021; Grošelj et al., 2021; Hansen & Pihl-Thingvad, 2019; Khan et al., 2019; Khan et al., 2021; Sukumarl Koednok, 2023; Rafique et al., 2022; Rahmah et al., 2020; Stanescu et al., 2020; Sudibjo & Prameswari, 2021; Tan et al., 2021; Zhang et al., 2021)
	Transactional Leadership	(Alheet et al., 2021; Contreras et al., 2020; Faraz et al., 2018; Hansen & Pihl-Thingvad, 2019; Kustanto et al., 2020; Rahmah et al., 2020)
	Ethical Leadership	(Hashim, 2021; Musenze & Mayende, 2022; Wen et al., 2021)
	Inclusive Leadership	(Bannay et al., 2020), (Alshoukri et al., 2020; ASLAN, 2019; Javed et al., 2019, 2020; Mansoor et al., 2021; Qi et al., 2019)
	Entrepreneurial Leadership	(Islam et al., 2022; Li et al., 2020)
	Self-Leadership	(Asurakkody & Kim, 2020; Ibus, Wahab, Ismail, et al., 2020)
	Authentic Leadership	(Grošelj et al., 2021; Sengupta et al., 2023)
	Servant Leadership	Cai et al. 2018(Ekmekcioglu & Öner, 2023; Khan et al., 2021; Mahendri et al., 2022);
	Leader-Member Exchange	(Choi et al., 2021; Khan & Dukhaykh, 2022; Qureshi et al., 2020; Rafique et al., 2022)
	Islamic Leadership	(Supriyanto, 2019)
	Empowering Leadership	(Yadav et al., 2023)
Organizational	Perceived Organizational Support	(Afsar & Umrani, 2020; ASLAN, 2019; Choi et al., 2021; DOĞRU, 2018; M. Khan & Dukhaykh, 2022; Lambriex-Schmitz et al., 2020; Masyhuri et al., 2021; Musenze & Mayende, 2022; Mustika et al., 2020; Nazir et al., 2018; Park & Kim, 2022; Qureshi et al., 2020; Ranihusna et al., 2021; Riaz et al., 2018; Sulaiman et al., 2019; Susilo, 2019; Tan et al., 2021; Volery & Tarabashkina, 2021)
	Teamwork	(Johari et al., 2021)
	Organizational Climate for Innovation	(Ali et al., 2020; Bawuro et al., 2018; Bos-Nehles & Veenendaal, 2019; Carlucci et al., 2020; Contreras et al., 2020;; Imran et al., 2019; Izzati, 2018; Munir & Beh, 2019; Xu & Suntrayuth, 2022)
	Job Demand	(Hebbaz et al., 2023; Melhem et al., 2018; Rafique et al., 2022; Samma et al., 2020)
	Learning Organization	(Cliffton et al., 2020; Hosseini & Haghighi Shirazi, 2021; Ranihusna et al., 2021; Shah et al., 2022; Widodo, 2020)
	Organizational Culture	(Saraih et al., 2019), (Ekmekcioglu & Öner, 2023; Ferdinan & Lindawati, 2021; Jankelová, Skorková, et al., 2021; Khan et al., 2020; Mutonyi et al., 2021; Nazir et al., 2018)

	Team Culture	(Işık et al., 2021)
	Knowledge sharing	(Akram et al., 2020; Aldabbas et al., 2021; Almulhim, 2020; Alshahrani et al., 2023; Arsawan et al., 2022; Asurakkody & Kim, 2020; Bin Saripin & Kassim, 2019; Hassan et al., 2018; Helmy et al., 2019; Ibus, Wahab, & Ismail, 2020; Işık et al., 2021; Islam et al., 2022; Kmieciak, 2020; Munir & Beh, 2019; Mustika et al., 2020; Nguyen et al., 2019; Rafique et al., 2022; Rahmah et al., 2020; Shah et al., 2020; Sudibjo & Prameswari, 2021; Udin, 2022; Usmanova et al., 2020; Xu & Suntrayuth, 2022; Yasir et al., 2021)
	Absorptive Capacity	(Contreras et al., 2020; Lekhawichit et al., 2020)
	Workplace Ostracism	(Samma et al., 2020)
	Workplace Incivility	(Samma et al., 2020)
	Workplace Happiness	(Melhem et al., 2018)
	Organizational Justice	(Akram et al., 2020; Fadul, 2021)
	Visible dissimilarity	(Bogilović et al., 2021)
	Cultural Intelligence	(Afsar et al., 2020)
	Perceived Leaders proficiency	(Santoso & Heng, 2019)
	Employee Friendly Workplace	(Santoso & Heng, 2019)
HRM Practice	HRM Practices	(Bos-Nehles & Veenendaal, 2019; (Stankevičiute et al., 2020; Yasir & Majid, 2020) Koednok & Sungsanit, 2018; Saraih et al., 2019)(Caniëls & Veld, 2019; Dzimbiri & Molefi, 2021; Elidemir et al., 2020; Odoardi, 2018; Widodo, 2020; Yasir & Majid, 2020; Zreen et al., 2021)
	Flexible work arrangement	(Jiang et al., 2023; Qi et al., 2021; Rafique et al., 2022; Rodhiya et al., 2021; Wahyudi Rahman et al., 2020)
External	Government Support for talent policies (external)	(Zhang et al., 2021)

Proposed Model: In the suggested framework, the researcher opted to incorporate variables with the strongest supporting evidence regarding their impact on IWB. This framework could serve as a roadmap for upcoming studies to explore the effects of these factors on IWB across various sectors especially in Malaysia such as higher education, agriculture; arts and humanities, sports, and entertainment as the sectors were neglected in most of IWB studies and to determine if the model is well-suited for this geographical context.

Figure 01



4. Discussion

This article review tried to explore and trace the factors influencing IWB from several authors. The factors are divided into four categories which are individual factors, organizational factors, leadership factors and external factors. Looking at individual factors, psychological empowerment shows robust findings on IWB. Psychological empowerment has become a hot topic among researchers in the study of innovative work behavior because it is closely linked to key factors like motivation, autonomy, and job satisfaction that are known to promote innovation in the workplace. Therefore, as organizations strive to become more innovative to stay competitive, understanding the role of psychological empowerment in fostering innovation has become increasingly important. Work engagement or employee engagement is also among the factors which frequently tested on IWB. As organizations continue to prioritize innovation as a competitive advantage, understanding the role of work engagement in driving innovative behavior has become essential for both researchers and practitioners.

On the other hand, self-efficacy also became one of the factors often studied with IWB. Self-efficacy is a critical psychological factor that can explain why some individuals are more inclined to engage in innovative work behavior. It is mainly because it affects motivation, confidence, persistence, and overall job performance, making it a central focus in research aimed at understanding and promoting innovation in the workplace. Looking at organizational aspects, knowledge sharing, perceived organizational support (POS) and organizational climate for innovation are among the factors that are usually examined with IWB. Knowledge sharing shows the most robust findings with IWB research. Scholars study knowledge-sharing behaviours in order to understand their importance in supporting IWB and to provide significant insights that can guide organizational practices and policies targeted at boosting innovation. When employees freely exchange information, insights, and expertise, it enhances their ability to generate new ideas, improve processes, and develop innovative solutions (Oyku Basak Derin, 2020). The active exchange of knowledge among employees facilitates their ability to continuously adapt and innovate in demanding job roles, hence enhancing their competitiveness (Udin, 2022).

On the other hand, researchers tend to use POS in IWB studies because POS because it influences the psychological, motivational, and practical aspects of employees' willingness and ability to engage in innovation. Many studies have proven that organizations that prioritize and cultivate a supportive environment are more likely to see increased innovative work behaviors among their employees (ASLAN, 2019; Jun & Lee, 2023; Masyhuri et al., 2021). Mainly researchers study POS to understand the mechanisms through which organizational support impacts innovation and to provide insights into how organizations can promote a culture of innovation. Another factor mostly studied was the organizational climate for innovation. Organizational climate for innovation also serves as a reliable predictor of IWB. When employees perceive a positive climate for innovation within their organization, they are more likely to engage in innovative behaviors. This relationship is supported by empirical evidence from numerous studies (Bos-Nehles & Veenendaal, 2019; Imran et al., 2019; Munir & Beh, 2019; Xu & Suntrayuth, 2022).

Transformational leadership exerts a dominant influence on fostering innovative work behavior. This leadership style is favored due to its ability to inspire and empower employees, leading them to surpass expectations motivating and empowering employees to go above and beyond, creating a shared vision among team members and promoting a culture of creativity and willingness to take risks (Afsar & Umrani, 2020; Bin Saeed et al., 2019; Helmy et al., 2023). This particular leadership style fosters an organizational atmosphere that is favorable to innovation, leading to heightened levels of employee engagement and improved overall performance. A study by Afsar et al., (2014) shows transformational leadership has a favorable impact on innovative work behavior, which includes both idea generation and implementation. Besides, leaders who possess transformational qualities have the ability to inspire and encourage their teams to thrive in areas such as innovation and problem-solving (Helmy et al., 2023). To sum up, transformational leadership is the most popular approach in studies of IWB because it has been shown to constantly inspire and motivate employees to do creative and innovative work that leads to the success of the organisation.

HRM practices also show a significant effect on IWB research. HRM practices have been investigated as a potential driver since it is seen as an organization's most important tool for shaping employee behavior

(Stankevičiute et al., 2020). HRM practises can affect workers' propensity to innovate on the job by creating a positive and encouraging work environment, equipping them with the skills they need, and rewarding their innovative work. Throughout the literature among the best practices which can help improve IWB are reward and training, job security, freedom, task composition, job demand, and feedback (Bos-Nehles et al., 2017; Bos-Nehles & Veenendaal, 2019; Davidescu et al., 2020; Saraih et al., 2019). Recent studies show more flexible and organization more innovative the employee will be (Jiang et al., 2023). However, there is a significant gap in our understanding of how flexible work arrangements affect employees' IWB.

5. Conclusion

In conclusion, this study has addressed eight factors that have been the subject of extensive research in the field of IWBs. The factors are psychological empowerment, employee engagement, self-efficacy, knowledge sharing, perceived organizational support, climate for innovation, HRM practices and transformational leadership. The significance and pertinence of these aspects are concisely explained to offer valuable insights and contribute to the knowledge of researchers in future studies on IWB research. It is undeniable that among the factors, transformational leadership dominates the IWB studies followed by knowledge sharing. To conclude, even though factors on IWB are widely studied by many researchers, still findings are inconclusive. Many studies are conducted in manufacturing industries and less focus have been given to service industry such as higher education, art and humanities and hospitality. It is evident that there is a tremendous need for research in this area. It is hoped that this study provides some insight for future researchers to further develop knowledge in this field, especially in the Malaysian context. Additional research can build on the foundation laid by this conceptual framework study. It is noteworthy to mention that while numerous studies have been conducted on the factors influencing IWBs there has been relatively little emphasis on examining external factors.

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Employees' Turnover Intention in Malaysian Manufacturing Company

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Abstract: Employee turnover is a significant issue in human resource management, which refers to the employees' willingness to leave their current organization within a predetermined time frame. Thus, it is essential to pinpoint the factors affecting this decision, which include salary, working environment, employer-employee relationship, and leadership styles. The primary data was collected from a sample of 136 employees from a manufacturing company in Johor, Malaysia, and all questionnaires were successfully collected from the respondents. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) software version 23, and Pearson Correlation and regression analysis were carried out to investigate the influences between the variables. The results from the correlational study revealed that all independent variables have a negative relationship with the dependent variable. Multiple regression analysis showed that the four independent variables substantially explain 54% of the variance for employee turnover intention. However, when assessing the coefficient for each independent variable, only salary, employer-employee relationships, and leadership styles were significant, and the remaining variable was insignificant. For future research, it is recommended that an explicit sample size should be adopted so that the findings can be generalized to other similar populations.

Keywords: *Employee turnover intention, Salary, Working environment, Employer-employee relationship, Leadership styles.*

1. Introduction

Employee turnover is indeed one of the popular human resource terms, which refers to the percentage of workers who leave the organization for a certain period. Meanwhile, employee turnover intention is the willingness of the employees to leave their current job or organization. In multinational corporations, the employee turnover rate has been a major ongoing issue across Malaysia (Hassan et al., 2023). This is because the costs of employee turnover can have a significant impact on an organization's productivity, sustainability, competitiveness, and profitability (Al-Suraihi et al., 2021). If employee turnover is not properly managed, it may result in worker retirements occurring sooner than expected (Hassan et al., 2023). As reported by Randstad (2022), 30% of Malaysians would have changed jobs by June 2022, with salary and benefits playing a crucial role in this trend. This claim was then supported by Chung (2023), a salary survey indicating that 60% of employers in Malaysia might struggle to retain their top talent, which implies a potential turnover issue. In the year 2019, the manufacturing sector experienced a high turnover rate of 24%, making it the highest contributor in this country (Kin et al., 2022).

According to Sinha and Shukla (2013), low salary and benefits levels remain one common cause influencing this decision. Moreover, poor physical working conditions have also been linked to higher employee turnover (Abesinghe, 2021). Other factors leading to high employee turnover also include poor relationships between employer and employee (Ugoani, 2016) and leadership style (Hamstra et al., 2011). To develop effective retention strategies, it is essential to understand the factors influencing turnover intention. It has become a significant problem faced by industries since human capital is the key to preserving competitiveness (Sekar et al., 2021). Overall, emphasizing the strategy to reduce the intention to leave the organization is crucial for keeping employees engaged and motivated, which has a positive effect on organizational success. Therefore, this study aims to determine how salary, work environment, employer-employee relationships, and leadership styles influence employees' intentions to leave their jobs.

2. Literature Review

Employee Turnover Intention: Employee turnover often results from employees' ongoing search for better and more satisfying job opportunities. Turnover intention involves negative psychological responses that lead to withdrawal cognition and behaviors, ultimately resulting in actual turnover (Takase, 2010). Despite this intention to leave the organization is just the employee's plan or tendency, if it is not managed from the start, it could become a reality (Falahat, Kit & Min, 2019). Hence, researchers classified turnover into either voluntary or involuntary categories. The constant increase in voluntary turnover hinders business growth and causes more stress among current staff due to additional responsibilities (Falahat, Kit & Min, 2019). Apart from that, according to Chiat and Panatik (2019), when an employee leaves, additional costs for training and recruiting new workers will also arise as a result of the turnover. Therefore, understanding and managing employee turnover is crucial for Human Resource departments and business leaders to ensure a healthy and productive work environment.

Salary: Pay is undoubtedly one of the driving forces affecting employee performance and intent to leave (Kwon, 2014). Salary is a regular payment received by employees in exchange for their work and services during their employment contract. Thus, one of the major expenses for a business's operations is salary, which varies depending on the position and can be used by management to reward employees or influence their behavior (Falahat, Kit & Min, 2019). As stated by Rahman and Chowdhury (2012), salary is a key factor in determining job satisfaction, and when employees are satisfied with their jobs, it leads to minimizing turnover. Thus, a dissatisfied employee will have the intention to leave the current organization. Wangiri (2015) also stated that when employees are dissatisfied with their pay, they are more likely to start their businesses to supplement their income, which will increase the turnover rates. Therefore, salaries and employee turnover are correlated.

Working Environment: Employee turnover has become an inevitable issue to deal with since employees, constantly look for a better workplace that may satisfy them. Dissatisfied employees in their present workplace tend to leave their positions. Hossain, Roy, and Das (2017) describe the working environment as places where employees perform tasks or activities to receive compensation or reward. It encompasses every aspect of the physical, social, and psychological environments, which might change depending on the businesses and industries. The physical, mental, and social settings compose the three basic components of the working environment (Jain & Kaur, 2014). This working environment has a significant impact on a person's productivity, job satisfaction, and overall well-being. Employee dissatisfaction may be minimized by providing modern facilities and equipment and ensuring that they have a proper personal workspace (Groen et al., 2019; Kent et al., 2021). Moreover, as stated by KC Prakash et al. (2019), to ensure employee retention, additional criteria including working hours, leave policies, and a fair workload are also necessary.

Employer-employee Relationships: Job satisfaction is also a result of positive employer-employee relationships which result in retaining employees inside the organization (Xesha et al., 2014). A key component of the modern workplace is the relationship between the employer and the employee which represents the good interpersonal relationships between both parties. As stated by Holston-Okae (2017), good interpersonal relationships may enhance employee engagement and reduce turnover rates. This will also enhance the employees' ability to provide the organization with their knowledge, skills, and expertise. Additionally, employment is a relational contract that benefits both the employer and the employee by considering social and economic factors. When workers feel that management is treating them unfairly, there may be a high percentage of turnover. Therefore, from the employee's perspective, the most important factor in retaining employees is a positive employer-employee relationship (Kot-Radojewska & Timenko, 2018).

Leadership Styles: Leadership styles are the methods and behaviors adopted by leaders to influence, motivate, and direct their followers. These styles are varied among leaders, and they are essential in developing organizational culture and achieving objectives. Leadership is regarded as being of utmost importance in any organization since it aids in designing the organization's future orientations as well as motivating the followers to achieve those goals (Maaitah, 2018). Positive relationships with supervisors can influence employees' attitudes toward one another and their ability to perform their jobs. Supervisors who are kind, competent, honest, and fair are preferred by employees. Moreover, the leader is responsible for the

team members' safety while engaged in any activity or work and that they consistently feel satisfied with the facilities or benefits received (Bazzoli & Curcuruto, 2020).

3. Methodology

A quantitative method was employed to collect data from a sample of 136 employees in a manufacturing company located in Malaysia. The questionnaires to measure employee turnover intention were adopted from previous studies by Kariuki (2014), Walton (2017), Brown (2018), and Voigt, (2017). A pilot study of 30 respondents has been conducted to test the reliability of each measurement. Each of the construct measurement items had high consistency and reliability, as each variable has a Cronbach's alpha between 0.707 and 0.880 respectively. A self-administered questionnaire with a 5-point Likert scale that ranges from strongly disagree to strongly agree was used as the instrument. The survey is divided into three sections: the first item questions respondents' demographics, while the second and third sections seek information about employee turnover intention and the four factors influencing this decision.

4. Results and Discussion

The responders from this manufacturing company located in Malaysia are mostly female (67.2%), with men making up the remaining 32.4%. Most respondents, or 30,1%, are between the ages of 24 and 29. This is followed by 25.7% and 21.3%, who are, respectively, between the ages of 30 and 40 age gaps. The remaining respondents are either over 40 or below 23 years old. The statistics show that 25.7% of the population is from the Operator department, 22.8% is Packaging department, and 17.6% of the population is from the Scanning department. Additionally, the results showed that 27.2% and 25.7% of respondents had worked for the company between five and twelve years. Respondents with less than RM3000 income level made up the highest percentage at 60.3%. Meanwhile, 70.6% of the population has Sijil Pelajaran Malaysia (SPM), which represents their level of education. Following with 14%, 11%, and 4.4%, respectively, are those with diplomas, certificate, and bachelor's degrees.

Table 1: Correlation Coefficient Table

	Pearson Correlation	Sig. (2-tailed)	N
Employee Turnover Intention			
Salary	-0.520**	0.000	136
Working Environment	-0.150**	0.081	136
Employer-employee Relationship	-0.228**	0.008	136
Leadership Styles	-0.537**	0.000	136
**. Correlation is significant at the 0.01 level (2-tailed).			

Through Pearson's analysis shown in Table 1, a relationship between the four predictors and turnover intention was examined. The analysis revealed a significant and negative correlation between salary and turnover intention ($r = -0.520$, $p < 0.01$). Based on this result, employees' intention to leave the organization decreases when they have higher levels of satisfaction with their salary. Additionally, work environment and employee turnover intention indicate no significant and negative correlation ($r = -0.150$, $p < 0.01$). The other two factors, notably employer-employee relationship and leadership styles, both show a strong negative correlation between salary and intention to leave ($r = -0.228$, $p < 0.01$) and ($r = -0.537$, $p < 0.01$).

Table 2: Multiple Regression Analysis

Model	Beta (β)	Sig.
Salary	-0.434	0.000
Working Environment	-0.100	0.101
Employer-employee Relationship	-0.293	0.001
Leadership Styles	-0.434	0.000
R^2	0.540	
Adjusted R^2	0.526	
F-stat	38.523	
Significant value	0.000	

The results of the multiple regression analysis are shown in Table 2. Based on the R-squared value of 0.540, salary, working environment, employer-employee relationship, and leadership styles explained 54% of the variance in employee turnover intention. The model has a p-value of 0.000, and the f-statistic is 38.523. However, when looking at the coefficient value for each independent variable, three out of four variables are significant: salary (= -0.434, p = 0.000), employer-employee relationship (= -0.293, p = 0.001), and leadership styles (= -0.434, p = 0.000). Since the P-value for the working environment (= -0.100, p = 0.101) is greater than 0.05, it is regarded as insignificant. These findings thus demonstrate how salary, employer-employee relationship, and leadership styles influence turnover intention. On the other hand, working environment has no impact on the outcome. Thus, only H1, H3, and H4 were therefore supported.

5. Discussion and Conclusion

This finding shows that the employee turnover rate in Malaysia is influenced by a combination of factors such as salary, employer-employee relationships, and leadership styles. Based on the result, these three predictors play a crucial role in determining turnover intention among employees in this manufacturing company. A study by Guan et al. (2014) also found a negative relationship between salary and turnover intention. Thus, as salaries or compensation levels increase, the likelihood or intention of employees to leave their current jobs decreases. In other words, higher salaries are associated with lower turnover rates. The results are consistent with the other factors which are employer-employee relationship and leadership style. Effective leadership styles including participative and transformational have been proven to reduce the intention of employee turnover (Magbity, Ofei & Wilson, 2020). This negative association between leadership styles and employee turnover highlights the significance of good leadership in retaining talented employees inside the organization. Leaders who prioritize employee engagement, satisfaction, trust, and a positive work environment can increase employees' attachment and commitment, which lowers their tendency to leave the company.

A positive and supportive relationship between employers and employees can lead to higher job satisfaction (Al-Suraihi, 2021). As a result, when employees feel valued and appreciated, they are more likely to be satisfied with their jobs, reducing the likelihood of them seeking new employment. Organizations are encouraged to address these factors to enhance their talent retention strategies and foster a supportive environment that aligns with employees' values and expectations. Hence, implementing strategies will increase job satisfaction, motivation, and productivity of individuals and organizations, which can reduce employment problems, absenteeism, and employee turnover (Al-Suraihi et al., 2021). Future researchers are recommended to replicate the study in other organizations by industries or sectors since the results may have a greater impact considering that the data was only gathered from one organization. As a result, the findings may not be precise and may not be generalizable to other organizations. By concentrating on other industries or sectors, a more extensive analysis can be conducted with a larger sample size. Furthermore, as only 54% of the variance in employee turnover intention was explained by the independent variables found in this study, other contributing factors should be selected for future research.

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The Effect of Conceptual Factors on Small and Medium-Sized Enterprises Business Success in Malaysia

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Abstract: This study was purposely conducted to examine the influence of conceptual factors such as external environment (i.e. government support and information access) and managerial expertise (i.e. business planning and entrepreneurial skills) on SMEs business success in Malaysia. The main objectives are to examine which factors that influences most on SMEs' business success. A survey was administered through a face-to-face approach to 115 individuals who run the SME business. We utilized SPSS version 20 software and analyzed the data using multiple regression analysis to test the hypothesis. Findings showed a significant relationship between all tested variables (government support, information access, business planning & entrepreneurial skills) and the dependent variable (business success of SME). Through multiple regression analysis, although all variables tested have a significant effect on SMEs' success, however, a greater influence is shown by entrepreneurial skills on the probability of SMEs' success. Findings are expected to contribute to improve the understanding of the obstacles or challenges that might be faced by SMEs. These findings also benefit policymakers and development partners to formulate policies related to improvement for SMEs. The useful information will help the SMEs continue to grow. At the same time, the government also can promote the development of competitive, innovative, and resilient SMEs through effective coordination and provision of business support that focuses on improving entrepreneurial skills. The research is useful for development partners in developing programs including searching for funds. Lastly, this study hopes to contribute to the body of knowledge concerning SMEs in Malaysia.

Keywords: *Entrepreneurial Skill, SME, Government Support, Information Access, Business Plan, Malaysia.*

1. Introduction

Small and medium-sized enterprises (SMEs) play an important role in the economy and are designed to develop the countries together with other players towards better nations. ILO (2023) reported globally, that SMEs represent 90% of the business entities and contribute 70% to global employment. Although their differences in SMEs descriptions in different countries and their roles in industrial organizations at different levels of economic development (Keskġn et al., 2010). However, it is evidenced that SMEs business entities contributed to many aspects of countries' socio-economic developments such as business internationalization (Ahimbisibwe et al., 2023), growth in domestic product (GDP)(Van Song et al., 2022; Woźniak et al., 2019), employment growth (Abisuga-Oyekunle et al., 2020; Criscuolo et al., 2014) and growth number of export (Kasema, 2023; Santhosh, 2023), entrepreneurial growth (D'Angelo & Presutti, 2019; Tehseen et al., 2019) and poverty reduction (Abisuga-Oyekunle et al., 2020).

SME Corporation (2023) explained the categories of SMEs are based on two conditions which are sales turnover and number of full-time employees. In detail, for SMEs in the manufacturing sectors, the sales turnover is not over than RM50 million or full-time employees not more than 200. Meanwhile for SMEs that offer services their sales turnover is less than RM20 million or full-time employee counts not more than 75 people. SMEs in Malaysia are categorized under three main categories where these entities can belong to medium-SMEs, small-SMEs and micro-SMEs, Malaysia's description of SMEs is in line with how the Organisation for Economic Co-operation and Development (OECD) and International Monetary Fund (IMF) described SME businesses is. For example, developed countries like the United States, Great Britain or Japan categorize SMEs as micro or small in economically advanced although they have a high level of capital intensity and advanced technology meanwhile developing countries such as Nigeria still categorize SMEs into medium or large SMEs (Ufua et al., 2020). Meanwhile different requirements in other developed countries such as the United States where manufacturing sector business is considered as SMEs level when the total employees is 500 or less, while for wholesale trades total employees is 100 or less is needed (Gupta et al.,

2018). Generally, the business size of the SMEs depends on the average annual revenue and the number of employees. However, the relationship between the size of the SMEs towards the success or failure of the business is still debatable (Gupta et al., 2018).

Business success of SMEs is critical to countries as we experience the reduction of SMEs after the pandemic Covid-9 struck (Adam et al., 2021; Mustapa & Mohamad, 2021). So far, despite the challenges and obstacles, many SMEs business able to succeed and sustain (Bahari et al., 2023). Many indicators can help us to determine the SMEs business success. A comparison study conducted between Malaysian and Bangladesh retails SMEs showed different opinion on the business success indicators. Malaysia's SME business is concerned more with financial performance and business growth while Bangladesh's SME business focuses on the non-financial part such as competitive advantage compared to other competitors(Tehseen et al., 2019). Identifying the factors affecting business success is crucial where we evidenced several main contributions to many socio-economic developments in Malaysia. Department of Statistics Malaysia (DOSM) reported that SMEs contribution on GDP growth increased by 11.6 in 2022. Meanwhile, employment share in 2022 by SMEs around 48.2 % also reported an increase of 3.8% for 2022. Hence, Malaysia particularly, needs more information to create useful support for SME businesses to be successful. This study is relevant to be considered as it provides more information how to further encourage participation in SMEs business by identifying the significant and greater impact of factors affecting the business success among them.

2. Literature Review

SME Business Success: Factors determining business success for SMEs enterprise may evolve between eras where during the 20th century, the business owners perceived they were successful when there increase in profit margins and business size expanded (Soininen et al., 2012). Meanwhile, later centuries (21st century) witnessed the way businesses perceived their business success is related to human lifelong development (Bak & Reicher, 2022). However, there are still debates with regard to how business owners measure business success. However, scholars agree that SMEs' business success may vary according to which sectors these SMEs are involved (Kakooza et al., 2023), favorable or unfavorable the market is (Kozielski, 2019) and the business location (Kakooza et al., 2023). In general, Storey (1994) proposed that business success of SME businesses can be influenced by several categories of factors derived from the characteristics of the business owners such as demographic background (Chittithaworn & Islam, 2011), secondly, also from the characteristics of the SME (i.e. origin of the business, length in business, size of the business & source of capital), lastly, other conceptual factors such as external environment (i.e. government support, economic condition & information access (Ahmedova, 2015; Jasra et al., 2011; Pu et al., 2021), managerial expertise and experience such as business planning, entrepreneurial skills, experience, competencies of the teams (Chittithaworn & Islam, 2011; Lim & Teoh, 2021).

External Environment Such as Government Support & Information Access: Many factors affect the business success of SMEs and some of them are classified as external environment factors. It can be described as any events or changes that might affect the firm. Among the factors that have been highlighted are government policies and laws, technological changes, sociology changes economic changes and access to valuable information. Business owners need to be alert and aware of all the changes to make them competitive and better positioned in the market. Indris and Primiana (2015) argued that external environment factors consist of two categories which are social environments and task environments. Social environment factors are those factors associated with long-term effects on business such as changes in economic force, technological evolution, changes in policies and laws and changes in social culture elements such as values. On the other hand, the task environment is the work environment it consists of entities that will influence the business such as stakeholder entities (i.e. government and local community customers).

In specific to SMEs, the external environment is described through micro and macro-environmental factors. An example of micro-environmental factors is those parties that have a direct effect on the business such as suppliers and customers. On the other hand, examples of macro-environmental factors are factors related to political, economic, technological and demographic factors (Appiah et al., 2018). However, Elfahmi et al. (2021) highlighted inconsistent results on the effect of the external environment among textile SMEs that only affect innovation effort but no significant effect was found on competitiveness. Although external

environmental are those factors that cannot be controlled by the SME on their own, and they need to well adapt to the changes, identifying which factors that contribute greater impact is necessary to prepare the business owner in improve their competencies while facing those unstable external environment forces. Among those macro-level factors that received considerable attention among scholars are government roles in providing supports.

Government Support: Government support is one of the external environment factors that its roles have long been discussed. Government support may vary but provide necessary assistance to the SME for further growth and better performance. In general, government support may comprised of financial support (Xiang & Worthington, 2017), tax incentives, social support, IT support and training support (Alkahtani et al., 2020). Altayyar and Beaumont-Kerridge (2016) found significant evidence of government support for the adoption of technology in processing payments for Saudi Arabian SMEs. All the supported services and programs provided by the government such as high-speed connection, and trustworthy online payment channels help the SMEs and other related parties to make the e-payment changes successful. However, Park et al. (2020) and Zulu-Chisanga et al. (2021) argued that government support does not affect the financial performance of SMEs such as an increase in profit. This useful government support in terms of financial loans only enables the SME to survive and sustain (Park et al., 2020). However, recently Alkahtani et al. (2020)highlighted the significant mediator role of financial government support with regards to networking and competitive advantage of SME businesses. Xiang and Worthington (2017) also discovered the similar significant roles of financial government support on financial performance among Australian SMEs. Hence, we are confident to hypothesize that:
H1: Government support has a significant effect on the business success of SMEs.

Information Access: As business owners, they should be alert to all information provided by the industry environment which will help them improve their competitiveness and efficiency in larger markets. Indarti and Langenberg (2004) argued it is common for business owners that always be eager to know more about and seek important information related to improvement and success in business. However, whether the able to benefit from this information seeking is the availability of the information that has been searched. The business owner can seek information from various sources such as individual effort or networking and information seeking May cover many aspects of business including anything that can improve their business success. Many factors contribute to information access such as the academic background of the business owners (Orrensalo et al., 2022), greater coverage connection and telecommunication systems (Jasra et al., 2011) and human networking (Ramaswamy, 2022). Jasra et al. (2011) mentioned in their studies on Pakistani SMEs that technology helps the owners to access more financial information. Munikrishnan and Veerakumaran (2012) discovered the significant role of information access in Malaysia low budget hoteliers SMEs. A recent study also showed a similarly significant role of information access in boosting business performance among SMEs in South Africa (Msomi et al., 2022). Hence, this hypothesis was derived.
H2: Information access has significant effects on the business success of SMEs.

Managerial Expertise Such as Business Planning and Entrepreneurial Skills: A superb human capital is beneficial for business success even for SMEs. The owners who possess a variety of managerial expertise able to make the business perform well. Although knowledge is the key to a better future, knowledge is also associated with illegal activities committed in business such as bribery (Hoang Vu et al., 2021). In the study conducted among Vietnamese SMEs, they found managers that who are very expert in tax are prone to be involved in tax corruption and bribery. Although we cannot control how people use their expertise, However, in general, possessing a variety of managerial skills is an advantage. Managerial skills may be categorized into several types such as technical skills, interpersonal skills, conceptual skills and communication skills (Aliyu, 2015). Another school of thought classifies managerial skills from a management perspective (Ottewill et al., 2000) such as planning skills related such as business planning, resource allocation, organizing, etc.

Business Planning: Temtime and Solomon (2002) highlighted the importance of business planning among SMEs. Poor planning and setting up vision for business leading the SME to poor quality of product and services. Strategic business planning helped SMEs to expand to international markets and grow (Osei-Bonsu, 2014). Apart from having been advantaged by the owners who know many varieties of entrepreneurial skills, business planning significantly helped the strategy for SMEs to go to the international market. Even in the

earliest stages of business development, business planning plays an important part in realizing the business to be successful. Hopp and Sonderegger (2015) through longitudinal five-year gap studies found that those businesses that owner did plan before starting the business have higher chances to be successful. Recent studies conducted on SME owners in Malaysia highlighted the importance of strategic planning for business success (Lim & Teoh, 2021).
H3: Business planning has significant effects on the business success of SMEs.

Entrepreneurial Skill: Entrepreneurial skills benefits individual not only for social gain and developmental gain but also for personal gain. In general, entrepreneurial skills have a broad definition. Olutuase et al. (2023, p. 267) expressed the entrepreneurial skill through proficiencies accrued from one's abilities, mindset, and knowledge through life-long learning adaptable for conceiving, exploring and realizing valued economic and social needs. It has also been defined as the ability of an individual to exploit an idea and create an enterprise (Greblikaite et al., 2016). Shabbir et al. (2016) argued entrepreneurial skills emphasized many aspects of technical, personal and managerial skills such as self-belief, boldness, tenacity, passion, empathy, readiness to take advice from experts, desire for immediate results, visionary and ability to recognize opportunity. However, several past studies also incorporate more analytical skills such as identifying economic opportunity (Mitchelmore & Rowley, 2010), mastering technical innovation (Belitski et al., 2020), being able to command scarce resources (Bustamante, 2019), and being able to find the external advancement of the firm (Pennetta et al., 2023) as part of the entrepreneurial skills.

Although entrepreneurial skills can be gained through attending classes or training and through past experiences. However, a recent study reported most SME owners lack entrepreneurial skills hence affecting their management style that prone to be more intuitive than analytical (Johnson-Hart, 2023). Future business success is affected when the business owners only focus on short-term issues such as day-to-day operations rather than solving long-term problems that create more strategic opportunities in the future (Bărbulescu et al., 2021). Marei et al. (2023) highlighted the chances for SMEs owners to succeed in a tough situation are low when they are lacking in skills such as managerial, accounting, negotiation and customer relationship skills. SME businesses become less agile and unable to take advantage of local economies of scale in terms of reputation and the number of sales and customers will remain constant (Towers et al., 2020). Furthermore, the SMEs that lack technical knowledge and training on how to make use of this information will also cause them to lack of ability to gather and process market information outside of what is relevant to their business hence affecting their business success.

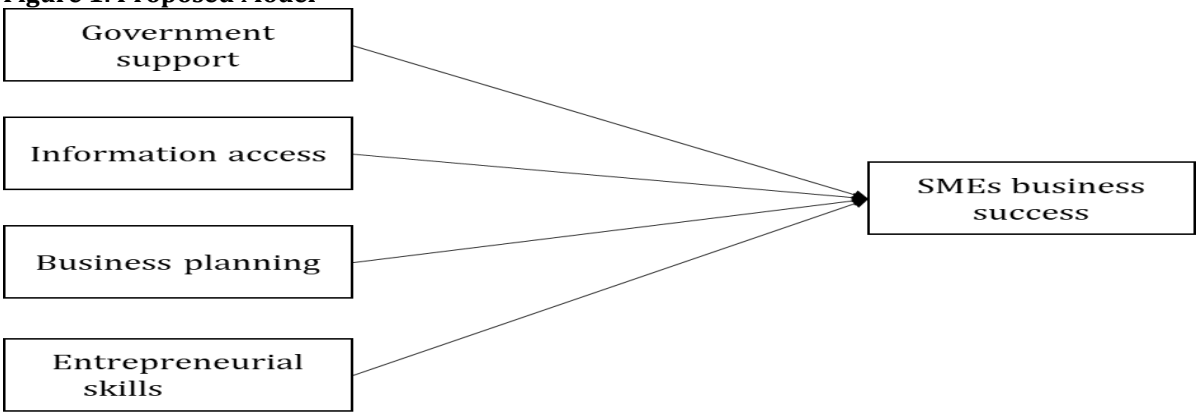
Similar concern has been shown by most scholars and until now, the focus is still on ways to improve entrepreneurial skills as stated by a study conducted by Kimaru et al. (2022) about entrepreneurial skills in selected SMEs in Kenya. It evidenced that the competitive advantages of SMEs business in food manufacturing are affected by the level of entrepreneurial skill possessed by the owners. Similarly, findings shown in a study conducted on SMEs in India discovered that chances of business success are affected when the owners lack personal skills, entrepreneurial skills, business skills and technical skills (Chatterjee & Das, 2016).

Entrepreneurial skills also represent the owner's competencies in managing the performance of the business (Bird, 2019). Past studies supported the argument that entrepreneurial skills affect performance. However, the scholar has different opinions on what are those skills under entrepreneurial skills SME business owners should focus on. Those entrepreneurial skills have been conceptualized by Astuti et al. (2019) are skills such as technical skills, entrepreneur skills, managerial skills and personal maturity skills. Meanwhile, Shabbir et al. (2016) highlighted some other skills such as leadership skills and entrepreneurial personal skills. However, Narkhede et al. (2014) excluded entrepreneurial skills as skills on their own when they researched the skills that might affect SME manufacturing firm performance in India. They discovered that personal skills, business skills and technical skills significantly affect business performance but no significant findings on entrepreneurial skills. Loué and Baronet (2012) through their reviews on qualitative research conducted among SMEs from France, Canada and Algeria mutually agreed on several entrepreneurial skills that are significant for SMEs such as opportunity recognition and exploitation, financial management, human resources management, marketing and commercialization, leadership, self-discipline, marketing and monitoring and intuition and vision. Due to inconsistency of the role of entrepreneurial skills on the

performance of SME, it triggers us to identify the consistency of the results in Malaysia SME setting. Hence, we postulate the below hypothesis.

H4: Entrepreneurial skills have significant effects on the business success of SMEs.

Figure 1: Proposed Model



3. Methodology

The data analysis is in harmony with the specific objectives where patterns were investigated, interpreted and inferences drawn on the analyzed data. In addition, we approach 380 SMEs individuals in Malaysia who operate small and medium enterprises. The response rate is 30.26% where only 115 respondents participated in the data survey. Below is the reliability analysis where the scale used in this study was tested. The Cronbach values are acceptable.

Table 1: Reliability Analysis

Variables	No. of items	Cronbach alpha
Business Success of SME	SUC 1	0.727
	SUC 2	0.582
	SUC 3	0.639
	SUC 4	0.695
		0.722
Government Support	GOV 1	0.743
	GOV 2	0.595
	GOV 3	0.771
	GOV 4	0.794
		0.789
Information Access	INA 1	0.632
	INA 2	0.673
	INA 3	0.576
	INA 4	0.786
	INA 5	0.720
		0.736
Business planning	BUP 1	0.648
	BUP 2	0.661
	BUP 3	0.610
	BUP 4	0.767
		0.739
Entrepreneurial skills	ESK 1	0.736
	ESK 2	0.704
	ESK 3	0.778
	ESK 4	0.732
		0.792

The result shows Cronbach's alpha where the business success of SMEs (dependent variable) is 0.722 and it can be considered as good reliability. Meanwhile, the Cronbach alpha of government support (independent variable) is 0.789 and it can be considered as good reliability. Furthermore, the information access (independent variable) has a Cronbach alpha of 0.736 and is considered good reliability. Other than that, the Cronbach alpha of business planning (independent variable) is 0.739 and it can also be considered as a good reliability. An entrepreneurial skill (independent variable) has a Cronbach alpha of 0.792 which is considered as a good reliability. All tested variables results show Cronbach values ranging from 0.70 to 0.80 which is considered as a good reliability.

4. Results & Discussion

Descriptive Statistics and Correlations: As shown in Table 2, the relationship between the business success of SMEs (dependent variable) and government support (independent variable) is large as the value of r is larger than 0.50 which is 0.60. It indicates business success has a moderate positive correlation with government support. The relationship between the business success of SMEs (dependent variable) and information access (independent variable) is large as the value of r is larger than 0.50 which is 0.72. It shows that the business success of SMEs indicates a high positive correlation with information access. The relationship between the business success of SMEs (dependent variable) and business planning (independent variable) is large as the value of r is larger than 0.50 which is 0.89. It shows that the business success of SMEs indicates a high positive correlation with business planning. The relationship between the business success of SMEs (dependent variable) and entrepreneurial skills (independent variable) is large as the value of r is larger than 0.50 which is 0.66. It shows that the business success of SMEs indicates a moderate positive correlation with entrepreneurial skills. All four tested variables have a significant relationship with SME business success.

The standard deviation value of government support is 0.63 followed by business planning which has a standard deviation of 0.56, the information access *SD* value is 0.47 and lastly for business planning, the *SD* value is 0.56. The business success of SMEs which is the dependent variable of the study has an *SD* value of 0.51.

Table 2: Descriptive Statistics and Correlations

Variables	***S.D.***	**Mean**	1	2	**3**	**4**	**5**
1-Business success of SMEs	0.51	4.17	-				
2-Government support	0.63	3.83	0.60***				
3-Information access	0.47	3.95	0.72***	0.70***			
4-Business planning	0.56	3.97	0.89***	0.82***	0.83***		
5-Entrepreneurial skills	0.53	3.98	0.66***	0.70***	0.94***	0.79***	-

N=115* p< .05, ** p< .01, ***p<.001

Multiple regression analysis: Multiple linear regression analysis is used to predict the changes in the dependent variable based on the value of the independent variable. Moreover, the coefficient of determination was used to express how much variation in the dependent variable can be explained by the independent variable. Furthermore, Analysis of Variance (ANOVA) indicates the significant difference between means of the regression. However, the R-value is different from the R square because the R-value only uses to magnitude relationship between the independent variable and dependent variable rather than contributing to the direction of the relationship. From the result that has been tested by the researcher, it shows that the adjusted R squared for this study is 94.50% and believe those factors will influence the success of SMEs in Malaysia. Only 5.50% believe other factors which can contribute to the business success of SMEs in Malaysia. The Durbin-Watson value for this study is 2.298 and it is confined to the acceptable range of (1.5 to 2.5). In addition, all of the variance inflation factors (VIF) in this study are greater than 5 which means the value was high.

Table 3: Descriptive Statistics and Correlations

	Dependent variables (Standardized Coefficients Beta)	Significant	Tolerance	VIF
Independent Variable				
		0.241		
Government support	0.11	0.045	0.18	5.46
Information access	0.31	0.001	0.07	13.13
Business planning	0.76	0.001	0.11	8.92
Entrepreneurial skills	0.85	0.001	0.05	18.49
F Value	278.60			
R^2	0.95			
Adjusted R^2	0.95			
Durbin-Watson	2.30			

N=115* p< .05, ** p< .01, ***p<.001

The first hypothesis is supported where the results show the significant value between government support (independent variable) and business success of SMEs (dependent variable) has a p-value < 0.05 (0.045) which indicates government support has a significant effect on SME business success.

The second hypothesis is whether information access has significant effects on the business success of SMEs. The findings stated that information access (independent variable) has a significant effect on the business success of SMEs because the p-value < 0.00 which is 0.000.

Next, we tested whether business planning has significant effects on the business success of SMEs. The results showed that business planning (independent variable) has a significant effect on the business success of SMEs (dependent variable) and has a p-value < 0.001 (0.000) which means they have a significant relationship.

Lastly, we expected that entrepreneurial skills have significant effects on the business success of SMEs. The results as stated in Table 3 indicate that entrepreneurial skill (independent variable) has a significant effect on the business success of SMEs because the p-value < 0.001 which is 0.000. Among four tested factors, entrepreneurial skills show larger values standardized coefficients Beta $\beta = 0.85$. It has the largest influence on business success.

5. Conclusion and Recommendations

The present study is conducted to investigate the influence of four tested variables two are from the external environment (government support and information access) and another two factors from managerial expertise (business planning and entrepreneurial skills). Findings shows that all independent variable which are government support, information access, business planning as well and entrepreneurial skills will affect the business success of SME firm in Malaysia. Among the tested variables, the two largest influences are those factors that categorize into managerial expertise which are business planning and entrepreneurial skills. Instead of focusing on factors that are beyond our control such as external factors, SMEs owners must improve their managerial skills with regard to managerial activities such as planning, organizing, leading & controlling. Even the largest impact is the influence of entrepreneurial skills possessed by individuals as the owner of the SME.

Entrepreneurial skills are very important for SME business success hence SME owners need to equip themselves with skills related to entrepreneurial processes such as analysis of situations, opportunities and environments, SME managers organize, manage and assume risk and reward for a business. SMEs benefit a lot when the owner possesses greater entrepreneurial skills. It makes the owner competent and competitive and enables the owner to survive during tough times such as during an economic crisis Marei et al. (2023).

Apart from improving their entrepreneurial skills, SME owners also need to learn how to prepare a business plan and do the process of planning for their business. Many scholars agree on the roles of strategic planning

activities in business success such as Osei-Bonsu (2014) their studies also highlighted the role of planning when it comes to business expansion. It is suggested to focus on improving managerial expertise, then the SME business can take advantage of the current government support such as financial assistance, tax incentives, or training programs provided by the government to SMEs.

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A Review from the Malaysian Perspective on Factors Influencing Sustainable Entrepreneurship in Small and Medium-Sized Enterprises ((SMEs)

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Abstract: This investigation looked to set up the social and natural factors that impact Sustainable Entrepreneurship in Small and Medium-Sized Enterprises (SMEs). It likewise endeavored to distinguish whether the segment foundation of the business person impacts the Sustainable Entrepreneurship in SMEs of the Malaysian nourishment industry. This investigation was led to distinguish factors that impact the accomplishment of entrepreneurial business visionaries in Small and Medium-Sized Enterprises (SMEs) in Malaysia and the components driving entrepreneurs and business people engaged with business. Supportable development of SMEs is long past due. The consciousness of the significance of maintainable development of SMEs has brought about the nearness of different definitions and ideas of practical development. In this manner, Entrepreneurs and business visionaries must arrangement with these issues together so as not to fail. This paper tries to investigate the writing on long haul and manageable development for SMEs and the upgraded information on this territory will be a direction to the approach producers, supporting offices, consultants, business visionaries and academicians to genuinely build up a widely inclusive model for feasible development of SMEs. This paper proposes an incorporated reasonable development model for SMEs with five components of the Sustainable Entrepreneurship variables that are leadership, network, employee management, customer orientation and marketing strategy. A blended technique approach, utilizing the utilization of surveys and meetings from an example size of around 120 members and 10 proprietor supervisors of SMEs in the nourishment industry, was utilized to gather information. Moreover, out of the five recognized elements, as indicated by the members' recognition, the most significant components towards supportable execution of SMEs in the nourishment industry are social variables, including customer direction. This exploration paper reasons that thinking about the social and natural parts of supportability and utilizing experienced staff would significantly add to the quest for Sustainable Entrepreneurship in SMEs of the nourishment industry.

Keywords: *Sustainable entrepreneurship, SME, leadership, network, employee management, customer orientation, marketing strategy.*

1. Introduction and Background of Study

Research interest in the sustainability of business has a long history (Kassarjian, 1971). To put it another way, sustainable entrepreneurship involves making money while promoting social and environmental well-being (Hossain, 2021). There is a growing body of research that has begun to look specifically at micro, small and medium-sized enterprises (SMEs). The definition of SME consists of two categories which are manufacturing and services and other sectors based on SME Corporation Malaysia (2013). Sales turnover of manufacturing is not more than RM RM50 million or full-time employees not more than 200 workers. Sales turnover of services and other sectors is not more than RM20 million or full-time employees not more than 75 workers. SME development is used to balance growth and fit the creation of abundance economically, environmentally and socially and product introduction is not successful in one region, after that may be in some markets halfway around the globe. One set of players that will have a major impact on the future of business and the planet is SMEs. In fact, these organizations constitute a major element in the world economy. However, when it comes to the role of business in addressing sustainable development. SMEs have largely been left out of the picture. Labonne (2016) compare large company and small firm in their use of environmental assessment tools. The researcher found that small firm was far less likely to examine their environmental impact. Mainly because of the financial limitations and costs associated with tools designed for large firms with significant resources. Condon (2014) also noted that a lack of financial knowledge and employee resources limited SME

adaptation to sustainability practices. This research is carried out to investigate factors that affect the sustainability of SMEs in Malaysia.

Research Objectives

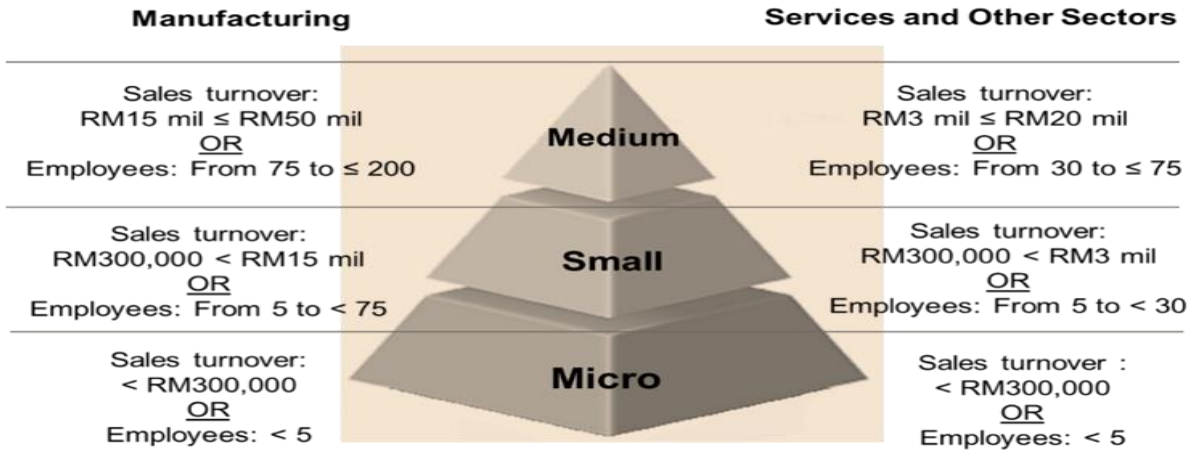
- To determine the actual factors which are affecting the sustainability of SMEs in Malaysia.
- To identify the factors (leadership, network, employee management, customer orientation and marketing orientation) that affects most in the sustainability of SMEs in Malaysia.

Research Questions

- What are the actual factors that affect the sustainability of SMEs in Malaysia?
- Which factors (leadership, network, employee management, customer orientation and marketing orientation) affect most in the sustainability of SMEs in Malaysia?

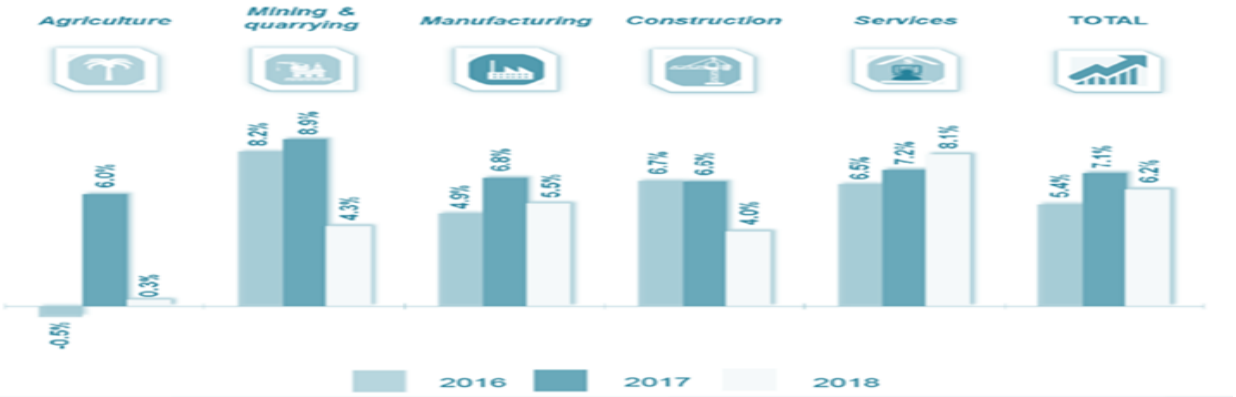
Performance of SMEs GDP of Malaysia: Malaysia's SME GDP for the year 2018 grew at 6.2 percent as compared to 7.1 percent in 2017. This performance exceeded Malaysia's GDP and Non-SMEs which registered 4.7 percent and 3.8 percent respectively as shown in Figure 1. The contribution of SMEs GDP to Malaysia's GDP rose to 38.3 percent from 37.8 percent in the previous year. In nominal terms, SMEs GDP recorded RM551.7 billion in 2018 (2017: RM519.1 billion). Sales turnover and number of full-time employees are the two criteria used in determining the definition with the "OR" basis as follows: For the manufacturing sector, SMEs are defined as firms with sales turnover not exceeding RM50 million OR number of full-time employees not exceeding 200. For the services and other sectors, SMEs are defined as firms with sales turnover not exceeding RM20 million OR number of full-time employees not exceeding 75.

Figure 1: SMEs GDP of Malaysia by Sector



Source: SME Corp. Malaysia, 2020.

Figure 2: Annual Percentage Change of SMEs GDP 2016 – 2018



Source: SME Corp. Malaysia, 2020.

SMEs esteem included for the Services sector enlisted a development of 8.1 percent as compared to 7.2 percent in 2017 as appeared in Figure 2. The development momentum was quickened by wholesale and retail trade, food and beverages and settlement sub-sector which developed to 8.6 percent (2017: 7.5%). In the interim, the transportation and storage and data & communication sub-sector which extended to 6.9 percent (2017: 6.8%) has moreover backed the development force. In the manufacturing division, esteem included of SMEs developed to 5.5 percent (2017: 6.8%) driven by petroleum, chemical, rubber and plastic items with a development of 5.8 percent (2017: 4.4%). Moreover, Non-metallic mineral items, fundamental metal and manufactured metal items extended to 6.9 percent from 6.1 percent in the past year, whereas the Food, beverages and tobacco sub-sector increased to 3.6 percent (2017: 11.0%). The esteem included of SMEs in the Farming segment developed imperceptibly by 0.3 percent after enlisting 6.0 percent within the going before year. This was due to the slower performance in rubber, oil palm, livestock & other agriculture sub-sectors with growth of 0.5 percent (2017: 9.0%). SMEs in the Construction, Mining & quarrying sectors eased to 4.0 percent and 4.3 percent respectively. SMEs exercises were commanded by the Services sector which contributed 62.4 percent and assembling area with a portion of 20.1 percent. The agriculture area contributed 10.1 percent to SMEs' Gross domestic product followed by the Construction sector which contributed 5.9 percent.

The structure of SMEs' Gross domestic product is practically like Malaysia's Gross domestic product structure except for the Mining and quarrying segment. In SMEs' Gross domestic product, the Mining and quarrying part contributed 0.5 percent towards the all-out SMEs' Gross domestic product when contrasted with Malaysia's Gross domestic product at 7.6 percent. This was because of auxiliary contrasts between SMEs and Malaysia's Gross domestic product whereby other mining and quarrying sub-divisions initiated the SMEs, while crude oil & condensate and natural gas were the significant contributors to Malaysia's economy. From the viewpoint of SMEs Gross domestic product commitment by sort of financial movement, all segments recorded an expansion in 2018 except the Development division. SMEs Gross domestic product was driven by the Agribusiness division with a portion of 52.8 percent. With respect to Development, the commitment of SMEs Gross domestic product posted 46.4 percent from 46.6 percent in the previous year. SMEs Gross domestic product of the Service segment extended to 42.2 percent when contrasted with 41.7 percent in 2017 which was commanded by the wholesale & retail trade, food & beverage and accommodation sub-area. SMEs Gross domestic product in the Assembling area recorded a negligible increment to 34.4 percent (2017: 34.2%) credited by petroleum, chemical, rubber and plastic items. Then, the SMEs Gross domestic product in Mining and quarrying segment recorded a portion of 2.4 percent (2017: 2.3%).

2. Literature Review

Sustainability of SMEs: According to Lackeus (2015), sustainability methodologies usage must be alert by SMEs. SMEs don't have such a great amount of mindfulness about their ecological impact and condition job; Oblivious about the significance of sustainability, critical about the advantage of evaluation apparatuses intended to improve natural execution: and difficult to accomplish, execute the exercises that are identified with the earth. Partners give a little strain to the private companies in supportability rehearses, have limited resources related assets and look the sustainability rehearses ingestion is too convolute. Indeed, the reasonable improvement as the advancement which found the interest of the present time frame. It does exclude the ability later on ages to go up against their interest. Social, financial and ecological is the three component of economic improvement that must be changed to advance reasonable advancement. Human worth, connections and the on-screen characters in the general public is the social measurement. The allotment of the rare assets is eluded to the financial measurement. The commitment of the two others to the condition is the ecologic measurement (Moldova, 2015). Human right working condition and lessening destitution is remembered for the social measurement in the past research. The activity creation and training is the issue that is remembered for social measurement with regards to SMEs. Accomplishment of SME likewise relies upon the capacity of the individual engaged with the authoritative and the board. A portion of the keys that guarantee the SMEs sustainability are the individuals engaged and workers are connected with the sustainability improvement. By incorporating sustainable development challenges, entrepreneurs will become more aware of how to incorporate sustainability practices in their company ventures, which will improve the financial and non-financial performance of SMEs (Ahmad et al., 2020).

Leadership: One of the sustainability dimensions of SMEs is leadership and planning. SMEs owners, operators or managers are responsible for letting SMEs operate well toward sustainability. When coping with uncertain business conditions, SME owners should lead with vision, passion, integrity, and confidence (Yadegaridehkordi et al., 2023). The SMEs owners, operators and managers should have the capability to give instructions and can have a well communication with everyone (Diehl, 2016). An enterprise can achieve sustainability under three situations including the leadership position and the proper market. The Honeybee, an enterprise in Thailand, the enterprise is called Rhineland before this used a framework that related to sustainability leadership which contributed to the sustainability of the enterprise. There are three 23 leadership elements which are divided into three stages of practice foundation practice, high-level practice and key performance driver. The clement in foundation practices arc developing the people, labor relationship, retaining the staff, succession planning, valuing the staff, CEO and top team, ethical behavior, long term or short-term perspective, organization change, financial market orientation, responsibility for the environment, social responsibility, stakeholder and vision's role in the business. The elements in high-level practices are decision-making, self-management, team orientation, culture, knowledge sharing, retention and trust. The elements in key performance drivers are innovation, staff engagement and quality.

Network: SMEs should have the network as the element to ensure the development of the strategies. SMEs create the network to have the sustainability of competitive advantages in the sustainable market space, which the Multinational Enterprise is less sustains. Networking SME marketing has been acknowledged, but the connection toward SME's sustainability is not famous (Gilmore et al., 2001). The position where business activities occur is called the network Business connection and many of the related parties are included in the network. The marketing competence exists from the network in SMEs. Competence is related to the skills and learning in networking. Investment of the time and the resources can be developed to suit the networking. Social capital is viewed as the individual relationship in a network. It gives benefits to individual actions. The example of the individual action is learning and the business chances. Social capital is a resource for individuals and enterprises.

This is because the social capital is beat into the individual relationship. Networks in the firms in SMEs can bring sustainability to the firm. For example, here are the tourism networks in Finland, YSMEK-Network for Developing Environmentally Friendlier Tourism (Diehl, 2016). The Finnish Tourist Board YSMEK established the network in 1993 and plays the role to introduce sustainability to the Finnish tourism enterprises. The management group of the YSMEK forms the informal coordination group with various parties in the network such as the Ministry of Trade and Industry, Finnish Tourist Board, Ministry of the Interior, Department of the Environment, Hotel and Catering Committee, Association of Hotel and Catering Personnel, Finnish Nature Protection Association. Travel Agency Association and so on. SMEs can exchange information, gain knowledge and new experiences from the members of the network. This study shows that proof of SMEs sustainability depends on the enterprise network. It also shows that development in the network has a relation with the sustainability of SMEs. The findings recommend that social capital and network learning can make sure the network develops to a better stage.

Employee Management: The sustainability-focused strategy for small businesses allows alluring and keeping the employees in the long period in the SMEs. Based on the interview carried out by Gareth Bell Jill Miller (the research adviser of the Chartered Institute of Personnel and Development) said that she believed the sustainability of an organization, is from the excellent employees. The Chartered Institute of Personnel and Development is the human resource management profession. The headquarters of the institute is in London. This study stated that the managers in the SMEs have to always remind the staff or employees about the vision and value of the SMEs. Learning and development is one of the obstacles in HR practices but it is the efficient method to train the employees or the staff to fulfill the SMEs' current needs. When the formal management structure is introduced. Management training has been an important element in SMEs which has to be implemented in SMEs to let them SMEs grow to a further stage. Jill said that the Chartered Institute of Personnel and Development would help the SMEs to identify the current growth stage of the SMEs and after that, pinpoint the employee management obstacles and chances that SMEs have to keep an eye on. This will assist SMEs toward sustainability. The institute also will check the smoothness of people management (employees) practices toward the SMEs vision.

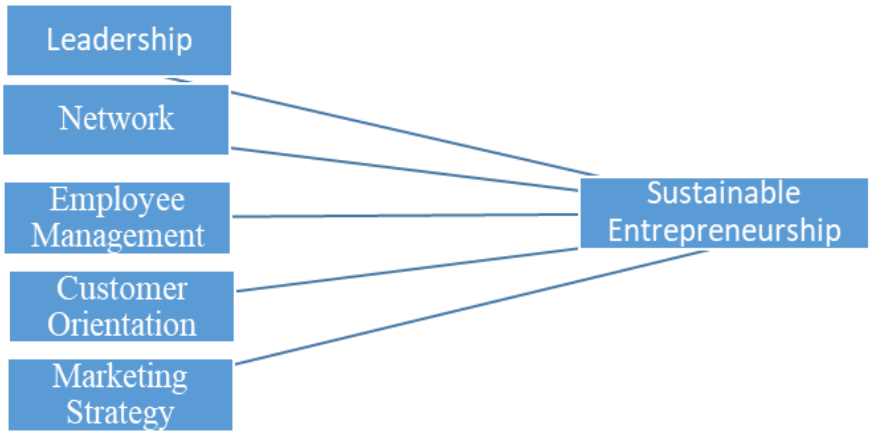
The institute will take action on the further development of the skills and capabilities if it is needed. People issues have been the top priority in SMEs in HRM. Potential employees always are the target of sustainable development companies. The hazards of sustainability of employment and sustainability and low productivity are issues that happen in SMEs. Even the job quality, working hours and conditions for SMEs employees are also important issues to discuss. The operating hours become the rule at the national stage. Working Time Directive is used by all European Union countries; however, the particular national law and collective rule affect the working time practice in the workplace. The outcome prioritizes the favorable liaison between the company size and operating time. The favorable liaison between establishment size and the use of working time design seems to increase the operating hours. For example, shift work and weekend work. The simple working time evaluation is different from the operating hours. It does not have a favorable relation to the operating hours. Even managerial strategy in SMEs has a relation with the reliance on overtime, but it is limited of the way because the tiny effect is on the operating hours when compared to shift work. The effect of the national rule of working design and working time norms affects the approach used to extend operating hours.

Customer Orientation: The small firms and other firms must maintain the existing customers when the competition becomes greater. There will be a weakness of the SMEs if the customer orientation is not prioritized because it can make sure the SMEs have sustainable competitive advantages. Customer orientation is the stage in which customer information is gathered and applied to the business unit. The requirements for people's actions can enhance the worth of the buyers due to the best organizational culture. The trust that shows the customer's enthusiasm is the main factor as well as the stakeholders such as the enterprises' owners, managers and employees so that a sustainable profit can be maintained. Normally, uncomplicated organizational structure and more concrete cultures are the characteristics of small and medium-sized enterprises; therefore an effective customer orientation concept lacks advantages. Small and medium-sized businesses are also identified by a restricted ranking of products and customers, due to this fact, formal approach improvement on decision-making for acquired customer information and market information is minimal. These facts actually can encourage the capability of smaller firms to dominate the customer orientation culture. Small and medium-sized business research states confidently that internal organizational factors and external forces give effect to the SMEs business performance due to the minimum boundary of the customers' orientation. Customer orientation is the main reason SMEs has a deficiency of the long rank of attention in strategic orientation and proper decision-making (Diehl, 2016).

Marketing Strategy: The part of a marketing plan that is anticipated after a thorough study of the market is carried out the marketing strategy (Amin, 2021). It helps SMEs to be more focused and the most effective task to increase sales. A market that is established in SMEs is important to confront the demands, desires and sense to survive in the future. A suitable marketing strategy eventually assists the firm toward sustainability. Restricting resources is the reason that SMEs cannot do conventional marketing based the research. Another reason is the manager or the owner in SMEs does not do and think the same as the large companies. Large companies execute marketing practices that can influence others well. Next, marketing practices and decisions affect the sales orientation and the personal contact network. The marketing decision is accurate and can make a revolution in the marketing practice in the SMEs. The significance of effective marketing strategies which include elements like product, promotion place and price as well as tactical operations and service enhancement for the sustainability of small enterprises in developing nations.

3. Research Methodology

Figure 3: Theoretical Framework



Hypotheses Development: SMEs sustainability can be achieved when the SMEs owners, operators or managers have the responsibility for the SMEs operation because leadership and planning is one of the sustainability dimensions. The ability of the SMES owners, operators or managers is required for them to be able to give orders and communicate well with everyone involved in the SME's operation. Therefore, hypothesis one which is leadership will affect the SMEs sustainability is developed. SMEs create the network to have the sustainability of competitive advantages in the sustainable market space, which the Multinational Enterprise arc less sustain. On the other side, the sustainability of SMEs comes from the network. Therefore, hypothesis two; the Network will affect the SMEs sustainability is developed. A survey of successful SMEs in the UK shows that the individual characteristic of employees is important in the business toward the strategy.

The sustainability focus strategy for small businesses gives the opportunity to allure and keep the employees in the long period in the SMEs. Unproductive employee management led to the failure of small firms. Therefore, hypothesis three (Employee management will affect the SMEs sustainability) is developed. There will be a weakness of the SMEs if the customer orientation is not prioritized because it can make sure the SMEs have sustainable competitive advantages. Hypothesis four is customer orientation will affect the SMEs sustainability. The sustainability of the small business is affected by marketing according to the Australian small firm study. In the study. The importance of marketing is 40 percent whereas human resources are 15 percent, general management is 14 percent and production operations is 9 percent. Therefore, Hypothesis Five is marketing strategy will affect the SMEs sustainability.

Method: The quantitative method will be used in this research to collect the related data. The meaning of quantitative is something that can be calculated, it is applied in statistical analysis due to the ability to provide digits. The qualitative method is always used in big size of surveys. Since quantitative data uses the number, it is not difficult to show the data on a chart or graph. The questionnaires will be distributed to the SMEs in Malaysia to get feedback on the factors that affect the sustainability of SMEs in Malaysia.

4. Analysis and Discussion

Table 1 presents mean and standard deviations for the entire study variable.

Table 1: Descriptive Analysis

Factors	Mean	Standard Deviation
Employee Management	3.7227	.64373
Leadership styles	3.1511	.61822
Network	3.3439	.66063
Customer Orientation	3.4286	.59801
Marketing Strategy	3.6242	.62867

Referring to the table above, the mean for all the variables ranges from 3.1511 to 3.7227. The mean and standard deviation for independent variables measures leadership, network, employee management, customer orientation and marketing strategy. For the first variable which is leadership styles, the mean is 3.1511 while the standard deviation for the first variable is 0.61822. Besides that, comes the second independent variable which is a network, it shows that the mean for this variable is 3.3439 and the standard deviation is 0.66063. The third independent variable is customer orientation, the mean show 3.4286 while the standard deviation for the third variable is 0.59801. Marketing strategy is the fourth independent variable that shows the mean is 3.6242 and the standard deviation is 0.62867. The last is the dependent variable which is employee management, for this dependent variable, the mean show 3.7227 and the standard deviation is 0.64373. In conclusion, based on this section what can be concluded is the dependent variable which is employee management has the highest mean which is 3.7227 while the second independent variable network has the highest standard deviation which is 0.66063.

The sample profile of the questionnaire is shown in Table 2. There are 150 questionnaires were distributed to SMEs. 120 questionnaires were collected and could be used for the analysis. The response rate of the questionnaires was 80%. The data was analyzed in Statistical Package for Social Sciences (SPSS) Version 20. There were gender, age, race, education level and working period in the demographic section. There were 100 percent (120 female) filled in the questionnaires. There were 12 respondents below 20 (10%), 58 respondents between 20-30 years old (48.3%), 43 respondents between 31-50 years old (35.8%) and 7 respondents above 50 years old (5.8%). Race consisted of Malay, Chinese, Indian, and others. 65 respondents (54.2%) were Malay, 35 respondents (29.2%) were Chinese, 15 respondents (12.5%) were Indian and five respondents (4.2%) were others. There were U PSR, PMR/SRP, SPM, Diploma, Master and PhD in the education level. The respondent of UPSR was 1 person (0.8%), PMR/SRP was 4 persons (3.3%), SPM was 52 persons (43.3%), Diploma was 26 persons (21.7%), Degree was 28 persons (23.3%), Master was 6 persons (5%), and Ph.D. was 3 persons (2.5%). Working experiences were below one year, one to three years, four to six years, and above six years. There were 28 respondents (23.3%) who worked below one year, 40 respondents (33.3%) worked from one to three years, 19 respondents (15.8%) worked from four until six years and 33 respondents (27.5%) worked above than six years.

Table 2: Demographic Profile of Respondents

VARIABLES	CATEGORIES	FREQUENCY	PERCENTAGE (%)
	Total	**120**	**100**
	Below than 20	12	10.0
	20-30	58	48.
		43	35.8
	Above than 50	7	5.8
	Total	**120**	**100**
ACE	Malay	65	54.2
	Chinese	35	29.2
	Indian	15	12.5
	Others	5	4.2
	Total	**120**	**100**
EDUCATION LEVEL	UPSR	I	4
	PMR/SRP	0.8	3.3
	SPM	52	43.3
	Diploma	26	21.7
	Degree	28	23.3
	Master	6	5.0
	PhD	3	2.5
	Total	**120**	**100**
WORKING	Below than 1 year	28	23.3
EXPERIENCES	1 -3 years	40	33.3
	4-6 years	19	15.8
	Above than 6 years	33	27 .5

Regression Analysis: Regression analysis is used to determine the relationship between the dependent variable with more independent variables. Other than that, it can also help to understand how the typical value of the dependent variable is affected by the changes in value when one of the independent variables is varied while the independent variables are held as fixed.

Table 4: Results of Regression Analysis

	Unstandardized Coefficients B	Standardized Coefficients Std. Error	Beta		
(Constant)	.349	.328		1.065	.289
Leadership	.255	.087	.245	2.921	.004
Network	-.019	.091	-.020	-.211	.83
Customer Orientation	.416	.082	.387	5.103	.000
Marketing Strategy	.333	.089	.325	3.764	.000
Employee Management	.222	.078	.214	2.653	.000
R square = .511					
Durbin Watson = 2.056					
F = 27.410					
Sig. F = .000					

Based on the regression analysis result shown in Table 4.6, the variation of Sustainable Entrepreneurship shows 51.1% are affected by the leadership style, reward, workload and workplace environment. The value of beta present positive rates changed by dependent variables (0.245, 0.387 and 0.325) with three of the independent variables found to have a positively correlated and highly significant relation (0.004, 0.000 and 0.000 < 0.05). In section 2, we assumed that hypothesis 1 state leadership style has a significant impact on Sustainable Entrepreneurship. Since the significant relation is 0.004, which means less than 0.05, therefore the hypothesis is accepted. Then for hypothesis 2, the researcher states that reward has a significant impact on Sustainable Entrepreneurship. Refers to the significance for this is 0.833, which is more than 0.05, thus hypothesis 2 is rejected. After that, we also assumed that hypothesis 3 states that workload has a significant impact on Sustainable Entrepreneurship. By referring to the significant relation at 0.000, in other words, it means less than 0.05, therefore the hypothesis is accepted. Lastly in hypothesis 4, the researcher states that the workplace environment has a significant impact on employee performance. By referring to the significance for this is 0.000, which is again less than 0.05, thus hypothesis 4 is also accepted.

5. Conclusion

SMEs bring economic development to Malaysia. Malaysia has to make sure the SMEs can achieve sustainability on a few levels which are SMEs start-up, growth, expansion and maturity. The research is carried out in Malaysia. The SMEs in Malaysia also bring a lot of contributions to the Malaysian economy. The research shows that the sustainability of SMEs is affected by leadership, network, employee management, customer orientation and marketing strategy. So, the government gives more attention to the SMEs in Malaysia so that the SMEs can be sustainable and give more contribution to the economic development in Malaysia. The government can assist SMEs by giving adequate leadership training to the SMEs. The government also can assist the SMEs by recommending the best suppliers from the other states and countries. Recommends the customers from the other states or other countries to the SMEs in Malaysia. This is also one way SMEs in Malaysia can create networking. Then when the networking is stable, SMEs in Malaysia can achieve sustainability. After that, it can help the government to improve the economic development. Lastly, this paper proposes an incorporated reasonable development model for SMEs with five components of the Sustainable Entrepreneurship variables that are leadership, network, employee management, customer orientation and marketing orientation. SME owners need to understand that while investing in sustainability initiatives might not increase profits right now; doing so will have long-term benefits and improve economic performance (Yadegaridehkordi et al., 2023).

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A Systematic Review on the Executive Compensation Gap and Its Multiple Impacts on the Company

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Abstract: In recent years, the public has begun to pay attention to the compensation gap of executives, in such background of social reality, this researcher conducts a systematic review of the executive compensation gap (horizontal gap and vertical gap) and its impacts on company through the review and summary of the empirical studies of Scopus Indexed journal articles for the last decade of 2013-2022, then this study figure out the literature trend in this research area in the last decade, summarized how the literature measure executive compensation gap, then reviewed the impact of executive compensation gap can have on company (company performance, risk management, innovation ability, audit fees and other aspects), and at last summarized the findings and put forward the suggestion for future researchers. Such research fills the gap of a systematic review of the executive compensation gap and its impact on companies and provides the company compensation plan maker with practical evidence.

Keywords: *Executive compensation gap, Horizontal gap, Vertical gap, Company multiple impact, Systematic review.*

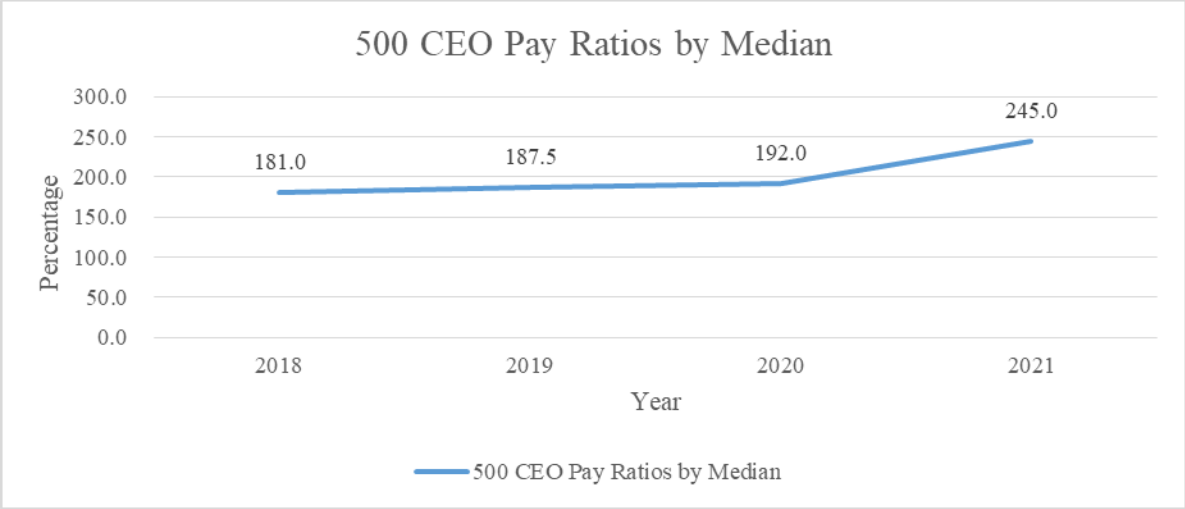
1. Introduction

According to Lazear (2018), most people in the world need to work to survive, and the main reason why work allows people to survive is because of the compensation it provides, especially the financial compensation, without which the vast majority of people would not perform their tasks, therefore, the financial compensation given by companies will inevitably affect the behavior of employees. Jiang (2016) has also mentioned this point of view in her research, who believes that employees are the source of creativity and important value creators of the companies, and the stable operation & development and growth of the company cannot be achieved without the contribution of employees. As the contributors to the intellectual and physical strength of the company, employees are bound to demand that the company pay a return equivalent to their efforts, and if they can receive a satisfactory return, they will tend to put in more effort in the future. Therefore, how to do a good job to protect employees' rights to get financial returns and motivate them to work hard has become a common concern in both theoretical and practical circles.

Employee compensation incentive is a big topic and therefore generates many branches. According to researchers, in recent years there has been a particularly high level of social and theoretical attention to the topic in the field of executive compensation (e.g. Liu and Liu, 2022; Sánchez-Marín et al., 2022). The generation of such phenomenon can be traced back to the financial crisis that happened in 2008, where it was found that, despite the negative impact of the financial crisis on the business performance of many companies around the world, many of these executives, especially chief executive officers (CEOs), still enjoy high salaries under such crisis (Sánchez-Marín et al., 2022). Although many people recognize the importance of the executive team to the company and accept the high compensation treatment of executives, with the year-on-year increase in executive compensation, more and more people began to question the rationality of high executive compensation, according to a study based on the reality of the U.S. society, the median salary of CEOs of U.S. listed companies reached $20 million in 2021, which is 254 times of the average compensation of ordinary employees, and compared with the median pay $15.0 million in 2016, there is an increase of 5 million (Gracia, 2017), despite the covid-19 pandemic that has swept the whole world in 2019-2020, which made the performance of public companies took a hit, the data showed that the CEO compensation of listed companies in the United States median was $15.5 million in 2020, and down just 1.4% relative to $15.7 million in 2019 (Liu, 2022).

The concern about executive compensation exists beyond simple numerical highs and lows or the upward and downward trends, there is also a concern about the gap in executive compensation. Figure 1 shows the data collected by Equilar, Inc (2022) on the ratio of median CEO and average employee compensation of the top 500 publicly traded U.S. companies from 2018 to 2021, from which the ratio of CEO to employee pay gap is gradually and steadily increasing. According to the statement given by Equilar, Inc. (2022) from 2019-2020, under the influence of covid-19 pandemic, many companies cut back on expenses to survive in the market thus helping reduce employee compensation, but the data shows that the pandemic has not had a significant impact on the compensation gap trend, though the median CEO compensation value has slightly decreased in the past two years (Liu, 2022), the executive compensation gap has been gradually increasing over the past four years.

Figure 1: CEO Pay Ratios (Equilar 500)



(Source: Equilar Inc., 2022)

Thus, when studying the field of executive compensation gap, researchers have suggested that it is also necessary to explore the impact of executive compensation gap and how it can impact the company. Liu and Liu (2022) argue that although many studies on executive compensation have emerged in recent years, most of them still focus on the absolute value of executive compensation and lack research on the relative disparity of executive compensation. Wang et al. (2021) also mentioned this view in their study, suggesting that executive behavior can be driven by the compensation, which is influenced not only by the amount of pay itself but also by the compensation gap, and that the individual behavior of executives can further affect the operation of the firm, in addition to the impact on the current business results, it may even affect the long-term development of the company.

Since there is a lack of research on the executive compensation gap in the academic field, thus, this study will review the relevant empirical research results based on the Scopus Indexed Journal Paper and Conference Paper in the past ten years, aiming to systematically sort out the overall situation of the research on the executive compensation gap and its multiple impacts of on company, and summarize the hot spots of discussion and aspects that are still lacking, to provide insights for future research on executive compensation gap.

2. Literature Review

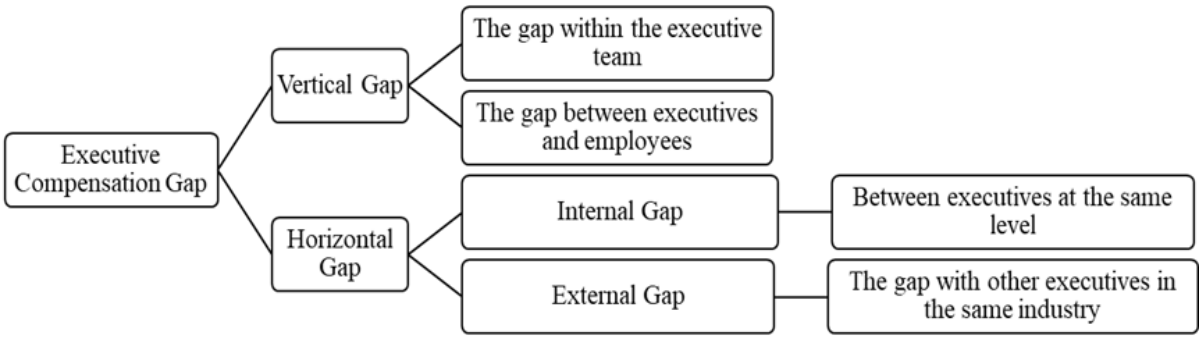
Overview of the Executive Compensation Gap: In the current field of research on pay gap, scholars always use different terms to refer to the phenomenon that firms give different levels of pay to workers of different ability levels, the pay/compensation/salary related to variation/gap/difference/equity/dispersion, where pay dispersion and compensation gap are the most frequently used terms, with high pay dispersion equating to a large pay gap and low dispersion equating to a small pay gap (Connelly et al., 2014; Downes and Choi,

2014). Since the current academic community has not yet standardized terminology for this phenomenon, this research will only use the term compensation gap to refer to this phenomenon.

According to the comparative object of compensation, the researcher proposes that the compensation gap can be divided into two aspects, vertical gap and horizontal gap, the vertical compensation gap refers to the difference in compensation of different hierarchical positions within the same organization, for example, the difference in compensation between executives and general employees, while the horizontal compensation gap refers to the difference in compensation of the same hierarchical positions, for example, the difference in compensation of the same human resource apartment employees in the same company, and the key of quick distinction between these two definitions is whether the gap exists within the same position level (Axelsson and Ulander, 2017; Li, 2018; Park and Kim, 2017).

Now, researchers propose that both horizontal and vertical pay gaps can be used to measure the executive compensation gap, Figure 2 is built based on relevant literature in the field of executive pay gap research to demonstrate a more specific classification and its definition, from which it can be seen that the vertical gap in executive compensation can still be further subdivided into the gap between ordinary employees and executives (e.g. Sun, 2019; Messersmith, Kim and Patel, 2018) and the gap between high-level executives (e.g., CEO) and low-level executives (e.g., other executives) (e.g., Lee et al., 2019; Kim, Kyung and Ng, 2022). After searching the literature, it is found that the current mainstream of academia is for the study of the vertical pay gap of executives, but some scholars also give a method to measure the horizontal pay gap of executives, which can be further subdivided into internal and external gaps, and the internal gap refers to the gap based on the same organization, which refers to the compensation gap of executives at the same position level within the executive team (e.g., the gap between other than the CEO other executives) (e.g. Grabner and Martin, 2021; Jiang et al., 2018), while external gaps are industry-based and are not limited to the same organization, referring to the pay gap between executives at the same level in different organizations within the same industry (e.g., the pay gap between CEOs of different companies in the same industry) (e.g. Santulli, 2022; Torre, Pelagatti and Solari, 2015).

Figure 2: The Specific Sort of Executive Compensation Gap



The above analysis reveals that the executive compensation gap includes many aspects, most researchers nowadays also studied these aspects, however, relevant research also suggested that current researchers still mostly focus on the vertical gap, and do not take the horizontal gap into account (Torre, Pelagatti & Solari, 2015; Li, 2018). Therefore, this study will summarize the definition and measurement of the executive pay gap by previous researchers and point out the gap that still exists in the current research through a systematic review of the current empirical research on the executive compensation gap and put forward the suggestion to future researchers.

Tournament Theory and the Executive Compensation Gap: The creation and widening of the executive compensation gap can be explained by academic theories. Lazear & Rosen (1981) first proposed the tournament theory based on Jensen and Meckling's (1976) principal-agent theory, which explains the large gap observed between CEO compensation and the compensation of executives below them in rank. The

owners of the company, i.e., the shareholders, must monitor executive behavior to get senior management to do their best for the company and to reduce self-interest, and direct monitoring would consume significant resources and be difficult to put into practice. The long-term consequence of this lack of monitor is that it leads to more self-interested behavior on the part of executives; as a result, it will be difficult for shareholders to measure the level of contribution made by executives to the firm, which in turn makes it difficult to select promoters and set salaries (Gao, 2020).

Tournament theory provides a possible solution to this dilemma by suggesting that employee promotion can be viewed as a competition in which the prize is executive position and compensation, and each employee has an equal opportunity to receive higher compensation, and the likelihood of winning the prize increases with the level of effort, i.e., the harder the employee works, the more possibility one can be promoted and receive higher compensation, and this competitive model ensures that employees can be less self-interested and work harder to win the game, thus maximizing their contribution to the company (Connelly et al., 2014; Ullah et al., 2022; Ekinci Kauhanen and Waldman, 2019).

But the equal opportunity for promotion and higher pay is not enough, researchers argue that contest participants tend to focus not only on the absolute value of rewards but also on the relative differences between rewards, which means when employees compete for higher positions, they also compare the amount of compensation incentives they receive with those received by others (Li, 2018). To motivate employees to continue working hard for higher positions and rewards after they have been promoted to executives, to prevent them from losing their enthusiasm for the competition, it is necessary to set a relative gap for the awards, and if this concept of setting a gap is introduced into the design of compensation, it is necessary to make the compensation of each level within the company increase in turn while ensuring that the pay gap between the CEO and the next highest position executive (Gao, 2020).

However, the tournament theory only provides a basis for executive compensation at the theoretical level, such theory does not explain in detail the relationship between the executive compensation gap and the future performance of the company, but some researchers have introduced the tournament theory as a theoretical basis for their research, and the conclusion confirms that paying executives high compensation and widening the pay gap is beneficial for corporate performance (El-Sayed and Elbardan, 2016). In general, the tournament theory argument is in favor of widening the executive compensation gap, arguing that widening the pay gap will increase employee motivation, secure the interests of shareholders, and reduce the cost of monitoring executives, it is one of the important theories to explain why the executive compensation gap exists in companies. However, this is only a literal statement and the theory needs to be further combined with empirical studies, so this study will make an analysis of the practical feasibility of tournament theory in the design of corporate compensation by reviewing the findings of previous literature.

Equity Theory and the Executive Compensation Gap: The theoretical attitude towards the executive compensation gap is not only one viewpoint of tournament theory, but also the opposite viewpoint of equity theory, which believes that widening the pay gap will undermine fairness, thus leading to the growth of employee dissatisfaction and jealousy towards colleagues, which will affect their work efficiency and lose their enthusiasm for work, and in the long run, will affect the long-term interests of the company. Scholars believe that tournament theory is more concerned with ensuring shareholders' interests and corporate interests through competition among employees, while equity theory is more concerned with employees' emotions and believes that a smaller compensation gap is more conducive to enhancing organizational cohesion, strengthening organizational commitment, and shaping a cooperative atmosphere through fair treatment to contribute to corporate long-term development, therefore, enterprises need to implement the principle of fairness (Wang, 2014). This view is supported by a study by Hargreaves (2018), which argues that the compensation received by executives is no longer proportional to the efforts they put in and that the current compensation of corporate executives has reached an unreasonably high level, and the gap should be narrowed to ensure that the interests of the company are maximized.

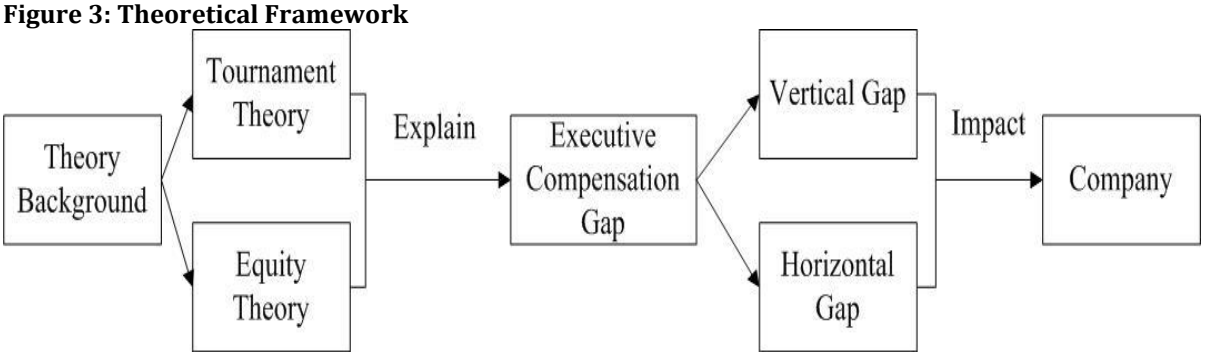
Festinger (1954) proposed the social comparison theory and suggested that individuals have a strong comparison mentality, and people usually compare their income with others to evaluate whether they get satisfactory pay. When individuals perceive unfairness in such comparisons, they tend to be less motivated to

work (Akafo and Boateng, 2015). Based on this theory, Adams (1963), a famous American psychologist, conducted a pioneering study on fairness preference from the perspective of organizational behavior, arguing that individuals will not only pay attention to the absolute value of their compensation, but also pay attention to the relative difference between their own and others, thus seeking a sense of fairness as one of the criteria to measure their pay satisfaction, and eliminating the sense of pay inequity is conducive to the motivation of individuals. Thus, the equity theory focuses on fairness and cooperation, arguing that there should not be a large pay gap between employees within the firm, or even advocating an egalitarian pay distribution and that the firm will profit from this low or even no gap (Axelsson and Ulander, 2017).

As can be seen from the equity theory, it is necessary to close the executive compensation gap, the above two theories holding opposite views, it can be seen that the theoretical community still holds different views on the executive compensation gap and its possible effects on firms, and if want to test the realistic applicability of the theories, the researcher must collect the relevant compensation data of companies to put the theories into practice, so this study will also test whether the ideas of these theories can be supported by empirical evidence.

In the literature review stage, this study reviews the definition of the executive compensation gap and the different theoretical backgrounds of executive compensation. The theoretical framework is shown in Figure 3, it can be seen from the figure that the tournament theory and equity theory can be used to explain the large and small executive compensation gap, and the executive compensation gap can be further divided into vertical gap and horizontal gap, and both kinds of gaps can have impact on the company.

Figure 3: Theoretical Framework



Although some scholars have started to conduct empirical research on the executive compensation gap and its effects, there is still a lack of in-depth systematic review of research findings on this topic. Thus, this research will try to contribute to the current knowledge by filling the gap of the lack of review in the current research field by systematically reviewing the empirical findings of the past literature. Such a study will analyze how the previous researchers defined and measured the executive compensation gap to find out what is lacking in the current research field, and then summarize the findings of various research and combine them with the two theories, using the theories to explain the findings of different research and also using the empirical evidence to justify the practical applicability of the theories, starting from the basic theory, it can not only find the driving factors of the executive compensation gap but also reasonably explain the consequences caused by such gap. Therefore, this paper firstly compares the compensation-related theories and outlines the economic consequences of the compensation gap from the perspectives of corporate performance, corporate innovation and risk management, etc. by systematic review; finally, it proposes the directions for further research. Therefore, this study will adopt a systematic review approach to analyze the relevant literature of the past ten years on the executive compensation gap and its multiple impacts on the company field.

The specific questions of the study include:

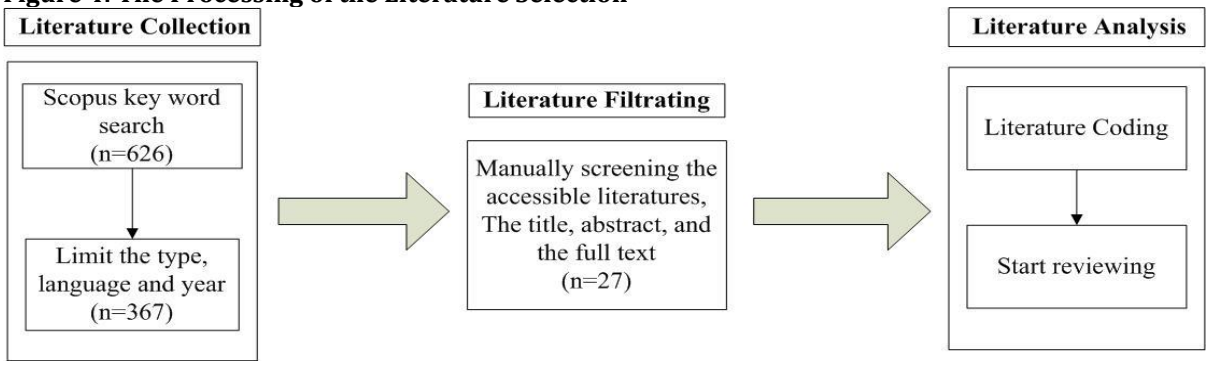
- What is the research trend in the field over the past decade?
- What is the measurement of the executive compensation gap in different literature?
- How will the executive compensation gap have multiple impacts on the company?

3. Data and Methodology

Based on the literature review of the last decade (i.e., 2013-2022), this study conducts a systematic review of empirical studies on the multiple impacts of the executive compensation gap on the company. A systematic review, also known as a systematic literature review, uses specific statistical analysis methods (e.g., descriptive statistics, content analysis, meta-analysis, etc.) to summarize findings from scattered research results that are specific to the research topic. Compared with general reviews, systematic reviews allow for more focused research questions and emphasize the transparency and clarity of the review process, as well as minimizing literature selection and interpretation bias (Huang, You and Tu, 2017). In addition, many researchers have already started to review the literature using this approach (e.g., Martin Sun and Westine, 2020; Valverde-Berrocoso et al., 2020; Arham et al., 2022). Therefore, this study will also adopt a systematic review approach to collect and analyze the relevant literature on the impact the executive compensation gap can have on the company, to fill the gaps in the current study.

Figure 4 illustrates the design of the systematic literature review for this study to provide a clear picture of the whole process. The first step is literature collection, which is conducted based on the Scopus paper repository, which is the largest abstract and citation database of peer-reviewed literature that covers journals in various research areas and is the preferred choice of many schools for purchasing databases. A computer search of this database for published papers with the following keywords: "executive pay/compensation/salary" separately related to "variation/gap/difference/equity/inequity/dispersion", and the result shows that a total of 626 articles could be obtained, then the category of literature is limited to English, the article type is limited to journal and a conference paper, the proceeding ones will also be included to widen the total amount of articles possible, and the year is limited from 2013 to 2022, and finally 367 relevant articles are obtained. However, this is not the final number of literature, and the second step of the process, i.e., the literature filtrating stage is needed. The study considers ethical issues of online document access rights and eliminates the inaccessible literature, and then manually eliminates the literature that is not related to the topic of the study by screening the title, abstract, and full text, and finally obtains a total of 27 literature samples for analysis. The third step is literature analysis. The 27 papers are coded according to the research question, and a coding table is formed based on the information and content of the literature, then a review and commentary of the literature will be conducted.

Figure 4: The Processing of the Literature Selection

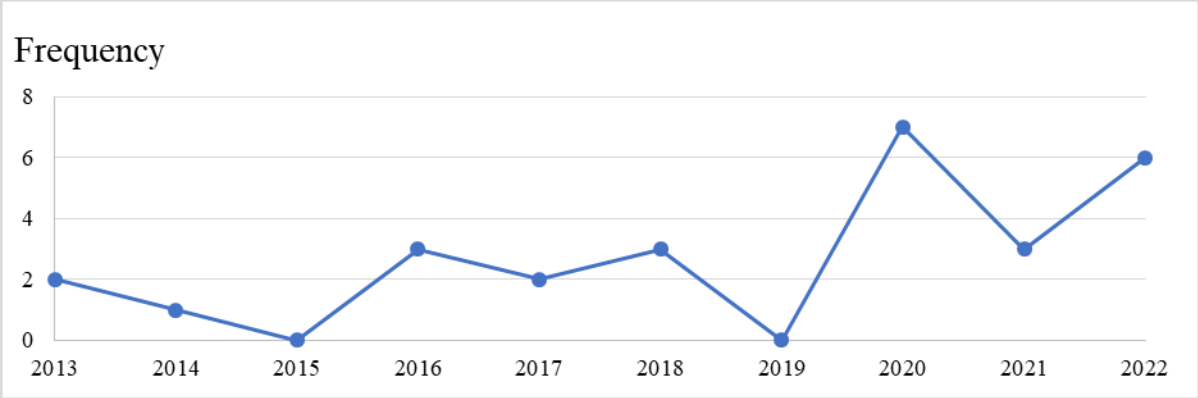


4. Literature Trend in this Research Area for the Last Decade

Annual Distribution: Figure 5 shows the tendency of Scopus-indexed articles that focused on the impact of executive compensation gap on corporate in the past ten years, from which it can be seen that before 2020, researchers paid little attention to this topic, and in 2019, there was not a single relevant study, however, since 2020, researchers began to pay more attention to this filed, and the total number of articles published in 2020-2022 reached 16, accounting for 59% of the total number of articles published in the past decade, with the largest number of articles published in 2020 and 2022, which is 7 and 6 respectively. However, in general, the attention to this research area is still insufficient, and after screening the literature that does not fit the research topic, the total number of articles in the past ten years is only 27, which coincides with the view of

some researchers that current academia is still inadequate on the impact of executive compensation gap on the company (Liu and Liu, 2022; Yang, 2017).

Figure 5: Annual Distribution of Literature Volume over the Last Decade



(Source: Scopus, 2022, Handmade Collation by the Researcher)

Distribution of Authors: In addition, researchers also suggest that when discussing the impact of the executive compensation gap on corporate, because of the cultural and national background differences of the researcher, the results may also differ depending on the region where the research is based. This study finds that, firstly, Chinese scholars are highly concerned about the executive compensation gap by counting the author information of the collected related literature, with a total of 11 studies based on the capital market of Chinese listed companies out of 27 studies, this phenomenon may be attributed to the fact that, according to Kim and Leung (2007), Chinese people always tend to have more focuses about the distribution of compensation and more sensitive to the perception of pay gap than people in other countries, which may be due to the social reality of the existence of a large pay gap in China. In addition, scholars in Europe and the Americas, or other developed countries, especially in the United States, are also concerned about the executive compensation gap, but relatively less interested than Chinese scholars, after reviewing relevant literature, it has been found that researchers in developed countries are more concerned about gender pay equality than the executive compensation gap. Finally, it is worth mentioning that there are now also many scholars who have conducted cross-national studies on the impact of the executive compensation gap on firms, an attempt is made to discover if and what differences there were in the findings based on different countries and cultural contexts.

Distribution of Research Methods: By summarizing the research methods mentioned in the abstracts and methodologies of these 27 articles, the results of the analysis are shown in Table 1. 26 of the 27 papers used quantitative analysis by collecting data on executive compensation from corporate financial reports and corporate information databases, and then put forward econometric models and analyzing them using computer software (e.g., EViews Software and Stata Software). However, one study is noteworthy based on the Finnish capital market, which used a qualitative approach to investigate executive compensation and to determine the impact of the executive pay gap on the company through individual perceptions of the fairness of the pay distribution (Tenhiälä and Laamanen, 2018). Widely cited research that has been conducted by Rahman (2020) suggested that qualitative analysis is labor-intensive, and the costly human and material resources are large, so it is only suitable for small sample studies and not suitable for large sample studies. Although the data collected by such an approach is a kind of primary data, it may also lead to bias in the study outcome, since individuals can have strong personal preferences, which may also lead to biased research results. As a result, currently using secondary empirical data collected accessibly in databases to conduct data analysis on this research area is the more widely available option for researchers.

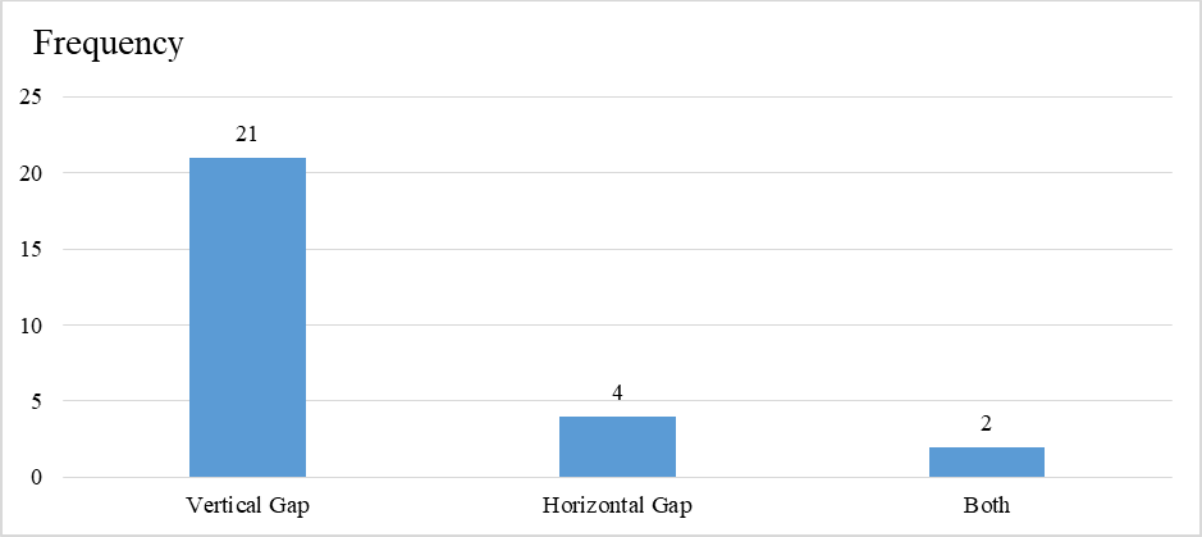
Table 1: Distribution of Research Methods

Type of Method	Specific Method	Frequency
Quantitative Method	Empirical Analysis Based on Econometrics	26
Qualitative Analysis	Survey	1

Definition and Measurement of the Executive Compensation Gap in Different Literature: The literature review discussed the different types of executive compensation gaps, and Figure 6 shows the different aspects of executive compensation gaps that past research has focused on, from the figure, it can be seen that most scholars are still stuck in the focus on the vertical compensation gap for executives, there are 21 literatures focused on the vertical pay gap, which specifically including the pay gap for CEOs and their subordinate executives (e.g., Osiichuk, 2022; Le, Nguyen and Gregoriou, 2022), and also the executive-employee pay gap (e.g., Ye, Li and Zeng, 2022; Fu, Zhang and Wu, 2022), which is consistent with the review in Chapter 2 of the definition vertical gap in executive compensation. However, some studies adopt a new definition, a research conducted by Amore and Failla (2020) defines the executive compensation gap as the difference between the highest and lowest paid executives in the executive team, which does not measure the pay gap by position level, unlike most studies that consider the specificity of CEOs and differentiate the executive team into CEOs and non-CEOs, the measurement is based on the numerical value of compensation. Similarly, Lin, Yeh and Shih (2013) also consider the value of pay as the basis of measurement, although this approach lacks the consideration of different hierarchy, the gap between the values of executive compensation can be most intuitively observed in this way, because sometimes the CEO of a company does not necessarily receive the highest pay.

There are only four studies that focus on the horizontal gap in executive compensation, three of which focus on the external aspect of the horizontal gap, the studies conducted by Coles, Li and Wang (2018); Banker, Bu and Mehta (2016) are based on industry difference, which is consistent with the definition that been reviewed in section 2, i.e., comparing executive compensation with that of executives in the same industry and to determine its impact on firms, while Ma, Pan and Stubben's (2020) study of the external horizontal gap in executive compensation is conducted on a regional basis, discussing how the gap between executive compensation and executive compensation in the same region affects firms' performance, risk-taking ability and financial reporting decisions. Only one of these four papers focuses on the horizontal executive compensation gap within firms, and this one defines the executive compensation gap as the gap between non-CEO executive compensation (Talavera, Yin and Zhang, 2021). One thing worth mentioning is that only two articles can comprehensively consider both horizontal and vertical gaps in executive compensation, so the overall academic attention to the horizontal pay gap and the comprehensive consideration of both gaps is still insufficient in this research field now.

Figure 6: Types of Executive Compensation Concerned by Previous Research



The Multiple Impacts of Executive Compensation Gap on Company: Previous research has proved that executive compensation gap can have an impact on the company, but the impact also includes many aspects, so this part will review the research and try to summarize the outcomes of previous literature on what aspects will executive compensation gap impact on the company. The specific impact that the executive compensation gap can have on the company is stated as follows.

The Impact on Company Performance: Among these 27 literatures, the focus on company performance is the highest, 12 studies are about the impact of executive compensation gap on corporate performance. Robbins and Coulter (2017) argued that corporate performance refers to the total amount of value generated by a firm through its business activities, and when it is quantified, it can be measured by the relevant indicators in the financial statements of the firm. Leite (2019) reviewed the indicators related to company performance and suggested that it can be mainly divided into accounting performance and financial market performance, where accounting performance data is the most easily available and common, the most common indicators are cash flow from operations, earnings before interest and taxes (EBIT), return on assets (ROA) and so on, but study accounting performance alone is not enough, so financial market performance is another aspect to be considered (Otley, 2001), which includes the indicators of beta coefficient, earnings-per-share (EPS), Tobin's q and so on. This study summarizes the findings of these 11 studies on the impact of executive compensation gap on firm performance and the information and findings are shown in Table 2.

Table 2: Compilation of Findings on Executive Compensation Gap Impact on Company Performance

Author (Year)	Title	Findings
Ye, Li and Zeng (2022)	Former CEO director and executive employee pay gap	This study based on data from the Chinese stock market from 2005-2019 found that the compensation gap of executives and employees caused by the board of directors of former CEOs has a negative impact on the future accounting performance of the company.
Osiichuk (2022)	The Driver of Workplace Alienation or the Cost of Effective Stewardship? The Consequences of Wage Gap for Corporate Performance	This research uses data from 2003-2018 from 40 different global countries, the study found that the CEO-employee compensation gap has a positive impact on firm profitability, but that excessive pay gaps should also be prevented to prevent extreme wage inequality from having an impact on firm accounting growth.
Kong, Huang and Liu (2022)	Digital Transformation and Within-Firm Pay Gap: Evidence from China	The study uses data from 2013-2020 of listed Chinese companies and found that digital transformation of companies leads to an increase in the compensation gap between executive and employee, which will improve the accounting performance of companies.
Talavera, Yin S and Zhang (2021)	Tournament incentives, age diversity and firm performance	Such a study is based on a sample of listed companies in the Shanghai and Shenzhen stock market in China from 2000-2015, and it finds that the horizontal pay gap between non-CEO executives contributes to the development of corporate accounting performance.
Ma, Pan and Stubben (2020)	The effect of local tournament incentives on firms' performance, risk-taking decisions, and financial reporting decisions	Based on the data of U.S. S&P 1500 index companies from 1994 to 2013, examining the impact of external horizontal executive compensation disparities on companies based on region, the results demonstrate that such disparities can lead to higher accounting and financial market performance, greater risk and more financial failures.
Tenhiälä and Laamanen (2018)	Right on the money? The contingent effects of strategic orientation and pay system design on firm performance	A survey of 955 companies from Finland concluded that the impact of the executive compensation gap should depend on the different companies, growth-oriented companies would benefit from a larger gap, but efficiency-oriented companies would be more likely to benefit from a low gap.
Coles, Li and Wang (2018)	Industry tournament incentives	Based on CEO compensation data from the S&P ExecuComp database from 1992-2005, study the impact of external horizontal tournament incentives based on the industry, and the study concludes that tournament incentives in the industry have a significant positive relationship on both firm performance and firm risk.
Burns, Minnick	CEO Tournaments: A Cross-Country Analysis of Causes,	The study is based on data from 14 countries from 2005-2009, and the findings demonstrate that the size of the CEO-other

and Starks (2017)	Cultural Influences, and Consequences	executive pay gap varies across cultures, but that larger executive pay differences generally lead to better financial market performance across cultures, yet the rate of increase is decreasing, with the wider the pay gap, the smaller the increase in firm value.
Yu and Van Luu (2016)	Bank performance and executive pay: tournament or teamwork	The study conducted a cross-country sample of banks from 2004 to 2012, which examines the impact of executive compensation gaps on both aspects of company performance, the findings suggest that the results are different across country contexts, with the developed and civil law subsamples tending to support the equity theory that firms benefit from low dispersion, while developing countries tend to support the tournament theory that firms benefit from high dispersion.
Banker, Bu and Mehta (2016)	Pay Gap and Performance in China	Based on data from 2000-2009 for listed companies in China, the findings indicate that the external executive compensation gap based on industry positively affects firm accounting performance, and this positive effect is moderated by firm ownership, to a lesser extent of positive impact in state-owned firms than in non-state-owned firms.
He and Fang (2016)	Subnational institutional contingencies and executive pay dispersion	Based on data from China-listed companies from 2000-2011, the results of the study found that the dispersion of CEO-other executive compensation is lower in state-owned enterprises, but overall, the executive compensation gap has a positive impact on accounting performance in both state-owned and non-state-owned enterprises.
Lin, Yeh and Shih (2013)	Tournament theory's perspective on executive pay gaps	Such study based on Taiwan region samples from 2002 to 2004 to study the impact of the vertical executive compensation gap on company accounting and financial market performance, the findings suggest that the applicability of tournament theory needs to be discussed by the industry and that tournament theory is effective for non-high-tech companies with low innovation intensity, however, for high-tech companies with high coordination needs, the gap should be moderately reduced.

As can be seen from the findings, most of the studies still only focus on one aspect of company performance and seldom consider financial market performance or comprehensively consider both accounting performance and financial market performance together. Previous literature has proved that executive compensation gap, either the vertical and horizontal gap can have an impact on company performance, but the outcome is still full of controversial, the result may differ for different regions and countries with different cultural backgrounds or different types of companies, researchers also combined the study outcome with related theories, some of the research has proved that company can benefit from the tournament incentive, but some of which consider that the tournament incentive may have both sides of effect, it can help improve the company performance, but also may increase the risk has also increased accordingly (e.g. Ma, Pan and Stubben, 2020, Coles, Li and Wang, 2018).

The Impact on Company Risk Management: Researchers have also explored the impact of the executive pay gap on corporate risk (6 articles), and have concluded that corporate tournament incentives are two-sided, with better performance leading to greater operation risk (Ma, Pan and Stubben, 2020, Coles, Li and Wang, 2018). However, some researchers argue that despite the increased risk, the firm's risk tolerance ability also increases due to the widening of the executive compensation gap, the study conducted by Cooper, Uzun and Zheng (2014) suggested that the CEO-other executive compensation gap has a positive impact on the risk-taking ability of firms, but it is worth mentioning that this impact diminished after the financial crisis, which implies that management's attitude towards risk changed and the financial crisis made executives start to tend to be risk-averse.

Researchers have also examined enterprise risk in more detailed aspects, Colak et al. (2021) examined the impact of the vertical compensation gap between CEOs and other executives on initial public offerings (IPOs) failure risk based on a sample of companies from the Thomason One Banker database for the period 2000-2012, and the results of the study proved that tournament incentives for executives are effective and can reduce the likelihood of IPO failure and improve the chances of IPO survival. However, some of the research supports the equity theory, Le, Nguyen and Gregoriou (2022) find that widening the pay gap between CEOs and their key subordinate executives increases a company's risk of future stock price crash, using a sample of listed companies in the eight largest stock markets (the U.S., the UK, Canada, France, Germany, Australia, New Zealand and Belgium). The study conducted by Bannister, Newman and Peng (2020), based on relevant data collected from the CompStat database from 1992 to 2013, examines the impact of executive compensation tournament incentives on a firm's future credit rating and concludes that a firm's credit rating is negatively affected because the greater the pay gap of a firm, the greater the risk, and past studies have concluded that rating agencies perceive riskier firms to have a higher probability of default and therefore assign a low credit rating (Molina, 2005), so a widening executive pay gap will lead to a lower future credit rating of the company.

The Impact on Company Innovation Ability: Some of the scholars focus on the impact of innovation ability (3 articles), Hsin-Han Shen and Zhang's (2018) study based on all firms in the Compustat Execucomp database from 1993 to 2003, examines the impact of executive tournament incentives on corporate innovation. The empirical evidence suggests that a widening CEO-other executive pay gap is conducive to improving innovation efficiency, however, the study by Amore and Failla (2020) argues that the impact of the executive compensation gap on firms' innovation capabilities depends on the type of pay, based on empirical data from U.S. listed firms, which concludes that a larger gap in variable compensation is associated with higher innovation output, while a larger gap in fixed compensation is associated with lower innovation capabilities. A study from a more recent source gives a different view, which uses data from 2011-2018 from Chinese listed pharmaceutical industry companies and argues that the impact of the vertical executive-employee pay gap on corporate innovation ability supports both the tournament theory and the equity theory and that such impact is nonlinear, showing an inverted U-shaped relationship, which means the executive pay gap can promote innovation within a certain range, but this effect is not endless, and when the gap is too large until up to 27 times, it will start to impair innovation (Fu, Zhang and Wu, 2022).

The Impact on Audit Pricing: An interesting finding of how executive compensation impact audit pricing is that compared with most of the studies supported the tournament theory, both literature support the view of equity theory when discussing audit pricing, Ge and Kim's (2020) study based on U.S. data collected from the ExecuComp database from 2003-2014, investigates the impact of vertical executive compensation gap on company audit fees, and shows that an increase in compensation gap leads to an increase in audit fees, while Yin and DU (2021) also supported such conclusion based on the Chinese capital market, the result shows that tournament incentives have a negative impact and that executive compensation gap increases audit fees, which leads to an increase in the firm's operating costs.

Other Impacts: In addition to the above aspects, researchers have found that the executive compensation gap can have an impact on other aspects of a company. Researchers supporting tournament theory argue that the larger the executive compensation gap exists the more firms will tend to be robust in financial reporting (Gad, Nguyen and Scapin, 2022), achieve superior acquisition performance, and also help to improve the merge and acquisition (M&A) capability (Nguyen et al., 2020) and positively influence the international business expansion of company (Lin and Cheng, 2013), while researchers supporting equity theory argue that maintaining a smaller executive compensation gap is necessary to improve an organization's ability to cope with adversity and turnaround (Tao, Xu and Liu, 2020), and that widening the executive compensation gap leads to lower corporate responsibility in environmental terms (Zhang, Tong and Li, 2020), and some researchers hold the same view as Fu, Zhang and Wu (2022), who argue that either the tournament theory or the equity theory can separately explain the relationship and proposed that the executive compensation gap has an inverted U-shaped effect on the total factor productivity of company (Dai, Kong and Xu, 2017).

Discussion and Future Research: The current research field is in the starting stage, some scholars started to pay attention to the effects of the executive compensation gap on companies through empirical study, but the

conclusion is still fully controversial, so the systematic review and summary of previews findings are needed, however, such review is still lacking now, by reviewing the relevant empirical literature in the Scopus Indexed over the past decade such research filled this kind of gap of knowledge system. This research concludes that the current research on the impact of the executive compensation gap on corporate is insufficient, and future researchers should further strengthen relevant research, thus this research also offers future researchers a path for further filling the gap in the knowledge system.

Firstly, relevant research pays little attention to the horizontal executive compensation gap, still mostly focusing only on the vertical aspect, yet the role of the executive compensation gap on corporate is not determined only by vertical compensation, so future researchers need to enhance the attention to the horizontal executive compensation gap, especially for the intra-company perspective, to fill the gap in the current field. In addition, when studying the impact of the executive compensation gap, the number of studies related to the impact on corporate performance is large and numerous, but most scholars still define corporate performance simply as traditional accounting performance, lacking consideration of financial market performance, and lacking a comprehensive consideration of both aspects, this study argues that a comprehensive consideration of both aspects of corporate performance can enhance the credibility of the study, so future researchers should consider corporate performance more comprehensively.

Although previous literature has already proved that the executive compensation gap can impact company performance, risk management, innovation ability, audit fees and many other aspects, there is still controversy among the research outcomes, it can be found from the literature that the tournament incentive is more supported, but many researchers also argue that the tournament incentive can have a two-sided effect of negative ones and positive ones, while some researchers supported the core view equity theory, especially research based on the developed countries and regions, several researchers thought that neither the tournament theory or the equity theory can be used to explain the research findings, it is a more complicated question and needs to be discussed by situations. It can be seen from the findings that the practical applicability of the theory will vary depending on the study sample, thus, the jury is still out on how the executive pay gap affects the company, the research findings will vary depending on the heterogeneity of countries, regions, cultures, etc., therefore, this research suggests future researchers conduct more studies based on different kinds samples to expand the literature in the current field.

5. Conclusion

In conclusion, this research reviewed the concept of the executive compensation gap and the relevant theory background and then conducted a systematic review based on the Scopus Indexed articles of the past decade from 2013-2022, presenting a repeatable procedure for collecting literature, and then figure out the literature trend in this research area in the last decade, summarized how the literature measure executive compensation gap, then reviewed the impact of executive compensation gap can have on company and then summarized the findings and put forward the suggestion for future researchers.

Such research filled the gap of review on the executive compensation gap and how it can impact the company. However, this research inevitably has a limitation, which only focused on the literature available to this researcher of the Scopus Indexed articles, there are many other quality databases, such as the Web of Science (WOS), therefore, the analysis of the literature may be missing and future studies should further add to the literature.

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Marketing Orientation, Customer Orientation, Entrepreneurship Education and Women Entrepreneurship Sustainability in Small and Medium-Sized Enterprises (SMEs) in Malaysia

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Abstract: The focal point of the examination included investigating the achievement factors among women entrepreneurs in the province of Malaysia. This paper additionally explored to what degree a few particular factors, for example, entrepreneurship education management, customer orientation and marketing orientation can clarify its commitment towards turning out to be effective women entrepreneurship visionary. Women entrepreneurs have been progressively mainstreamed into advancement forms, and by assuming an assortment of jobs at the family, network and society levels, they have had the option to add to national improvement and thriving. Reflecting dynamically expanded political will, progressive Malaysian advancement plans have put a more prominent accentuation on mainstreaming women entrepreneurs in national improvement through certifiable multi-sectoral approaches and projects. Gender orientation as an advancement center was first referenced in the Third Malaysia Plan (1976–1980), which supported the dynamic interest of women entrepreneurs being developed and their commitment to the economy. The job of Women entrepreneurs in neediness destruction was given acknowledgment under the Fifth Malaysia Plan when social projects to elevate the state of women were supplanted by monetary projects. The results show that the regression analysis on entrepreneurship education management, customer orientation and market strategy affect the sustainability of SMEs. Numerous studies have been undertaken to evaluate the effects of various elements on women's entrepreneurial success, but our study looked into several entrepreneurship education management, customer orientation and market strategy factors towards women's entrepreneurship sustainability that have largely gone unexplored, particularly in Malaysia. The current study further adds to the previous literature by providing empirical evidence.

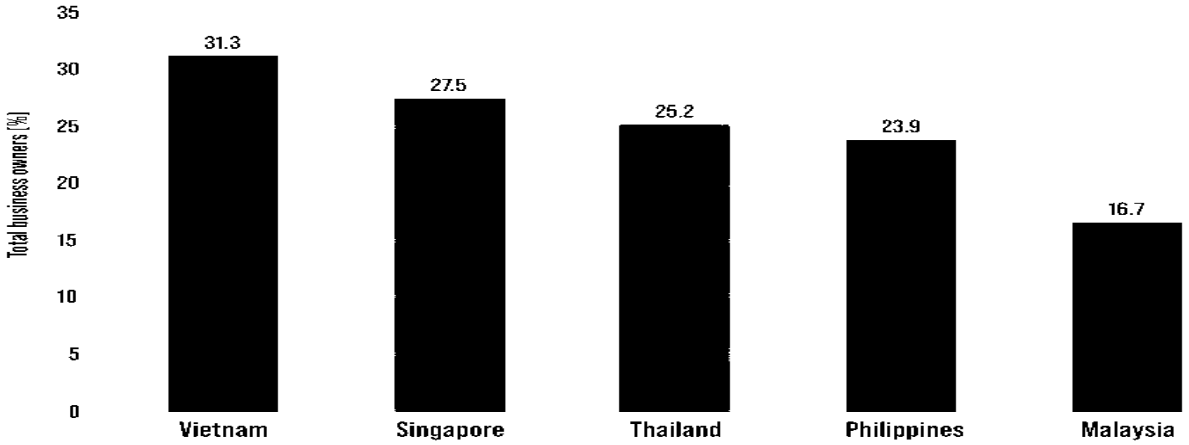
Keywords: *Sustainable Entrepreneurship, SME, Entrepreneurship Education Management, customer orientation and marketing orientation.*

1. Introduction and Background

The number of women entrepreneurs in Malaysia has grown in the last three decades as a result of the emphasis on industrialization and growing excitement for privatization, autonomous work, and business-planned jobs. The incidence of business wandering is continually expanding as Malaysia's administration truly offers assistance and motivating forces so that the country can decrease imports while rising send out, resulting in an increasingly great monetary development (Yifu & Wang, 2022). Strengthen the perceptions that a certain, inventive, and innovative women entrepreneur, capable of achieving self-financial autonomy solely or in collaboration, create business opportunities for others by starting, building, and demonstrating the undertaking to staying up with her own, family, and public activity. Our clear observations and meetings among a few female entrepreneurs working in their firms provide some unique insight into traveling. Others like to get involved in business since it allows them to interact with others rather than staying at home. According to an ongoing Award Thornton's report titled Women Entrepreneur 2019, women hold 36% of senior management positions in Malaysian firms, ranking second in the region after the Philippines (37.5%). According to a 2018 Master card study on women entrepreneurs, 31.3 percent of businesses in Malaysia are owned by women. On International Women's Day, another report based on Award Thornton's yearly review of 5,500 firms in 36 economies reveals that Malaysia has the lowest proportion of senior corporate posts held by women in ASEAN. In 2017, women occupied 24% of senior business posts, down from 26% a year ago, and 34% of firms had no women in senior administration, up from 31% a year previously. In the ASEAN locale, Indonesia has the most elevated extent of senior business jobs held by women (46%), trailed by the Philippines (40%), Thailand (31%) and Singapore (30%).

Malaysia has the least senior business jobs held by women at 24%. This is the second back-to-back year of having the least senior business jobs held by women in ASEAN. The extent of senior business jobs held by women in ASEAN has ascended from 34% in 2016 to 36% in 2017. Be that as it may, the level of organizations without any women in senior administration across ASEAN has additionally ascended, from 27% in 2016 to 21% in 2017. All-inclusive, 25% of senior jobs are held by women, which is an expansion from a year ago (24% in 2016) and the most significant level since 2004 when the overview started. Be that as it may, the extent of organizations without any women in senior administration has additionally risen. 34% of organizations around the globe have no women in senior administration (33% in 2016). The exploration uncovers that the individual nations with the most noteworthy extent of senior jobs held by women are Russia (47%), Indonesia (46%), Estonia (40%), Poland (40%) and the Philippines (40%). The nations with the most reduced extent of senior jobs held by women are Japan (7%), Argentina (15%), India (17%), Germany (18%), Brazil (19%) and the Assembled Realm (19%). This year organizations across ASEAN have expanded the extent of senior jobs held by women. In any case, we are still just most of the way there, and with the level of organizations without any women in senior administration additionally rising it feels as though we're stepping forward and one stage back.

Figure 1: Women Entrepreneurs %, 2018



Source: Master card Index of Women Entrepreneurs, 2019

The sustainability of management in SMEs has a significant impact on attracting and retaining more people. If staff is trained in entrepreneurship education management, the company will become more efficient than its competitors. This will assist the company in saving money through energy-efficient design improvements. SMEs will not be able to execute the path to success through sustainable development strategies if their staff lack awareness and misunderstand the benefits of such techniques. The key to keeping a firm alive is proper entrepreneurship education management. The company's competence exists to provide organizational performance and a sustained competitive advantage. Small businesses can profit in the sector if their staff are happy. Human resource management is critical in this situation. According to the research, the reason for small firm failure is insufficient and inefficient personnel management. It also leads to insufficient productivity and important personnel turnover. Human resources is a major concern in many small businesses. The HRM manager or department must assist the business in gaining a sustained competitive advantage by ensuring that the HR function is clearly implemented.

The HR function can be HRM policies that implement policies connected to employee management in the organization, employment state explicitly about the recruiting and selection procedure for the employee requirement (Anwar & Abdullah, 2021). Develop and implement a new effective staff training and development strategy, a new performance appraisal program, entrepreneurial education management, and a compensation and reward system for employees. Next, customer focus is critical for a company to thrive in the female entrepreneurship market. Firms must know their clients thoroughly to meet their requests as best as possible. Customer-oriented culture, particularly in service firms, is a strong element to generate value while also ensuring the advancement of new services. The study is being conducted to discover the

differences between customer orientation and future market focus in SMEs in terms of company effort to develop strategies and firm innovativeness in women entrepreneurship. Small medium sustainability can be achieved by a combination of client orientation and future market focus in future research. Indeed, Kala et al. (2018) state that the sustainability of a women entrepreneurship firm depends on the location, it also shows the performance of the firm. In Canada, the geographical element has a significant impact on the development of entrepreneurship. According to Pauca et al. (2022), location is critical for the development of firms and industries. According to the findings, the location and entrepreneur variables; the person determinant, external factors, and business characteristics are all important in most SMEs. In small businesses, location variables such as proximity to raw materials, access to business, and availability of technologies are critical. The site is the starting point for the firm's success.

2. Research Methodology

Women entrepreneurs who are owned SMEs in Malaysia will be the research target. Around 150 of the respondents will be asked to fill in the questionnaire. The data analysis will be done in the SPSS software. The data collected will be keys in the SPSS. The SPSS will analyze the data, the result will depict the reliability and the validity of the hypotheses that had been made.

Figure 2: Women Entrepreneurs Sustainability Framework

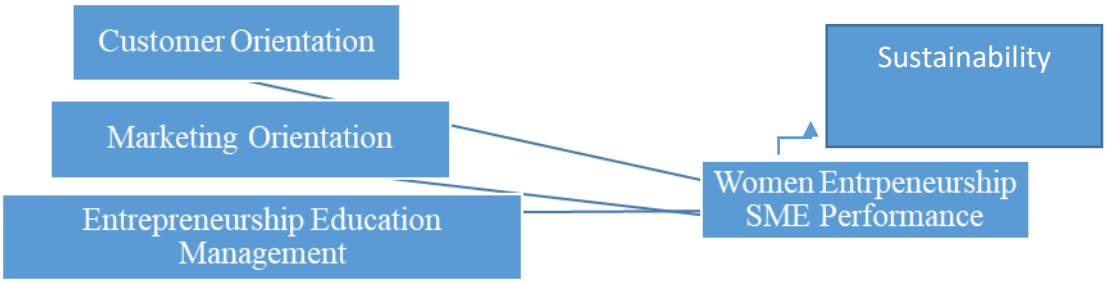


Table 1: Sample Profile

No	Descriptions	Results
1	Number of Questionnaires distributed	360
2	Number of Questionnaires collected	360
3	Response Rate	360
4	The number of Questionnaires collected is used for analysis	360

The sample profile of the questionnaire is shown in Table 1. There are 360 questionnaires were distributed to SMEs. 360 questionnaires were collected and could be used for the analysis. The response rate of the questionnaires was 80%. The data was analyzed in Statistical Package for Social Sciences (SPSS) Version 20. There were gender, age, race, education level and working period in the demographic section.

Table 2: Demographic Profile of Respondents

Variables	Categories	Frequency	Percentage (%)
	Female	360	100
	Total	360	100
AGE	Below than 20	36	10.0
	20-30	58	48.3
	31-50	174	35.8
	Above than 50	21	5.8

	Total	360	100
RACE	Malay	195	54.2
	Chinese	105	29.2
	Indian	45	12.5
	Others	15	4.2
	Total	360	100
EDUCATION LEVEL	UPSR	3	4
	PMR/SRP	3	3.3
	SPM	156	43.3
	Diploma	78	21.7
	Degree	84	23.3
	Master	18	5.0
	PhD	9	2.5
	Total	360	100
WORKING EXPERIENCES	Below than 1 year	84	23.3
	1 -3 years	120	33.3
	4-6 years	57	15.8
	Above than 6 years	99	27 .5
	Total	360	100

Table 3: Descriptive Analysis

Variables	Mean	Standard Deviation	N
Entrepreneurship Education	3.9917	0.72710	360
Customer Orientation	3.8583	0.59770	360
Marketing Orientation	3.9767	0.69967	360
Sustainability of SMEs	3.83 06	0.60115	360

The mean of the dependent variable (the sustainability of SMEs) is 3.83 06, while the standard deviation is 0.7 l 026. The independent variables arc entrepreneurship education management, customer orientation and market strategy. The mean of entrepreneurship education management, customer orientation and market strategy are 3.9917, 3.8583, and 3.9767. The standard deviation of the entrepreneurship education management, customer orientation and market strategy are 0.72710, 0.59770, 0.69967 and 0.60115. The standard deviation is acceptable when the data is between -3 and 3. The data Normal distribution exists when the data is nearer to the mean. From the fact. 68% of all data points have a standard deviation from -1 to 1 from the mean. The range of -2 to 2 of the standard deviation from the mean is 95% of all data. 99% of all data points will be in the range of -3 until 3.

Table 4: Reliability Analysis s

Variables	No of question	Item Dropped	Item recorded	Cronbach's Alpha
Sustainability of SMEs	5	0	0	0.888
Entrepreneurship	5	0	0	0.802
Customer Orientation	5	3	0	0.7 18
Market Orientation	5	0	0	0.791

Table 4 shows the result of the reliability test. The Cronbach's alpha is used to test the consistency. A function of the number of items in scale is called alpha (Cronbach's or standard). The acceptable range of Cronbach's alpha is above 0.7 (Green et al.'s (1977). Nunnally (1978) states the minimum range of Cronbach alpha is 0.7. The high value of Cronbach's alpha shows the question in each variable has high internal consistency. The Cronbach's Alpha of the dependent variable (the sustainability of SMEs) is 0.888. The independent variables Cronbach's Alpha are 0.802 (entrepreneurship education management), 0.718 (customer orientation) and

0.791 (market strategy). Cronbach alpha of customer orientation is 0.718 after three questions are dropped. Cronbach's alpha of customer orientation before the three dropped questions are 0.690, 0.686 and 0.698. The assumptions for the variable of customer orientation are that 0.690 hitch does not fall in the acceptance range the samples distributed are not enough large, and the questions asked in the questionnaires are not related.

Table 5: Regression Analysis

Variables	Beta	I-ratio	Sig. t
Entrepreneurship Education	0.080	0.862	0.024
Customer Orientation	0.097	1.056	0.023
Market Orientation	0.341	3.740	0.000
R-square= 0.682 Durbin-Watson - 1.664 F= 22.447 Sig. F- 0.000 Condition Index= 27.111			

Table 5 shows the regression analysis on the entrepreneurship education management, customer orientation and market strategy that affect the women entrepreneurship sustainability of SMEs. First, entrepreneurship education management shows a significant level of 0.024. The acceptance range of significant level is below 0.05. So, Hypothesis number one is accepted. Next, customer orientation shows a significant level of 0.023. It means the customer relationship does not affect the sustainability of SMEs. Therefore, hypothesis number two is also accepted. Last, market strategy shows a significant level of 0.000. It means the market strategy strongly affects the sustainability of SMEs. Therefore, Hypothesis number three is accepted. Market strategy is the factor that affects the sustainability of SMEs, followed by entrepreneurship education management and customer orientation. R-square showed the variance in the dependent variable. The dependent variable in this research was the women entrepreneurship Sustainability of SMEs. R-square showed the number of 0.682. The R-square was evaluated in percentage 68.2%, which was a respectable result. Durbin Watson's value is 1.664. 1.5 until 2.5 of Durbin Watson value is the acceptable range. So the data collected will be no autocorrelation problem because the data collected shows l.664. The safety limit of the condition index is 30. The condition index of the data collected is 27.111.

The acceptable range of tolerance is 0.1 until 10. The data analyzed shows that the tolerance is 0.413 until 0.460. It falls between the accepted ranges. While the VlF accepted range is between l and 10. The data analyzed shows that the VIF value is between 1.633 and 2.424. So multi-collinearity problem does not exist in the regression model since the condition index. VIF and tolerance fell within the accepted range. The significance in the data that have been analyzed is 33224 and the significant level is 0.000. It is found to be significant at an I% significant level. From this data analysis, we can conclude that the regression model used in this research is adequate.

4. Findings

The first hypothesis is that entrepreneurship education management will have an impact on the sustainability of SMEs in Malaysia. According to the findings, entrepreneurship education management has an impact on the sustainability of SMEs because it has a 0.024 significant level. The employee management significance level is less than 0.05. The acceptance threshold is less than 0.05. Haruna (2022) believes that outstanding employees with entrepreneurship training can lead to organizational sustainability (SME). The study also states that the management should often recollect the vision and worth of the SMEs in the eyes of staff or employees. The second hypothesis is that customer orientation will have an impact on the sustainability of SMEs. The result indicates that customer orientation is significant because it is 0.023 of a significant level, whereas the acceptability range is less than 0.05. In conclusion, Customer orientation has an impact on the sustainability of SMEs. The study also states that the management should frequently recollect the SMEs' vision and value in the eyes of staff or employees. The second hypothesis is that customer orientation will affect the sustainability of SMEs. The finding indicates that customer orientation is significant because it is

0.023 of a significant level, whereas the acceptable range is less than 0.05. Conclusion: Customer orientation has an impact on the long-term viability of SMEs. Finally, data research demonstrates that market strategy is important to the sustainability of SMEs. The market strategy indicates a significant level of 0.000. This means that market strategy is extremely important to the long-term viability of SMEs. Marketing has a significant impact on the sustainability of small businesses (Hanaysha et al., 2022). Marketing is the most important component because it contributes 40% to the long-term viability of a small organization. Human resources, general management, production, and operations account for 5%, 14%, and 9%, respectively.

5. Conclusion

SMEs contribute to Malaysia's economic development. Malaysia must ensure that SMEs may attain sustainability at several stages, including SMEs start-up, growth, expansion, and maturity. The study is being conducted in Malaysia. SMEs in the small state also contribute significantly to the Malaysian economy. According to the findings, entrepreneurship education management, customer orientation, and market strategy, all have an impact on the sustainability of SMEs. As a result, the government focuses more on SMEs for them to be more sustainable and contribute more to Malaysia's economic development. Customers from other states or countries are referred to the SMEs. After that, it can help the government improve economic development. The growing interest in women entrepreneurs as business owners and employees has pushed the question of sexual orientation into business studies. Before Marvel, attempts to differentiate a business as possessed by women were least evident because the enterprise has historically been associated with men and manliness. In general, ecological, family, and personality qualities are important in advancing productive ventures among women entrepreneurs. There could be increasingly distinct measurements, for example, the utilization of innovation, human asset practices, and budgetary administration should be investigated for assisting business achievement. The current study not only provides consequences for SMEs managers and owners, but it also provides instructions to policymakers and, in particular, institutions. Our findings show that women entrepreneurs want inspiration and confidence to start their businesses, which can be provided by organizing a seminar, workshop, women's incentives, or a women's entrepreneurial university. Our findings indicate that women's motivation and confidence can improve entrepreneurial performance. As a result, we urge that the government and policymakers organize a seminar or a women's entrepreneurial university to assist women entrepreneurs in developing bravery and starting a firm.

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Enhancing Social Sustainability via Branding Strategies among Personal Care and Cosmetics Customers: The Moderating Role of Brand Visibility

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Abstract: Sustainability has existed since the day it was originated by the Brundtland Commission in the year of 1987. The term sustainability has been vaguely defined and it creates different interpretations. In line with today's economic situation, organizations increasingly perceive sustainability as an opportunity for them to gain a competitive advantage. In the current era, most of the powerful brands aspire to achieve the same social goal; hence business leaders and marketers are now facing a problem in maintaining its social sustainability. Most studies investigate social sustainability goals from the perspective of business operations. Results from the field study involving 420 customers from six (6) premier shopping malls across Kuala Lumpur demonstrated evidence for construct validity and reliability based on the multiple regression analysis, the result of the study of this study shows that only the Branded House strategy and Halal strategy were proven to have significant relationship with social sustainability. In terms of testing the hypotheses involving the moderating roles of the relationship between independent variable and dependent variable, 2 out of 4 hypotheses were supported in which brand visibility moderates the relationship between Halal branding and social sustainability, whereas brand visibility moderates the relationship between stand-alone strategy and social sustainability The implications of this research are, the organization needs to consider corporate dominant strategy and Halal strategy to ensure long-term business operation and this research also provides additional insight on social sustainability model by investigating the branding strategies namely corporate dominant, brand dominant, mixed branding and Halal branding.

Keywords: *Branding Strategies, Brand Visibility, Social Sustainability*

1. Introduction and Background

Personal care and cosmetics products have been established in the world for thousands of years and they are commonly used by consumers of all ages, in every part of the world (Juraimi et al., 2023). Personal care and cosmetics products range in many forms, for example, powders, body makeup, soap, shampoo and toothpaste (Kumar, Massie & Dumonceaux, 2006). Today, it is a fact that the cosmetics industry is a profitable, creative, innovative fast-paced industry. To ensure the success of the brand, innovation is the key (Kumar et al., 2006). Since consumers are being exposed to various kinds of personal care and cosmetics products, the companies are competing against one another to capture consumer's attention. In the Malaysian cosmetics market, this industry has been growing rapidly with the total revenue amounting to US$2.68 billion in the year 2022 (DHL, 2022). Table 1 below showcases the world's biggest cosmetics companies in the year 2020 and these five (5) companies are amongst the strongest brands in this industry.

Table 1: World's biggest cosmetics companies 2020: Top five by revenue

Companies	Net Revenue (Billion)
L'Oreal	$ 33.93
Unilever	$ 25.38
Procter & Gamble	$ 19.41
Estee Lauder	$ 14.29
Shiseido	$ 8.73

Source: Cosmetics Technology (2021)

In today's competitive era, customers are being exposed to the same products and services, but offered by different brands, and service providers. Hence, branding plays a crucial role in attracting the customer to purchase the product and use the services. The main reason for branding and brand management is to create differentiation for the products and services offered by the organization. There are studies on branding focusing on product brands (e.g. Alizadeth, Moshabaki, Hoseini & Naiej, 2014). A successful brand can be viewed as a product that is easy to recognize, a good service, a person or place that the customers perceive as relevant, sophisticated, unique and most importantly, matches their needs. This is further supported by Aaker and Joachimsthaler (2000) that customers would like to have a relationship with brands that share the values of the organization and portray a higher purpose. Conceptually and theoretically, an organization uses branding as a mechanism to build sales by identifying products and services.

Branding also acts as an initial step to build customer awareness by naming the offer but to differentiate the offer from the other service providers who are selling and providing the same service and products. In a nutshell, branding is all about being different and staying competitive amongst its competitors. According to Claye, Crawford, Freudnt, Lehmann and Meyer (2013), there are three (3) major reasons why branding is crucial in today's market. Firstly, branding influences the decisions made by customers. This is where most organizations perceive business marketing and branding are all about producing greater products and services offered at reasonable and competitive prices amongst its competitors (Harvey, 2017).

In the current era, most of the powerful brands aspire to the social affairs of the customers, hence, business leaders and marketers are now facing a problem which is to distinguish their companies, products, and services in an environment where social sustainability plays a major role in creating a stable marketplace (Raphael & Mitch, 2008). There are numerous problems in this study. First and foremost, there are certain brands in the market known for not contributing to social sustainability affairs; hence, consumers tend to develop a skeptical outlook and unfavorable attitude towards the brand for a certain period (Mattar, 2016). Furthermore, according to Alizadeh, Moshabaki, Hoseini and Naiej (2014), organizations are having difficulties choosing which branding strategies suit the business operation, hence creating difficulties to influence the customer to purchase their brands instead of their competitor's brands. Most of the studies on business sustainability focus on the perception of the organization. With the concept of triple bottom line, the concept of business sustainability, which also includes social sustainability, was investigated from the organizations' perception because the organizations know the business operation as compared to the customers or stakeholders. When it comes to the concept of brand visibility, the problem arises when most of the customers question the authenticity of the information being showcased on social media because there is so much misleading information that has been portrayed on social media (Azwar, 2017). Henceforth, this paper aims to investigate the relationship between branding strategies on social sustainability and to examine the moderating effect of brand visibility

2. Literature Review

Social Sustainability: According to Dyllick and Hockerts (2002), the social dimension can be divided into two (2) categories. Firstly, the human capital. In this category, human capital focuses on aspects such as cognitive skills, the motivation and loyalty of personnel and business partners. On the other hand, social capital involves the quality of public services such as educational infrastructure, or the inculcation of entrepreneurship amongst the employees. For an organization to socially sustain in the market, according to Klimkiewicz and Oltra (2017), an organization must adopt social costs to maintain and grow the capital stock and most importantly to enlarge the range of products and services for its consumers. This will uphold the consumer's perception of the organizations as the contributor to society. A major problem with this definition is that organizations often cannot uphold the expectations of all stakeholders at the same time. Businesses are increasingly focusing more attention on the social dimension of business sustainability development due to the drastic shift in stakeholder pressures from environmental and economic to social-related concerns (Holliday, Schmidheiny & Watts, 2002). The social dimension of business sustainability encourages organizations to adopt or practice the philosophy of stewardship (Persley, Meade & Sarkis, 2007). Social stewardship requires an organization to promise and provide an improved quality of life to all by taking precautions that are related to settling the challenges faced by the society in which the organization operates. Some organizations try to take precautions that will resolve some common issues such as poverty alleviation,

enhancing work conditions, health systems, or education platforms that will showcase their concern for society (Closs, Speir & Meacham, 2011).

The second category is social capital which relates heavily to the concept of corporate social responsibility (CSR). According to Hsu (2011), the organization's investment in CSR is perceived as a tool that will assist the organization to achieve its sustained competitive advantage (SCA) as it would improve the welfare of the surrounding communities (Okanga, 2017). In this view, the competitive advantages derived from investing in CSR may not be showcased in the economic sustainability of an organization. According to Bhattacharya and Sen (2004), customers do not act on CSR initiatives frankly as opposed to how customers act to market promotions, discounts and offers. The main difference between CSR activities and other marketing strategies lies in the organizations, the customers and the social issues that need to be addressed. In the social dimension of business sustainability, according to Smith (2003), CSR refers to the organization's obligation to the societies or those who are directly or indirectly affected by its policies or business operations.

Branding Strategies: The main reason for branding and brand management is to create and leverage differentiation for the products and services offered by the service provider. There are studies on branding focusing on product brands (e.g., Alizadeth, Moshabaki, Hoseini & Naiej, 2014). A successful brand can be perceived as a product that is easy to recognize, a good service, a person or place such that the customers perceive as relevant, sophisticated, unique and most importantly, fulfills their needs. This is further supported by Aaker (2017) that customers would like to have and foster a relationship with brands that share the values of the organization and portray a higher purpose. Conceptually and theoretically, an organization uses branding as a catalyst to build and strengthen sales by identifying products and services.

Branded House Strategy: Branded house can be best defined as the only corporate brand name that is utilized and visible in all sorts of communications of the organization/products or services whether for internal or external communication. Furthermore, the branded house is perceived as a "company brand" and this will become the main discriminator of the branding strategies (Junior, 2018). According to Kapferer (2008), a branded house is identified by a single and one unique brand level, and it is linked with the corporate name, and that of the organization itself. The organization that adopts or practices this strategy must then fall into line with the value of the brand and will continue to be the carrier of the brand. Few industries follow this strategy such as banking, insurance, and consultancy agencies. According to Knox and Bickerton (2003), there is a vast definition of branded house such as the visual, verbal, and behavioral expression of an organization's exclusive business model.

Stand-alone strategy: This strategy involves an independent set of stand-alone brands, where the main objective is to maximize the impact on the market it offers (Aaker & Joachimsthaler, 2000). According to Rao et al., (2004), this strategy does not leverage its main name or corporate name for branding its products and services. Instead, the organization will choose individual brand names to position its brand in the market. In this strategy also, each brand under this strategy will operate independently to boost its market share and financial return. In such a branding strategy approach, the underlying theory is that the total sum performance of the range of independent brands will be higher as compared to the situation where the brands were managed by a single master brand

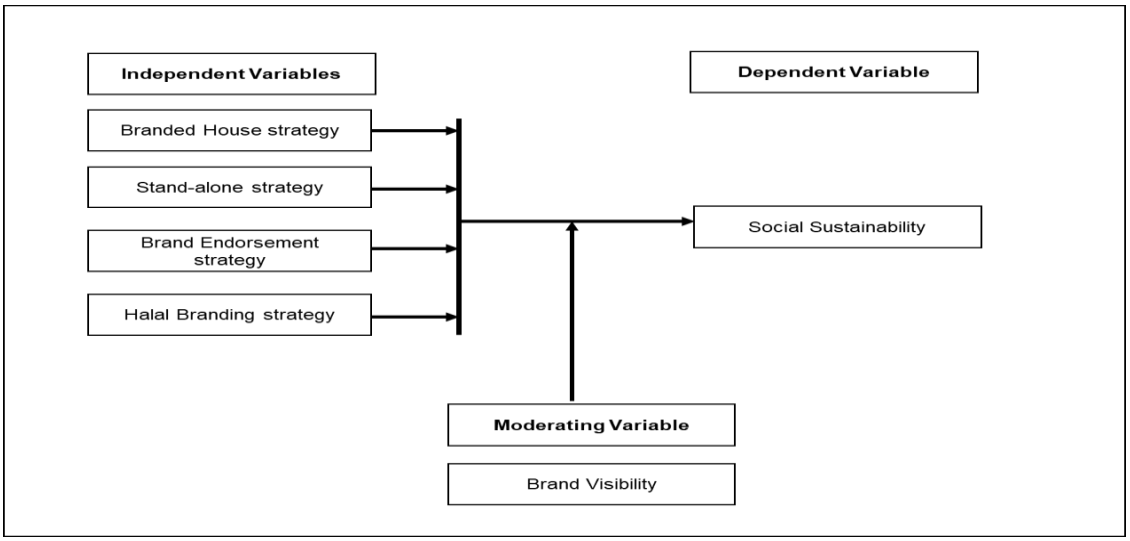
Brand endorsement strategy: In this branding strategy, two (2) brand names, which are corporate or main and individual products brand names are combined to vary the visibilities to brand the products and services offered by the organization. According to Rao et al., (2004), in a brand endorsement strategy, the organizations engage a set of house or family brands, such as subsidiary names, in their portfolio and this is an addition to using the corporate name for certain services and products offered by the organizations. Brands with names other than the organization's name are typically durable and will bring value to the organization.

Halal Branding strategy: The term Halal is derived from an Arabic word that is linked to the Islamic Faith. Halal in its generic sense, can be defined as allowed or permissible (Lada, Tanakinjal & Amin, 2009). The terminology of Halal should be understood by every Muslim. This is also further supported by Wilson and Liu (2010) a basic theory of understanding what Halal is all about and it's central to every Muslim's belief, in

which, the term falls under the umbrella of what is measured to be the evidence that is known by necessity. On the other hand, the antonym of Halal is Haram. Haram seems to resonate in the eyes of the customers with a strong sentiment feeling (Wilson & Liu, 2010). This is due to the conscious engagement in Haram activities, without any regrets, carrying the risk of punishment, which is stipulated in the Islamic law or the hereafter. Ahmad (2015) termed Halal Branding as "The term "Halal" is derived from the Arabic and it mentions the Islamic Belief which is practiced by the Muslims. The term also can be defined as the things or action that is permitted as stipulated by the Shariah Law the term Halal branding is also can be defined as the set of brand perceptions in the customers' mind, and the understanding of the concept of Halal that is linked to Muslim's faith and commitments.

Brand visibility (known and getting known): According to Bhasin (2016), the term brand visibility is perceived as the single, and the most dominant way that a customer can receive from the organization. The message that the customer received from the organization is about the product and this is ultimately to gain trust from the customers. Brand visibility allows, encourages and motivates customers to have an eagle view of the products and this includes Brand attributes. In any organization, to increase brand visibility, the managers will engage several media agencies with a focus on home media, television, online marketing and social media. According to Taneja and Toombs (2014), the organization utilizes social media tools and perhaps networking sites to promote the services and products offered by the organization via electronic forms to create brand visibility. In view of this, various authors have discussed and supported the importance of social media and how it helps the organization to build the visibility of their products and services. According to Harris and Rae (2011), if organizations are actively working and managing their social media platform, they could maximize and leverage the opportunity to build their brand in the desired way that is aligned with their goals. Besides having brand visibility, social media is also a platform for an organization to create differentiation and it will gain a competitive advantage against its competitors.

Figure 1: Conceptual framework of this study



3. Methodology

Research Design: This research used a correlation type of research to investigate the relationship between three variables, namely the independent, dependent, and moderating variables. The independent variable for this study is branding strategies, the dependent variable is social sustainability and the moderating variable is brand visibility. Correlation type of research will allow us to identify the branding strategies that can contribute towards social sustainability

Research Population: The population of this study was the personal care products and cosmetics male and female customers as both male and female are using personal care and cosmetics in their daily routines. The venue for data collection was at six (6) premier shopping malls in the Klang Valley or known as Greater Kuala

Lumpur (GKL) namely, Kuala Lumpur City Centre (KLCC), Starhill, Berjaya Times Square, Lot 10, Sungai Wang Plaza and Pavilion Kuala Lumpur.

Research Population: For this study, the assumptions were a 95% confidence level, a .5 standard deviation, and a margin of error (confidence interval) of +/- 5%. If the confidence level is 95%, therefore the Z Score = 1.96.

$((1.96)^2 \times .5(.5)) / (.05)^2$
(3.8416 x .25) / .0025
.9604 / .0025
384.16
385 respondents are needed

According to the rule of thumb by Krejcie and Morgan (1970), a sample size of 1.79 million population needs 384 respondents. To ensure that the respondents represent the entire population of this study, the figure is rounded up to 420 and divided equally among telecommunication service provider customers

4. Results and Discussion

Profile of Respondents: Table 2 displays a summary of the characteristics of the total sample of personal care and cosmetics customerswho participated in the study.

Table 2: Demographic and Geographic Information Pertaining to XXX

Variable	Descriptive	Frequency	Percentage
Gender	Male	210	50.0
	Female	210	50.0
Age	Below 18 years old	9	2.1
	18-23 years old	49	11.7
	24-29 years old	154	36.7
	30-34 years old	120	28.6
	35-44 years old	62	14.8
	45-49 years old	21	5.0
	50 years old and above	5	1.2
Preferred brand	Mary Kay	58	13.8
	Wardah Beauty	27	6.4
	Simply Siti	46	11.0
	Loreal	42	10.0
	Procter & Gamble (P&G)	34	8.1
	Unilever	48	11.4
	D'Herbs	50	11.9
	Sari Ayu	18	4.3
	Revlon	47	11.2
	Others	50	11.9
Duration of usage	Less than a year	43	10.2
	One year	71	16.9
	Two years	104	24.8
	More than two years	202	48.1

Table 2 indicates the demographic profile of the respondents most of the respondents were female 217 (51.7%) followed by male 203 (48.3%). In terms of age, out of 420 respondents, 154 (36.7%) respondents were 24-29 years old, 120 (28.6%) respondents were 30-34 years old, 62 (14.8%) respondents were aged between 35-44 years old, 49 (11.7%) of the respondents were 18-23 years old, 21 (5.0%) of the respondents were 45-49 years old, 9 (2.1%) of the respondents were below 18 years old and lastly, 5 (1.2%) of the respondents were 50 years old and above. In terms of the brand preferences among the respondents, majority of the respondents, 58 (13.8%) preferred to use Mary Kay. There were an equal number of

respondents, 50 (11.9%) preferred to use D'Herbs and other personal care and cosmetics brands such as Simple and Himalaya. 48 (11.4%) of the respondents opted to use Unilever, 47 (11.2%) of the respondents preferred to use Revlon, 46 (11.0%) of the respondents preferred to use our local cosmetics brand which is Simply Siti, 42 (10.0%) of the respondents preferred to choose Loreal, 34 (8.1%) of the respondents preferred to use products under Procter & Gamble (P&G), 27 (6.4%) of the respondents chose to use products originated from Indonesia, Wardah beauty. Lastly, 18 (4.3%) of the respondents preferred to use Sari Ayu. The last element of the demographic profile of the respondents was the duration of usage by the respondents. 202 (48.1%) of the respondents have used their personal care and cosmetics brand for more than two (2) years, 104 (24.8%) of the respondents have used their personal care and cosmetics brand for two (2) years, 71 (16.9%) of the respondents have used their personal care and cosmetics brand for one (1) year and lastly, 43 (10.2%) of the respondents have used their personal care and cosmetics brand for less than a year.

Table 3: Correlation analysis

No	Variables	SD	Mean	1 Branded House	2 Stand alone	3 Brand Endorsement	4 Halal branding	5 Brand visibility	6 Social sustainability
1	Branded House	3.86	0.68						
2	Stand Alone	4.02	0.57	.568**					
3	Brand Endorsement	4.07	0.58	.464**	.466**				
4	Halal branding	4.00	0.67	.221**	.243**	.263**			
5	Brand visibility	3.71	0.66	.415**	.321**	.337**	.216**		
6	Social sustainability	3.64	0.68	.367**	.235**	.239**	.202**	.580**	.497**

The degrees of correlation by Pearson correlation coefficient were used in interpreting the correlation between the variables. Table 3 displays the interpretation of correlation coefficients. The results of correlation analysis indicate the inter-correlation among the variables entailed in this research study.

As for social sustainability, the branded house has moderate positive relationship ($r = .367$, $p < 0.01$), stand-alone has weak positive relationship ($r = .235$, $p < 0.01$), mixed branding and Halal branding also have weak positive relationship ($r = .239$, $p < 0.01$) and ($r = .202$, $p < 0.01$), respectively. The dimensions of branding strategies are also significantly correlated with the moderating variable; namely, brand visibility. The correlation coefficient between branding strategies and brand visibility are as follows; branded house has a strong positive relationship ($r = .415$, $p < 0.01$), both stand-alone and brand endorsement have a moderate positive relationship ($r = .321$, $p < 0.01$) and ($r = .337$, $p < 0.01$), respectively. However, Halal branding has a weak positive relationship ($r = .216$, $p < 0.01$).

As illustrated in Table 4, the regression table indicates a significant F score ($F = 18.789$, $p < 0.01$) which further indicates that the group of independent variables (branded house, stand-alone, brand endorsement and Halal branding) significantly produce joint effects on the regression model. However, the F-statistic is not sufficient to conclude this study. R-Square (R2) explains the variance in the dependent variable which was contributed by the independent variables. The regression table above shows R2 of 0.153 which indicates that 15.3 % of the variance in the business sustainability (social sustainability) is sufficiently explained by four (4) dimensions of branding strategies (branded house, stand-alone, brand endorsement and Halal branding). Based on the above findings, only two (2) variables of branding strategies (branded house and Halal branding) are significant to influence social sustainability.

Broman (2017) stated that branded house contributes to social sustainability as this strategy is perceived as a way for customers to identify themselves with different organizations. Corporate branding allows the organization to be the center of attraction, symbols and most importantly, a social platform that helps its customers to develop their identity. Furthermore, a branded house will introduce the customer-brand identification concept and this can be achieved when the customers feel and value its sense of belongingness to the organization. Lastly, Hsu et al. (2010) further supported that corporate branding contributes to social sustainability via the engagement and individualized touch with the customers; hence, organizations are able to create an intimate connection with customers when they provide their opinions and feedback on their products and services provided by the organization.

Table 4: Multiple Regression Analysis

Model	Standardized Coefficients Beta
Branded House	.312**
Stand Alone	.000
Brand Endorsement	.063
Halal branding	.117*
R	.392
R2	.153
Adjusted R2	.145
F Change	18.789
Significance F Change	.000
Durbin Watson	1.834

There is a growing awareness of Islamic consumption and greater empowerment of Islamic consumers with the emerging demand for Halal products and services. Temporal (2011) mentioned that Halal branding contributes to social sustainability as it allows the organization to further educate and expose its customers to Halal products and services. From the view of a Muslim-to-Muslim marketing and branding perspective, to have customers who accept a Halal brand is very important but from a Muslim to non-Muslim perspective, top quality is a vital issue. Social sustainability comes in when the organization creates products and services that are high in quality which can be accepted not only by Muslim customers but also non-Muslim customers. Rezai et al. (2008) stated that Halal branding contributes to social sustainability as the organization ensures that products and services offered are bound by the Shariah law and only leverages permissible ingredients so that society will not be in doubt of the products and services.

Table 5: Moderated Regression Analysis

	Standardized Beta		
	Model 1	**Model 2**	**Model 3**
Independent Variables			
Branded House	.312**	.165**	.401
Stand Alone	.000	-.033	.631*
Brand Endorsement	.063	-.012	.406
Halal branding	.117*	.066	-.716**
Moderator Variable			
Brand Visibility		.512**	1.243 **
Interaction terms			
BHX Brand Visibility			-.440
SA X Brand Visibility			-1.230**
BE X Brand Visibility			-.798
*Halal*B X Brand Visibility			1.248**
R2	.153	.360	.408
Adjusted R2	.145	.352	.395
R2 Change	.153	.207	.048
F change	18.789	133.857	8.301
Significant *F* change	.000	.000	.000
Durbin Watson			1.834

Table 5 summarizes the result of the moderating effect of brand visibility on the relationship between branding strategies (branded house, stand-alone, brand endorsement and Halal branding) and social sustainability. The significance F change of the regression model shows a significant value ($F = 8.301$, $p = .000$). However, the significant increment of 4.8% to the effect size is by no means small. Small effects can be important not only because they have practical consequences, because they accrue into larger effects, nor because they lead to theoretical revision but also because they hold even under the most inauspicious circumstances. Based on the findings, brand visibility has two (2) moderating effects on the relationship between the independent variables (stand-alone and Halal branding) and social sustainability. When organizations that practice stand-alone strategy enter the arena of social media, they will carefully tailor their communications to the customers to ensure that they maintain a consistency that reflects the value of the organization. Since stand-alone focuses on niche markets, the products and services need to be of high quality to ensure that organizations stay competitive. Brand visibility moderates the relationship between stand-alone and social sustainability when the organization listens to the needs and wants of their customer via social media and tailors their products and services to ensure that the customers are satisfied with the products and services rendered by the organization (Wang et al., 2017). Wilson (2014) mentioned that brand visibility moderates the relationship between Halal branding and social sustainability when brand visibility is proven as a platform for customers to look for information and use the information for purchase intention. Additionally, most customers rely on social media in their daily lives. Aziz and Chok (2013) stated that social media will assist the organization to create Halal awareness to the customers, hence, creating a strong relationship that will automatically lead to Halal purchase intention.

5. Managerial Implications and Recommendations

There are a few considerations for potential researchers to consider incorporating into their studies to make the findings more acceptable and generalizable in terms of branding strategies and social sustainability such as leveraging qualitative methods and enhancing the sample size. As product markets continue to change rapidly, it is very important to both marketing and branding managers to seize the opportunity to optimize the available resources to create very comprehensive and reliable branding strategies. The role of branding in sustaining a business and positioning the organization in the global marketplace requires establishing innovative branding strategies. When customers are now the major shareholders of the organization, organizations need to ensure that the brand that they are showcasing is "people-friendly." Overall, this study aims to gain valuable insight into branding strategies, social sustainability, and brand visibility. The contribution of this study is derived from the resource-based view theory which measures the branding strategies and social sustainability from the view of the customers, which creates a new perspective to the organization.

Conclusion: The framework of this study has been successful in examining the relationships among branding strategies, social sustainability and brand visibility among personal care and cosmetics customers. Overall, the unique contributions of this study have significantly improved the concept of branding strategies by including brand visibility as the moderating variable. This study has also produced an understanding of how organizations should include external customers in their decision-making process.

To sum up this research, branding strategies are the secret weapon of most organizations. It is a fact that branding helps organizations to identify and recognize the products and services. Besides, a good branding architecture allows organizations to connect with customers emotionally. In line with this, branding strategies will assist the organizations to build trust with the target market, create brand loyalty, and most importantly, the organizations would be able to sustain and achieve competitive advantage.

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Non-linear Panel Data Liquidity Model of Islamic and Conventional Banks

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Abstract: Banks and liquidity risk are synonymous with each other due to inevitable asset-liability mismatches derived from deposit and lending activities. The study aims to investigate this issue by highlighting a new insight into the non-linear function between profitability and liquidity risk. With the aspiration to include both Islamic and conventional banks from nine Asia-Pacific countries, this study involves the unbalanced panel data of a 10-year period that covers from 2011 to 2020. The final sample ends with 285 banks and 2,116 observations. The study employs a quadratic random effect model with clusters adjusted errors comprised of five interest predictors namely profitability, credit risk, bank capital, income diversification and bank size. The findings discover profitability, bank capital, income diversification, size and economic condition play vital roles in managing banks liquidity. The findings reveal the existence of moral hazard for larger and highly capitalized banks with greater exposure to liquidity risk. High-margin banks are also prone to maintain lower liquidity levels, thus exposed to greater risk. Banks are advocated to elevate higher earnings and maintain adequate levels of capital and assets with the caution of moral hazard issues. Therefore, the regulatory body in each country is proposed to intervene and monitor especially the higher margin banks to lessen the moral hazard issue.

Keywords: *Lending, Deposit, Banks, Financial Risk*

1. Introduction and Background

The issue of bank liquidity continues to be a crucial concern in the financial sector, requiring focused attention and effective management strategies. Despite the existence of regulatory frameworks such as Basel III and risk management practices, bank's liquidity positions are still under threat from several challenges and potential risks. Banks face difficulties to balance the short-term funding requirements (deposits) with long-term investment assets (financing) (Horváth et al., 2016). The quest for optimal liquidity position is more complicated by the dynamic landscape of inconstant and volatile market conditions, economic uncertainties, and fluctuation of interest rates especially in the aftermath of the recent Covid-19 pandemic. The after-effect of the pandemic makes the liquidity position of the banks more fragile. The inability to maintain enough liquid assets to meet short-term obligations when it is due causes the banks at the vulnerable risk of encountering liquidity shortages, hindering their ability to meet deposit withdrawals and fulfill ongoing operational obligations, ultimately leading to potential financial distress, liquidity crises or liquidity risk.

Because the banks are the heart of a country, overexposure or unmanageable liquidity crises or liquidity risk of the individual bank would have substantial impacts on the broader financial system, to a large extent a country. This is due to the interconnectedness among the banks within the financial system (Zhang et al., 2021). The banks are interdependent through the interbank financing relationship. Therefore, liquidity shocks of an individual bank could trigger other banks within the financial system to be affected as well during the stress periods. In fact, this is the reality of the previous global financial crisis of 2007-2009. According to Alshammari (2023), some banks faced financial hardship during the global financial crisis period due to mismanagement of liquidity. Liquidity shocks of an individual bank have the capability to threaten the stability of other banks in the financial system especially those with unsound liquidity positions hence, causing systemic vulnerabilities. The effect is more vulnerable in the case of larger unsound banks. Yet, the study does not refuse the possibility that smaller bank could also spark the fragility of financial system. Evidently, collapse of Northern Rock during the global financial crisis 2007-2009 affect other banks in the system (Shin, 2009; Spatareanu et al., 2018).

Knowing the banking business, risk is inevitable. The banks cannot eliminate the risk, but it can be mitigated. Although regulators have come up with regulations and guidelines on bank liquidity one after another, it is still a hot topic to be discussed. Therefore, the study attempts to answer twofold questions, (i) What actually

drives the liquidity risk of a bank? and (ii) is there any non-linear relationship between profitability and liquidity risk? Growing literature shows profit of the banks at one end hinders liquidity risk. However, at the other end, the profit possibly promotes the liquidity risk. Thus, the study evaluates from the lens of liquidity position whether the banks should cautiously maintain the profit just enough or should increase their profit as much as possible. Thus, the banks need to adjust liquidity management strategies to accommodate the shifting dynamics while ensuring that robust risk management practices are implemented. Unlike most previous studies that focus on the linear relationship, the novelty and contribution of this study emphasize the effect of a non-linear relationship between profitability and liquidity risk of banks in Asia Pacific countries.

The rest of the paper is structured as follows. The study provides a brief survey of the literature on liquidity risk. Then, Section 3 explains the data and methodology. Section 4 exhibits the findings and discussion of the proposed model. Section 5 concludes.

2. Literature Review

This section discusses the related literature review on liquidity risk. In the first paragraph, the study discusses a theoretical literature review followed by empirical literature to support the relationship of potential determinants of liquidity risk. There are a few related theories explaining the relationship of potential determinants towards liquidity risk among others, risk absorption theory, financial fragility crowding out theory and too big to fail theory. Repullo (2004) and von Thadden (2004) explain the risk absorption theory and postulate capital is positively related to liquidity risk. This is due to the authors indicating banks that are highly capitalized hold less liquidity thus, greater liquidity risk exposure. The relationship shows that highly capitalized banks have less urgency to hold more liquidity as the banks have more capital to absorb sudden losses.

Diamond and Rajan (2000) oppositely conjecture a negative relationship between capital and liquidity risk based on financial fragility crowding out theory. The authors highlight that lower capital induces a lower liquidity position hence, greater liquidity risk exposure. The authors further emphasize that banks that have low capital would actively monitor their borrowers. This increases the capability of the banks to offer more financing. As a result, the banks would have low liquidity and become more fragile thereby vulnerable to the great liquidity risk. Similarly, Gorton and Winton (2000) and Gorton and Winton (2017) disclose that highly capitalized banks are less active in monitoring their borrowers. This crowding out deposits for financing, hence, increases the liquidity of the banks. Due to that reason, the banks become less fragile and thus less exposed to liquidity risk.

Another theory that is related to liquidity risk is the too-big-to-fail theory. The theory indicates that banks, especially large banks have more risk appetite due to these banks are confident that the regulators would bail them out in the case of failure (Stern & Feldman, 2004). The bailout policy encourages the banks to take more risk in this case, the liquidity risk. The following paragraph discusses the debatable empirical evidence on liquidity risk. Bank earns profit mainly through financing activities. Highly profitable banks increase the liquidity position of the banks. A bank can use profits as a reliable source of liquidity as they improve a firm's cash holdings, which in turn boosts its liquidity. Since the banks have more profits, these banks are possibly holding a significant amount of liquidity. Due to that, the banks most likely are less pressured to meet the demand withdrawal from the customers thereby, more exposed to liquidity risk (Al-Homaidi et al., 2019). In another vein, banks with high profitability tend to hold less amount of liquidity (Deléchat et al., 2012). This would result in greater liquidity risk exposure. Among others, the reason behind it is possibly due to the banks having good safety nets to cover for sudden liquidity shocks.

Many reasons may trigger the earnings of the bank, such as the decrease in net interest income, market pressure or due to the bank offering cheaper rates to meet the competition in the banking sector. It is because a bank holds a great amount of liquid financial assets in its portfolio beyond the amount needed. However, an excess of liquid assets may also harm the liquidity management of the bank (Matsuoka, 2018). According to Mashamba (2022), profitable banks in emerging market economies are less subject to financial constraints,

which means these banks can easily mobilize external financing when needed. Due to that reason, these banks tend to hold less liquidity thereby greater exposure to liquidity risk.

Ghenimi et al. (2021) discovered a positive relationship between credit risk and liquidity risk for both conventional and Islamic banks in the Middle East and North Africa (MENA) region. The authors further explain that the greater credit risk of conventional banks induces the majority of the depositors to withdraw their funds thus leading to greater liquidity risk exposure. As for the Islamic banks, the authors indicate that Islamic banks in the MENA region are highly reliant on the real estate sector. In the case of borrowers' default, it would result in greater credit risk hence, the banks tend to face less capability to meet the demand withdrawal from the customers. Roman and Şargu (2015) depict greater credit risk lessens the liquidity position of the banks thus, greater exposure to liquidity risk. On the contrary, Morina and Qarri (2021) find higher credit risk reduces the liquidity risk of the banks. This is possibly due to the banks that have greater credit risk having more liquidity to buffer for large withdrawal attempts from the depositors and thereby, less exposure to liquidity risk.

Mongid (2015) finds reduce in capital lowers the ability of the bank to buffer the possible liquidity problem that may harm the banking stability. This portrays lower capital of the bank caused higher liquidity risk exposure among the Islamic rural banks in Indonesia. The author further explains that liquidity risk is reduced when enhancing the leverage of the banks. This is because the banks tend to provide more liquidity to buffer for sudden shocks as they increase the leverage of the banks. This situation denies the negative statement that Islamic rural banks have a limited ability to absorb more funding. Increasing bank leverage induces a reduction of liquidity risk. Although the author is aware that an increase in leverage may pose a threat to the bank, the return for shareholders increases as the bank improves its leverage level. In addition, banks are more likely to rely on debt to finance their business. It is due to the nature of the banking business itself, wherein it receives deposits from the customer and afterward provides lending to the borrower. As a result, the bank has a larger capacity to absorb more funding hence, there would be more investment in liquid assets. As such, it enables the bank to create more liquidity of the bank and concurrently reduces the liquidity risk of the bank. Similarly, Ayed et al. (2021) discovered capital is negatively related to the liquidity risk of banks in the Middle East and North Africa (MENA) region. The relationship depicts that higher capital encourages the banks to hold more liquidity positions. This is possibly due to the banks that hold adequate amounts of capital are easier to hold high-quality liquid assets thereby, less exposure to liquidity risk. Zins and Weill (2017) evidence that Islamic bank holds more capital equity than their conventional peer. This is because Islamic bank lacks accessibility to the interbank market in vast countries and cannot rely on instruments such as derivatives and hedging tools as sources of their liquid funds. Due to this reason, an Islamic bank is highly exposed to face liquidity risk. As a result, Islamic bank tends to rely more on capital equity, and it is advisable to have lower short-term debt.

Calmès and Théoret (2014) discovered income from non-traditional banking businesses is more volatile compared to the traditional banking business. Better diversified banks are less exposed to vulnerable liquidity risk. This is because better-diversified banks are more flexible in managing unexpected liquidity problems (Baselga-Pascual et al., 2015). Hou et al. (2018) reveal that highly reliant banks on income diversification induce lower liquidity risk exposure. This is due to the banks that rely more on non-traditional banking businesses and less focus on financing activities. As a result, the banks can hold a buffer of liquidity thus, less exposure to liquidity risk.

According to Deari et al. (2022) bank size significantly influences the liquidity risk of the banks. The authors further indicate larger banks are good at managing their liquidity thus, less exposure to liquidity risk. This is because large banks hold more liquidity to buffer for sudden shocks. However, Riahi (2019) shows a positive relationship between size and liquidity risk. The author further emphasizes larger banks are exposed to the vulnerability of liquidity risk. This is due to the banks are risk appetite which, heavily involved in risky investment. Due to that, large banks are more prone to greater liquidity risk. Mashamba (2022) reveals small banks depend more on themselves in liquidity management by keeping large liquidity buffers probably because they have limited access to external funding. Thus, smaller banks are less exposed to liquidity risk. In other veins, Anginer et al. (2018) discovered large banks tend to hold less amount of liquidity due to these banks' belief that regulators would bail them out in the case of financial distress. Thus, these banks would

target low liquidity to hold consequently, greater exposure to liquidity risk. The relationship is in accordance with the theory of too big to fail (Stern & Feldman, 2004, Alfalah et al., 2022).

Deari et al. (2022) show a positive relationship between economic growth and liquidity risk. This indicates, that during the booming of the economy, banks tend to hold less liquidity possibly due to the banks disbursing more financing during the time. Because of that, the banks are highly likely to hold a low percentage of liquidity thereby, greater exposure to liquidity risk. Riahi (2019) discloses a similar point of view whereby, improvement of the economy leads to greater liquidity risk. During the downturn of the economy, banks hold more liquidity buffers thereby less exposure to liquidity risk. However, during the boom, these banks tend to hold a low liquidity buffer because of greater demand for risky financing (Acharya et al., 2011). This indicates the banks practice moral hazard to earn more during the booming economic condition. Due to that reason, the banks are highly likely to face greater liquidity risk during the booming of the economy. Given the inconclusive evidence, the study proposes the following hypotheses:

H1: There is a significant relationship between profitability and liquidity risk of the banks.
H2: There is a significant relationship between credit risk and liquidity risk of the banks.
H3: There is a significant relationship between capital and liquidity risk of the banks.
H4: There is a significant relationship between income diversification and liquidity risk of the banks.
H5: There is a significant relationship between the size and liquidity risk of the banks.
H6: There is a significant difference in liquidity risks between Islamic and conventional banks.
H7: There is a significant relationship between the economy and the liquidity risk of the banks.

3. Methodology

The study collects banks' financial data from the FitchConnect database of commercial banks comprised of Islamic and conventional banks. The yearly data were obtained from a sample of Asia Pacific countries that covers 10 years from 2011 to 2020. Due to data availability issues, the sample ends up with 9 countries namely Malaysia, Indonesia, Thailand, Brunei, Singapore, Philippines, Bangladesh, Pakistan and Kazakhstan. The unbalanced panel data consists of 2,116 observations from 285 banks. The main goal of the study is to examine factors that crucially influence banks' liquidity risk. Five (5) potential determinants were identified in the model explicitly; profitability, credit risk, bank capital, income diversification and bank size. Additionally, the model includes a type dummy to distinguish between Islamic and conventional banks as well as economic growth to control for country variations. Table 1 exhibits a list of variables employed in the model with the proxy and measurement.

Table 2: List of Variables and Proxies

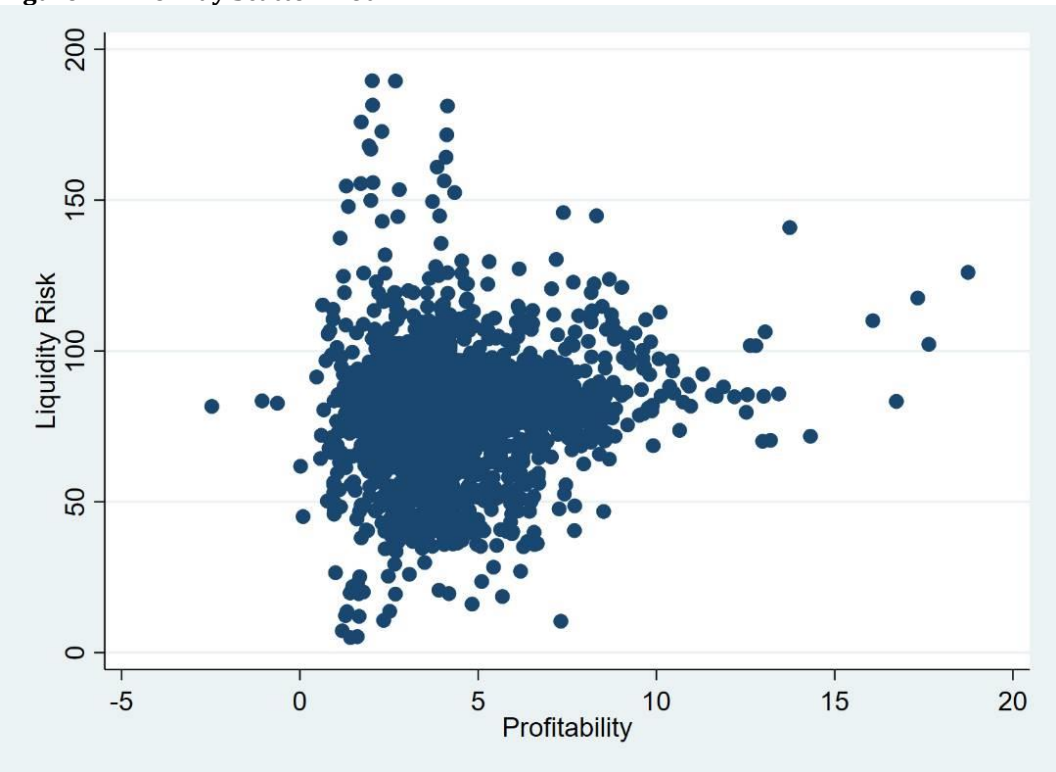
	Notation	Proxy Measurement	Sources
Dependent Variable			
Liquidity risk	LR	Loans to deposits and short-term funding (%)	Elbadry (2018); Jordà et al. (2021)
Independent Variables			
Profitability	PRO	Net interest income to average assets (%)	Deléchat et al. (2012); Hou et al. (2018); Zhang et al. (2021)
Credit risk	CR	Non-performing loans to gross loans (%)	Baselga-Pascual et al. (2015); Riahi (2019)
Capital	CAP	Equity to total asset (%)	Ghenimi et al. (2021); Hou et al. (2018)
Income diversification	YD	Non-interest income to gross revenues (%)	Cuong and Vinh (2019)
Size	SIZE	Total assets (USD billion)	Ayed et al. (2021)
Type	TYPE	1 = Islamic banks 0 = Conventional banks	Azmat et al. (2020); Bitar et al. (2017); Ibrahim (2020)
Economy	ECO	Gross domestic product (USD billion)	Mashamba (2022)

Figure 1 illustrates a two-way scatter plot between profitability and liquidity risk signals a probable of more than one regime of curve shapes. Hence, the study proposes a non-linear model of liquidity risk with a quadratic function of banks' profitability. The general equation of the proposed model is exhibited in Eq. (1).

$$LR_{it} = \beta_0 + \beta_1 PRO_{it} + \beta_2 PRO^2_{it} + \beta_3 CR_{it} + \beta_4 CAP_{it} + \beta_5 YD_{it} + \beta_6 SIZE_{it} + \beta_7 TYPE_{it} + \beta_8 ECO_{it} + e_{it} \quad \text{Eq. (1)}$$

The study conducts pre-testing to diagnose if there is any peculiarity in data that includes the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity, Wooldridge test for autocorrelation, variance inflation factor (VIF) test for multicollinearity and Fisher-type unit-root based on Phillips-Perron for stationary issue. Most importantly, preceding the non-linear model development, the study verifies the existing curve shapes of more than one regime with a U-test (Lind & Mehlum, 2010). The test aims to identify the presence of a U-U-shaped or inverse U-shaped relationship between the explanatory variable and the predictor on a specific interval. The null hypothesis of the test proposes a monotone or inverse U-shaped while rejecting the null allows the acceptance of the alternate hypothesis that proposes the existence of a U-shaped relationship. Further, the study proceeds with panel data testing to determine the most appropriate panel data estimation for the model. The study employs the F-Chow Test, Brush-Pagan Lagrange Multiplier (BPLM) test, and Hausman Test for the data testing.

Figure 1: Two-way Scatter Plot



4. Results

Prior literature discussion of banks' liquidity risk based on a linear model may not fully expose the key strategy in managing this risk. Predicting the existence of a non-linear relationship motivates the study to proceed with the proposed model to enlighten the body of knowledge on banks' liquidity issues as well as to provide practical solutions and strategies with regard to liquidity risk in banking.

Before the estimation, the study identifies heteroscedasticity and serial correlation issues that suggest the remedy of using standard error adjusted for banks cluster. There is no serious multicollinearity and unit root issue detected in the model. Random effect model (REM) with cluster adjusted standard error is embarked to

reveal insightful findings of Islamic and conventional banks' liquidity risks in the selected Asia Pacific countries.

The model developed in the study incorporates the quadratic function of banks' profitability on liquidity risk. Figure 2 displays the two regimes of curve shapes that imply a U-shaped relationship between profitability and liquidity risk where the relationship is negative for lower-earning banks while after a certain threshold, the relationship changes to be positive for higher-earning banks. To proceed with the quadratic regression model, it is expected that both profitability and its squared term must be statistically significant. Table 2 provides descriptive statistics and Table 3 portrays the estimation result for the quadratic model. The U-test for level and squared term profitability is statistically significant at the 1% level confirming the sample split as illustrated in Figure 2.

Figure 2: Two-way Scatter Plot with Two Regimes



Table 2: Descriptive Statistics

VARIABLES	OBS.	MEAN	MIN	P50	MAX	SD	SKEW.	KURT.
Liquidity risk	2,116	79.64	5.00	81.76	189.58	20.71	0.26	6.11
Profitability	2,116	4.22	-2.47	3.92	18.74	2.14	1.45	7.47
Credit risk	2,116	5.36	0.01	3.07	101.22	8.19	5.39	45.05
Capital	2,116	11.92	-1.03	10.63	49.17	5.99	2.07	9.97
Income diversification	2,116	24.81	-49.18	24.03	99.08	14.74	0.72	4.27
Size	2,116	15.35	0.05	3.40	430.00	43.40	5.89	43.27
Economy	2,116	490.59	12.61	340.44	1049.33	307.09	0.69	1.83

The final sample comprises 285 banks (Islamic and conventional banks) with 2,116 observations. The Wald-chi2 for the estimation is significant at a 1% level specifying a good fit model. While the study period covers 10 years, the unbalanced panel has an average of 7 years for each bank with a minimum of 3 years per bank. The random effect GLS regression reveals all predictors in the model are significant except for credit risk and bank type. The coefficient indicates a positive relationship between credit risk and liquidity risk, where banks with higher credit risk encounter greater liquidity risk. The relationship, however, is not statistically significant. Type dummy is also found to be insignificant to the liquidity risk of Islamic and conventional

banks. However, relatively Islamic banks have lower liquidity risk in comparison to conventional banks in these 9 sample countries.

As profitability is deemed to be a statistically important determinant in monitoring liquidity risks, banks in different regimes need to consider a unique strategy. As such, the estimation shows a significant relationship between profitability and liquidity risk in both level and squared terms. Extreme values obtained from the U-test are reported in Table 3 at 6.77. The extreme point indicates the turning point of the relationship between profitability and liquidity risk. The threshold reveals banks with profitability lower than 6.77 percent experience adverse effects of liquidity risk with lower profitability. Islamic and conventional banks in Asia Pacific countries that earn profits at a lower threshold need to secure higher profits to attain lower liquidity risk. The negative relationship between profitability and liquidity risk in the lower threshold is statistically significant at the 5% level. Banks with lower thresholds rely on profitability to lift banks image via stability to secure more deposits from customers. Sustain deposits from customers substantially improve banks' liquidity, thus lessening the exposure of liquidity risk (Alshammari, 2023). It is worth noting, that the mean and median of banks' profitability are approximately 4 percent (refer to Table 2). While the turning point is 6.77 percent, this empirical finding entails majority of the banks in the sample fall under the lower threshold with a negative relationship between profitability and liquidity risk.

Table 3: Quadratic estimation of banks liquidity in Asia Pacific

	COEFFICIENT		ROBUST STANDARD ERROR	Z
Profitability	-2.979	**	1.184	-2.520
Profitability^2	0.220	***	0.081	2.710
Credit risk	0.123		0.084	1.460
Capital	0.637	***	0.167	3.810
Income diversification	-0.218	***	0.053	-4.100
Size	0.027	**	0.011	2.480
Type	-0.656		2.566	-0.260
Economy	0.013	***	0.004	3.720
_cons	77.002	***	5.614	13.720
Number of observations	2,116			
Number of groups	285			
Min. observation per group	3			
Avg. observation per group	7			
Max. observation per group	10			
Wald chi2(8)	93.53	***		
U-test t-value	2.60	***		
Extreme point	6.77			

Note: ***, ** and * indicate 1%, 5% and 10% significance levels.

Oppositely, the remaining banks that earn a profit of 6.77 percent or more would procure a positive effect on liquidity risk with lower profitability. The null hypothesis for the upper threshold can be rejected at a 1% significant level. Banks in this upper threshold encounter greater liquidity risk with higher profitability. Financing activities are undoubtedly the core business that contributes to the main earnings for both Islamic and conventional banks. Banks with high profitability are pressured to sustain earnings and would be prone to offer extensive amounts of financing. Excessive financing activities jeopardize banks' liquidity as the bank is exposed to higher liquidity risk. Banks with greater profits, above the threshold are susceptible to the moral hazard issue when the banks are willing to accept more risk to earn greater profits (Acharya et al., 2011). Strategically, banks with higher profits need to be more cautious about financing and lending activities to manage an acceptable level of liquidity risk. Despite, solely focusing on the profit's agenda, banks must scrutinize the financing activities with careful and prudent assessment.

While relying too much on financing activities causes to liquidity trade-off, banks alternatively could consider income generation from other business activities via income diversification. Finding in Table 3 finds a significant negative relationship between income diversification and liquidity risk. The alternate hypothesis

can be accepted at a 99% confidence interval. The result infers that Islamic and conventional banks of the sample countries can ascertain lower liquidity risk by focusing more on income diversification activities. Alternative income generation activities for banking business revolve around fees, charges, commissions and interest and/or dividends from financial investment. While most of these activities involve liquid assets, having more income diversification secures banks' liquidity level, thus lowering liquidity risk (Hou et al., 2018). On the contrary, banks with less diversified portfolio have to count on financing and lending activities for income generation which later lead to greater exposure of liquidity risk.

Bank capital and size are also found to be essential in controlling liquidity risk for Islamic and conventional banks in the selected Asia Pacific countries. The positive relationships are statistically significant at 1% and 5% significant levels for capital and size respectively. The findings imply the moral hazard theory of too big-to-fail for large banks with huge capital. Banks with high capital are vulnerable to liquidity risk. Similarly, banks with huge amounts of assets maintain a low level of liquidity and are exposed to greater risk. These banks are inclined to take more risk in their decision-making with the mindset that big and well-capitalized banks have a high potential for bail-out, should the bank face unfortunate events (Anginer et al., 2018). Meanwhile, banks with lower capital have less liquidity risk. The same goes for small banks when these banks need to be more careful in their business decision-making to avoid any unprecedented situation. Small banks and banks with lower capital maintain their liquidity at an acceptable level to avoid unmanageable liquidity risk (Mashamba, 2022).

Last but not least, the model includes economic factors as a control variable to capture variation and heterogeneity issues between countries. Interestingly, the estimations discover economic condition as a determining factor that significantly influences banks' liquidity risk. The positive relationship is statistically significant at the 1% level. A country with promising economic growth stimulates massive business opportunities. With the pro-cyclical concept, banks yield on the economy to generate more business to boost income (Deari et al., 2022). Offering more financing and lending activities to the market source to greater liquidity risk for the banks. During a deficit period, the pro-cyclical theory suggests lesser business financing, thus minimizing bank liquidity risk.

5. Conclusion

The study attempts to investigate banks' fragility specifically by focusing on banks' liquidity risk. While liquidity risk is certain for banking business, it is crucial for both Islamic and conventional banks to fully comprehend the issue and come up with effective mitigating strategies. The study samples nine (9) Asia Pacific countries that include both Islamic and conventional banks for the model estimations. Primarily, the study aims to examine the critical elements that play as driving forces to bank liquidity. On top of that, the study conjecture banks with different level of profitability implement different strategies to maneuver banks' liquidity risk, hence introducing squared term for banks' profitability in the model. The quadratic model is predicted to provide insightful knowledge on banks' liquidity, hence fruitful for banks' decision-making with regard to liquidity management.

The findings disclose profitability, capital, income diversification, size and economic condition play vital roles in designing banks liquidity management. The quadratic function of profitability empirically suggests the two (2) regimes of curve shape on the relationship between profitability and liquidity risk. Expectantly, lower-margin banks strive to earn higher profits to minimize liquidity risk. In contrast, higher-margin banks have more flexibility and less reliance on illiquid investment activities such as financing and lending, to mitigate liquidity risk. Nevertheless, banks on this threshold, are highly likely to compromise their liquidity level to earn more via financing activities. Intervention and monitoring from regulatory bodies in each country are of the essence to dampen the moral hazard issue among higher-margin banks.

In a similar vein, banks with prominent capital and assets size, are comfortable holding lower liquidity levels as the banks are likely to endanger the moral hazard issue of too-big-to-fail. In this sense, Islamic and conventional banks must reckon on the adequate value of capital and assets to minimize banks' liquidity risk. Optionally, banks focus on income diversification to lower liquidity risk by providing alternative investment activities diverting from illiquid financing activities to more liquid assets. Islamic and conventional banks are

anticipated to strategies on alternative business and investment activities to strengthen the bank liquidity level.

The study empirically concludes the Islamic and conventional banks in the selected Asia Pacific countries adopt the pro-cyclical theory when it comes to the country's economy. During booming economic conditions, there is a high stimulation of economics and business activities, leading to greater opportunities for financing and lending activities. In pro-cyclical theory, banks would favorably seize the opportunity to earn more with the trade-off of bank liquidity level. Contrariwise, banks are more reserved in financing and lending activities during economic downturns, hence minimizing liquidity risk.

The study recognizes the limitation of the investigation mainly on the data availability. Due to missing values and outlier detection, the observations shrink to the final number of observations with nine (9) remaining countries. Given vast future data availability, future research may consider splitting the sample between Islamic and conventional banks to anticipate distinct strategies between the two (2) groups of banks in Asia Pacific countries.

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The Determinants of Customer Satisfaction towards Muslim-Friendly Healthcare Service Deliveries: A Conceptual Model

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Abstract: The global need for hospitals that adhere to Islamic principles and accommodate the specific needs of Muslim patients is increasing. Hence, in light of the highly competitive landscape of the healthcare industry and the imperative for hospitals to sustain their profitability while delivering sufficient and excellent healthcare services to the community, management must exhibit prudence in addressing this evolving attitude. In solving this issue, this study intends to identify the appropriate determinants of customer satisfaction pertaining to the service deliveries offered by healthcare providers that are desired by Muslim patients and their carers, while adhering to Islamic medical ethics and Shariah requirements. A systematic literature review approach was utilized to examine the appropriate features of Muslim-friendly healthcare practices and their mechanisms. The thematic analysis of the reviewed papers revealed eight potential determinants of customer satisfaction which are Halal pharmaceuticals and medical equipment, Islamic facilities and amenities, proficient personnel, empathy and supportive staff, compliance and supportive hospital policy, welcoming Islamic settings, reasonable and suitable pricing, and Islamic work culture. The results are anticipated to stimulate policymakers in Malaysia, as well as other nations with an interest in the matter, to implement the suggested practices through the enactment of favorable legislative measures. This study contributes to the body of knowledge by illuminating the antecedents of customer satisfaction, resulting in a practical model that can be used by Muslim-friendly healthcare providers to formulate strategies and policies to reduce the financial and business risk due to unsatisfied customers' reactions. Subsequently, achieving the United Nations Sustainable Development Goals of good health and well-being (Goal 3) and peace, justice and strong institutions (Goal 16).

Keywords: *Healthcare Services, Muslim Patients, Customer Satisfaction, Systematic Literature Review*

1. Introduction

Mordor Intelligence (2022) reported that Malaysia is among the top 5 destinations of choice for medical tourism markets in Asia-Pacific besides Thailand, India, Singapore and South Korea. This achievement has further proliferated Malaysia's medical tourism market to become one of the top six Muslim travel destinations in the world together with Indonesia, Saudi Arabia, United Arab Emirates, Turkey, and Qatar as reported in the Global Muslim Travel Index 2023 by MasterCard-Crescent Rating (2023). These outstanding accomplishments were reflected in Malaysia's Medical Tourism Industry achievements in attaining a cumulative revenue of 1.7 billion in 2019 and is expected to expand steadily reaching a projected annual revenue of RM2 billion in 2025 (Malaysia Healthcare Travel Council, 2021). These attainments are also the results of the rise in the number of Muslim medical tourists who choose to visit Malaysia in pursuit of exceptional healthcare services that align with the principles and values of Islam (Malaysia Healthcare Travel Council, 2021).

Despite the potential profitability of this sector, the integration of Muslim-friendly healthcare services presents notable challenges, namely in reconciling Islamic medical ethics with the individualized needs of Muslim medical tourists. These difficulties have a broader scope beyond linguistic aspects and encompass complete viewpoints, including concepts related to health, disease, recovery, and death, which have a significant impact on the overall quality of healthcare interaction. Variations in the foundational views that influence the criteria for hospital services might arise as a result of the heterogeneous educational, religious, and cultural experiences of individuals. Hence, understanding the precise determinants of healthcare service deliveries pertaining to Muslim-friendly medical care holds significant relevance for hospital employees, patients, and the Muslim community at large.

Henceforth, the objective of this study is to examine the appropriate determinants for Muslim-friendly healthcare service delivery that align with Islamic principles, as well as the preferred environment for Muslim

patients and their carers. The utilization of a comprehensive literature review methodology is employed to examine the various elements and sub-elements of hospital practices that align with Islamic principles, to identify the underlying mechanisms that support each element. Ultimately, a conceptual model on customer satisfaction towards Muslim-friendly healthcare service deliveries will be proposed to serve as the guidelines for the industry.

2. Understanding the Issue

The field of Islamic medical ethics is closely associated with Islamic Law (Sharia), which classifies activities into many categories including compulsory, forbidden, recommended, discouraged, and authorized (Padela, 2007). Due to the individual and cultural variations inherent in Islam, the provision of healthcare services that cater to the specific needs of Muslim patients might provide challenges, as the responsibility for religious observance is primarily placed on individuals. Therefore, it is crucial to understand the most effective strategy for addressing the requirements of this significant population to ensure the inclusive and sustainable development of the Muslim-friendly medical tourism industry.

Hence, it is imperative in the current Muslim-friendly healthcare complex context that healthcare providers prioritize the provision of service delivery and an environment that aligns with Islamic principles, thereby meeting the demands of Muslim patients and their carers. Furthermore, it is imperative to guarantee that the service offered adheres to the principles of Islamic teachings as dictated by the Al-Quran and Sunnah, thereby ensuring their compliance with Halal requirements. According to Al-Qaradawi (2013), the term "halal" denotes an entity or action that is deemed to be in accordance with the principles of Shariah and aligns with the tenets of the Islamic faith. Hence, a service system that adheres to Shariah principles must impose strong limitations on physical contact, to the extent that any form of touching between unrelated individuals of different genders is prohibited. According to Al-Shahri (2002), it is recommended that Muslim patients receive medical treatment exclusively from health personnel of the same gender. In cases where this is not possible, it is suggested that opposite-gender patients undergo inspection or treatment in the presence of an adult relative.

Unfortunately, the issue around appropriate hospital practices and the desired environment for Muslim patients and their carers and the consequential impact on customer satisfaction remains ambiguous. Therefore, this study's objective is to examine and propose a conceptual model that addresses the pragmatic aspects of customer satisfaction in the context of healthcare services tailored to meet the needs of Muslim individuals.

3. Methodology

To ensure a methodical, comprehensive examination and synthesis of pertinent research, a systematic literature review (SLR) approach, was employed to maintain a structured, transparent, and rigorous methodology throughout each phase of the investigation. The review protocol employed in this study was the Preferred Reporting Item for Systematic Reviews and Meta-Analyses (PRISMA) technique. During the period of identification, various terminologies were employed, including Islamic hospital, Shariah-compliant hospital, Muslim hospital, Islamic-friendly hospital, and Islamic medical care. A total of 156 publications were selected for inclusion in the study based on a comprehensive search conducted throughout the Scopus, Web of Science, and Google Scholar databases. Following a thorough process of identification, screening, eligibility assessment, and inclusion, only seven papers (Zailani et al., 2016; Rahman et al., 2021; Shariff et al., 2018; Rahman et al., 2018; Ratnawati et al., 2020; Rahman et al., 2017; Zawawi & Othman, 2018) that meet the selection criteria were selected and underwent content analysis, through which the study successfully identified the elements and contexts of an Islamic-friendly hospital environment that are sought after by Muslim patients and their carers.

Subsequently, following the thematic analysis conducted, eight potential components and viewpoints relevant to Islamic-friendly hospital service delivery requirements desired by Muslim patients were established from the patterns of work reviewed. The identified elements serve as the cornerstones of the proposed Muslim-friendly customer satisfaction model. The identified components are Halal pharmaceuticals

and medical equipment, Islamic facilities and amenities, proficient personnel, empathy and supportive staff, compliance and supportive hospital policies, welcoming Islamic settings, reasonable and suitable pricing, and Islamic work culture.

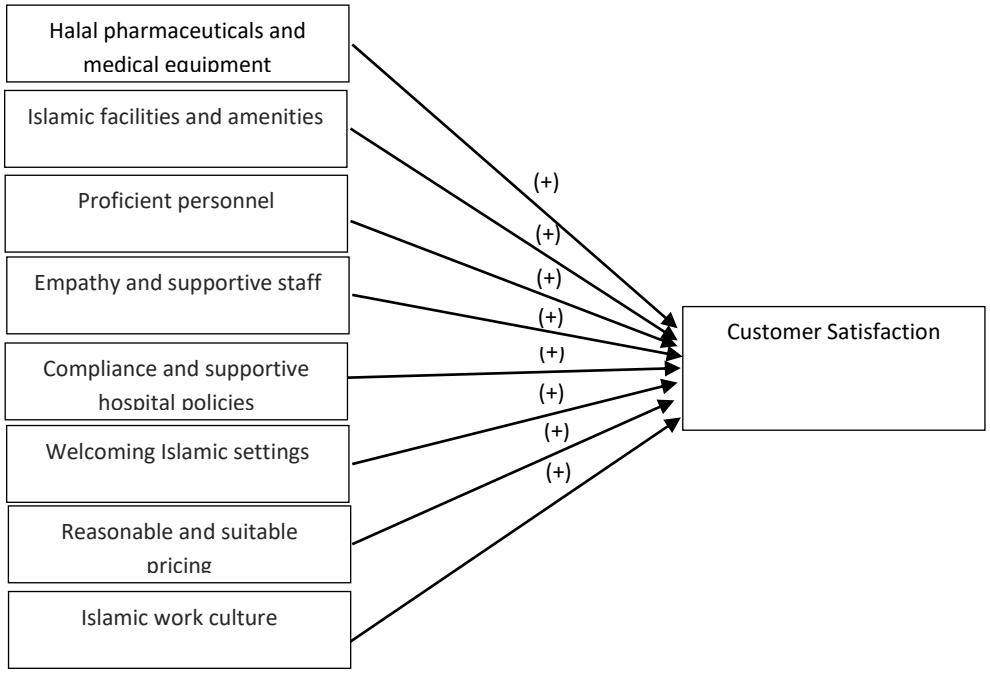
Based on the findings, there are eight essential requirements that hospitals must meet. First and foremost, empirical evidence supports the notion that fulfilling the prescription requirements for Halal pharmaceuticals and Halal medical equipment is a paramount necessity for Muslim patients. Patients must be advised of the components of the prescription medication and any potential negative effects by the healthcare professional. Secondly, hospitals must address the requirements of patients and carers by providing Islamic infrastructure that includes adequate prayer facilities and amenities, such as a tayammum kit, praying mat, and directions. Thirdly, medical personnel must demonstrate proficiency in delivering healthcare services to patients of the same gender, as well as when gender-specific therapies are required. Additionally, the inclusion of family members or nurses during the treatment process should be consistently implemented. The fourth component of the requirement is demonstrating empathy and providing support to both patients and their families. In addition, it is recommended that the hospital allocate nursing personnel or staff members to assist immobile patients or those with urinary catheters in maintaining personal hygiene before engaging in prayer rituals.

The fifth requirement pertains to the assurance that the hospital's medical services align with the criteria for Islamic medical care. Ensuring compliance and supportive hospital policies necessitates the commitment and engagement of top management. Following that, the sixth factor emphasizes the cultivation of welcoming Islamic settings. Therefore, it is imperative to prioritize the provision of Halal meals, products, and services. The seventh factor that ought to be implemented by Muslim-friendly hospitals encompasses the provision of services that are both cost-effective and easily accessible. To accommodate Muslim patients, hospitals should ensure that they implement equitable and suitable pricing for medical treatments. To facilitate patients in making well-informed decisions, it is imperative to furnish them with comprehensive treatment information and associated expenses.

The final components pertain to the cultural dynamics within Islamic work environments. To improve the quality of healthcare and the overall happiness of Muslim medical tourists, healthcare institutions should prioritize the recruitment of competent, supportive, empathetic, accommodating, and attentive healthcare professionals and administrators within an environment that promotes a hospital culture conducive to the needs and preferences of Muslim patients.

Theoretical Model and Propositions: The aforementioned characteristics encompass a broad array of components that serve as crucial factors in the creation of a hospital that is accommodating to the needs and preferences of Muslim patients and their carers. They serve as fundamental components that attract patients and their family members, encouraging them to return for future medical treatment or consultations. The following model depicts the essential attributes considered in the construction of the conceptual model for assessing customer satisfaction with healthcare services that are tailored to meet the needs of Muslim individuals.

Figure 1: Proposed conceptual model



Given the implications of the proposed conceptual model and the traits that have been observed, further research is needed to analyze and understand the impact of the determinants on customer satisfaction towards Muslim-friendly healthcare service deliveries. Figure 1 illustrates the conceptual model developed to have a better understanding of the relationship between the determinants and customer satisfaction. Tentatively, the following eight propositions are proposed based on the conceptual model:

- Halal pharmaceuticals and medical equipment have a significant positive effect on Muslim-friendly healthcare customer satisfaction.
- Islamic facilities and amenities have a significant positive effect on Muslim-friendly healthcare customer satisfaction.
- Proficient personnel have a significant positive effect on Muslim-friendly healthcare customer satisfaction.
- Empathy and supportive staff have a significant positive effect on Muslim-friendly healthcare customer satisfaction.
- Compliance and supportive hospital policies have a significant positive effect on Muslim-friendly healthcare customer satisfaction.
- Welcoming Islamic settings has a significant positive effect on Muslim-friendly healthcare customer satisfaction.
- Reasonable and suitable pricing has a significant positive effect on Muslim-friendly healthcare customer satisfaction.
- Islamic work culture has a significant positive effect on Muslim-friendly healthcare customer satisfaction.

4. Conclusion

The main aim of this study is to develop a conceptual model that can be utilized to identify the factors that affect customer satisfaction in the context of healthcare practices that are compatible with Muslim beliefs and practices. Although previous research has explored several aspects of customer satisfaction, there is a dearth of scholarly investigation into the domain of Muslim-friendly healthcare practices. This study fulfilled the existing theoretical gap and mitigated the disparity in research coverage by examining the factors that influence customer satisfaction towards Muslim-friendly healthcare practices, utilizing the systematic

literature review methodological approach. In this study, the systematic literature review was employed to establish the foundational basis for the proposed conceptual model.

This study additionally functions as a foundation for future research endeavors and encourages further intellectual dialogues aimed at refining and scrutinizing the proposed hypotheses. With the establishment of the conceptual model, the subsequent phase entails conducting comprehensive literature reviews and substantiating the hypotheses through the examination of case studies or practical research. Further investigation is necessary to validate and augment the proposed conceptual model. Therefore, it is recommended that future research initiatives prioritize the incorporation of qualitative and quantitative research approaches to examine the correlation between the factors that influence consumer satisfaction with Muslim-friendly healthcare practices. To establish the validity of the conceptual model, it is strongly recommended that future research should integrate perspectives from both practitioners and academia.

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Nisab of Zakat and Zakat Contribution: A Conceptual Model

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Abstract: Zakat distribution has a positive correlation with its collection. Thus, a higher collection of zakat will positively impact the distribution amount and reach a bigger pool of zakat recipients. However, some external constraints in its collection could likely have an adverse impact on its collection, especially the effect of the macroeconomic factors. It becomes crucial when the increase in the price of gold (one of the primary commodities used as a nisab benchmark for zakat in Islam) is claimed to negatively influence the collection and allocation of zakat to the respective recipients. Therefore, this study aims to investigate whether the high and low value of nisab due to the fluctuating price of gold in the world market could negatively influence the zakat collection and indirectly affect all the recipients, especially the poor and needy. In achieving this aim, this study will utilize a structured self-administered questionnaire to study the awareness of Muslims on the nisab of zakat and its influence on their zakat payments. It is still relatively rare to find any research on the awareness of the nisab of zakat and its relation to the zakat contribution. One past econometric study concluded that a higher nisab leads to a lower zakat collection. The findings of this proposed study could complement that previous study and hence be justifiable due to its significant impact on the recipients of zakat (*asnaf*) as the main stakeholders.

Keywords: *Zakat, Nisab of Zakat, Zakat Recipients, Zakat Payment, Asnaf*

1. Introduction and Background

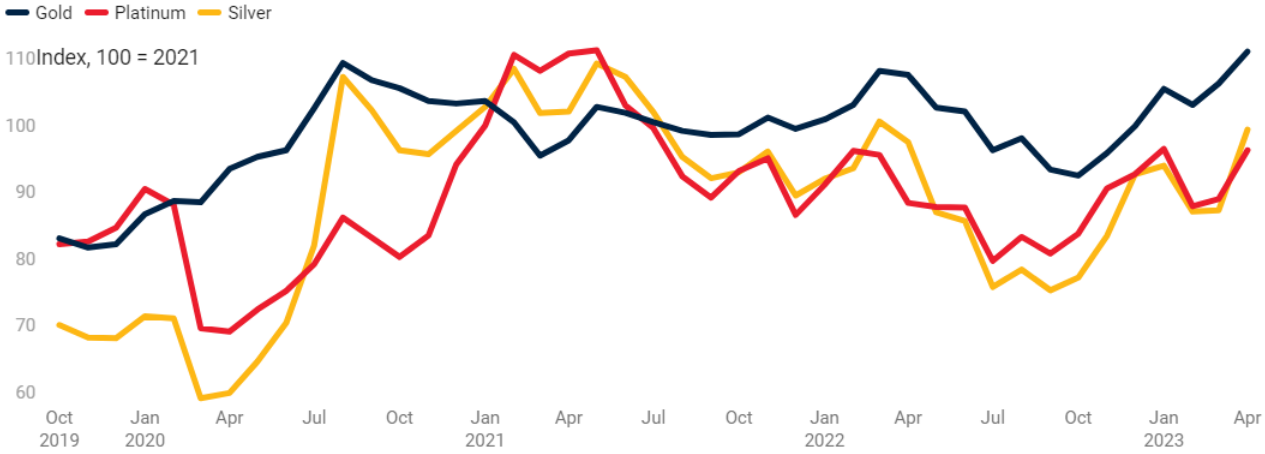
The value of the yearly nisab for zakat is highly dependent upon the market price of silver and gold, mainly based on its supply and demand in the global market. The rise and fall in the value of both commodities will significantly impact the amount of nisab in that particular year. This proposition is supported by the reduction in the price of silver, as recorded by the London Bullion Market Association and the Bureau of Labor Statistics (2016). Therefore, for countries that use silver as their determination of nisab for zakat, there should be an increase in the amount of zakat collection and distribution to the low-income category of asnaf. However, this condition harms the lower income group by making them into the category of the zakat payers instead of zakat recipients. As a result of this probable situation, will contrast the objectives of shariah *(maqasid shariah)* behind the legislation of zakat as outlined in both the Quran and Sunnah (Kahf, 1989; Mat Isa, 2013).

For example, low-income earners' monthly and yearly incomes were estimated to be between RM700 to RM900 or RM 8,400 to RM 10,800, respectively (JPA Malaysia, 2011). If we use silver as Malaysia's nisab benchmark, the current nisab amount will be RM1826.65 (Lembaga Zakat Selangor, 2016). Therefore, it is now possible to reclassify them as part of the zakat payer group, even though they should have been rightfully put under the 'poor and needy group'. Hence, the issue of fairness and justice should be considered, where zakat should become a mechanism of welfare in the development of the Islamic nation and not the other way round (Al Qaradhawi, 1999; Mat Isa, 2013).

The statistical data released by the World Bank (Figure 1) showed an unstable performance of gold and silver (Paolo & Muneeb, 2023). It shows gold has decreased in value from around January 2022 until the end of 2022 and has increased its value in early 2023. This unstable situation led to doubts about its dependability and reliability, even though gold was known as the most stable item compared to other commodities (Meera, 2002; Yaacob, 2009; Yousef & Shehadeh, 2020). According to Browne, Abbriano and Lockwood (2015) and

Lin & Xu (2019), as long as the items are classified as commodity items, they can't avoid being involved in rigorous market activity. This shows that any kind of activity that might contributed to the downfall of the price of silver or commodities will also probably happen to the price and value of gold.

Figure 1: World Gold Market Price (2019-2023)



Source: World Bank

International Muslims Organizations such as the Majlīs Taḥqīq Masāil Ḥaḍirah Muslim, which is a Muslim Council of Pakistan, have decreed that the rise and fall of gold price will have a significant impact on the nisab benchmark and the zakat collection. The council also emphasized that the discrete increase in the price of gold would contribute towards a lower payment of zakat. This disparity will result in creating a begging culture, which is forbidden in Islam (Mahmud & Shah Haneef, 2008; Sadeq, 2004; Senawi, 2018; Senawi & Mat Isa, 2016). This corresponds with the claim that the value of nisab will substantially impact the zakat collection.

In addition, Khaf (1989) and Sadeq (2004) analyzed macroeconomic factors' direct and indirect influence on the zakat collection. It was concluded that the country's GDP growth had stimulated individual earnings and hence indirectly provided a broad capacity for individuals towards their obligations in the payment of *zakat*. Hence, a considerable amount of higher earnings tends to lead to a higher *zakat* collection (Al-Jarhi & Zarqa, 2007; Mohammed Yusoff, 2006; Mankiw, 2004).

As expected, the price of gold and its nisab value controversy will eventually result in the exploitation of the poor recipient and the reduction in the *zakat* collection. Therefore, studying Muslim awareness concerning this issue is essential to justify and complement the past econometrical work, which justified that the nisab of zakat has a role in influencing the zakat collection. Therefore, this study has been conducted to justify the awareness among Muslims regarding their zakat contribution due to the changes in the nisab amount. The remaining segment of this study is followed by the literature review, where the conceptual framework will be customized to facilitate understanding of this study and, finally, the conclusion.

2. Literature Review

Nisab of Zakat: Fulfilment of the nisab is considered one of the main prerequisites for the obligatory payment of zakat on wealth and property in Islam. Complete property ownership is another example of the main requirement for zakat payment. As stated by one great Muslim classical scholar, Ibn Nujaim (n.d.), the absoluteness of ownership is exclusivity to the owner. No one has any share in it (except Allah Taala as the ultimate owner and creator of everything); only the owner has the authority to transact or do whatever he or she deems fit with it. Hence, if the right of ownership is incomplete, such as the undelivered goods and merchandise, then zakat is not compulsory. For that reason, absolute ownership gives the owner the right to benefit from the property.

Furthermore, human beings in general and Muslims in particular as servants of Allah should acknowledge the grace of Allah, and the payment of zakat is a minimum expression of gratefulness for the countless blessings and grace from the almighty (Al Qaradhawi, 1999). The past research hypothesized that if the gold price increases, the nisab value would also rise accordingly. Therefore, it leads to the deterioration of the zakat collection and creates a begging culture in the community. On the other hand, if the gold price reduces, the nisab of zakat will also be decreased(Omar, 2020; Senawi et al., 2021; Senawi, 2018). As a result, it may lead to more enormous zakat collections; however, a low nisab amount has an adverse impact in terms of including the poor and needy in the group of zakat contributors instead of remaining as its recipients (Kahf, 1999; Sadeq, 2004).

Furthermore, another empirical research indicates that the more considerable nisab value lessens the zakat collection (Senawi & Mat Isa, 2016). Hence, Muslims must have at least some simple idea about general zakat and nisab. By comparing people with less knowledge of nisab, those with a better level of understanding have a greater awareness of the payment of zakat. Furthermore, Zulkifli & Sanep (2010) pointed out that a good comprehension of zakat significantly affects the obligation of zakat payment.

Awareness of Nisab of Zakat: In most cases, awareness of the nisab of zakat is considered the main factor contributing to zakat payment because human behavior factors are related and can impact human social behavior (Michell & Al-Mossawi, 2015). Religiosity differs from spirituality. Spirituality seeks to connect with what is considered a remarkable immaterial reality, and religiosity is the observance of the external form of specific religious traditions (Shukor & Jamal, 2013). On the other hand, Ismail and Abidin (2020) concluded that religiosity level and religious knowledge were the two most crucial factors in the awareness of zakat on income among professionals. Ajzen, I., & Fishbein (1980) reported that a person's attitude towards his behavior depends on his beliefs. This is in line with the findings of Sapingi et al. (2011), who reported that only attitude and behavior control have an essential relationship with the intention to pay zakat. Al Jaffri Saad and Haniffa (2014) emphasized that intention is the essence of obedience to zakat. Thus, according to behavioral intentions, subjective norms and attitudes will affect the intention to pay zakat (Ajzen & Fishbein, 1980).

Similarly, Nur Barizah and Hafiz Majdi (2010) also found that religion determines the zakat payment on income and shows a positive correlation. Likewise, Idris et al. (2012) discovered that the evaluation of components of religious belief has a broad spectrum. The study has also found that highly religious business owners are more likely to abide by zakat's payment, and religious beliefs play an essential role in obedience to zakat.

3. Income Group of Classification

The World Bank classified Malaysia as an "Upper-Middle-Income" country. This classification is based on the country's GNP per capita (The World Bank, 2023). They are categorized into distinct population categories based on family income levels (Department Of Statistics Malaysia, 2022).

B40 (40 %): The B40 category comprises the bottom 40% of income-earning households. These are often lower-income households that may experience financial difficulties in satisfying their fundamental necessities. This group is frequently targeted by government assistance and social welfare programs to reduce poverty and enhance their living conditions. In Malaysia, the B40 group, representing the bottom 40% of families in terms of income, is frequently subdivided into other subgroups.

a. Lower B40: This subset represents the B40 category's lowest-income households. They often have the fewest financial means and may be more vulnerable to poverty.

b. Middle B40: This subgroup contains households with slightly greater earnings than the Lower B40 but within the B40 income range. They may have slightly better financial stability but still face financial difficulties.

c. Upper B40: This category includes households with earnings close to the B40-M40 income threshold. They have greater salaries within the B40 category and may be in a different economic situation than the Lower B40. This subgroup could be considered the zakat contributor in this study.

M40 (Middle 40%): Regarding income, the M40 category comprises the middle 40% of households. These households have modest incomes and are classified as middle-class. They may not encounter severe financial difficulties but must carefully budget and manage their resources. Indeed, this group is categorized as a zakat contributor.

T20 (Top 20%): The T20 group comprises the top 20% of income-earning households. Compared to the rest of the population, these households have relatively high income levels. They are often regarded as prosperous, with more financial means to invest and spend on non-essential products.

4. Conceptual Framework

The literature review serves as a valuable resource for establishing the conceptual framework of this study, offering guidance and insights into its development. The aforementioned constructs were determined to be pertinent in achieving the aims of this study, which focused on investigating the correlation between the categories of people's background, the nisab of zakat, and zakat contribution, particularly within the context of Malaysia. The framework below illustrates the dimensions that were discussed above.

Figure 2: Proposed conceptual framework.

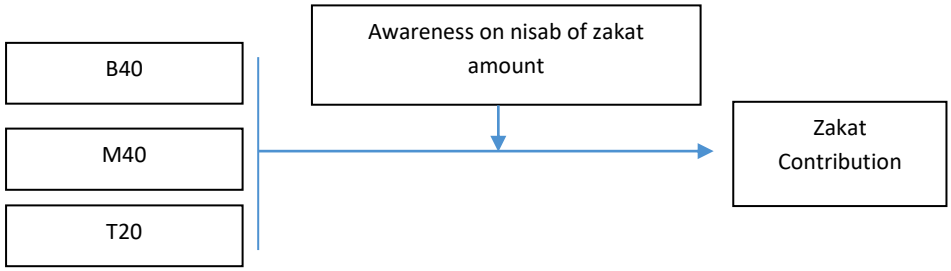


Figure 2 illustrates the conceptual framework developed to understand better the relationship between the category of people's background, the nisab of zakat awareness as the moderator, and zakat contribution as the dependent. Tentatively, the following proposition is proposed based on the conceptual framework:

- Nisab of zakat awareness has a significant positive effect in moderating the people's financial background on zakat contribution.

5. Conclusion

This paper aims to establish that Muslims' awareness of the amount of nisab (minimum amount) on wealth and properties will significantly impact the payment and collection of zakat by the zakat collection and distribution centers nationwide. It is assumed that the increase in the price of gold and silver in the world commodity market will have an adverse impact on the collection of zakat and eventually lead to the unintended result of transforming the poor and needy zakat recipients into zakat payers neither due to any significant changes in their earning status nor increase in income level but mainly because of the fluctuations in the price of gold and silver. This study provides information regarding the relationship between the nisab of zakat and the zakat collection. With this finding, the awareness of Muslims on zakat contribution could be identified and enriched further to optimize the zakat collection without burdening the low-income zakat contributor.

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Determinants of Non-Performing Loans: Evidence from Malaysia

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Abstract: Financial institutions worldwide have huge dangers in non-performing loans. Hence, they are required to review their lending policies. The default loans also lead to massive losses on banks and decreased economic growth. Therefore, non-performing loans are a predominant concern that affects financial markets and banking industry suitability. The rise in non-performing loans has an adverse impact on the banking sector. Therefore, understanding the determinants of non-performing loans is critical to safeguard the overall economy's productivity. Motivated by this scenario, this study investigates the determinants of Non-Performing Loans in Malaysia's banking system. Inflation Rates, Lending Interest Rates, Real Interest Rates, Gross Domestic Product, Gross Domestic Saving and Unemployment Rates are the variables used and collected yearly from 1988 to 2020, consisting of 33 observations for each variable. The method used for data analysis in this study is multiple regression analysis. The research results revealed that Gross Domestic Product, Gross Domestic Saving, and Unemployment significantly explained Non-Performing Loans in Malaysia. The findings have important implications for policymaking, besides adding new knowledge to the existing literature.

Keywords: *Financial Institutions, Borrowers, Non-Performing Loans (NPLs), Macroeconomic Factors.*

1. Introduction and Background

Various studies have been done on loans and different aspects of the loans offered by commercial banks, including the issue of qualification of the loans. Similarly, the issue of NPLs has recently attracted different groups in society, including policymakers, bankers and analysts. The NPLs are an issue that has become very prevalent over the years and can influence the changes in the budgetary markets dependability and sustainability in the banking industry. In the current economic structure, the banking sector is defined as the blood circulation that flows from the heart in the form of capital and circulates to the entire economic system (Karcheva, Chibisova and Pantielieieva, 2020). Banks act as an entity or the third party between depositors and borrowers. The role of banking sectors in accommodating the overabundance of funds from depositors to borrowers has aided the country's cash flows and economic growth. According to Mäkinen & Solanko (2018), borrowing and making loans are vital to the banks. This ensures that the institution's gathered funds can keep on operating. In addition, the banks generated revenue from interest rates through the continuous money supply to their borrowers and clients. It is prudent to note that commercial banks can make revenues and income when more loan facilities are extended to the customers and the clients. This is because the bank creates more revenue with increased loans extended because of the cost of capital or interest charged on such facilities. A study by Abel (2018) deduced that loans produced massive interest revenue, which became a significant measure of financial performance and stability. Therefore, banks play an important role in supporting the economy's resilience through financial institutions whereby the raised capital is granted to make the utmost revenue.

Regardless of the financial intermediaries' role, they are expected to maximize profits while minimizing risk to promote inclusive economic growth. Previous studies investigate the key macroeconomic determinants of NPLs in Romanian and Albanian banks (Adeola & Ikpesu, 2017). The studies have concluded that failure in managing loans has generated the largest portion of banks' assets, which simultaneously caused an increase in the NPLs. This may lead to a decline in the bank's performance and dampen the economic growth. For that reason, banks should monitor NPLs effectively to keep the slightest impact or no adverse effect on their operations.

Following the usual practices, all banks' credit disbursed is not fully collected. Thus, it is hard to assume that the disbursement of credits is risk-free. In other practices, part of the mortgage books was uncollectable, jeopardizing the bank's financial sustainability, and resulting in an increase in NPLs. The enormous number of NPLs indicated the unsoundness of the economy and triggered the financial system and enforcement bodies (Ari et al. 2019). On the contrary, lower NPLs have been relatively insinuated for more effective

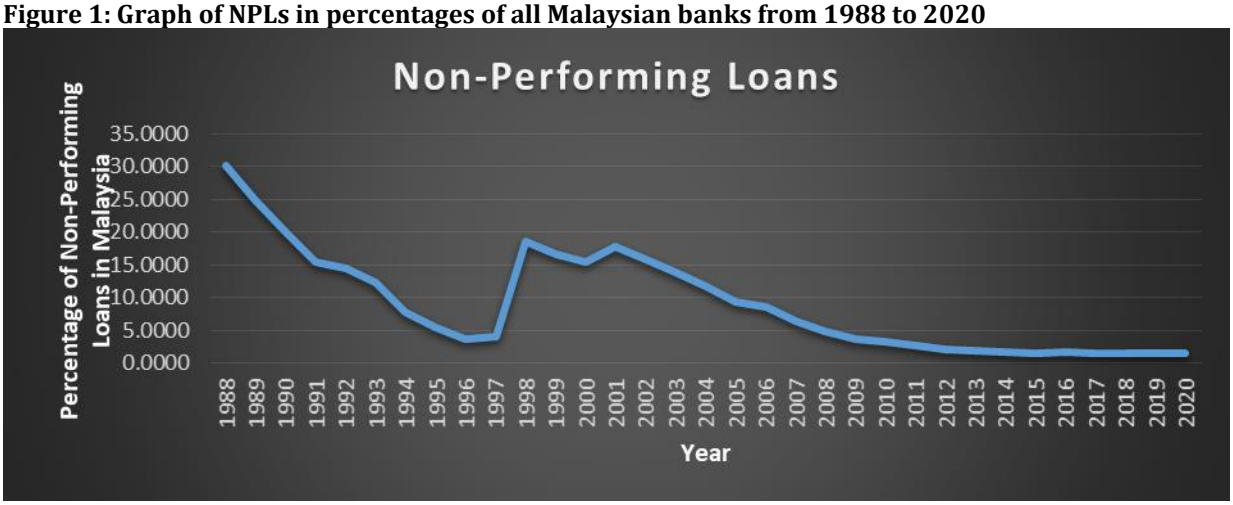
banking management (Tracker, 2021). Therefore, banks should initiate adequate rules and regulations to empower their collectible amounts to maintain and increase their substantial revenue and to uphold persistent financial stability (Ozili, 2019). The NPLs were outlined as an amount of credit disbursement whereby the borrower has missed the installment schedule for a minimum of 90 days (Ofria & Mucciardi, 2021). Agarwala & Agarwala (2019) defined NPLs as loans in arrearage amounts during a minimum of 90 days. Similarly, Pallavi Chavan (2017) discovered that the NPLs are overdue on loan installments for a minimum of 90 days.

Hypothetically, there were many grounds for credit default, and the components related to banks' NPLs can be categorized into macroeconomic and microeconomic indicators. Akram & Rahman (2018) reported that macroeconomic indicators could have influenced the NPLs, while Ofria & Mucciardi (2021) believed the macroeconomic factors have also involved intangible indicators unrelated to the inter-banking system. Overall, macroeconomic factors can disrupt and influence the bank's performance and economic growth. On the other hand, the bank microeconomics variables are the indicators related to the operational banking system allied with a particular policy of banking institutions. The examples of the microeconomic variables involved the bank's sustainability, loan growth, the effectiveness of the mortgage books, and management competency (Mäkinen & Solanko, 2018).

Asllanaj (2018) emphasized that in developing countries, proper supervision of banks on NPLs is vital. It is important to comprehend and emphasize the operation of internal bank indicators since they can be monitored directly. Therefore, they can identify feasibility studies and possible resolutions to address NPLs problems. Overall, understanding the issues of variables that influence the NPLs has offered discussions on what more can be done by the banks to promote effective NPLs and manage to decrease the amounts of NPLs. Therefore, in this study, the aim is to investigate the determinants of NPLs in Malaysia.

Many studies have been conducted on evaluating bank microeconomics variables as the significant determinants of NPLs. For example, Abbas et al. (2019) discovered that the margin of interest, the loan-to-asset ratio, and the capital adequacy ratio are vital variables related to NPLs in the Albanian banking system. On the other hand, Azeem et al. (2017) show that speedy credit expansion, interest rate imposed, creditworthiness, credit control, and bankers' ineptitude are the vital bank microeconomics elements related to NPLs of the Pakistani banking sector. The more recent study by Haris & Aryani (2018) showed that the bank microeconomics variables that significantly influenced the NPLs of the domestic banking industry in Indonesia are the efficiency level of banks, return of assets and return on equity, mortgage interest rate and liquidity of banks. Figure 1 describes the pattern of NPLs in the form of percentages of all Malaysian banks from 1988 to 2020. The calculated average was 9.145 percent throughout the time frame, with a minimum of 1.468 percent in 2018 and a maximum of 30.10 percent in 1988. The latest value from 2020 is 1.567 percent. For comparison, the world average in 2019 based on 119 countries is 6.45 percent (Countries & Latest, 2019).

Figure 1: Graph of NPLs in percentages of all Malaysian banks from 1988 to 2020



(Bank Negara Malaysia, 2020)

The pattern of NPLs in Malaysia reveals the financial sustainability of the banking system. A higher percentage of NPLs reflects that banks possess obstacles to receiving principal and interest on their mortgages. Therefore, the banks' revenue will drop significantly, thus leading to bank closures. Even though the trend is downward, economic conditions play an important role for the bank to maintain its performance, especially during this post-pandemic. Banks in Malaysia must provide guidelines and regulations to prevent or solve potential problems that might occur outside of their lending activities. The banking institutions such as commercial banks play an important role as sources of credit and as economic agents. Macroeconomic variables can influence the sensitivity of the NPLs. Therefore, bad debt can pose huge problems to the bank by negatively affecting bank results and performance which would lead to a banking crisis. Therefore, good performance is important in the banking system to boost the country's economic conditions.

Husseini et al. (2019) investigated that the global financial crisis that started in the United States from 2007 to 2009 was caused by the borrowers' default on payments, leading to sub-prime pay-off mortgages. The subprime is caused by the borrowers who score the credit rate below average, assuming a higher risk involved (Apergis & Lau, 2017). Based Pieloch-Babiarz et al. (2021), the study found that NPLs resulted in catastrophe and deficiency in the banking sector and thus raised the global awareness of the issue for about 30-40 years. NPL will slow down economic growth and decrease the staging of the banking system. The deterioration of the banking industry is affected by macroeconomics and bank-specific factors. Therefore, the empirical paper has established that financial well-being influences credit score (Ngo et al., 2019).

Wan Mohd Yunus et al. (2021) mentioned that during the COVID-19 pandemic, the authority was responsible for giving people massive amounts of financial aid. However, the contribution will affect the banking industry in the long run. Despite implementing the Movement Control Order (MCO) to limit the outbreak, the government added financial stimulus to the nation. During this unprecedented time, banks also have problems marketing their products, significantly impacting banks due to a decrease in loan disbursement and a lower rate of credit application (Demir & Danisman, 2021). According to Lotto (2018), the financial and economic crisis caused an increase in NPLs levels. When the banks faced an economic or financial crisis, they protected themselves by diversifying their markets or products to avoid losses, but this led to a rise in NPLs. The banking industry then became weaker towards domestic and foreign markets resulting in global adverse shocks to the entire global economy (Muhović & Subić, 2019). NPLs were also linked with credit risk, influencing the global economy, and banks' ability to provide credit will be disrupted (Abel et al., 2018). According to Ali (2020), banks without proper monitoring will grow NPLs to a high level and turn into a serious issue to be a concern.

Furthermore, it was sure that NPLs drew in uncertainty and affected the banks' decision and ability to continue loaning to individuals and businesses, thus influencing the aggregate demand and investments. Besides, unsettled NPLs will overthrow the economic activity, which has too many borrowers and keeps the assets in a hopeless situation. According to Bongini et al. (2017), a bank's NPLs level will lead to a series of liquidity and profitability risks the bank faces, as NPLs are linked to bank crises and bank failures. It affects the bank assets condition, but it also affects the entire banking system and, at the same time, reduces economic efficiency. Obviously, the higher the level of NPLs, the higher risk exposure will be faced by the banking industry. Kumar (2018) commented that when the NPLs rise, it will cause the aggregate demand to decrease and further affect the banks' capital adequacy.

Moreover, the NPLs also affected political issues, such as increasing government tax rates and lowering citizens' or people in business's disposable income. It means that the NPLs affected the banking industry, individuals and businesses in the same way. Based on the study of Ngo et al. (2019), NPLs have turned into a severe concern matter since the Asian crisis (1997-1998) hit hard; the "Asian Tigers" included countries such as Indonesia, Thailand, China and Malaysia. Furthermore, due to poor financial performance and an increase in NPLs, most of the banks in Malaysia restricted their lending policy after the Asian Financial Crisis (1997-1998). Therefore, it caused many entrepreneurs and organizations to be unable to get sufficient funds from banks to cover those expenses in business operations. Moving forward to the current situation, banking institutions and policymakers have to monitor closely the impact or the outcome that might arise during this post-pandemic of COVID-19. It shows similar circumstances to the Asian Financial Crisis by closing business operations and retrenching jobs.

Moreover, the capacity of those local banks with smaller sizes to survive through the losses caused by NPLs and declining operating profits during the crisis was also a big problem (Grytten & Koilo, 2019). On the other hand, Pham (2020) stated that the bank constrained Malaysia and Singapore's economic growth and innovation because NPLs accumulation had destroyed the bank's capital. Therefore, even though the NPLs ratio of Malaysia has decreased recently, it was due to the bank having conducted and transferred a large amount of NPLs to public asset management companies.

Nevertheless, Malaysia suffered losses from the financial crisis, affecting Malaysia's banking institutions. Commercial banks, merchant banks, and finance companies, the three prominent banking institutions, have incurred high net NPL ratios that increased 7.4 percent from 1997 to 1998. The NPL in 1988 was 30.1 percent, and it kept on decreasing until 1996, which was 3.7 percent, but it started to rise to 4.1 percent and increased steeply, which reached 11.8 percent in 1998. It shows that a considerable gap existed from 1997 to 1998, which contributed to the worsening of the asset quality of the financial institution (Vaicondam et al., 2019). Those loans that are non-performing are a big concern among the banks in Malaysia because the Central Bank of Malaysia (BNM) has recently revised the overnight policy rate (OPR) to about 3.25% since January 2018 to be at par with the rates of interest offered in the United States (Reale, 2020).

According to Reuters (2020), the changes in the overnight policy rate are also expected to influence or affect other factors or macroeconomic variables such as inflation, the real effective exchange rate, the base lending rate (BLR), fixed deposit and savings deposit amount, which are expected to have a direct influence on the economy in Malaysia. For example, the increase in the rate of inflation in the year 2018 between August when it was 3.7% towards September 4.3% shows that Malaysians have now been dealing with an increased cost of living in the economy, which has been caused by the increase or the rise in the fuel prices in the market courtesy of the slowdown in the Gas and the oil sector (Reale, 2020). This means that the asset quality of Malaysian banks can be affected by these effects. In the S&P global ratings, this is considered a pool of corporate deposits and the different Malaysian companies have brought down their corporate borrowing. This can lead to adverse effects on the NPLs and the cost of capital or the cost of credit, which will further depress the profitability of the banks and the profit margin therein.

For the severe problems of NPLs in Malaysia, the government implemented many ways to change the situation. For example, Danaharta, established in 1998, is one of the asset management companies to purchase NPLs from financial institutions (Azmi & Razak, 2017). Moreover, financial institutions recapitalized by Danamodalin the stabilization phase by injecting RM64 million into financial institutions in Malaysia to increase the capital adequacy ratio (Azmi & Razak, 2017). In addition, the establishment of the Corporate Debt Restructuring Committee (CDRC) also assists companies in restructuring and is not assisted by the government (Mohamed et al., 2021). These are some recovery plans that support financial institutions in Malaysia to reduce NPLs.

While prior research on the macroeconomic determinants that influence the existence of NPLs in banks worldwide has significantly played an important role in the research, their results may not be generalized to other countries such as Malaysia due to their contradictory results. As a result, this explains the presence of an empirical gap in the literature and necessitates a study to ascertain the most significant macroeconomic factors affecting NPLs in Malaysian financial institutions. Therefore, limited findings have been conducted in the Malaysian banking sector. For example, Zainol et al. (2018) managed to find the macroeconomic determinants of Non-Performing Loans in Malaysia using the ARDL Approach. Vaicondam et al. (2019) identified that inflation rate, interest rate, and unemployment factors positively relate to the NPLs.

Gambo (2018), in his study, applied the secondary data of cost efficiency, deposit rate, and loan-to-deposit ratio. Moreover, Akram & Rahman (2018) identified that a lack of understanding of bankers to execute well loans and may regard as well lack of experience could disrupt credit performance. Thus, adequate knowledge and experience are vital in preserving financial health.

Hence, this study could fill the empirical gap to determine the greatest significance determinants of NPLs in Malaysia. Specifically, this study investigates the relationship between NPLs and microeconomic variables in Malaysia.

2. Literature Review

Policymakers were concerned about the NPLs and the adverse effect on the banks' revenues after every crisis. Different empirical studies have been done to explain the changes or the effects of bad loans and how they influenced the changes in the bank's profitability. Majumder & Li (2018) conducted a study in Bangladesh by establishing a time series scenario of the NPLs and how the association with the banks' profitability is related to the NPLs. The study adopted multiple regression techniques on the data collected from the different banks listed in the stock exchange that is the Dhaka Stock Exchange (DSE). As a result, it was found that the NPLs have a statistically significant association with the banks' profit in Dhaka. The NPLs were found to have an inverse association that was statistically significant with the net profit margin. M. A. Khan et al. (2020) adopted the fixed effects regression model to estimate the association between bank efficiency and NPLs. The data used by the Nepalese banking sector is secondary data from the years 2006 to 2017. The results showed that the decrease in the interest income was brought by the NPLs, which eventually reduced the banks' income or profitability.

On the other hand, banks with high interest charge rates would incur higher default rates or NPLs. Abbas et al. (2019) conducted a study on large commercial banks in the US revealed that a high interest rate charged by banks is associated with loan defaults. Abbas et al. (2019) used a panel regression analysis. The results indicate that financial factors like the cost of credit had a significant impact on NPLs. Abbas et al. (2019) also indicate that bad loans might substantially rise due to abrupt changes in interest rates.

A study conducted by Mahrous et al. (2020) examined the relationship between NPLs and various financial institutions, companies, and external institutions for a sample of 46 banks from 12 nations in the Middle East and North Africa (MENA) region over the period 2012 to 2016. The finding showed that, among the factors, foreign involvement from advanced nations, credit growth, and return on assets all have a substantial adverse effect on NPLs. In contrast, bank capital and loan loss provisions have a significant and positive effect on NPLs. The findings also revealed the significance of the institutional context in improving credit quality and reliability. The improved rule of law enforcement, solid regulatory quality, improved control of corruption, and the right to express one's opinions and hold one's government accountable contributed to a considerable reduction in NPLs. NPLs in the Middle East and North Africa (MENA) countries have been significantly reduced due to improved corporate environment, information quality published by commercial and state credit bureaus and legal rights.

A substantial amount of study has been published on the relationship between NPLs and microeconomic variables. Sanyaolu et al (2020) have also contributed to research conducted in Africa. According to the authors, a macroeconomic framework for NPLs in Nigerian banks was developed and tested from 2008 to 2017. According to the findings, income activity has a considerable negative impact on NPLs in the long run, although the influence of financial deepening and the exchange rate has a statistically significant positive effect (Ahmad et al. 2020). During the short term, the importance of private sector credit and the exchange rate remained unchanged; the lending rate and the stock market index remained the most critical determinants of NPLs.

Adeola & Ikpesu (2017) investigate the key macroeconomic determinants of NPLs in the Romanian and Albanian banks. The study concluded that failure in managing loans has generated the largest portion of banks' assets, which simultaneously caused an increase in the NPLs. This may lead to a decline in the bank's performance and dampen the economic growth. Al-Eitan & Bani-Khalid (2019) studied twelve Jordanian banks between 2008 and 2017 on the NPLs and macroeconomic factors. Growth and inflation have a strong negative influence on NPLs, whereas the ratio of loans to assets and the global financial crisis dummy variable has considerable beneficial effects. NPLs in Jordanian banks were not explained by changes in lending rates or the size of the banks.

Overall, understanding the issues of variables that influence the NPLs has offered discussions on what more can be done by the banks to promote effective NPLs and manage to decrease the amounts of NPLs. Therefore, in this study, the aim is to investigate the determinants of NPLs in Malaysia.

3. Research Methodology

33 years of databases were obtained from the DataStream database, starting from 1988 to 2020. The empirical model based on the literature review is as follows:

$$D\bar{N}P\bar{L} = b_0 + b_1 DINF + b_2 DLEND + b_3 INT - b_4 GDP + b_5 DGDS - b_6 UNEM$$

Non-Performing Loans (NPL): In this study, the researcher used the NPLs to total gross loans database as the measurement in the data analysis. Bank NPLs to total gross loans is the value of NPLs divided by the total value of the loan portfolio (including NPLs before the deduction of specific loan-loss provisions). Therefore, the loan amount recorded as non-performing should be the gross value of the loan as recorded on the balance sheet, not just the overdue amount (World Bank, 2016).

$$Non\text{-}Performing\ Loans = \frac{Non-Performing\ Loans}{Total\ Gross\ Loans}\ (100)$$

According to Zainol et al. (2018), the Bank Negara Malaysia (BNM) has a standard or policy to make a loan or categorize a loan as non-performing if and when the borrower has been unable to make advances, payments or premiums for more than six months without any communication. In addition, it was suggested that the credits were separated by the hazards presented by the credits board. However, this is not the only cost that the banks apply to the clients after the loan facility provision because there are also other accruals enforced by the bank (Vaicondam et al. 2019). Furthermore, pressure is also applied to the agents and the family members to seek repayments and the cost of finance that the borrowers acquired.

NPLs refer to the credit default or an un-serviced loan. The situation is where the loan is impaired or remains outstanding for more than three months or ninety days. It means that unpaid loans are referred to as Non-Performing Loans (NPLs). Concerning the available literature in the existing studies, it was discovered that there is statistical evidence that suggests that there is a relationship between the low profitability and the large amounts of NPLs. The increase in the NPLs significantly influences Malaysia's profitability, liquidity, and performance. There are careful examinations that have specifically assessed the country on the factors that influence the changes in the banks' NPLs. Crespi & Aliano (2017) have investigated how macroeconomic factors influence NPLs. Some of these studies have been conducted in CESEE and Europe, respectively. It was estimated that there is an association between the NPLs and the macroeconomic factors. With the stability of the economy and the instability of the financial status of the economy or country's financial standing, the different countries are experiencing these issues at different intervals. It is also important to note that the changes in the credit defaults have also led to increased expansion of the NPLs. The quality of loan portfolios has been influenced significantly by the macroeconomic variables in the market.

Inflation Rates (INF): As measured by the consumer price index, inflation reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services fixed or changed at specified intervals, such as yearly (World Bank, 2016).

$$\text{Inflation Rates} = \left\{ \frac{\text{Cost of Market Basket in Given Year}}{\text{Cost of Market Basket in Base Year}} \times 100 \right.$$

The inflation rate changes the general prices of the commodity in the market. Different studies have suggested a significant association between NPLs and the rate of inflation in the market. Humblot (2017) investigated the macroeconomic variables or the determinants that influence the loan portfolio and was estimated using Ordinary Least Square (OLS) as the statistical tool. A sample of 22 European Union countries was put into three categories with their similarity and the doubtful and NPLs percentages in the banks between 2007-2011. The inflation rate significantly positively influenced the NPLs in the market. This supports the previous study conducted by (Hada et al., 2020). However, Koju et al. (2019) have a different result: the market's inflation had an inverse association with the credit risk or the NPLs. The researcher deployed comparative panel data analysis using the panel econometrics approach, which employed both the

fixed effect models and the pooled (unbalanced) panel models to assess the influence of the macroeconomic factors on the NPLs in commercial banks in Sub-Saharan Africa.
This study uses the inflation rate as the overall changes in the consumer price index, a weighted average of the different services and goods. Therefore, consumer price inflation is the variations in the consumer price index for a certain period (Ben Saada, 2018). Bongini et al. (2017) conducted a study in CESEE and Tunisia, where the inflation rate was adopted as one of the explanatory variables and regressed against the NPLs. He found that the expansion of the inflation rate affects households' income on the capacity of loan reimbursement. As a result, the inflation rate has been responsible for the depreciation of economic growth.

Lending Interest Rate: The lending rate is the bank rate that usually meets the private sector's short- and medium-term financing needs. This rate is usually differentiated according to the creditworthiness of borrowers and the objectives of financing. However, the terms and conditions attached to these rates differ by country, limiting their comparability (The World Bank, 2015).
Compound interest = $p \times [(1 + \text{interest rate})n - 1] \times 100$
Where:
p = principal
n = number of compounding periods

The lending rate is one of the first items to be considered when the borrowers are thinking of taking a loan because it is the cost of capital. In the year 2015, January, the Base Rate (BR) was instituted in Malaysia to replace Malaysia's Base Lending Rate (BLR) structure in the country (Zandi et al., 2017). To influence the changes in the interest rates, the central banks change the base lending rate, and as such, the loans from the commercial banks are influenced indirectly. In Malaysia, the BNM applies changes in the overnight policy rates (OPR) to bring about specific changes in the interest rates in the country. The credit cycles have matched the price of housing in the different countries (Ari et al., 2019). In most industrialized countries, the booming housing market has been supported by historically low lending interest rates as the major contributors (Pallavi Chavan, 2017).

Prior studies show that there is an association between the NPLs and the lending rates in the economy because a dramatic change in the lending rates can directly affect the debt burden of the borrowers, which will then make the debt burden increase hence the rise in the NPLs (Azeem et al., 2017). The actual rationale behind the rates of interest applied on the lenders is that an inherent, implicit cost applied to the credit issues by the commercial banks will affect the default rates of the loans. Hence, it means that the NPLs and the interest rates on lending have a significant relationship.

Real Interest Rate: The real interest rate is the inflation-adjusted lending interest rate measured by the GDP deflator. However, the terms and conditions attached to real interest rates differ by country, limiting their comparability (The World Bank, 2011).
Real Interest Rate $= (1+\text{Nominal Interest Rate})/(1+\text{Inflation Rate})) - 1 \times 100$
$= (\text{Nominal Interest Rate} - \text{Inflation Rate}) \times 100$

The banks' benefits that are accrued after the clients have obtained the loan and paid for it at a cost are bank interest rates. The client risk profile influences the interest rate (Hoffmann et al. 2019). The borrowers with more promising projects and business initiatives might be considered at a reasonable market rate. Lower interest rates are vital to boost the economy. The small borrowers and small-scale businesses are given stimulation to restart their businesses, and the economy or money supply is restarted effectively. Therefore, the interest rate is one of the variables that influence the changes in the NPLs because it affects the borrowers' repayment ability. Some previous studies have established a positive or direct correlation between the NPLs and the interest rate (Abbas et al. 2019).

When the rate of interest increases, the same leads to the weakening of the loan repayment capacity of the lenders, which leads to increased NPLs. Hada et al. (2020) investigated the issues and noted a high correlation between the high rates of interest and the NPLs. The borrowers cannot pay for their loans, increasing the chances of default. Elmawazini et al. (2020) examined the macroeconomic determinants of the

NPLs in the Gulf Cooperation Council (GCC) banking systems. The study found that the increased interest rates have a significant effect on the default rate of the borrowers.

Hessou & Lai (2017) investigated the causal relationship and the treatments of the NPLs. It was established that the interest rate fluctuations led to a rise in the NPLs. Crespi & Aliano (2017) also supported these findings and results in their study. It was established that a significant association between interest rates and the loan default rate. It was also established that the rising cases of loan defaults also caused cases of capital erosion and the bank's assets corrosion. Lin & Benjamin (2018) note that the greater NPLs incurred by those banks that charge higher interest rates.

Gross Domestic Product (GDP): The researcher used GDP per capita's annual percentage growth rate based on constant local currency in this study. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without deductions for depreciation of fabricated assets or depletion and degradation of natural resources (The World Bank, 2021).
Gross Domestic Products = (GDP of the Country)/(Population of the Country) ×100

Different studies have been done and have established a significant positive association between the GDP and the NPLs. However, most studies from different economies in the world have shown that an inverse relationship exists between the GDP and the NPL, respectively. For example, the study by (Pallavi Chavan, 2017) explored the determinants of the NPLs in the Guyanese banking sector for 1994-2004. It was established and suggested that the NPLs and the GDP had an inverse relationship. Therefore, it shows a robust real economic performance, leading to lower NPLs.

Bagntasarian & Mamatzakis (2018) assessed the fixed effects and the dynamic panel regressions on the issue or the basis of the yearly data for the variations in the aggregate NPL ratio and investigated the 75 emerging and advanced economies from 2000 to 2010. It was established that the GDP rate had a significant positive influence on the NPL. This also confirms the previous studies conducted before that (Rahmah & Armina, 2020). However, there is a contrast between these findings and the findings by (Asfawesen, 2017), who adopted a small sample of 26 advanced economies or established economies for 1998-2009. The researcher adopted a single equation panel regressions and a panel vector autoregressive model. It was established that there was an inverse association between the GDP and the NPL, which was cemented further by (Zheng et al., 2020) also had the same opinion earlier. It was suggested that the different banks accumulated risks rapidly in an economic boom, and some of these risks materialized as assets continued to be affected negatively in subsequent recessions that took place in the economy. (Herrera Almanza & Corona, 2020) established an inverse relationship between the GDP and the NPL that was convincing in the Netherlands economy. Agarwala & Agarwala (2019) studied the situation in India. They established a significant inverse correlation between the growth in real GDP and the NPL in India using the correlation matrix, among other results and findings.

The GDP directly correlates with the loans and the NPLs, which means that the same can influence the NPLs because when there is an increase in the GDP, it means that the NPLs would be reduced or decreased. A struggle in making payments among the borrowers would be brought about by the lack of a constant flow of income. If the economy is doing well, it would mean a good level of money supply and circulation in the market, increasing income for the different players in the market.

Gross Domestic Saving (GDS): GDS are calculated as GDP less final consumption expenditure (total consumption) (The World Bank, 2021). National saving is a parameter of the health of a country's investment. A high level of savings indicates more sources of loanable funds in the country, showing the expansion of economic growth.
National savings rate ={ (Income - Consumption) / Income}×100

Domestic savings have a significant role in the country's economic growth. Some of the functions or roles of savings in the economy include creating job opportunities, improving productivity, and financing

investments. In this case, it would be critical to look at the factors that influence economic growth and domestic savings. The most important factor linking present, past, and future savings is domestic savings (Khan & Rehan, 2017). When appropriated for the final consumption or the expenditure therein the net, the GDP is referred to as the GDS.

Unemployment Rate: The standard definition of unemployed persons is those without work, seeking work in a recent past period and currently available for work, including people who have lost their jobs or voluntarily left work. Persons who did not look for work but have arrangements for a future job are also counted as unemployed. Some unemployment is unavoidable, and some workers are temporarily unemployed as employers look for the right workers (World Bank Group, 2015). The labor force or the economically active portion of the population serves as the base for this indicator, not the total population. Unemployment refers to the share of the labor force without work but available for and seeking employment. Definitions of the labor force and unemployment differ by country.
Unemployment Rate = (Unemployed people)/(Total labor force)×100

The unemployment rate is defined as the fraction of people actively searching for employment but cannot secure employment in the economy. The economy's health or potential is defined by the rate of employment and the possibility of the entire economy. The argument informs that the different individuals' debt burden is made worse because there is increased unemployment in the economy, negatively affecting these individuals' income and increasing the burden (Ben Saada, 2018). The concept of unemployment for this study refers to the situation where different individuals are ready and willing to work and are looking for a job but cannot find one. The understanding of unemployment is that “people do not have jobs”. The unemployment rate is the estimation of the unemployed people, that is, the total of those who do not have employment divided by the total labor force.

Kumar (2018) investigated how the unemployment rate influences NPLs and established a direct positive association. For example, the ability and commitment to repay the loans may be absent among the customers who have no employment, which may increase the NPLs in the economy because these individuals would not have an income for a certain period. The unemployment rate has a significant influence on the individual's income. In this case, when the borrower is unable to secure employment in the market, the borrower is also unable to get income or revenues for the business, which also influences their ability to repay the loans they have taken. Furthermore, the unemployment status of the borrower will become or create a credit burden on the borrower because the borrower will not be able to secure and make periodic payments as agreed with the credit providers. Besides that, the investors and the individual employees would be better positioned to repay their loans if there is an increase in job opportunities. This is because more individuals would have an income and wages/salary to allocate some installments to repay the loans to the lenders.

4. Results and Discussion

In this section, the results and findings of the study, assumptions for Multiple Linear Regression and Time-Series Data are presented.

a) Stationary Test – Augmented Dickey-Fuller (ADF): This study employs a unit root test using Augmented Dickey-Fuller (ADF) to test the stationarity of the variables. If a time series has a unit root, it shows an unpredictable systematic pattern (Zheng et al., 2020). Shows the results of unit root and found three macroeconomic variables of INT, GDP, and UNEM were stationary at level I (0) with the probability values 0.000, 0.0023 and 0.0000. At the same time, the probability values of NPL, INF, LEND, and GDS are 0.0006, 0.0000,0002 and 0.0013 and stationary at first differencing, as indicated by I (1) at the 1% level of confidence. Therefore, by using a 5% significance level, the study concludes that the INT, GDP and UNEM were stationary at level I (0) and NPL, INF, LEND, and GDS became stationary at first differencing as indicated by I (1). Therefore, by referring to the stationarity unit root test results, the study will employ variables with no unit root or stationary. Hence, the following assumption and regression methods will use INT, GDP, UNEM and the first differencing of NPL, INF, LEND, and GDS. The variables NPL, INF, LEND, and GDS, will be mentioned as DNPL, DINF, DLEND and DGDS, referring to the first difference at the level.

b) Heterocedasticity - Breusch-Pagan-Godfrey: The p-value of is 0.4899. It is greater than the significant level of 0.05. Hence, this indicates that it fails to reject the null hypothesis and has enough evidence to conclude that there is no heteroscedasticity problem.

c) Autocorrelation - Breusch-Godfrey Serial Correlation LM Test: The p-value of the F-statistic is 0.4014, and it is greater than the significant level of 0.05. Hence, this indicates that we have enough evidence to conclude that there is no autocorrelation problem.

d) Normality of Error Term - Jacque-Bera Test: The ρ-value for the Jarque-Bera Test in Malaysia is 0.573, greater than the significant level of 0.05. Hence, this indicates that it fails to reject the null hypothesis and has enough evidence to conclude that the error term is normally distributed.

e) Multicollinearity – Variance Inflation Factors (VIF): All Centered VIF values for Independent Variables are less than 10. Thus, there is no severe multicollinearity exists in the model.

Multiple linear Regression: Table 1 shows that D(GDS) has a positive relationship, while GDP and UNEM have negative relationships with D(NPL).

$$D(\bar{N}PL) = 7.0657 - 0.6859GDP + 0.411024D(GDS) - 1.6073UNEM$$

Based on the results, it shows that NPL has a negative relationship with GDP. NPL will decrease by 0.6859% when GDP rises by 1%, with other explanatory variables remaining unchanged. GDP refers to the sum of gross value by all the people and companies in the country and any product taxes and deducted subsidies that are not included in the production value of the goods. According to Farhan, Sattar, Chaudhry and Khalil (2012), they found that GDP and NPL have a negative relationship. This statement is further supported by Baholli, Dika and Xhabija (2015) and Akinlo and Emmanuel (2014), who stated that an increment in GDP would decrease the NPL in the short and long period. This is because economic growth indicates business performance improvement. In addition, the viewpoint is further supported by Tanasković and Jandrić (2015) and Messai and Jouini (2013), rises in NPL ratio and increase in GDP have a negative relationship or negative impact on each other. Thus, the empirical result of this research is consistent with the other findings.

Table 1 shows that GDS has a positive relationship with NPL. In contrast, Leka et al. (2019) argue that retail banking services should find ways to increase savings rates to attain a high percentage of total national savings among the people. With a high percentage of total national savings, NPL can be reduced. UNEM and NPL have a negative relationship as shown in TABLE 1. In contrast, Muhović & Subić (2019) found a positive relationship between UNEM and NPL. UNEM refers to the group of people in the labor force who is currently without a job but is available and currently seeking employment. According to Muhović & Subić (2019), the coefficients for the UNEM must be positive with NPLs, as the increase in UNEM causes the earnings of individuals to decrease, and they have less money to repay the loan, resulting in NPLs to rise. This implies that with an increase in UNEM, banks become reluctant to provide loans or do so under strict inspection and conditions to avoid any current or future NPLs. Thus, this study is against the results of previous researchers.

$$D\bar{N}PL = b_0 + b_1DINF + b_2DLEND + b_3INT - b_4GDP + b_5DGDS - b_6UNEM$$

Table 1: Determinants of Non-Performing Loans

Independent Var	Coefficient	P-Value	Decision
C	7.0657	0.0002***	Reject Ho
DINF	0.1265	0.6210	Do not reject Ho
DLEND	0.6204	0.1180	Do not reject Ho
INT	0.0542	0.6044	Do not reject Ho
GDP	-0.6859	0.0000***	Reject Ho
DGDS	0.4110	0.0310**	Reject Ho
UNEM	-0.1607	0.0016***	Reject Ho
R-squared	78%		
observations	33		

***,**,* denote significance at 1 percent, 5 percent and 10 percent respectively. The variables NPL, INF, LEND, and GDS, will be mentioned as DNPL, DINF, DLEND and DGDS, referring to the first difference at the level.

5. Conclusion

The importance of this research is to explain the nature of NPL clearly. An increase in NPL indicates that banks may be unstable and insecure, reducing the bank's profitability and liquidity. When the level of NPL in banks increases, it will cause a reduction of funds available for the bank to make new lending. This occurrence drastically affects the profitability level of the bank with its reduction of new loan approval. At the same time, banks need to reduce the NPLs to increase their profit, which causes the bank's capital allocation to change due to NPLs provision. Therefore, having a high NPL level reduces the credit supply for lending and affects the credit allocation of the bank. Banks often find it hard to overcome the NPL problem and rely on economic growth to bring their NPLs level to satisfactory. In this case, reducing the level of NPLs in banks is essential to increase banks' liquidity.

However, some forms of government intervention in Malaysia's financial system cause financial suppression that could discourage savings and investment. Therefore, having sufficient information is essential in revising and improving policy implications. Tackling the issue of NPLs is worth the effort because banks will become more profitable and lend more money to the real economy. They will also become more stable and thus more resilient to economic crises. People and companies will find it easier to access credit, and they will consume and invest more, which support the economy and jobs. To sum up, solving the problem of NPLs is not just good for banks but also benefits the community.

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Vaccination Acceptance among Indigenous Community: The Moderating Role of Tribal Leader Endorsement

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Abstract: Coronavirus disease 2019 cases are showing a downward trend in Malaysia but with active cases still present, the virus remains a persistent public health threat. Amid vaccination at no cost, some of the populace is refusing to get vaccinated. As getting indigenous communities vaccinated are much more difficult due to contextual and cultural difference, this study investigated whether tribal leader endorsement moderates the relationship between attitude and intention towards vaccination. Drawing from a survey of 312 indigenous from various generations of Millennials, Generation X and Generation Z, this study found that endorsement of tribal leaders does not act as a moderating factor in the association between attitude and intention to accept vaccination across generations. This study contributes to understanding whether indigenous communities require cultural-based approaches to support vaccination uptake. This study would be beneficial in supporting initiatives to curb COVID-19 disease and the right to good health among indigenous communities.

Keywords: *COVID-19, Indigenous, Vaccination Acceptance, Perceived Usefulness, Perceived Enjoyment*

1. Introduction

In December 2019, the world was surprised that people around the globe were sick with Coronavirus disease (COVID-19). COVID-19 is a contagious illness caused by infection with a coronavirus named SARS-CoV-2 (WHO, 2023). People infected with the COVID-19 virus were reported experiencing a wide range of illnesses, from mild to severe illness. One bearing mild symptoms typically cures without requiring special treatment but one developing serious illness usually calls for medical attention, and the one becoming seriously ill will die (WHO, 2023). Anyone who gets sick with COVID-19 is suffering symptoms of cough, fever, tiredness, and dyspnoea (Alimohamadi et al., 2020) along with other illnesses of loss of taste and smell, sore throat, runny nose, muscle aches and many more. The number of people infected with COVID-19 and death continues to vary considerably between countries. According to Worldometers (2023), 696,869,880 Coronavirus cases with 6,928,708 deaths were recorded globally on October 21, 2023. In Malaysia, a total case of 5,128,668 and a death of 37,179 were reported (Worldometers, 2023). Malaysia's population is made up of different types of ethnic groups, namely Malay, Chinese, Indian and Native people each with their own language, values, culture, and faith. Having realized the suboptimal trends in COVID-19 vaccine hesitancy amongst indigenous peoples in Peninsular Malaysia (Khalid, 2021) along with the time condition of "poor access to healthcare and significantly higher rates of communicable and non-communicable diseases" among indigenous people (United Nations, 2020), triggering the importance to extend solution for COVID-19 vaccination uptake among indigenous community by considering cultural-related factors.

Vaccination program in Malaysia: During the outbreak, the Government of Malaysia was foreseeing that anyone who received a vaccine would be protected better against illness and hospitalization than anyone who did not receive a vaccine. The Government was hoping that all Malaysians would get vaccinated with a COVID-19 vaccine. In February 2022, Former Malaysian Prime Minister Muhyiddin Yassin was the first person in Malaysia to get vaccinated alongside frontliners during the first round of the national COVID-19 Immunization Program–PICK (Yusof, 2021). The program will take place nationwide to break the chain of COVID-19 infections with the second round involving high-risk groups of the elderly, disabled and ones with chronic conditions and the third round involving remaining adults aged 18 and above (JKJAV, 2021). In Malaysia, vaccination with Pfizer-BioNTech, AstraZeneca and Sinovac has been greatly effective in putting a stop to infection, symptomatic, ICU hospitalization, and death toll caused by COVID-19 (Suah et al., 2021). Malaysia Ministry of Health is focusing on vaccinating as many people as possible to curb the spread

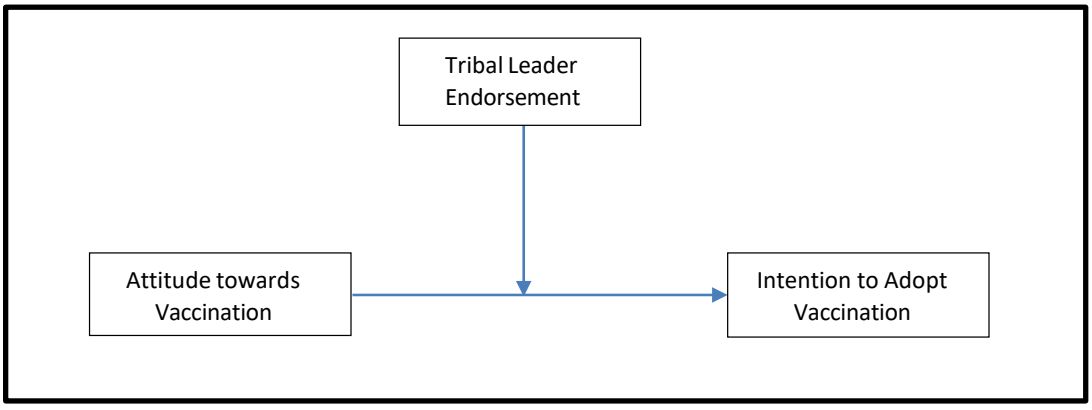
of COVID-19. According to Fine et al. (2011), satisfactory herd immunity is necessary to prevent the person-to-person transmission of infectious diseases. To combat COVID-19 at full scale, the Malaysia Ministry of Health (MOH) makes vaccination activities the main agenda across the country. The public is requested to find nearby vaccination centers to receive free COVID-19 vaccines. In the course of the outbreak, whether one is vaccinated or not vaccinated is prominent that people without vaccination records are not getting access to public facilities (Bardosh et al., 2022). To date, on 21 October 2023, 28,115,723 people in Malaysia have received a COVID-19 vaccine (KKMNOW, 2023). However, despite the availability of vaccination services and positive outcomes, studies by Azizi et al. (2017) and Jafar et al. (2022) report delays in the acceptance or refusal of vaccines from the populace. Such hesitancy will hold back the government's agenda for adequate vaccination rates towards achieving herd immunity among the Malaysian population.

Vaccination Uptake among Indigenous Populace: COVID-19 is a highly contagious disease. Alike to the rest of humanity, the virus also poses a threat to the indigenous population of Malaysia. According to the Jabatan Kemajuan Orang Asli website, there are 209,575 indigenous nationwide up to June 2022 (JAKOA, 2023). In the course of the outbreak, many indigenous in Malaysia became severely ill and died from COVID-19 diseases with the numbers of cases varied by state. A total of 457 COVID-19 infections occurred among Indigenous people from 24 Indigenous villages in Selangor (Dewan Negeri Selangor, 2021). Amid pandemic outbreaks, indigenous perceived that their villages were no longer safe. Due to fear of infections, indigenous people flee into forests to escape coronavirus (United Nations, 2020). The Indigenous also sealed their territories by blocking the entrance to their village (The Straits Times, 2020) and setting up barricades and checkpoints (Idrus et al., 2021). According to Idrus et al. (2021), Pfizer-BioNTech, AstraZeneca and Sinovac were the three most administered vaccines to protect against COVID-19 in Malaysia (Suah et al., 2021). However, there have been isolated cases of villages refusing vaccinations (Nordin, 2021) evidenced by The Penan in Sarawak being reluctant to receive immunizations (Donald, 2021) and Sabah has insufficient PICK registrations (Jafar, Mapa, et al., 2022).

2. Research Framework

The Theory of Planned Behavior (Ajzen, 1991) has been used to predict the indigenous communities' intention to adopt vaccination as illustrated in Figure 1. In this study, Attitude towards Vaccination refers to the degree to which an indigenous person has a favorable or unfavorable evaluation of vaccination. Meanwhile, the Intention to Adopt Vaccination refers to an indigenous person's plan to get vaccinated. Tribal Leader Endorsement refers to the action shown by tribal leaders in supporting or rejecting vaccination. Tribal Leader Endorsement is added to the framework to explain the moderation effect on the relationship between attitude and intention toward vaccination among indigenous communities.

Figure 1: Research Framework



Hypotheses: This study made attempts to examine the moderating factor of tribal leader endorsement in the relationship between attitude and intention to adopt vaccination. Therefore, the following hypotheses were postulated;

H1: Attitude towards Vaccination significantly affects intentions to adopt vaccination
H2: Endorsement of vaccination by tribal leaders has a significant impact on intention to adopt vaccination
H3: Endorsement of vaccination by tribal leaders moderates the relationship between attitude and intention to adopt vaccination.

3. Methodology

The purpose of this study is to understand the phenomenon of vaccination acceptance among members of tribes within the context of indigenous communities. A quantitative study was conducted to assess vaccination acceptance among the indigenous community and the moderating role of tribal leader endorsement. A survey was distributed to 350 an individual among the indigenous community in Perak and the survey return rate was 89 percent (n=312) used for the data analysis. Out of 350 questionnaires, 312 questionnaires were returned. 38 of the questionnaires were incomplete as the respondents failed to answer certain sections of the survey. As a result, a total of 312 responses were usable in this study.

The Structural Equation Model (SEM) using Smart PLS was applied to analyze the objectives of this study. In SEM, there are two levels analysis of measurement model and the structural model. In the measurement model, the first step is examining the factor loadings. According to Hair et al. (2019), threshold values for factor loadings above 0.708 are recommended, as they indicate that the construct explains more than 50 percent of the indicator's variance, thus providing acceptable item reliability. Next is assessing the reliability of the item. According to Diamantopoulos et al. (2012), reliability values between 0.60 and 0.70 are considered "acceptable in exploratory research," and values between 0.70 and 0.90 range from "satisfactory to good." The third is assessing the average variance extracted (AVE) for all items on each construct. An acceptable value of AVE is 0.50 or higher indicating that the construct explains at least 50 percent of the variance of its items. The fourth analysis is the discriminant validity. In this study, was applied the heterotrait-monotrait (HTMT) ratio of the correlations (Voorhees et al., 2016). The HTMT value above 0.90 would suggest that discriminant validity is not present. But when constructs are conceptually more distinct, a lower, more conservative, threshold value is suggested, such as 0.85 (Henseler et al., 2015a) is explains that there are no issues with discriminant validity.

After completing the measurement model, this study further assesses the structural model. As suggested by Shmueli et al. (2016) standard assessment criteria, which should be considered, include the coefficient of determination (R^2), the blindfolding-based cross-validated redundancy measure Q^2 and the statistical significance and relevance of the path coefficients. In addition, researchers should assess their model's out-of-sample predictive power by using the PLS prediction procedure. The R^2 measures the variance, which is explained in each of the endogenous constructs and the values of R^2 range from 0 to 1, with higher values indicating a greater explanatory power. As a guideline by Hair et al. (2011), the R^2 values of 0.75, 0.50 and 0.25 can be considered substantial, moderate and weak. Another means to assess the PLS path model's predictive accuracy is by calculating the Q^2 value (Geisser, 1974). Q^2 values should be larger than zero for a specific endogenous construct to indicate the predictive accuracy of the structural model for that construct. As a rule of thumb, Q^2 values higher than 0, 0.25 and 0.50 depict small, medium and large predictive relevance of the PLS-path model.

4. Demographic Analysis and Model Validation

Demographic Analysis: As shown in Table 1 below, approximately 312 samples were collected from the indigenous population residing in the peninsular region of Malaysia. These samples were obtained from nine various tribes of indigenous populations residing in Malaysia. The study found that the majority of the samples, namely 69.9%, were derived from individuals belonging to the Semai tribe. Additionally, 11.54% of the samples were attributed to the Jakun tribe, while 5.45% were associated with the Temuan tribe. A smaller proportion, specifically 3.85%, represented individuals from the Jah Hut tribe. The remaining samples were sourced from several other tribes, including Mah Beri, Semaq Beri, Semelai, and Orang Kuala. The composition of our samples consists of 60% female and 40% male individuals. Approximately 73% of the

participants were below the age of 45, with the remaining respondents falling into the category of being above 45 years old. Approximately 33% of the participants obtained diplomas, bachelor's degrees, and master's degrees from institutions of higher education, as shown by their educational attainment. Approximately 14% of the participants reported a lack of formal schooling. Slightly more than 34% of the samples remained unmarried at the time the data was compiled.

Table 1: Demographic characteristics of respondents

Characteristic	F	%
Gender Male	125	40.1
Female	187	59.9
Age		
18 – 25	142	45.5
26 – 35	36	11.5
36 – 45	50	16
46 – 55	49	15.7
56 and above	35	11.2
Education level		
Not attending school	45	14.4
Primary school	29	9.3
Secondary school	49	15.7
SPM	70	22.4
STPM	17	5.4
Diploma	55	17.6
Bachelor Degree	46	14.7
Master Degree	1	0.32
PhD	0	
Marital Status Married	107	34.3
Single	205	65.7
Types of Tribe Semai	218	69.9
Temiar	2	0.64
Jah Hut	12	3.85
Mah Beri	4	1.28
Semaq Beri	2	0.64
Temuan	17	5.45
Jakun	36	11.54
Semelai	11	3.53
Orang Kuala	2	0.64
Others	8	2.56

Note: Total N=312

Model Validation: The study framework was evaluated using the Partial Least Squares (PLS) modelling technique, specifically with SmartPLS v3.0. This choice was made due to the ability of PLS to analyze data without being constrained by sample size or assumptions of normality. In addition, it has been found that SmartPLS demonstrates a higher level of predictive accuracy and facilitates the examination of cause-effect linkages (Ringle et al., 2005). Before analyzing the hypotheses of the study model, the researchers assessed the discriminant and convergent validity. Subsequently, the pertinent information was organized based on metrics that indicate the primary variables and their respective dimensions for the variable under study (Hair et al., 2014). To assess appropriateness more thoroughly, some criteria must be considered. These criteria include factor loading, which should exceed a value of 0.7. Additionally, the Average Extracted Variance (AVE) should be greater than 0.4. Furthermore, both Cronbach's Alpha (CA) and Combined Reliability (CR), which measure internal consistency reliability, should be above a threshold of 0.7 (Hair et al., 2014).

Validity Assessment of Instrument

(a) Reliability test: The Cronbach's alpha coefficients presented in Table 2 indicate the level of internal consistency or the extent to which a group of test items are correlated. The study utilized three variables with values ranging from 0.80 to 0.87, indicating the items have been proven to be reliable and understandable such that the scores based on the Cronbach's alpha test have successfully achieved above 0.80.

(b) Convergent and discriminant validity: For each study scale, convergent and discriminant validity approaches were used to confirm construct validity. Convergent validity measures the association between agreeing construct indicators. Convergent validity was assessed using AVE, loading factor, and CR. Each item's loading factor must exceed 0.5 (Fornell & Larcker, 1981). For convergent validity, the AVE and CR must be greater than 0.5 and 0.7, respectively (Hair et al., 2014). Table 2 shows all results that were accepted, proving the study item's convergent validity.

Table 2: Convergent Validation Analysis

	Cronbach's Alpha	Composite Reliability (Rho_A)	Composite Reliability (Rho_C)	Average Variance Extracted (AVE)
Attitude Towards Vaccination	0.832	0.845	0.889	0.667
Intention To Adopt Vaccination	0.804	0.808	0.885	0.719
Tribal Leader Endorsement	0.865	0.878	0.902	0.649

The HTMT method was used to further test the discriminant validity resulted in all values being less than 0.9

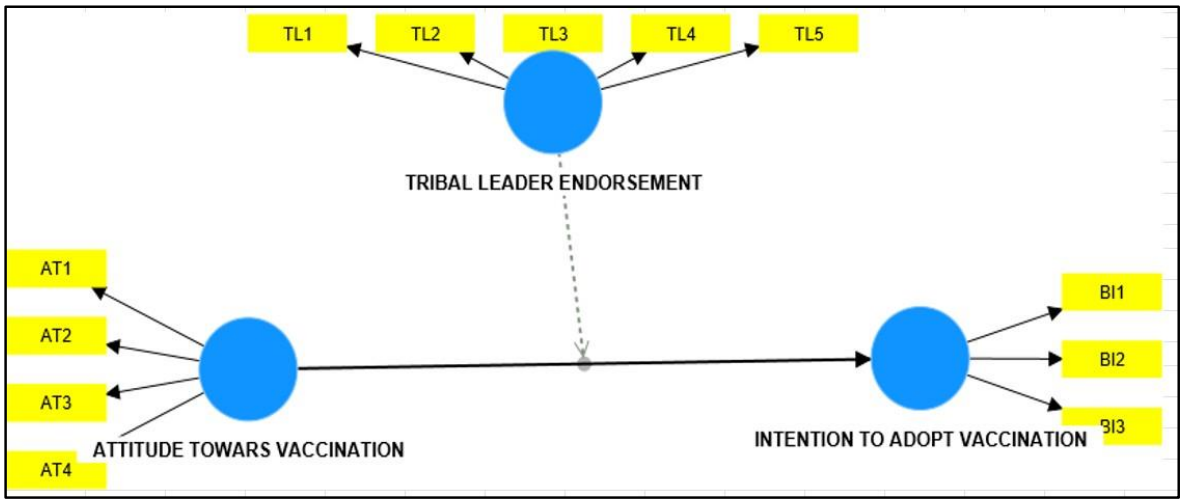
Table 3: Discriminant Validation using the HTMT Method

	Attitude Towards Vaccination	Intention To Adopt Vaccination	Tribal Leader Endorsement	Tribal Leader Endorsement X Attitude Towards Vaccination
Attitude Towards Vaccination				
Intention To Adopt Vaccination	0.724			
Tribal Leader Endorsement	0.547	0.606		
Tribal Leader Endorsement X Attitude Towards Vaccination	0.188	0.164	0.061	

(Henseler et al., 2015b), as seen in Table 3.

Measurement Model 1: The purpose of this part is to provide a description of the responses from the individuals in the study sample and analyze them using the arithmetic mean and standard deviation in relation to the independent and moderating variables and intention to adopt, as seen in Figure 2.

Figure 2: Significance Assessment of the Structural Model



(a) Assessment of the SEM Significance: This study employed three hypotheses to address the research questions specified. In the process of hypothesis testing, the statistical significance of parameter estimations and coefficient values was assessed using a bootstrapping technique within the framework of Partial Least Squares Structural Equation Modeling (PLS-SEM) as outlined by Hair et al. (2014). The study employed the bootstrapping approach with 1000 bootstrap re-samplings and bias-corrected confidence intervals to assess the significance of the path coefficients (Chan et al., 2007). According to Hair et al. (2014) and Tabachnick et al. (2013), in a two-tailed test, the t-value must meet or above the threshold of 1.96 at a significance level of 5%.

Table 4: Hypotheses Tests of Study

	T statistics	P values	Results
Attitude Towards Vaccination -> Intention to Adopt Vaccination	8.296	0.000	Supported
Tribal Leader Endorsement -> Intention to Adopt Vaccination	5.139	0.000	Supported
Tribal Leader Endorsement X Attitude Towards Vaccination -> Intention to Adopt Vaccination	1.198	0.231	Unsupported

In the beginning, Hypothesis 1 anticipates that attitude will impact the intention to adopt the vaccine. The findings shown in Table 4 illustrate a statistically significant and positive correlation between individuals' attitudes and their intentions to accept vaccination. Therefore, the evidence supports H1. Hypothesis 2 posits that the endorsement of vaccination by tribal leaders has a significant impact on individuals' inclination to adopt immunization. The findings demonstrate that there is a statistically significant relationship at a 5% significance level, supporting hypothesis H2. Table 3 provides evidence that the endorsement of tribal leaders does not act as a moderating factor in the association between attitude and intention to accept vaccination. Consequently, the hypothesis H3, which posited such a moderation effect, is not supported.

(b) Coefficient of Determination R2: Analysis of the PLS-SEM structural model requires a coefficient of determination (R2). R2 measures the variance in a dependent variable due to regressors or independent variables (J. Hair et al., 2014). R2 is 0.000–1.000. A 0 value shows no perfect link between constructs. An R2 value of 1.000 shows a perfect relationship, positive or negative. This research investigation solely focuses on a single endogenous variable, namely the intention to adopt. The adjusted R2 considers the number of independent factors employed in predicting the target variable and assesses the impact of attitude on the intention to adopt. Consequently, it serves as an indicator to ascertain whether the inclusion of a new variable in the model will enhance the model's overall fit. The coefficient of determination (R2) for the intention to adopt, as seen in this study, was found to be 0.428. The findings suggest that the model incorporating the two

exogenous factors successfully accounted for around 0.428 percent of the observed fluctuations in the dependent variable, namely the desire to adopt.

(c) Assessment of Effect Size (F^2): The present study employed the f^2 statistic as a means to evaluate the comparative influence of the independent factors on the endogenous construct, specifically the intention to adopt. According to Hair et al. (2014), effect sizes of a model are evaluated using values of 0.02, 0.15, and 0.35. According to the findings presented in Table 5, it can be observed that the exogenous constructs have rather modest effect sizes on the corresponding endogenous construct.

Table 5: ***f^2 statistic***

F-Square	Attitude towards Vaccination	Intention to Adopt Vaccination	Tribal Leader Endorsement
Attitude towards Vaccination		0.254	
Intention to Adopt Vaccination			
Tribal Leader Endorsement		0.128	
Tribal Leader Endorsement X Attitude towards Vaccination		0.007	

Predictive Relevance (Q^2): For this investigation, the measured value of Q^2 was 0.406, which is greater than zero. This reflects how well a model predicts the data of missing cases, which is evident in the improved predictive significance of the study variables regarding the effect of attitude, and tribal leaders' endorsement on adoption intention. Predictive Relevance (Q^2) is a metric used to assess the predictive relevance of the inner model. This metric is based on a sampling technique known as blindfolding. This method involves omitting a portion of the data matrix, estimating model parameters, and predicting the omitted portion (Hair et al., 2014). When the result value of Q^2 for a specific endogenous construct is larger than zero, this indicates the predictive relevance route model for this construct.

Discussion: Understanding of COVID-19 vaccination is limited among the indigenous communities, given where they commonly live, thus requiring strategies for vaccination uptake put into practice specific for their communities. According to existing scholarly works, one of the ways to increase the number of people inoculated among the indigenous community is by means of the tribal leader's endorsement. Many countries around the globe are utilizing tribal leaders to encourage community participation within their primary healthcare system. In northern Nigeria, tribally led initiatives have been proven successful in scaling up polio campaigns (Nwaze & Mohammed, 2013), meanwhile in North Carolina tribal leaders helped increase access to healthy, affordable foods for tribal communities (Fleischhacker et al., 2011) and in South Africa, tribe leader brings positive inspiration on HIV and AIDS prevention (Webb-Myllynen et al., 2011). In the Malaysia context, Cameron Highlands MP Ramli Mohd Nor, the country's first Orang Asli elected representative proposed that "the government empower Orang Asli community leaders or Tok Batin for support in administering vaccination" (Hisamudin, 2021). As such, this study believes that tribal leaders as potential public health change agents help bear vaccination challenges among indigenous communities.

However, despite vaccination proven useful in fighting COVID-19 disease continues to claim many lives, yet with ongoing negative publicities surrounding vaccination uptake, has created apprehensions towards the vaccination among the public. Perceived advantages of the vaccine, perceived benefits of the vaccine severity, signals to action, self-reported health outcomes, and trust were all factors in the decision to adopt the COVID-19 vaccination (Wong et al., 2021) as well as concerns about safety, efficacy, costs, and side effects (Reiter et al., 2020). Indigenous people in Peninsular Malaysia are reluctant to get the COVID-19 vaccine due to concerns about the vaccine's safety and its potential for long-term adverse effects (Khalid, 2021).

According to Moorthy et al. (2022), "building public trust is critical to the success of the immunization program". As such, tribal leaders may help in narrowing vaccine trust gaps by educating members of the tribe about vaccine benefits, vaccine accessibility, vaccine availability, efficacy and vaccine side effects and others. Indigenous communities often subscribe to their customary leaders for advice on spirituality, family life-related and religiosity matters. According to Arthur & Nsiah (2011), members of the tribe hold tribal leaders

in high esteem and largely rely on their guidance to make decisions. Thus, a tribal leader has the capability to convince and promote the members of the tribe to accept vaccination.

The finding of this study was drawn upon three generations of Generation X, Generation Y and Generation Z. Generation X represents a cohort with a starting birth year of 1965 and 1980 as ending birth years (Amyx et al., 2011). Gen-Xers are highly focused on the desired results (Dayan, 2005). Generation Y or Millennials were born between 1981 and 2000 (Amyx et al., 2011). They are a demographic cohort following Generation X. People from this generation acknowledge contributing to society is important (Eisner, 2005). Generation Z is the demographic cohort succeeding Gen Y and is widely known as Digital Natives (Feiertag & Berge, 2008) and is a heavy user of the internet (Merriman, 2015).

The finding of this study that the endorsement of tribal leaders does not act as a moderating factor in the association between attitude and intention to accept vaccination could be explained by the fact that different generation cohorts may represent a different set of behavioral characteristics. On one hand, younger people's preference for vaccination uptake was to follow the examples of local vaccination "heroes," (Chan et al., 2022). Meanwhile, on the other hand, older people think differently is their group age is most likely associated with medical conditions, leading to being unsure about being vaccinated. According to Hisamudin (2021), people are scared to be vaccinated because they have medical conditions and due to a lack of credible information about the vaccines.

In summary, although universally, the tribal leader is considered the most trusted information source within the indigenous community, yet, the finding of this study shows inversely, that although indigenous communities are closely tied and show devotion to their tribal leader, there is still a visible wall when it comes to their decision whether to get vaccinated. However, Johns Hopkins University reported that traditional leaders were “an untapped resource and a key link needed to bring various stakeholders on the same path to better health” (JHUCCP, 2014), the Malaysia government should utilize tribal leader to drive vaccination efforts in indigenous villages in the country. Tribal leaders in the indigenous community should be invited to formally spearhead their village’s vaccination efforts by sharing any information hassle-free, convincing villagers to register for the program and ensuring vaccine compliance to younger generational groups within the indigenous community.

5. Conclusion

The world is still being shadowed by COVID-19 disease. COVID-19 virus is indivisibly affecting all humankind, including indigenous communities. As current cross-country evidence many indigenous people in Malaysia have been affected by COVID-19, The Government should be responsive in tackling COVID-19 vaccination acceptance by extending solution that is more likely to meet the context and culture of the indigenous. With the potential of traditional leaders as agents of change towards vaccination being less likely studied, further research is needed to ascertain tribe leader endorsement towards vaccination among the Indigenous population across generational periods.

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Factors Affecting the Intention to Invest in Islamic SRI in Malaysia

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Abstract: Islamic SRI has shown a flourishing expansion over the last three decades. This demonstrates that there will be a significant opportunity to enhance the Islamic SRI in the Islamic Finance sector. Islamic SRI is a type of investment that facilitates the creation of the ecosystem and promotes responsible investing. The study attempts to look at the factors affecting the intention to invest in Islamic SRI. The theoretical framework is built on the Theories of Planned Behavior (TPB) and Theory of Reasoned Action (TRA). Since the study focuses on the desire to engage in Islamic SRI, the theories are expanded to include three more antecedents: environmental and societal concern, knowledge, and religion. Due to the study's emphasis on Islamic SRI perspectives, these variables ought to be included. According to the multiple regression analysis, four components, namely attitude, subjective norm, environmental and social factors, were revealed to be positively significant on the intention to invest in Islamic SRI. The study employs quantitative research through an online survey questionnaire. The sampling technique for this study is non-probability sampling by applying the convenience sampling technique. Besides, the targeted population of this study is the potential private investors who reside in the states of Kuala Lumpur and Selangor, while the total sample size of the study is 380.

Keywords: *Intention to invest, Islamic SRI, Social Responsible Investment, Malaysia*

1. Introduction and Background

Since 1980, Social Responsible Investment, often known as SRI, has been a component of the economy as a whole, beginning with very modest actions carried out by the societies (Townsend, 2020). According to Kłobukowska (2017). SRI can be defined as an investment vehicle that prioritizes social responsibility and environmental protection despite the financial return. This is further highlighted by Mohd Muslimin (2020), whereby those who invest in SRI are not only focused on making a profit but also seek to have a positive social value and concern for the environment. Therefore, this study believes that SRI is an investment vehicle that places a premium not just on financial return but also on considering its impact on the surrounding community and the natural environment. According to The Edge Market (2020), various terms are used to define the SRI, such as sustainable and responsible investment, socially responsible investment, sustainable sukuk, and green investment. All these terms have the same meaning used to explain SRI.

The establishment of SRI in Malaysia was early in the 1990s, the growth of the SRI started in 2014, while the first Islamic SRI was launched in 2017, known as "sustainable sukuk" (Mohd Muslimin, 2020). In 2014, the Securities Commission initiated the SRI Sukuk Framework, which is now widely regarded as a ground-breaking regulatory innovation because it successfully combines with Shariah principles (Capital Market, 2022). The framework guideline issued by the Securities Commission is to facilitate and encourage rapid growth of Islamic SRI funds in Malaysia as well as to build a good position as a regional Shariah-compliant SRI center (Securities Commission Malaysia, 2019). According to the Securities Commission Malaysia (2019), there are 3 types of eligible SRI projects in Malaysia, which are Green Projects, Social Projects and Waqf Properties.

According to Yew, Ni, Kit & Chen (2019), Malaysia has recently developed into one of the greatest SRI in the Asian Market. Whereby, the majority of Malaysia's SRI assets come from Shariah-compliant products (Asia Sustainable Investment Review, 2014). This indicates that there will be an opportunity to enhance the Islamic SRI in the Islamic Finance sector. Islamic SRI can be defined as a type of investment that facilitates the creation of an ecosystem and promotes responsible investing (Securities Commission Malaysia, 2019). This explains that Islamic SRI aims to protect natural resources and improve the quality of social life. Considering this, the objective of the study is to investigate the elements that influence the desire to engage in Islamic SRI.

According to Securities Commission Malaysia (2019), Islamic SRI has shown a flourishing expansion over the last three decades. Besides, this demonstrates that there will be an opportunity to enhance the Islamic SRI which will stimulate a fast expansion of Islamic SRI in Malaysia. However, while Islamic SRI is becoming more popular for funding environmental and societal projects, the sector remains undeveloped (Delle Foglie & Keshminder, 2022). The paucity of market data hinders market growth, erodes investor trust and delays the emergence of new SRI Sukuk products (Delle Foglie & Keshminder, 2022). Besides, to lack of understanding, experience and awareness of Islamic SRI results in a slow expansion of Islamic SRI in the market (Rahman et al., 2020).

2. Literature Review

Attitude: defined as the form of favorable or unfavorable evaluation of the behavior towards the action (Ajzen, 1991). Yew et al. (2019) found that attitude has a significant relationship with the intention to invest in SRI. According to Farish & Karim (2021), a positive attitude will affect the investors' intention to invest in Islamic SRI.
H1: There is a significant relationship between attitude and the intention to invest in Islamic SRI.

Subjective Norm: known as the perceived social pressure either to perform or not to perform a specific behavior (Ajzen, 1991). According to Osman (2019), the subjective norm is related to a person's acceptance of others' perception of a certain act. Setyorini & Indriasari (2020) found that the closest individuals play an important role in influencing a person either to perform or not the action. Raut et al. (2020) stated that referent significantly affects investors' intention to invest in SRI.
H2: There is a significant relationship between subjective norms and the intention to invest in Islamic SRI.

Perceived Behavioral Control: is defined as the perception of the ease or difficulty in performing a certain act (Ajzen, 1991). The individual believes in their capacity to control their behavior (Ajzen, 1991). According to Raut et al. (2018), high-experienced investors can be drawn to SRI
H3: There is a significant relationship between perceived behavioral control and the intention to invest in Islamic SRI.

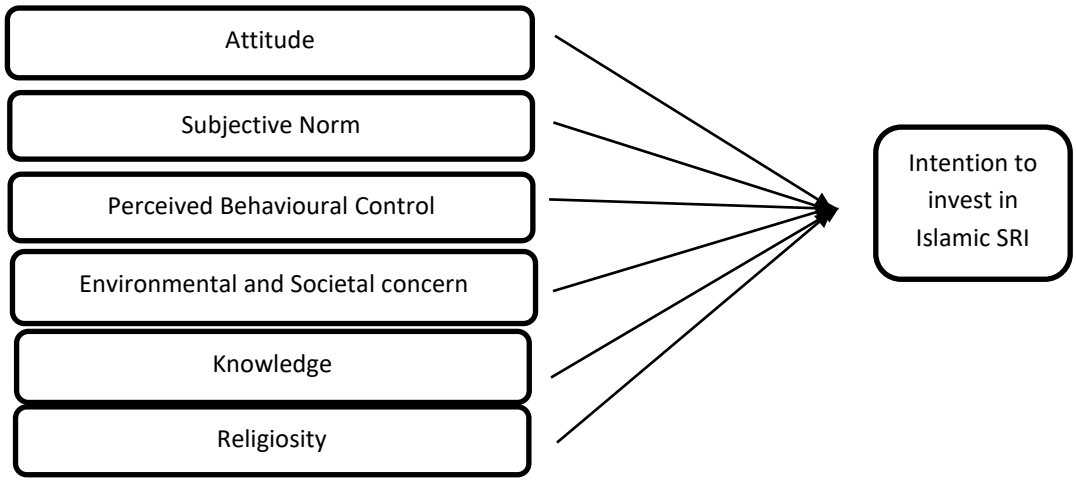
Environmental and Societal Concern: As mentioned by Sultana et al. (2017) and Yew et al. (2019), environmental concern refers to a person's consciousness about the environmental aspect while societal concern refers to a person's consciousness about the community aspect. Since the goal of Islamic SRI is to facilitate the creation of an ecosystem and encourage responsible investing, human welfare and environmental protection are vital to the creation of a better world (Farish & Karim, 2021).
H4: There is a significant relationship between environmental and societal concerns and the intention to invest in Islamic SRI.

Knowledge: defined as the fact or condition of knowing something with familiarity gained through experience or education and can be referred to as awareness. The higher the awareness may result to the higher the intention to invest in SRI.
H5: There is a significant relationship between knowledge and the intention to invest in Islamic SRI.

Religiosity: defined as a person's religious beliefs that affect a person's behavior act. The concept of Islamic SRI is to preserve the public good, no harm to the world, social justice and promote the well-being of all humankind. Najib (2019), highlighted the main benefit of investing in Islamic SRI is promoting a better environment and social rights.
H6: There is a significant relationship between religiosity and the intention to invest in Islamic SRI.

Based on the literature review the research framework presented in Figure 1 is below.

Figure 1: Research Framework



3. Methodology

This study employs a quantitative research method to investigate how attitude, subjective norms, perceived behavioral control, environmental and societal concern, knowledge, and religiosity can affect the potential investor's intention to invest in Islamic SRI in Malaysia. Correlational research design is conducted in this study to determine the relationship between the attitude, subjective norm, perceived behavioral control, environmental and societal concern, knowledge and religiosity and intention to invest in Islamic SRI.

Targeted Population: The targeted population of this study is the potential private investors who reside in the states of Kuala Lumpur (KL) and Selangor. Since both states experienced strong investment success, they were chosen as the study's sampling location with a minimum sample size of 146 and a maximum of 500 based on the suggestions from (Sekaran & Bougie, 2016) and calculation in the G-Power.

Sampling Technique: Due to the large population of KL and Selangor, convenience sampling techniques were applied in this study because this technique is conveniently accessible to obtain data from a large population (Yew et al., 2019).

Data Collection Method: This study employs primary data as the method for the data collection and online survey questionnaires as the research instruments. The construction of the questionnaires will be adapted from the previous study. The type of questionnaire applied in this research is a self-administered questionnaire. The study used a Nominal scale to measure the demographic information in section A. Gender, race, range of ages, marital status, occupation, income level, education level and four selected requirements, which are whether the respondent lives in Kuala Lumpur and Selangor or not, whether the respondent has any investment experience or not, whether they are currently investing in Islamic SRI or not and whether they want to invest in Islamic SRI in the future or not, will be answered by the respondent in Section A. In section B, the questions related to the independent and dependent variables.

Data Analysis Technique: After the data has been collected, the data analysis technique assists the study in comprehending and interpreting the data. The data were analyzed using SPPS version 25. To find out the relationship between intention to invest in Islamic SRI and attitude, subjective norm, perceived behavioral control, environmental and societal concern, knowledge, and religiosity depends heavily on the data analysis technique.

4. Results

The demographic segment is used to evaluate the frequency of the respondents. This analysis helps the study to identify the highest and the lowest frequency for the demographic profile of the respondent. Table 1 shows demographic data for respondents of the 380 potential investors analyzed in the survey, 191 of the

respondents were male, while the remaining 189 were female. The sample shows an equal representation of each gender. The largest group that participated in this study is Malay, which stands at 278 followed by Chinese with 90 respondents. Notably, 152 respondents work in the Government sector closely followed by the business sector with 140 respondents. The highest income level earned more than RM10000, equivalent to 102 respondents. Based on the results, it can be concluded that all potential investors want to participate in Islamic SRI. The demographic frequency analysis for the 380 respondents participating in this survey is shown in Table 1.

Table 1: Demographic Profile

No and Variables	Items	Frequencies	Percentages
1 Gender	Male	191	50.3
	Female	189	49.7
2 Races	Malay	278	73.2
	Chinese	90	23.7
	Indian	12	3.1
3 Occupation	Government	152	40.0
	Private Sector	65	17.1
	Business	140	36.8
	Self Employed	20	5.3
	Retirement	3	0.8
4. Income Level	RM0-RM2500	20	5.3
	RM2501-RM4500	61	16.1
	RM4501-RM6500	53	13.9
	RM6501-RM8500	62	16.3
	RM8501-RM10000	82	21.6
	>RM10000	102	26.8
5. Do you want to invest in Islamic SRI	Yes	380	100
	N0	0	0

Reliability Analysis: The value of Cronbach's alpha for each variable is above 0.694. Hence, all the measurements for the independent variables in the study are accepted and reliable. This shows that all the questions adopted and adapted by the researcher were good, accepted, and reliable to be used to determine the findings of the study. The Reliability Analysis is shown in Table 2.

Table 2: Reliability Analysis

Variables	Items	Cronbach's Alpha
Dependent Variable	Intention to invest in Islamic SRI	0.908
Independent Variables	Attitude	0.840
	Subjective Norm	0.835
	Perceived Behavioral Control	0.797
	Environmental and Societal Concerns	0.850
	Knowledge	0.694
	Religiosity	0.868

Multiple Regression Analysis: The multiple regression tests between attitude, subjective norm, perceived behavioral control, environmental and societal concern, knowledge, and religiosity to invest in Islamic SRI. The confidence level of the study is 95% while the p-value shall not be greater than 0.05. Based on the multiple regression analysis, only four out of six independent variables were found to be significant on the intention to invest in Islamic SRI, which are attitude (p=0.00), subjective norm (p=0.00), environmental and societal concern (p=0.033) and religiosity (p=0.042). Unfortunately, perceived behavioral control and knowledge were found to be not significant with the intention to invest in Islamic SRI, since the p-value for both variables was above 0.05. The multiple regression analysis is shown in Table 3 below.

Table 3: Multiple Regression

Model	Unstandardized Coefficient (Beta)	t	Sig	Collinearity	
(constant)	.212	.915	.361	Tolerance	VIF
Attitude	.463	6.674	.000	.344	2.908
Subjective Norm	.254	5.297	.000	.550	1.817
Perceived Behavioral Control	.043	.892	.384	.594	1.682
Environmental and Societal concerns	.140	2.136	.033	.387	2.584
Knowledge	-.021	-.672	.502	.887	1.127
Religiosity	.067	2.037	.042	.766	1.306

Coefficient Determination: This analysis determines a difference in one variable that can be explained by the difference in another variable. The adjusted R square value is 0.536, which indicates that 53.6% of the variation in the intention to invest in Islamic SRI can be explained by attitude, subjective norm, environmental and societal concern, and religiosity except for the perceived behavioral control and knowledge. The results are shown in Table 4 below.

Table 4: Coefficient Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.737[a]	.544	.536	.32720

Hypotheses Testing: Table 5 shows the description of the hypothesis test for each construct of independent variables which are attitude, subjective norm, perceived behavioral control, environmental and societal concern, knowledge, and religiosity to invest in Islamic SRI. Tables 4 and 5 show that attitude has the highest value of Beta with ß =.463 and p (0.00). Notably, closely followed by subjective norm with ß = .254 and p (0.00), environmental and societal concern with ß = .140 and p (0.033) and religiosity with ß = .067 and p (0.042). The hypotheses for attitude, subjective norm, environmental and societal concern, and religiosity were accepted. However, the hypotheses for perceived behavioral control, and knowledge were not accepted because the p-value is more than the significant level of 0.05.

Table 5: Hypotheses Testing

Hypothesis	Relationship	P-value	Sig	Supported
H1	Attitude -> Intention to invest in Islamic SRI	.000	Significant	Yes
H2	Subjective Norm -> Intention to invest in Islamic SRI	.000	Significant	Yes
H3	Perceived Behavioral Control -> Intention to invest in Islamic SRI	.384	Not Significant	No
H4	Environmental and Societal concerns -> Intention to invest in Islamic SRI	.033	Significant	Yes
H5	Knowledge -> Intention to invest in Islamic SRI	.502	Not Significant	No
H6	Religiosity -> Intention to invest in Islamic SRI	.042	Significant	Yes

Discussion: The first objective is to find out the variables that influence the intention to invest in Islamic SRI. Since the study emphasizes behavioral intention, therefore theoretical framework is constructed based on the Theory of Planned Behaviour (TPB) and the Theory of Reasoned Action (TRA). As a result, there are six factors affecting the intention to invest in Islamic SRI, namely attitude, subjective norm, perceived behavioral control, environmental and societal concern, knowledge, and religiosity.

The second objective is to examine the relationship between attitude, subjective norm, perceived behavioral control, environmental and societal concern, knowledge, and religiosity on the intention to invest in Islamic SRI. The study finds out that there are four variables found to be significant in the intention to invest in Islamic SRI, which is the attitude with p (0.00), the subjective norm with p (0.00), environmental and societal

concern with p (0.33) and religiosity with p (0.042). Having a positive attitude will encourage people to perform the action; therefore the study believes that a positive attitude may encourage potential investors to engage in Islamic SRI. Besides, public opinion such as families and peers will influence the potential investors to participate in Islamic SRI. Concern on issues related to environment and social well-being may assist the potential investors to invest in Islamic SRI. Lastly, religious value motivates the potential investors to take part investing in Islamic SRI. However, perceived behavioral control and knowledge were found to be insignificant to the intention to invest in Islamic SRI, since the p-value is above 0.05 which are (0.384) and (0.502). This explains that potential investors do not believe in their capabilities to engage in Islamic SRI and low knowledge leads to poor awareness and prevents the potential investors from investing in Islamic SRI.

The last objective is to investigate the most influential factors that influence the intention to invest in Islamic SRI. Based on the result of multiple regression in Table 3 the most influential factor is attitude. The data shows that attitude has the highest value of coefficient Beta with ß =.463 and p (0.00).

5. Research Implications and Recommendations

Commonly, people think investment is mainly because of profit gain but not for Islamic SRI. The main indication for Islamic SRI is concern with issues related to environmental and societal aspects. For instance, illegal lodging, wastewater, global warming, hunger, medical costs, essential services and education costs. Looking at the result of the study, helps the reader to know more about Islamic SRI and increases awareness. Besides, the concept of the Islamic SRI is aligned with the objectives of Islam, which are to preserve the public good, no harm, social justice, and promote the well-being of all humankind. Consideration has been taken in terms of not harming the world as well as contributing to society and the environment. Therefore, this reveals that profit and return are not the main causes that investors wish to gain as their goals to solve environmental and societal issues.

The study recommends that future research examine other variables that may be useful in the context of the intention to invest in Islamic SRI so that the framework will be more comprehensive. Since the the value of R^2 was recorded at 0.536 equivalent to 53.6% of the variance can be explained by attitude, subjective norm, environmental and societal concern, and religiosity and leaves 46.4% unexplained. Besides, the study recommends future research to make a study by involving real investors instead of potential investors so that this will lead to a high number of investors in Islamic SRI as well as lead to the growth of the Islamic SRI in Malaysia.

Conclusion: Based on multiple regression, only 4 out of 6 independent variables show a positively significant relationship to invest in Islamic SRI, which are attitude, subjective norm, environmental and societal concern, and religiosity. However, perceived behavioral control and knowledge were insignificant to the intention to invest in Islamic SRI.

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Mosque Tourism Satisfaction: A Comparative Study of Malaysia, Thailand and Indonesia

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Abstract: Islamic tourism encompasses the exploration of Islamic history, culture, and religion. One form of Islamic travel is mosque tourism, which involves visiting mosques to appreciate their beauty, history, and culture. Mosque tourism can facilitate cultural exchange, economic growth, historical preservation, and promote respect and understanding between civilizations, leading to a higher level of mosque tourism satisfaction. Understanding the historical, aesthetic, architectural, religious, and cultural significance of a mosque, as well as its accessibility and tourist amenities, are essential components of mosque tourism. This type of tourism encourages intercultural harmony by offering individuals from diverse backgrounds the opportunity to comprehend and respect each other's cultures and religious beliefs. Nonetheless, the growing number of Muslim tourists also poses challenges to the travel industry's efforts to promote mosque tourism, which are explored in this comparative study of Malaysia, Thailand, and Indonesia. These nations have made significant efforts to promote mosque tourism.

Keywords: *Islamic tourism, mosque tourism, mosque tourism satisfaction.*

1. Introduction and Background

In today's globalized world where seeking experience has made traveling a part and parcel of everyday life, tourism has become a broad industry for many countries. Globally, Muslims were the second largest religious group with 1.8 billion or 24% of the world population, followed by other religions such as Hindus (15%) and Buddhists (7%) (Ketter, 2017). The greatest growth in number was experienced by Muslims among all other religious groups including Christians. In Islam, the mosque is not just the main place for Muslims to perform their religious activities, but also an institution for social gatherings. In Malaysia, the development of mosques in any district has increased from time to time which represents the socio-culture of Muslims in Malaysia. The mosque functions as a place for religious and learning activities as well as an education center. Mosque tourism can satisfy tourists through the experience of travelling far from hectic life.

In the Islamic tourism industry, the mosque becomes a 'concrete symbol' of Islam and significantly turns out to be a role model and symbol in promoting Islam to other nations and races. Until today, the mosque still stands up as a focal institution for the Muslim community, but the role of a large-built mosque is not fully exploited and maximally used to attract new and revisit tourists, and even local people (Aziz, Ibrahim, Jahnkassim & Abdullah, 2016). Moreover, the mosque only appeared as the symbol of 'architectural pride' of Muslim society and did not function to create an understanding of Islam (Aziz et al., 2016). If we notice, we can find that many mosques in Malaysia have forms and structures that are similar; most of them have the outer structure of big domes with minarets, the inner decorations, and other similar features, for instance, the design of Masjid Putra in Putrajaya (Othman, Yazid, Yunos & Ismail, 2015).

This scenario shows that mosque institutions in Malaysia are used for tourism purposes only and to receive foreign interest. Thus, this research aims to investigate the significant relationship between destination attributes and tourists' satisfaction with mosque destinations. The demand for Shariah-compliant goods and services has increased over the past 20 years, fueling the growth of the Islamic lifestyle sector. Many participants in the tourism industry have begun offering unique goods and services that were created and constructed in line with Islamic principles. This is to cater needs and desires of these tourists as Muslim tourism has grown in popularity and as well as awareness. Nevertheless, Islamic tourism is still a relatively new idea in both theory and practice. Islamic tourism and mosque tourism are related but distinct concepts.

Islamic tourism refers to travel that is specifically focused on experiencing and learning about Islamic culture, history, and faith.

It includes visiting Islamic historical sites, such as mosques, madrasahs, and tombs of Islamic scholars and holy figures, as well as experiencing Islamic customs and traditions, such as Ramadhan and Eid al-Fitr, and learning about Islamic art, calligraphy, and architecture. Mosque tourism, on the other hand, is a subset of Islamic tourism that specifically focuses on visiting and experiencing the beauty, history, and culture of the mosque. It includes visiting the mosque as a place of worship, to learn about architectural style and history, and to gain a deeper understanding of the Islamic faith. The rationale behind the practice of mosque tourism is multifaceted. The main reasons are to promote cultural understanding and awareness of Islamic culture, history, and faith. Through mosque tourism, visitors can gain a deeper understanding and appreciation of Islamic culture and its rich history, as well as the architectural and artistic beauty of the mosque.

Another reason is to promote economic development in local communities. Mosque tourism can also bring in a significant amount of revenue from tourism-related activities, such as accommodation, transportation, and souvenir sales, creating jobs and income for residents. Additionally, mosque tourism can also play a role in preserving and conserving historical and cultural sites. As more people visit the mosque, it can help raise awareness and funding for their preservation maintenance. A mosque tourism framework refers to a set of guidelines and strategies for promoting and managing the tourism potential of a mosque. This can include developing tour packages and visitor information, promoting the cultural and historical significance of the mosque, and ensuring the preservation of the mosque's heritage. Furthermore, it may include measures to enhance the visitor experience, such as providing audio guides, interpretive displays, or guided tours.

Additionally, it may include measures to manage the impact of tourism on the mosque, such as controlling visitor numbers, managing access to certain areas, and providing appropriate facilities for tourists. Involvement and collaboration with local communities, tour operators and other stakeholders to ensure that the mosque's heritage is preserved and promoted sustainably.

2. Literature Review

Nowadays, Islam is the world's fastest-growing religion, and mosques have been built more than any other place of worship. Large, iconic, and architectural mosques serve as a hub for spiritual and religious activities for communities. Moreover, heritage features and designs, unique characteristics and accessibility make them a push and pull factor for a large scale of tourist visits (Toyib, 2009). The mosque is generally known as Masjid in the Arabic language, which is used in the Quran, and it means a place of prostration. In the 622 Century, the Prophet's Mosque in Medina was built after the immigration of Muslims from Mecca to Medina. Prophet Muhammad SAW himself had actively participated in the construction of the mosque which was called as Nabawi Mosque. From that moment, the mosque became the center of Islamic city and civilization as well as for political, religious, cultural, and social activities. However, when Muslim tourists travel for more than three consecutive days, the mosque is the place for them to perform their prayers.

This is clearly mentioned in the Quran: "O you who believed, when the adhan is called for the prayer on the day of Jumu'ah (Friday), then proceed to the remembrance of Allah and leave the trade. That is better for you if you only knew" [Al Jumu'ah, 62:9]. Apart from functioning as a place for worship, the mosque is a central event of the community, and it needs to follow certain criteria in terms of site planning and design. The ideal location of the mosque should be within a residential area that can be easily accessible by public transportation, its entrance needs to be visible from the street, have wide parking facilities and most importantly, it can be accessible by visitors or tourists. A great example of a 21st-century mosque in Arab countries that blends tradition with modernity is Sultan Ahmed Mosque popularly known as Blue Mosque in Istanbul, Turkey which was opened in 1616 and established as a UNESCO World Heritage Site in 1985. This mosque is open to Muslims and non-Muslims who want to pay a visit and are amazed by the architectural view of Blue Mosque.

It allows Muslims to pray, offers seminars and lectures on religious topics as well and permits tourists to visit the mosque outside the prayer time. Tourists are also welcome to talk with the mosque tour guide on topics

related to the mosque and Islam. Henderson (2003) suggested that a unique mosque with different values could be considered a tourist attraction. A mosque or 'masjid' implied a vital function in Muslim societies from the time of the Prophet Muhammad (PBUH) and served as a multifunctional institution for different (political, non-political, and social) reasons, including learning, maintaining justice, settling conflicts, rehabilitating prisoners, and performing marriages and leisure activities (Omer, 2010). In this vein, mosques were inextricably linked to the global advent of Islamic society, culture, and civilization, including Malaysia. Locally, mosques could be located in almost every town and district in each state. Following the current data from the Department of Islamic Development (JAKIM) website (JAKIM, 2021), the total number of mosques in Malaysia is approximately 6,506.

In 2019, the Sheikh Zayed Grand Mosque in Abu Dhabi recorded approximately 6.6 million tourists and worshippers (879,049 from India, 704,680 from China, 234,849 from Russia, and 193,234 from Germany). On another note, the Al Azar Mosque, Kutubiya, Suleiman Mosque, and Selimiye Mosque became salient examples of historical attractions and spiritual houses that appealed to multiple visitors. Although Malaysia has recently strived to be acknowledged as an Islamic and halal hub, most research on the local Islamic context was confined to halal food and hospitality in hotels. Hence, an examination of the Islamic offerings in Malaysia proved necessary to comprehend self-branding potential as an Islamic destination for Muslims. Many tangible and intangible Islamic aspects in Malaysia, including mosque and prayer facilities, halal food, Islamic stability, and national safety (Shafaie F., 2015) potentially induced Muslim tourists to visit the country. Essentially, mosques denoted sustainable constructions that were developed to serve Muslim and non-Muslim communities and residents.

As mosques implied sources of information and shelter for Muslim and non-Muslim individuals, promoting mosques while acknowledging the Quranic role facilitated non-Muslims to visit the symbolic buildings and comprehend Islam, Islamic rituals, and the followers of Islam (to eliminate the misinterpretation of Islam and Islamophobia). In this regard, mosque tourism is a strategic and valuable instrument to sustain Islamic tourism (Kessler, 2015). Malaysia encompasses many old and newly established and picturesque mosques nationwide with some listed as UNESCO World Heritage sites. The local architectural styles of Malaysian mosques reflected diversity following inspiration from magnificent mosques worldwide, traditional Malay architecture, and local cultures and patterns. Additionally, unique architectural influences symbolized architectural pride (some of the influences were oriental, colonial, colloquial, and Moorish). The National Heritage Department (NHD) under the Ministry of Tourism and Culture has executed substantial preservation work on specific historical mosques, such as Ihsaniah Iskandariah (Perak), Mulong (Kelantan), and Machap Lama (Melaka).

Notably, every mosque reflected distinct attributes that could be catalyzed to encourage mosque tourism under spiritual or religious tourism (Abdul Aziz, 2016). Presently, the local mosques encouraging mosque tourism witnessed an influx of visitors from various Western and Eastern countries. For example, recently established mosques, including Putra (Putrajaya) and Jamek (Kuala Lumpur) have recorded many tourists from South Korea and China who were inclined to discover the cultural heritage and take vacation selfies (to be posted on social media platforms). The influx reflected the potential for mosque tourism to establish a sound comprehension of Islam and Islamic culture by welcoming non-Muslims to visit mosques (Moghavemi S, 2020). Mosque tourism also demonstrated a novel tourism trend and a potential source of revenue. For example, mosque tourism could provide employment and induce goods and services demands (food and beverage, accommodation, transportation, entertainment, shopping, and tour guides).

Subsequently, the requirements would increase tourist expenses in Malaysia and benefit the local economy. In this vein, policymakers and stakeholders should emphasize the mosque tourism market. (Moghavemi S, 2020). As mosque tourism offered a possibility for mosques and the surrounding local communities to depict moderate and tolerant Islamic teachings practiced by Malaysian Muslims, the tourism might indicate a means of minimizing Islamophobia among non-Muslims for enhanced interaction between Muslims and non-Muslims. As such, Malaysian Muslims were required to conserve their culture and sustain and promote self-identities (Moghavemi S., 2020). The increasing number of Muslim tourists in Malaysia induced an assessment of local branding and marketing approaches as a favored Islamic destination. Although Malaysia

portrayed the attributes of a worthy destination given the multicultural context, cuisine, and heritage, further improvement in Islamic tourism proved necessary (Shafaie F., 2015).
The criteria of historical mosque tourism refer to the standards and guidelines used to determine the historical significance of a mosque for tourism purposes. These are eight criteria which include factors such as [1] Age, [2] Architectural significance, [3] Cultural significance, [4] Religious significance, [5] Connection to important historical figures or events, [6] Uniqueness, [7] Preservation and [8] Authenticity.

[1] A historical mosque is often those have been in existence for a significant period, such as those that date back to the early days of Islam or those that were built during a particular historical period. [2] Mosques with unique architectural features or that are considered examples of traditional Islamic architecture may be considered historically significant. [3] Mosques that are closely tied to the cultural heritage of a particular community or region can be considered historically significant. [4] Mosques that have played an important role in the religious history of a particular community may be considered historically significant. [5] Mosques that have a connection to important historical figures or events that may be considered historically significant. [6] Mosques that have unique features or architectural design or is one of a kind regions. [7] Mosques that have been well-preserved and maintained over time can considered historically significant for tourism. And [8] mosques that retain original features and have minimal modern modifications which considered historically significant. The listed criteria are used to identify which mosques have the potential to be significant tourist destinations and prioritize the preservation and promotion of these historic sites.

The Necessity of Satisfying Tourists: Tourism is one of the fastest-growing industries in the world. Tourist satisfaction is very important for tourism businesses. This is because unsatisfied tourists are unlikely to return to visit. Since the rise of tourism websites and apps like TripAdvisor, Traveloka and others, it is easier for tourists to share their experience at their destination by giving feedback and ratings (Verain, 2015). These might influence the motivation of other tourists. If other tourists read about the experiences of unsatisfied tourists, it could affect and stop them from coming to that destination. Tourists' satisfaction is vital to successful destination marketing because it influences the choice of the destination, the purchasing of goods and services and the decision to revisit (Gok & Sayin, 2015). In the marketing literature, the satisfaction level is considered a key concept that guides the decisions of marketers, customers, and consumers. According to Devesa et al. (2010), significant tourist satisfaction can make marketing successful with education.

Therefore, tourism businesses need to fulfill the needs and desires of tourists. In addition, pull motivation is an important factor in predicting tourist behavior and destination choice (Chiang et al., 2015). Furthermore, research conducted by Hanifah (2018) regarding tourist satisfaction shows the results of the analysis that pull motivation can affect tourist satisfaction, but there are differences in the results of the analysis in Kalebos research (2016) which shows that natural tourist attraction factors have no significant and negative effect on satisfaction. Satisfaction is considered one of the main indicators of loyalty because satisfied people tend to revisit or buy back (Brandano et al., 2019). On the other hand, tourist motivation can affect their satisfaction (Alrawadieh et al., 2019). According to Shahijan et al. (2014), customer satisfaction is a customer response to the evaluation of the mismatch that is assumed between previous expectations and the actual performance of the product that is perceived after use.

According to Awan and Azhar (2014), customer satisfaction is the level of a person's feelings after comparing the performance that they sense compared to their expectations. Satisfaction is a psychological result of a process that occurs with the introduction of needs and ends with the consumer's experience with a product or service (Amin et al., 2014). Abror et al. (2019) explained that tourist satisfaction is a comparison between tourists' expectations regarding the destination and the results of the experience, which is only the result of a comparison between the previous image of the previous destination and what they saw, felt, and achieved in the destination. Yeo et al. (2016) assumed that satisfaction is not only cognitive but also emotional. This shows that tourists probably enjoy the trip if their expectations match the post-trip experience. If tourists feel that their expectations do not match reality, they will feel dissatisfied (Chookaew et al., 2015). Muslim tourists are tourists who obey the guidance of Almighty ALLAH and the Prophet Muhammad PBUH (Peace Be Upon Him) in traveling (Zawawi et al., 2017).

Primarily, Muslim tourists possibly consider determining tourist destinations that have facilities for worship and the ease of finding halal food while staying in tourist destinations (Bogan and Sarıısık, 2019). Several tourist attractions provide little mosques and prayer rooms for tourists. Not a few tourist attractions serve non-halal food, such as containing pork and dogs also provide alcohol (Khan and Callanan, 2017). Many different definitions of satisfaction are used by different researchers. According to Ryan, (2016), satisfaction is seen as an analogy of need and performance. Moreover, tourists' satisfaction is related to the tourists' mental, and psychology compared to their physical state. Tourists can show their satisfaction when they visit their favorite destinations (Yoon & Uysal, 2005). Pizam and his friend claimed that the satisfaction of each attribute in a tourism destination must be identified to investigate the satisfaction of the tourism destination. Many attributes could affect the tourist' satisfaction related to the destination such as transportation, accommodation, food and beverages services, entertainment services, the quality and price of the services, communication with the local community and tour operator.

This statement was supported by Voon & Lee, (2009) who highlighted that tourists' satisfaction with destination was determined by the following criteria: travel services, facilities, access, cleanliness, safety, and experience. Islamic attributes are one of the crucial factors in meeting the needs of Muslim tourists who travel to tourist attractions (Jia and Chaozhi, 2020). Furthermore, In Islam, Islamic tourists must visit various locations to praise the beauty, greatness and creation of Allah SWT based on the guidelines of the practice of the Quran, Islamic tourists must be friendly and generous toward tourists (Oktadiana et al., 2016). On the other hand, Najmaei et al. (2017) explained that Islamic attributes are factors that include Muslim needs such as providing halal food and beverages, complete worship facilities and other supporting facilities. Moreover, tourists who have relished Islamic attributes possibly feel satisfied and want to revisit these tourist attractions (Hassani and Moghavvemi, 2019).

Al-Ansi and Han (2019) emphasized that Muslim tourists are required to follow Islamic teachings which directly or indirectly have an impact on their decisions regarding the importance and opportunities of tourism. Furthermore, it can be assumed that religion affects the tourist destinations of Muslim tourists. Moreover, it is important to ensure that Islamic provisions in tourism services are fulfilled because this can deliver satisfaction for tourists. Battour (2018) revealed that Islamic Norm Practice, namely, religious facilities and halal food, does not have a significant effect on the satisfaction of Muslim tourists. Furthermore, Wingett and Turnbull (2017) explained that Islamic facilities and the availability of a room for prayer are essential facilities that must be available to establish the needs of Muslim tourists because they can worship while enjoying their vacation.

Kedah's Historical Mosque: Islam is believed to have been first introduced to the Kedah region by Arab and Indian traders in the 7th century. Over time, it gradually replaced the previous religious practices and became the dominant religion in the area. The first mosque in Kedah, Masjid Alor Malai, was built in the 14th century, in the city of Alor Setar. Alor Setar is the capital city of Kedah state, located in the northwest region of Peninsular Malaysia. The town has a rich history and is believed to have been founded in the early 18th century. Originally a small fishing village, and yet grew in importance as a trading center due to its strategic location on the banks of the Kedah River. With a population of around 600,000 people and is known for its history and culture. The town is an important center for agriculture, and it is also home to several historical and cultural sites such as Masjid Zahir and Balai Besar. Masjid Zahir also known as the Alor Setar Royal Mosque, was built in 1912 by the late Sultan Alauddin Sulaiman Shah and was officially opened in 1915. It is an important historical and cultural landmark in the state of Kedah.

It is known for its unique architecture which combines elements of traditional Malay and Islamic design with Victorian Edwardian styles. The mosque is also known for its five main domes and two minarets and is considered one of the most beautiful mosques in Malaysia. Masjid Zahir potentially attracts visitors to the area, which can lead to increased revenue for local businesses such as hotels, restaurants, and transportation services. Besides that, Egresi et al. (2018) discovered that although locals generally welcome tourists visiting their mosque, the degree of support may vary depending on the residents' racial and ethnic background as well as the volume of visitors who are there. Additionally, it can also benefit the local community by providing jobs and income for guides, tour operators, and other service providers. Promoting cultural understanding and appreciation can be done through offering educational tours and cultural programs that allow visitors to

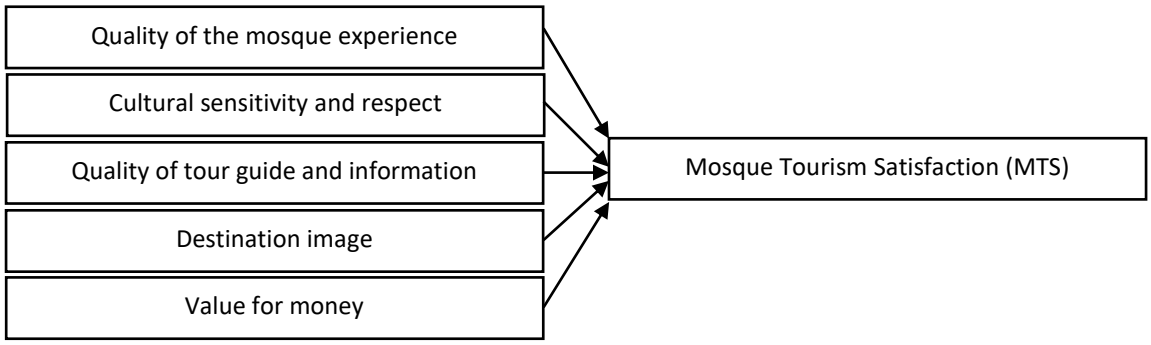
learn about the history, architecture, and religious significance of the mosque. As well as the customs and traditions of the local community.

This can foster greater understanding and respect between different cultures and religions. According to a study by Abror et al. (2020), religion is a strong predictor of Muslim-friendly travel, customer involvement, and visitor pleasure. Hence, Maltio et al. (2019) assert that Islamic tourism and marketing strategy has a big impact on how satisfied and loyal visitors are. Furthermore, research findings by Bagri et al. (2015) also showed that while basic amenities like lodging, transportation, tourism infrastructure, and hygienic conditions at the destination are significant in evaluating satisfaction, attributes related to tourism products of a spiritual and cultural nature, atmosphere and climate, a variety of tourist activities, hospitality, and safety are significant factors in determining tourist satisfaction. Nonetheless, the Bazazo et al. (2017) study in Aqaba City in Jordan will aid in improving Islamic tourism management given that the coefficient of determination (R^2) for the study's endogenous components for visitor happiness and loyalty to their destination was 0.41 and 0.18, respectively.

The results of the Neal et al. (2008) study showed that the degree of joy or dissatisfaction experienced by travelers during various travel-related stages affects their overall satisfaction with travel and tourism services. In addition, the Islamic Tourism Centre (ITC) plays a role in teaching current internal tour guides or coordinators, so they have a complete understanding of mosque tourism in Malaysia. Besides that, ITC also works to promote Islamic tourism through education, capacity building, research, industry development, branding, and technical and soft skills training in narrative and digital technologies.

3. The Conceptual Framework

Figure 1: Conceptual of Mosque Tourism Satisfaction (MTS)



The measurement of mosque tourism satisfaction (MTS) by local or international tourists can be done through various methods such as surveys, questionnaires, focus groups, or interviews. Some specific factors that can be considered when measuring mosque tourism satisfaction by tourists include:

The quality of the mosque experience can be covered into seven criteria. This can include the cleanliness, safety, and accessibility of the mosque, as well as the quality of the educational and cultural program offered. It can be described in several factors such as [1] the cleanliness and maintenance such as upkeep of the mosque, including the interior and exterior spaces, as well as the availability of restrooms and amenities. [2] Safety and accessibility, this may include the safety of the mosque and surrounding area, as well as the ease of access for visitors, including those with disabilities. [3] A cultural and educational program that includes the quality and relevance of educational and cultural programs offered to visitors, such as guided tours, exhibitions, and cultural events.

[4] Historical and architectural significance, this includes the historical and architectural significance of the mosque and its impact on the local community and culture. [5] Respect for cultural and religious norms covers the extent to which visitors felt that the mosque and its staff respected their culture and religion, and the level of understanding they gained about the local community and its traditions through their visit to the mosque. [6] The availability of information and resources, it is includes the availability of the information and

resources, such as brochures, maps, and guides, as well as the quality of the information provided about the mosque and its history. The last aspect is [7] customer service, which includes the quality of customer service provided by mosque staff, including the friendliness, helpfulness, and professionalism of the staff.

Cultural sensitivity and respect are the extent to which tourist felt that the mosque and its staff respected their culture and religion, and the level of understanding they gained about the local community and its traditions through their visit to the mosque. Furthermore, it can be measured through [1] understanding and appreciation of cultural norms [2] sensitive handling of religious artifacts and practices with respect and sensitivity including the handling of religious books, clothing, and other items. [3] Appropriate attire and behavior that includes the extent to which tourists felt that they were able to dress appropriately and observe the cultural and religious norms of the local community while visiting the mosque. [4] Support for cultural and religious events, this includes the support provided by the mosque and its staff for cultural and religious events, such as religious holidays and cultural festivals and finally, [5] inclusiveness and diversity that includes the inclusiveness and diversity of the mosque and its staff, including the welcoming and respectful treatment of visitors from diverse cultural and religious backgrounds.

Quality of tour guides and information focuses on [1] knowledge and professionalism of tour guides on level of knowledge and professionalism of tour guides, including their ability to answer questions and provide insights into the history, culture, and traditions of the local community and the mosque. The [2] relevance and accuracy of information, includes the relevance and accuracy of the information provided by the tour guides, including the historical and cultural significance of the mosque and its artifacts as well as the cultural and religious practices of the local community. [3] Availability of resources such as brochures, maps, and guides, to enhance the tourist experience and provide additional information about the mosque and its history. [4] Personalization of the tour includes the level of personalization of the tour, including the ability of the tour guide to tailor the experience to the interests and needs of the tourist group. [5] Effective communication skills include the ability to engage and connect with the tourist, answer questions, and provide a comprehensive and engaging tour experience.

Destination image can be described as the mental representation that individuals have of a specific tourist destination, which is influenced by a variety of factors such as past experiences, media exposure, word of mouth, and marketing efforts. In the context of mosque tourism, destination image can be described in five main ways including [1] the perceived safety and security of the mosque and its surrounding area, as well as the level of trust in local authorities and their ability to provide a secure environment for tourists. [2] cultural and historical significance of the mosque and its impact on the local community and culture, as well as the extent to which tourist feel that they have gained an understanding and appreciation of the local culture and traditions through their visit to the mosque. [3] The level of accessibility and infrastructure of the mosque and its surrounding area, including the ease of transport, the availability of accommodation and amenities, and the overall quality of the tourist experience.

[4] Marketing and promotion efforts of the mosque and its surrounding area, including the availability of information about the mosque and its history, as well as the quality and relevance of the marketing material and resources. [5] Word of mouth and the reputation of the mosque and its surrounding area is based on the experience and opinions of previous tourists and the local community, as well as the extent to which word of mouth and online reviews have impacted the overall destination image. Overall, this will create a positive and appealing image of the mosque as a tourist destination, which can help to attract more visitors and enhance the overall mosque tourism experience.

Value for money is the state of mosque tourism and its financial value can undoubtedly impact how happy visitors are. Some possible connections between the two elements, when evaluating the value for money of their mosque tourism experience, visitors may consider elements like entry prices, tour fees, accessibility, and the quality of services (such as guides, audio tours, etc.). Furthermore, satisfaction depends on personal expectations, past knowledge, interests, and personal preferences, tourists may express varying degrees of satisfaction. Aspects such as cleanliness, maintenance, security, historical relevance, architectural characteristics, and cultural authenticity may also impact mosque tourists' happiness. On the effect of the interaction, there may be a complex relationship between satisfaction and value for the money.

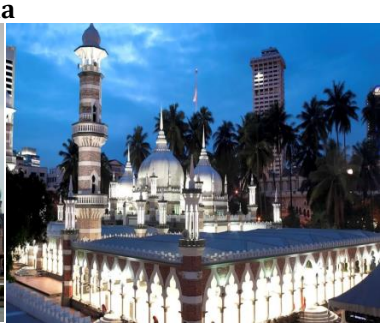
For instance, visitors who feel they are getting less for their money may be less satisfied, whereas visitors who feel they are getting more for their money may be more satisfied. Tourists with high expectations, however, could feel less content even if they think they are getting a lot for their money, whereas those with low expectations might feel happier even if they think they are getting little for their money. To identify areas for improvement, such as providing more affordable options, enhancing the quality of services, facilitating better access to information, and preserving the authenticity and cultural significance of the mosque, mosque tourism operators and policymakers may use data on tourists' perceptions of value for money and satisfaction. Overall, the state of mosque tourism and its financial worth might influence how satisfied mosque tourists are, but the relationship between these aspects can change based on personal and environmental circumstances.

4. MTS in Malaysia vs. Indonesia and Thailand

Information on Malaysia, Thailand, and Indonesia's mosque tourism in general, the majority-Muslim nations of Malaysia, Thailand, and Indonesia all have a rich cultural and architectural history that includes stunning mosques (Adriani et al., 2022). In these nations, mosque tourism has grown in popularity and is drawing tourists from all over the world. The famous Masjid Putra, Masjid Jamek, and Masjid Sultan Abu Bakar are just a few of Malaysia's exquisite mosques. One of the largest Islamic art museums in Southeast Asia, the Islamic Arts Museum is near the National Mosque Malaysia. The mosque tourism sector in Malaysia has been actively promoted, and travelers have generally expressed high levels of pleasure with their visits.

Figure 2: Famous Mosque in Malaysia


Masjid Putra


Masjid Jamek


Masjid Sultan Abu Bakar

Moreover, Thailand has a long Islamic history and is home to numerous gorgeous mosques, such as the Masjid Yala, Masjid Nurul Iman, and Masjid Darulmakmur. The mosque tourist sector in Thailand is less developed than it is in Malaysia, therefore there may be fewer options for travellers to choose from. Yet, tourists who come to Thailand to see its mosques typically express a high level of pleasure with their trips. The largest Muslim population in the world resides in Indonesia, where tourists may find a wide variety of mosques. The Istiqlal Mosque in Jakarta, which has space for up to 200,000 worshippers, is the most well-known mosque in Indonesia (Galuh, 2021).

Figure 3: Gorgeous Mosque in Thailand


Masjid Yala

Other well-known mosques in the nation include Masjid Agung Demak, Masjid Raya Medan, and Masjid Agung Semarang. Due to Indonesia's poor transportation and infrastructure, visitors to its mosques may face greater difficulties. Visitors who have visited Indonesia's mosques, however, typically express a high level of satisfaction with their trips. In conclusion, although each nation has its special charms and difficulties, travellers who visit mosques in Malaysia, Thailand, and Indonesia often express high levels of satisfaction with their experiences (Understanding Muslim-friendly Tourism, 2021).

Figure 4: Well-known Mosque in Indonesia



Masjid Agung Demak



Masjid Raya Medan



Masjid Agung Semarang

Research Discussion: A total of 4,332,722 tourist arrivals were locally recorded in 2020 (www.tourism.gov.my). Notably, Asian nations were ranked as the top contributors to tourist arrivals in Malaysia with 2,868,359 visitors (67.8%). In this vein, mosques proved to be attractive tourist destinations (although the travel purpose did not involve religion), hence affirming the Malaysian mosque appeal and attractiveness and the need to promote halal tourism. Given the financial downturn caused by COVID-19, mosque tourism denoted a novel trend that potentially created work opportunities. For example, the advent of mosque tourism could induce goods and service-oriented demands (food and beverage, lodging, transportation, entertainment, shopping, and tour guides) that increased tourists' local expenses and significantly benefitted the Malaysian economy. Essentially, mosque tourism encompassed Muslim and non-Muslim tourists who visited picturesque and historical mosques with exquisite architecture as tourist attractions while travelling (al Muhsin & Ahmad, 2020). As such, it was deemed crucial for policymakers and stakeholders to emphasize the mosque tourism market. As mosque tourism encompassed halal tourism (one of the nationally supported products), mosque tourism development perceivably corresponded to government initiatives.

In this vein, halal or Muslim-friendly tourism denoted a novel notion in tourism that facilitated novel and exciting possibilities for improved financial advancement. Specifically, 'halal' implied shariah compliance and human well-being. With mosque tourism as one of the most pertinent areas under halal tourism, the rising number of tourists in Muslim-majority populated nations depicted an emerging trend. Defining and outlining the mosque tourism concept (one of the most famous tourist activities central to Islamic tourism) should emphasize the sustainable advancement of novel tourist patterns. Additionally, identifying shariah and legal concerns under mosque tourism for optimal roles and functions as a Malaysian tourism destination and tourists' requirements and satisfaction with mosque conditions and management proved essential. As such, it was deemed crucial to identify the appropriateness of the laws governing mosque management and tourists. A clear and absolute legal tool proved necessary to safeguard stakeholders' rights in mosque tourism.

5. Research Suggestion

Following the COVID-19 epidemic, it is urgently necessary to look into and improve mosque tourism in Malaysia, Indonesia, and Thailand to guarantee visitor happiness and promote sustainability using virtual reality (VR) technology. Future research ideas after COVID-19 includes, [1] Assess the changing expectations and levels of satisfaction of visitors visiting mosques in the post-COVID-19 era while considering safety concerns and shifting travel habits (Akhtar et al., 2021), [2] Examine how virtual reality (VR) technology may be integrated with mosque tourism to improve visitor experiences and give them immersive, secure options

for exploring (Akhtar et al., 2021), [3] Examine how mosque tourism might help achieve SDG-13 by lowering carbon footprints through environmentally friendly actions and transportation choices (Gökbulut Özdemir & Özdemir, 2023), [4] Analysis of mosque tourism's contribution to KEGA-12's support of local economies, the promotion of sustainable practices, and the promotion of socioeconomic development in the area (Gökbulut Özdemir & Özdemir, 2023), [5] Explore methods to integrate mosque tourism with SDG-13 and KEGA-12 by preserving cultural traditions, indigenous ways of life, and environmental protection initiatives (Trupp & Dolezal, 2020).

It is crucial to conduct research on mosque tourism, visitor satisfaction, and the post-COVID-19 era in Malaysia, Indonesia, and Thailand with an emphasis on virtual reality experiences and their compliance with the Sustainable Development Goals (SDG-13: Climate Action and KEGA-12: Green Economy). Future thorough research must focus on the [1] Assessment of Post-COVID-19 impact, [2] Virtual Reality integration, [3] Carbon Footprint reduction, [4] Green Economy initiatives, [5] Tourist satisfaction, [6] Cultural preservation, [7] Local Community engagement, [8] Technology adoption, [9] Policy frameworks, and [10] Cross-country Comparative studies.

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The Factors Affecting Consumer Purchase Intention through Social Commerce – A Concept Paper

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Abstract: Emerging economies are not excluded, where the emergence of e-commerce has now advanced towards a new branch of social commerce as a platform for business transactions as well as in attracting, creating, and maintaining customer relationships. E-commerce on social media platforms offers a practical means for businesses to connect with and sell to consumers. Major social networking sites have been actively developing their e-commerce features, allowing users to make purchases without leaving the site. Major social networking sites have been actively developing their e-commerce features, allowing users to make purchases without leaving the site. Social commerce has become popular due to its importance in e-commerce. The research in this area is still limited, especially on the factors that influence purchase intentions when using social commerce platforms. The purpose of this study is to examine the contribution and significance of affordance and trust theories among Malaysian users that underpin purchase intentions on social commerce platforms. This paper establishes a conceptual framework for consumers' purchase intentions based on the SOR model. Social media platforms can be used by businesses to interact with customers and increase sales once they recognize their potential. PLS-SEM (Partial Least Squares Structural Equation Modeling) will be used to examine the data.

Keywords: *Purchase Intention, social commerce, affordance, trust.*

1. Introduction and Background

Social commerce has evolved to incorporate the power of social media platforms with purchasing, as businesses and consumers continue to benefit from the growing trend of social network usage and ICT development (Kim et al., 2019; Vahedi and Zannella, 2021). Social commerce is expanding as a result of the adoption of novel applications that enhance consumer participation and economic value (Mutambik, 2023). Moreover, social media platforms have grown into important distribution channels for online businesses (Ho et al., 2022). By utilizing Web 2.0 technologies that enhance the online shopping experience (such as effective product search, customized recommendations, and reviews), this new sort of e-commerce is developing in a distinctive way. Users are able to scroll, add items to shopping carts, and purchase things in a single social media application, which is a unique concept in e-commerce (Zhang, 2020). Customers are increasingly using social commerce to learn about products and participate in social media-enabled business activities like posting, commenting, suggesting, and discussing products (Bungshan, 2020).

Since Web 2.0's wider audience and increasingly individualized touch, social commerce is possibly more significant than conventional e-commerce (Huang, 2013). It has been identified as a significant growth area in practice for social e-commerce, and it has since started to expand quickly to offer services to consumers (Peng, et al., 2019). Social commerce integrates online purchasing and social networking, enabling users to shop directly from their news feeds (Ko, 2020). As a result of the incorporation of shoppable posts, product labelling, and user-generated content, social media platforms have become effective sales channels, (Kaplan & Haenlein, 2019). According to a report (2023) published by Rakuten Insight, 57% of social media users in Malaysia purchased within the last 12 months. Meanwhile, 78% of social media users are impacted by social media recommendations. According to all these statistics, social commerce is becoming more popular in Malaysia. People increasingly use social media to perform product research, make purchases, and be influenced by their social media choices.

2. Literature Review

Purchase Intention: Purchase intention on online social media platforms describes a consumer's willingness or tendency to make purchases as a result of their interactions and exposure to items or services on social media platforms (Xiao, 2019). According to Lou (2019), it is the consumer's subjective evaluation of the

possibility of completing a purchase transaction after being impacted by a variety of variables such as social media advertising, ratings from others, influencers, recommendations, and brand presence on social media. Online social media platforms help businesses experiment with their products, increase brand attention, provide opportunities to engage with potential customers, and ultimately influence purchasing intent (Dabbous, 2020).

This is an excellent chance for businesses to reach a larger audience and increase sales. According to Adam et al. (2016), social media marketing is successful in influencing the purchase intentions of young Malaysian customers. According to the survey, social media platforms enable businesses to reach a large audience, tailor their advertisements to specific groups, and develop interesting content that can influence consumers' buying decisions. According to the study (Ismail, 2022), the social media marketing dimensions directly encourage purchase intention among consumers. The complexity and difficulty of purchasing intentions today are greater than they were in the past (Lakshika & Ahzan, 2021). As a result, advertising, social media, and online word-of-mouth have helped consumers today become more knowledgeable and savvy (Santiago & Pimenta, 2021).

Stimulus-Organism-Response (S-O-R) Model: The S-O-R perspective will be utilized for this study, which was created in the field of environmental psychology and introduced by Mehrabian and Russell (1974). S-O-R, which stands for stimuli that represent factors that can influence the individual's condition, makes the concept influential. Then the organism refers to how individual attitudes or user behavior can respond to environmental stimuli and then activate the response as a viewpoint. The viewpoint and response are examples of internal cognitive and emotive dynamics. This model illustrates the communication process, and according to Chang and Chen (2008), the model of consumer behavior is determined by using this model.

In the context of online mobile applications, Chopdar (2022) discovered that the stimulus, the mobile commerce application, can elicit a range of reactions based on the unique traits of the customer (the organism). According to the study, the environment (the response) can have an impact on how a consumer reacts to mobile commerce applications. In recent years, it has come to light that a significant number of researchers employ this S-O-R model in the context of online contextual studies to quantify purchase intention, such as Kuhn (2018), Suparno (2020), Yin (2021), and Zhou (2022). In this paper, the researcher examines from the perspective of how the IT affordances of meta voicing and guided shopping serve as stimuli within the S-O-R paradigm, with trust serving as the organism that reacts to the stimuli and in the end, influences a customer's decision to purchase through social media.

Metavoicing: Majchrzak et al. (2013) originally used the word "metavoicing" to describe the act of "trying to respond online to another person's presence, identities, content, and actions. Consumers can interact with sellers and write a comment in conversations or on bullet screens, which show real-time remarks from viewers as bullets fly across the screen while shopping in a live stream situation (Sun, 2018). Another recent study conducted by Xie (2021) found that metavoicing plays an important role in buying decisions, where customers may get helpful target product information such as reviews and comments by using metavoicing affordance. Referring to the context of the S-O-R paradigm, meta-voicing is the act of engaging the capability of customers to express their thoughts and worries. Customers are able to engage actively and express themselves in the interactive setting that is created.

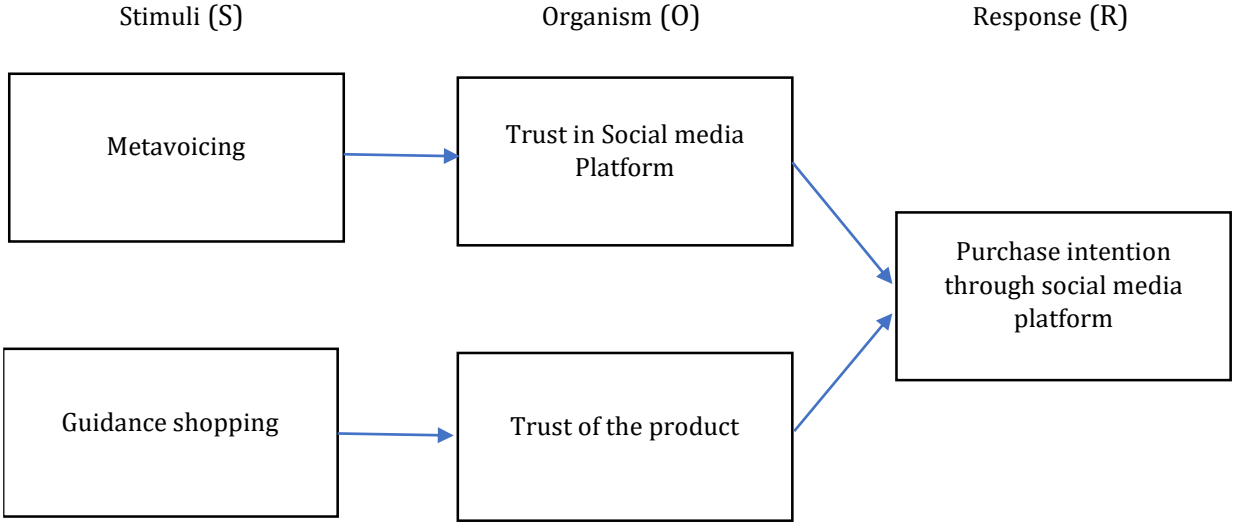
Building trust between buyers and sellers in social commerce is important. Numerous studies pinpoint causal factors, including social media's core features such as Fang (2020). Trust in the platform may be described as web presence, perception, and engagement with vendors, as stated by Lu (2016). In this context, the trust in the platform acts as the organism that impacts the consumer's reactions or behaviors. There have been a number of studies that identify causal factors, including social media attributes involving trust in social commerce, which can be fostered by the use of techniques such as those proposed by Fang (2020), Nosi (2022), and Leong (2020) to improve service and customer orientation, as well as social support and social presence. Customers consider this data shared on the social commerce platform to be trustworthy. The relationship between trust as an organism and purchase intention as a response may be characterized in the following way: once customers have a high level of confidence in the shopping platform (Wang, 2020), users are able to develop a good mindset and perception towards the items or services that are being shown. This

in turn increases the possibility that they will make a purchase. In conclusion, metavoicing operates as a stimulus that affects the consumer's trust (organism), and trust impacts the consumer's reactions or behaviors.

Guidance Shopping: The term "decisional guidance" refers to "the degree to which and how a system helps to guide its users in establishing and executing decision-making processes" (Silver, 1990). Two types of advice fall under this umbrella: suggestive advice and informative advice (Silver, 1990). According to Dong and Wang's (2018) guidance purchasing affordance, it provides tailored services to assist consumers in rectifying issues. Customer decision-making is aided by guiding shopping since it provides personalized services. Guidance shopping refers to vendors' or sellers' capacity to assist and guide consumers throughout the purchasing experience (Dong, 2016). Guidance purchasing can be viewed as a stimulus; this stimulation consists of individualized suggestions, product demos, addressing customer queries, and offering information to assist customers in making directed purchase decisions. The trust of the product as an organism symbolizes the customer's characteristic or internal condition. When a customer has trust in a product, they believe it will fulfill their demands (Wongkitrungrueng & Assarut, 2020). It includes the customer's view of the product brands or the seller's trustworthiness, credibility, and dependability during the buying experience (Mohammed & Al-Ekam, 2016). Customers' attitudes, confidence, and belief in the product offered are influenced by trust (Zhang et al., 2018). This chance for consumers to interact, as well as the guidance offered by sellers, helps to create trust, eliminate uncertainty, and improve the whole shopping experience, eventually leading to a higher intention in purchasing (Chandrruangphen et al., 2022).

This concept is related to how these components interact with one another. This incentive entails offering individualized advice and product demonstrations, responding to any concerns that consumers may have, and supplying them with information that will assist them in making wise choices about their purchases (Zhang, 2020). In summary, seller shopping assistance operates as a stimulant inside the S-O-R structure, influencing the customer's trust in the product as an organism. Customers' buying intentions are influenced by their trust in the products they are purchasing. The more productive the seller's advice, the greater the customer's trust in the product and, therefore, the greater the customer's desire to interact and make purchases. Based on the literature reviewed, the conceptual framework shown in Figure 1 is proposed.

Figure 1: Proposed Conceptual Framework for Predicting the Factors that Influence Social Commerce Purchase Intention



3. Research Methodology

Using the S-O-R model, the proposed study will develop the conceptual framework shown in Figure 1, where the information technology (IT) Affordance component serves as the stimulus, the trust component as the organism, and the purchase intention on the social media platform as the response. This study will look at

how consumers develop the intention to buy using social media platforms, with aspects of IT affordance having the biggest impact on trust. Purposive sampling will be used to determine the intended sampled respondents for this proposed study's sampling technique. The respondents will be eligible to take part in this study provided they have a social media account that they can use to buy products or services from the platform. Purposive sampling, according to Babbie (2013), is employed when a study concentrates on a specific geographic area with certain expertise and subject domains. To ensure the validity of the proposed study's findings, all respondents must be familiar with social media platforms to make purchases on the platform. To analyze the data PLS-SEM (Partial Least Squares Structural Equation Modeling) will be used to utilize.

4. Conclusion

The purpose of this study was to obtain a more comprehensive look at the elements that influence Malaysian consumers' willingness to participate in social commerce. The S-O-R model was used to explain the relationship between these factors and purchase intention. The S-O-R model, a psychological theory, explains how a person's environment and personality qualities influence their behavior. The social commerce platform served as the study's setting, while the variables affecting purchase intention were personal characteristics. As was previously mentioned, there are still gaps in studies where trust also plays a part in relationship continuity, even if some studies have revealed the characteristics that influence purchase intention among customers from the aspect of IT affordance. Finally, this article presented a conceptual framework that focused on the SOR model from a perspective viewpoint. This study's findings will give businesses important details concerning strategies to boost purchase intent through social commerce. Entrepreneurs may develop and expand social commerce platforms that have a greater opportunity to be successful by determining the aspects that will affect users' intent to make a purchase.

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Examining the Relationship between Social Media and Intention to Invest in an Investment Scams among Students

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Abstract: The advancement of social media platforms has enhanced communication sharing, interaction and information access. Importantly, the platforms become an integral part of the lives of today's students in updating themselves with current issues around the world and staying informed. Social media offers scammers opportunities to create fake profiles, leading to confusion between genuine investments and scams. However, alongside the benefits, social media also exposed students to deception such as being scammed. Students can be susceptible to falling prey to investment scams that offer high yields with low risk. Students must exercise caution online to avoid falling for fraudulent schemes. Vigilance in evaluating online content is crucial for their financial safety. Therefore, this study was conducted to examine the influence of social media on the intention to invest in investment scams among students. Data was collected among students at Universiti Teknologi MARA, Cawangan Negeri Sembilan. This study employed a quantitative method to collect primary data through an online questionnaire survey. The findings indicate a significant association between social media and intention to invest in investment scams. This study contributes to the existing literature on both social media and investment scam context and offers valuable insights to the policymakers, regulators and social media operators in combatting the fraudulent investment issue.

Keywords: *Investment Scams, Social Media, Intention to Invest.*

1. Introduction and Background

Social media refers to a digital means of communication, such as social networking websites and blogs, where users establish virtual communities to exchange information, ideas, personal messages, and various types of content, including videos (Krishna et al., 2022; Kumar & Nanda, 2022). The rapid growth and widespread adoption of social media platforms have significantly transformed the way people communicate, share information, and make decisions. With billions of users worldwide, social media has become an integral part of daily life, offering a multitude of opportunities for social interaction, networking, and access to diverse information sources (Sheth, 2018). In recent years, with the advancement of technology, investment scam has evolved from their traditional model into digitalized systems (Wang et al., 2021). The COVID-19 pandemic has brought about significant changes in social norms worldwide, providing fraudsters with opportunities to exploit available resources through various online fraudulent methods (Ma & McKinnon, 2022). This situation has opened avenues for fraudsters to employ creative techniques by leveraging online platforms and social media (Hakak et al., 2020). In the year 2019, 41.6% of students reported incurring financial losses after being targeted by scams. In contrast, among non-students, the percentage of individuals reporting losses was 28.3% (WMBFNews, 2019). In 2021, there was a notable trend indicating that Gen Xers, Millennials, and Gen Z young adults (ages 18-59) had a 34% higher likelihood than older adults (ages 60 and over) of reporting financial losses caused by fraudulent activities.

Younger adults were more than four times as likely as older adults to report losses associated with investment scams (US Federal Trade Commission, 2022). These indicate a higher susceptibility among young people to falling victim to scams and experiencing subsequent financial consequences. Consequently, the use of social media and the internet increases the probability of individuals, particularly the younger generation such as students, falling victim to investment scams. An investment scam is a fraudulent investment by offers the victims a low-risk and high-return investment scheme (Subramaniam et al., 2021). These scams often involve individuals or organizations presenting themselves as legitimate investment opportunities or financial advisors, promising high returns on investments while downplaying or concealing the associated risks (Cong et al., 2023). The younger generation especially university students is exposed to fall prey to investment scams because they often face financial pressures, including tuition fees, living expenses, and the

desire to have disposable income (Galanza et al., 2023). Furthermore, university students are highly active on social media platforms, which scammers exploit to target and influence their victims and make them more exposed to fraudulent investment advertisements (Yoro et al., 2023). Consequently, investment scam inflicts substantial financial losses on victims, which can have a ripple effect on the economy.

As a result, the affected individuals experience a reduction in wealth and purchasing power, leading to a decline in consumer spending and overall economic activity (Cong et al., 2023). In addition, Investment scams can hinder the government's efforts to enhance the nation's prosperity. Therefore, it is crucial to address and combat such fraudulent activities to safeguard the integrity of Malaysia's development initiatives and ensure the sustainable progress of the nation. There have been numerous studies on social media, but research examining the relationship between social media and intention to invest in investment scams among university students remains limited. Higher usage of social media among students should be taken into consideration. Establishing healthy boundaries, managing screen time, and being mindful of the content they consume and share online can help mitigate the adverse effects especially fraudulent investment (Yadav & Reddy, 2023). Therefore, the objective of this study is to investigate the extent to which social media usage patterns, such as the type of platforms and time spent on platforms influence university students' intention to invest in investment scams. By exploring the various dimensions of social media utilization, we aim to shed light on the specific mechanisms through which these platforms may affect individuals' susceptibility to fraudulent investment schemes. This study will provide valuable insights for policymakers, regulators, and practitioners to develop targeted interventions and educational initiatives to enhance financial literacy and protect investors.

2. Literature Review

Social media has emerged as a fresh platform for various entities, including individuals, influencers, entrepreneurs, corporations, and government agencies, to engage with one another. It serves as a means to exchange updates, disseminate information, promote products and services, and even showcase luxurious lifestyles (Nathanael et al., 2023). There are numerous social media platforms available today, including podcasts, blogs, forums, text messages, and video streaming (Barreto et al., 2017). With such a variety of platforms, social media has become a popular channel for promotion and marketing. It is an interactive digital medium that offers vast resources and connectivity, allowing it to exert a significant influence on people's behaviors and choices (Hanna et al., 2011). Social media has a lot of users and uses algorithms to control how people interact with the content they see. This means it can influence people's thoughts and feelings about current events, popular topics, and trends (Poliska, 2020). It has changed how we find information, do work, and communicate with others. Platforms like Twitter, WhatsApp, Facebook, and Instagram have billions of active users, and the numbers keep growing every day. Unfortunately, this also creates opportunities for criminals to connect with people and carry out scams (Subramaniam et al., 2021). Social media can provide information change opinions from others and affect people's thinking and lifestyle (Raut & Patil, 2016). However, Drahosoca and Balco (2017) highlight problems related to social media, especially in terms of security and information overload.

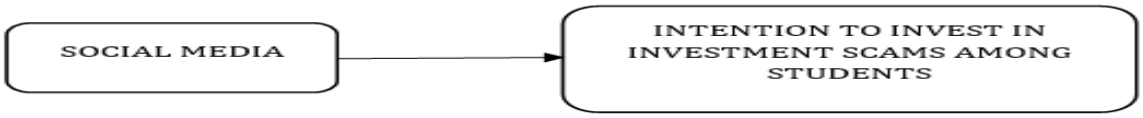
Some individuals or groups manipulate information on social media for their benefit (Nathanael et al., 2023). Undesirable users called spammers pose challenges for social media platforms by invading privacy, disrupting search results, and undermining the accuracy of data. Twitter is a target for spammers who use URLs, hashtags, and mentions. The existing anti-spam measures are not enough, raising concerns about the reliability of the data collected. Moreover, social media interfaces are easy to use but lack security, making them vulnerable to attacks by malicious users. Since social media relies heavily on user-generated content, these issues compromise the stability and quality of the data (Reda & Zellou, 2023). Scam websites use different tricks to get people's attention. They use social media, links in messages or emails, and even pictures to make people visit their fake websites. Some scammers pretend to be investment companies and advertise false investment opportunities on social media. They promise investments that are safe and will give high returns (Subburayan, 2023). To make their scams seem real, they create fake news articles and testimonials from happy customers. They even make a fake website for the investment company, with all the necessary information and papers.

They offer free investment seminars to attract victims and use strong tactics to convince them to invest (Subburayan, 2023; Valencia et al., 2022). Studies show that young, unmarried women in their twenties are more likely to fall for investment scams. They are easily influenced by their friends and what they see on social media. Investment companies target them with tempting offers of big profits and quick money. Scammers take advantage of this vulnerability by recruiting more victims through pyramid schemes (Valencia et al., 2022). The occurrence of investment fraud is on the rise, involving the solicitation of investment opportunities in shares or securities that are either non-existent or worthless. According to the Australian Crime Commission (2012), investment fraud is a sophisticated form of organized crime that is carefully planned and can impact both experienced and inexperienced investors. It is not a random or opportunistic occurrence, contrary to common belief. Investment scams take advantage of the complicated and numerous legitimate investment programs out there. These scams attract people by making big promises of high or guaranteed profits on investments, usually without much risk (Financial Conduct Authority, 2022). Sometimes, they even offer investment products that don't exist or aren't authorized by regulatory bodies. Fraudsters trick potential investors by using social, economic, and cultural factors to their advantage (Chiluwa & Chiluwa, 2020).

Investment fraud is when people trick others into making investment decisions based on lies. To start such a scheme, it's important to create a network of people who will support it for a long time, even though it will eventually fail. Gaining trust from investors is a crucial element in maintaining the sustainability of this network (Prabowo, 2023). Investment scams and frauds often fall into a grey area where they may not always be considered criminal but can be seen as unethical or against regulations (Button & Cross, 2017). A study by Bar-Lev (2022) indicates that in most investment fraud cases, the victim is convinced to invest in something like shares, assets, or property that is promoted as having high potential for growth or great returns. However, these investments are worthless, overpriced, or even fake (Button & Cross, 2017). Contemporary investment scams manipulate individuals into investing their money in a supposed "investment" with the promise of financial gains (Dupuis et al., 2023; Lacey et al., 2020). These scams often involve fake investment brokers or traders who deceive investors. The deception can take different forms, such as the investment itself being non-existent or the legitimate broker, resulting in the investor losing their invested funds. Lacey et al. (2020) found that in more extreme cases, the scams may even provide investors with access to online broker portals or specialized software that visually displays the growth of their fictitious investment balance. Accordingly, it is hypothesized that:
H1: Social media is associated with the intention to invest in investment scams among students.

Conceptual Framework: The research framework proposes to identify the relationship between social media and the intention to invest in investment scams. Figure 1 shows the conceptual framework that proposes the relationship between social media and the intention to invest in investment scams.

Figure 1: Conceptual Framework



3. Research Methodology

Sample and Data Collection: In this study, a total of 147 students from Universiti Teknologi MARA Cawangan Negeri Sembilan participated as the respondents in answering the questionnaire. The respondents comprise degree and diploma students from three campuses: Kuala Pilah, Seremban and Rembau Campus. This study employed a quantitative method to collect primary data through an online questionnaire survey. The questionnaire was distributed to the respondents through a Google form. The questionnaire consists of three parts: Part A for demographic information, Part B for social media, and Part C for intention to invest in investment scams. The measurement scales were adapted from a combination of existing scales from the literature. A 5-point Likert scale ranging from “1 = strongly disagree” to “5= strongly agree” was used to record the responses from the respondents. The measurement for social media was adapted from Tanwar

and Kuma (2018), while the intention scales were adapted from Mazambani and Mutambara (2019). Statistical Package for Social Science (SPSS) version 28 was used to examine the data.

4. Results and Discussion

Demographic Profile of Respondents: Table 1 demonstrates the demographic details of students sampled for this study. A total of 147 students responded to the questionnaires which were usable for data analysis in this study. The respondents comprised 113 female and 34 male students respectively. 75 students are in the science and technology stream, and the remaining 72 students are in the science social stream. Most of the students (122) are pursuing diplomas and the remaining students are pursuing degrees. The students were asked how often they come across investment-related content on social media. The majority of the students answered multiple times a day (34%), a few times a week (27.9%) and the least once a day (10.2%). For time spent on social media, most of the students spend more than 4 hours (42.9%), followed by two to four hours (30.6%), one to two hours (21%) and the remainder are one hour and below.

Table 1: Respondents Profile

Respondents' Characteristics		Frequency	Percentage
Gender	Male	34	23.1%
	Female	113	76.9%
Program	Science	75	51%
	Science Social	72	49%
Programme level	Diploma	122	83%
	Degree	25	17%
Advertisements on social media	Multiple times a day	50	34%
	Once a day	15	10.2%
	A few times a week	41	27.9%
	A few times a month	22	15%
	Rarely or never	19	12.9%
Time spent on social media	Less than 30 mins	2	1.4%
	30 mins – 1 hour	16	10.9%
	1 – 2 hours	21	14.3%
	2 – 4 hours	45	30.6%
	More than 4 hours	63	42.9%

Descriptive Statistics: Cronbach's Alpha was used to assess reliability in this research. The closer the Cronbach's Alpha value to 1.0, the higher the internal consistency reliability of the questionnaire. A questionnaire considers attaining a high level of reliability when the value of Cronbach's Alpha exceeds 0.70. The reliability and validity of a questionnaire are critical to ensure the measurement is carried out effectively and accurately on the intended concept (Sekaran & Bougie, 2016). Cronbach's Alpha value for all variables is above 0.7. The descriptive statistics computed the maximum, minimum, mean and standard deviation of the variables and the indicators. The mean for social media and intention are all above the average scale. All variables scored in the affirmative (1=strongly disagree, 5=strongly agree, with 3 the mid-point) with a mean value greater than 3. Social media has the highest mean score of 3.11, followed by intention with a mean of 3.02. Table 2 summarizes the descriptive statistics for the measurement items in the questionnaire.

Table 2: Descriptive Statistics

Variables	N	Cronbach's Alpha	Minimum	Maximum	Mean	Standard Deviation
Social media	147	0.960	2	5	3.11	0.610
Intention	147	0.786	1	5	3.02	0.550

Correlation analysis: Pearson correlation coefficient Correlation was employed to conduct a correlation analysis, aiming to assess the strength and direction of the relationship between social media and intention variables. The obtained results indicate a significant correlation between the two variables. Specifically, the

correlation between social media and intention is significant at a level of 0.619 (p < 0.01). Table 3 below summarizes the result of the correlation analysis.

Table 3: Correlation Analysis

		Intention
Social Media	Pearson Correlation	0.619*
	Sig (2-tailed)	0.000
	N	147

**Correlation is significant at the 0.01 level

Discussion: This study aims to investigate the relationship between social media and the intention to invest in investment scams. The findings indicate a significant relationship between social media and the intention to invest in investment scams. The findings are consistent with prior study by Subburayan (2023) and Valencia et al. (2022) on the tactics used by scammers in using social media to pose as legitimate investment firms, promoting fake opportunities that promise high and risk-free returns. This compelling evidence suggests that social media platforms play a crucial role in influencing students' inclination to participate in investment scams. Browsing social media assists students to obtain a vast amount of information, be it beneficial or non-beneficial. Fraudsters can use social media platforms to disseminate misleading advertisement, promote fraudulent schemes and often showcases success testimonies, which can influence students to get involved in fraudulent investments (Dupuis et al., 2023; Demertzis & Georgousi, 2023). Social media play an important role in disseminating information yet might be risky to the users if they are not able to differentiate the right or fake information. According to the survey done, the majority of the students spend more than four hours on social media which will expose them to the manipulation of the investment scams. The significant relationship observed between social media and investment scams highlights the need for increased attention to the potential risks associated with online investment opportunities.

5. Limitations and Recommendations

The present study was not without limitations and inspires some suggestions for future studies. In future studies, it is recommended to employ a mixed methods approach to gather data. Conducting interviews can be done with students to obtain comprehensive information, followed by administering questionnaires that consider the insights gained from the interview. Another limitation of this study pertains to the small sample size. This study focused on students from three campuses of Universiti Teknologi MARA Cawangan Negeri Sembilan only. To further validate the findings and obtain a greater substantiation of outcomes and generalizability, future research should include a larger sample size and involve respondents from various universities and colleges.

Conclusion: This study highlights the significant relationship between social media and the intention to invest in investment scams. Social media platforms provide scammers with avenues to manipulate and deceive individuals into fraudulent investment schemes. Scammers can easily create fake profiles, thus making it hard to differentiate between real investment opportunities and scams. Students should be mindful of the advertisements and content they encounter online to prevent becoming victims of investment scams. They need to be cautious about the information they come across on the internet. Notably, this issue requires all parties including social media platforms, regulatory authorities, regulatory authorities, law enforcement agencies, and cybersecurity experts to work closely in developing comprehensive strategies and policies that can effectively combat investment scams in the digital landscape.

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Study of Energy Performance in Malaysian Public Hospital using Power Query

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Abstract: In 2016, the Ministry of Health (MOH), Malaysia, initiated a sustainable program that includes activities for sustainable energy management at all 145 buildings under the MOH. The focus of the sustainable energy management program is to target these buildings to reduce their annual energy consumption by 10% by 2018. The target implementation of a sustainable energy management program includes achieving 3-star EMGS certification within 5 years. By December 2022, 135 have achieved two-star certification with the requirement to achieve at least 5% energy consumption savings. By 2019, the 118 buildings that embarked on EMGS certification had achieved 22.62% energy consumption savings. District and specialist hospitals achieved 23%–24% savings in 2019. The largest energy consumption in MOH buildings is for room cooling, which is contributed by air conditioning and mechanical ventilation (ACMV) equipment. The implementation of a sustainable energy management program has contributed to energy cost savings of RM21 million per year to MOH energy bills in 2019.

Keywords: *ETL, Power Query, BEI, and Sustainable Energy Management program.*

1. Introduction and Background

Energy, by definition, is a product of burning fuel or renewable sources (Ong et al., 2011). Energy consumption causes severe environmental damage, which is understood mainly through climate change (Schaeffer et al., 2012). Energy consumption is one of the main contributors to global warming from carbon dioxide gas emissions into the atmosphere. In 2015, 190 countries pledged to the Paris Agreement for a Global Framework to limit global warming to well below 2 degrees centigrade (European Union, 2016). With the agreement, Malaysia has committed to reducing carbon dioxide emissions to 45% by 2030 relative to 2005 (Ministry of International Trade and Industry, 2017).

Global energy consumption growth slowed down in 2019 at 0.6% compared with an average of 2% per year over the 2000–2018 period, in the context of slower economic growth. In 2019, global electricity consumption grew at a much slower pace than that recently at 0.7%, compared to an average of 3%/year over the 2000–2018 period, due to a slowdown in economic growth and milder temperatures in several large countries (Enerdata, 2020). Energy consumption has been linked to carbon dioxide (CO2) emissions that lead to global warming (Fulton et al., 2017). In Malaysia, the leading contributor of greenhouse gas (GHG) is the use of fossil resources to generate electrical energy, with only 3.2% from renewable energy and 15.9% from hydro (Shaikh et al., 2017).

A study on energy consumption in Malaysia found that in 2008, the commercial sector consumed 8% of the total national energy consumption, and it is estimated that the Malaysia Public Hospital consumed approximately 19,311 MWh (Saidur et al., 2010). The Building Energy Index (BEI) of commercial buildings such as public hospitals is between 70 and 300 kWh/m2/year, which is 10 to 20 times that of residential buildings. In Thailand, the average BEI for hospitals is 148 kWh/m2/year (Saidur et al., 2010). With growing interest in sustainability management, hospitals have begun to design and build using sustainable technology, renewable resources, and energy efficiency to reduce energy consumption (Rina & Zakaria, 2014). In 2016, the Ministry of Health (MOH), in collaboration with MGTC, achieved an annual saving of 46 GWh or RM21 million from its EMGS certification program at 39 hospitals (MGTC, 2019).

2. Literature Review

Energy consumption leads to the burning of fossil fuels. It could lead to the emission of greenhouse gases and other air pollutants such as hydrocarbons, nitrogen oxide, and volatile organic compounds detrimental to the environment (Ong et al., 2011). Energy consumption also caused a significant rise in global carbon dioxide emissions from 19,380 million tons in 1980 to 31,577 million tons in 2008, and it was predicted that carbon

dioxide emissions would increase to 40 billion tons by 2030 if no tremendous effort is made to control and reduce energy consumption (Moghimi et al., 2011). Malaysian energy generation is still heavily dependent on non-renewable energy fuels such as crude oil, natural gas, and coal, and with economic growth highly dependent on energy consumption, the increase in energy consumption is estimated to be in an uptrend of around 6–8% annually based on national economic growth (Ong et al., 2011). Malaysia has taken positive steps to address this issue by issuing a framework for energy development in terms of energy diversification and efficient utilization since 1979, known as NEP79. The objective is to promote energy efficiency and discourage wasteful and non-productive patterns of energy consumption (Chua & Oh, 2012).

In 2018, the total energy consumption was 64,658 ktoe (kilo tonne of oil equivalent), an increase of 3.5% from the previous year. All sectors showed an upward trend in 2018, except for the transport, residential, and commercial sectors. The transport sector's energy consumption declined by 2.0% to settle at 23,555 ktoe, while the residential and commercial sectors dropped to 7,773 ktoe. Figure 1 Energy consumption by sector and Figure 2 Energy consumption by sector (Malaysia Energy Commission, 2018) shows that electricity consumption by sector is % in the commercial sector, which is the second biggest consumption behind the industrial sector, and the trend is increasing year on year (Malaysia Energy Commission, 2018).

Figure 4: Energy Consumption by Sector

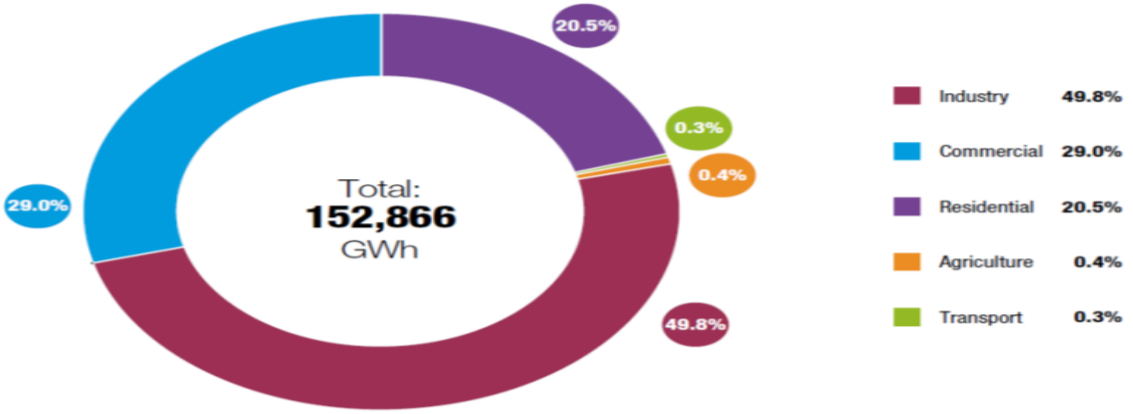
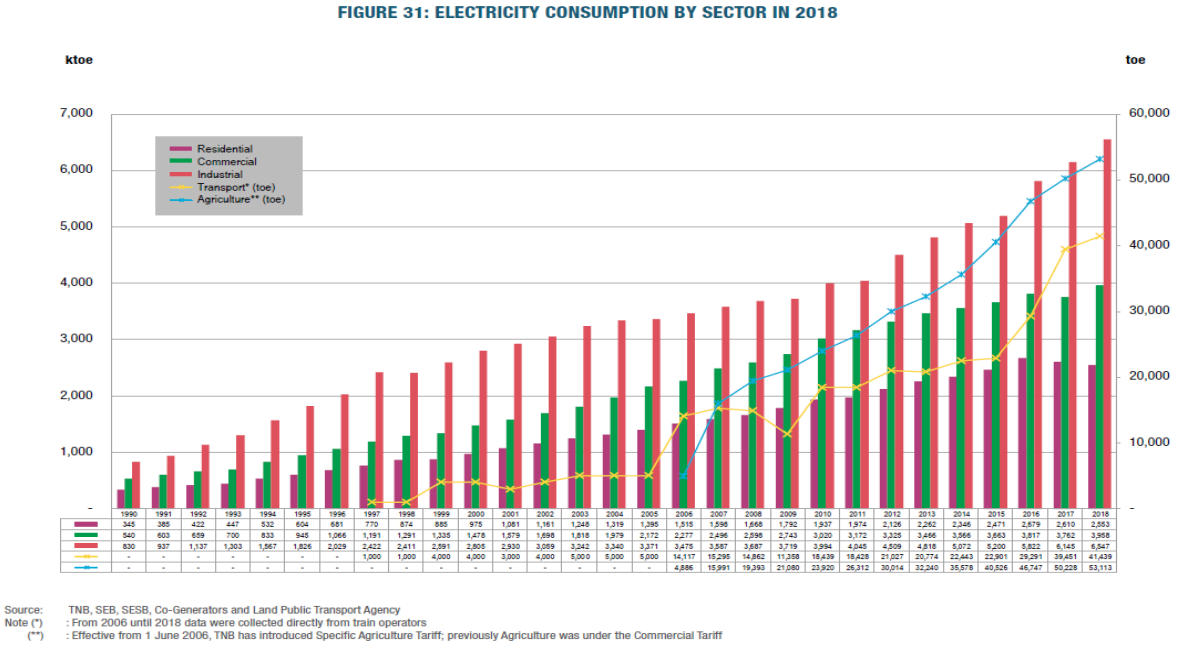


Figure 5: Energy Consumption by Sector (Malaysia Energy Commission, 2018)



A recent study on Spanish hospitals reveals taht consumption of electricity by the commercial sector reaches 24.2% of the total energy consumption (González et al., 2018). The average annual energy consumption in Spanish hospitals reaches 20% of the total national energy consumption (Gangolells et al., 2016). To meet hospital operating standards in terms of temperature and humidity, hospitals consume a significant amount of energy (Moghimi et al., 2011). In the US, the healthcare industry consumes a high level of energy, which contributes to more than 8% of the national harmful greenhouse gas (GHG) emissions (Chung, 2011). In addition, several studies have observed that implementing energy efficiency and engineering retrofitting could reduce energy consumption in hospitals. Commercial buildings such as hospitals, because of their 24-hour operation, are recommended to implement energy efficiency activities, especially for the heating, ventilation and air-conditioning (HVAC) system, the building envelope, the building management system, and the compressed air system.

From the perspective of Malaysia in 2008, the commercial sector consumed 8% of the total energy consumption, and an estimated MWh of electricity was consumed by public hospitals (Saidur et al., 2010). The Building Energy Index (BEI) of a commercial building in which public hospitals fall under this category is between 70 and 300 kWh/m2/year, which is 10 to 20 times that of residential buildings. In Thailand, the average BEI for hospitals is 148 kWh/m2/year (Saidur et al., 2010). There are also correlations between the average energy consumption in hospitals and the number of workers, the number of available beds, and the built surface area (González et al., 2018).

It is essential now that hospitals embark on energy-saving measures where they must interfere with daily operations (González et al., 2018). Implementing energy-saving measures in hospitals should not compromise the health, safety, or care effectiveness of patients (Shepley et al., 2009). That is, many hospitals have less interest in green building certification compared to other industries (Wang et al., 2016). Recently, there has been a growing interest in sustainability development where a new trend is to design and build hospitals using sustainable technology, renewable resources, and systems designed to reduce energy consumption ((Rina & Zakaria, 2014).

3. Research Methodology

The research method is based on quantitative research, which involves data collection, data extraction, and data analysis. Data collection was conducted based on the Energy Management Gold Standard (EMGS) certification application by Malaysian public hospitals to Malaysia Green Technology and Climate Change (MGTC). The information obtained includes energy consumption amount in kWh and RM, hospital building profile such as gross floor area (GFA) in m2, hospital operational categories such as state hospital, specialist and district hospital, and hospital operating location.

Extraction, transform, and load (ETL) are used to extract data from data form applications submitted by hospitals to MGTC. ETL is one of the most powerful tools in data analysis, which helps to discover anomalies such as missing data and null values (Rodzi et al., 2016). ETL is commonly used in tasks dealing with data warehouse homogeneity, cleaning, and loading problems, and it is a cost-effective solution. ETL is also a fundamental step in the process of implementing a decision-making system through the design and implementation of a data warehouse. In this process, data from various sources are first extracted, cleaned, and eventually standardized before being stored in the data warehouse (Diouf et al., 2018).

The functionality of ETL can be summarized as follows:
a) Identification of relevant information at the source
b) Extraction of information
c) Customization and integration of the information
d) Cleaning the dataset
e) Propagation of the data to the data warehouse.
(Simitsis et al., 2005) and (El-Sappagh et al., 2011).

Power Query is a data transformation and data preparation engine. Power Query comes with a graphical interface for obtaining data from sources and a Power Query Editor for applying transformations. Because the

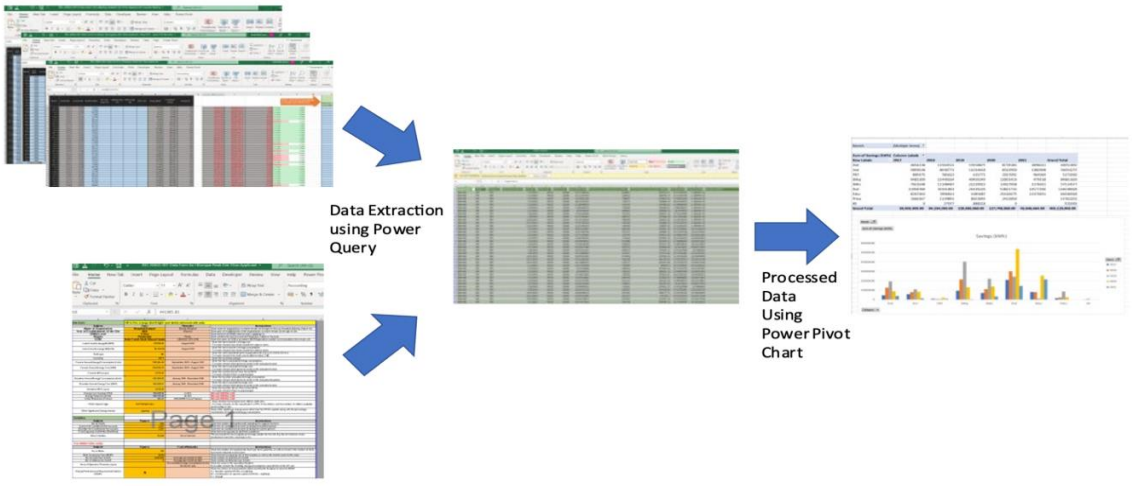
engine is available in many products and services, the destination where the data will be stored depends on where Power Query was used. Using Power Query, you can perform extract, transform, and load (ETL) processing of data (Becker & Gould, 2019). The Excel 2010 and 2013 versions provide a customized way for the user to view the perspective and insights of the data. The collection assessment team began using these advanced Excel options to support a more robust program of data analysis, visualization and transparency. This will provide the opportunity to build a dashboard, interactive reports, and even geospatial maps with pivot tables, pivot charts, and slicers.

In Excel, Power query serves as ETL in BI applications (Valdez et al., 2017) with intuitive and consistent experience to discover, combine, and refine data from a wide variety of sources. In addition, power queries are commonly used to access data from multiple running Excel workbooks or files (Becker & Gould, 2019). In Microsoft Office, using Power queries for BI solutions is often accompanied by Power Pivot, Power View, Power Map, and Power BI (Erik Kajáti, 2017). In addition, Excel, as described by Wu (2010), is one of the most used BI tools and is commonly accompanied by power tools such as power queries for data extraction, transformation, loading, and analytics. Using Power Query, data can be extracted from different sources such as a file, online data warehouse, web, and databases (Leonard et al., 2021). Power Query is a self-service ETL tool that runs on Excel and can accept data from various sources, manipulate data into a form, and load it into Excel (Gowthami & Kumar, 2017).

4. Data Collection and Analysis

The data are based on energy information for 120 hospitals and buildings under the MOH, which includes all hospital categories for the state, specialist, district, and mental institutions. The raw data were obtained from the AEMAS EMGS application submitted by an organization interested in obtaining EMGS certification. The application data were submitted to the Malaysia Green Technology and Climate Change Corporation. The application for certification was submitted using an Excel file that comprises organizational energy consumption information and other organizational information. The data extraction process can be summarized as per Figure 3-Data Flow Diagram.

Figure 6: Data Flow Diagram



The application also consists of raw data comprising monthly energy consumption as follows:

A) Energy consumption information:

- Energy consumption in kWh
- Energy consumption in the RM
- Monthly Building Energy Index

B) Organization basic information:

- Building name
- Building location – State, District
- Building category
- Building Gross Floor Area

The raw data comprise applications from 120 MOH buildings for EMGS 2-Star and 3-Star certifications. The Excel files comprise several worksheets. The energy consumption data are extracted from the energy bills worksheet. The energy consumption data were extracted based on the monthly consumption data. The monthly consumption data were collected based on the organization's available data from 2015 to 2021. The monthly savings in RM and kW are based on the differences between the current and previous months. The monthly energy index is based on monthly consumption divided by gross floor area (GFA). The annualized savings in kWh and percentage are based on the current annual consumption against the annual baseline as set by the organization. From the Fact worksheet, data on hospital information and variables were extracted. Using a power query, the extracted data are then compiled into another Excel file for compilation and analysis into the compilation worksheet. The data were organized and transformed into more readable data for analysis. The data will then be combined between the worksheets to show the relationship between the energy consumption data and organization data. The data were then organized and grouped in an Excel sheet to be easily interpreted for analysis.

Data Source: Data collection activities include the compilation of hospital applications for EMGS certification. The certification requirement includes the presentation of energy data and hospital technical information compiled from 118 MOH buildings in Malaysia. The categorization of the hospital data collected is shown in Table 1. Number of MOH buildings by category. The categorization of buildings is based on the MOH identification of building facilities. Under the hospitals, the categories are District, Minor Specialist, Major Specialist, and State. The MOH institution includes mental institutions, laboratories, research institutions, and specialized institutions.

Table 3: Number of MOH Buildings by Category

Hospital Categories	Quantity
Institution	14
District	57
Major Specialist	16
Minor Specialist	19
State	12
Total	**118**

The data for energy consumption in terms of kWh and RM for all MOH buildings are complete from 2016 to 2019. For the years 2020 and 2021, the energy consumption data are still incomplete, primarily because of COVID-19. There are also energy consumption data for the year earlier than 2016, but the data are not complete for the MOH buildings. These data were also excluded from the analysis. Energy consumption has recorded a reduction from 2018 onwards with the introduction of an energy management program under the sustainable program in 2017. This can be seen in Figure 4. Energy consumption trend (2016 to 2019) Energy reduction has grown year on year from 1.53% in 2016 to 22.62% in 2019. The increasing energy trend is shown in Figure 5 (Annual monthly average energy saving (%) trend (2016-2019)).

Figure 7: Energy Consumption Trend (2016 to 2019)

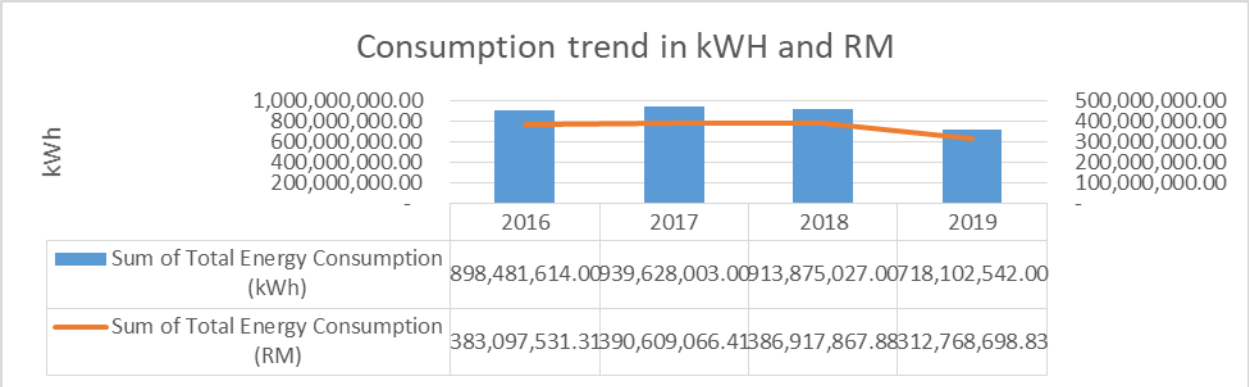
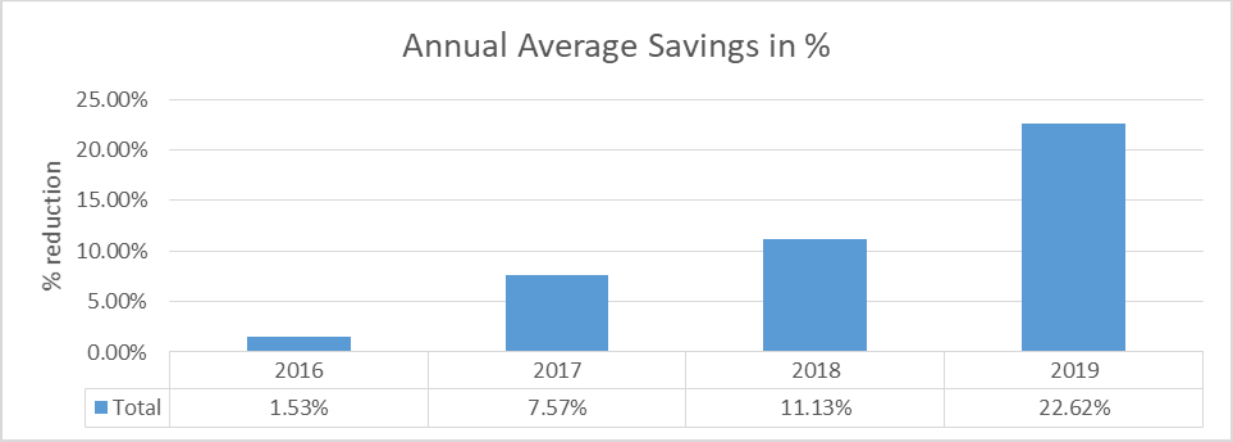
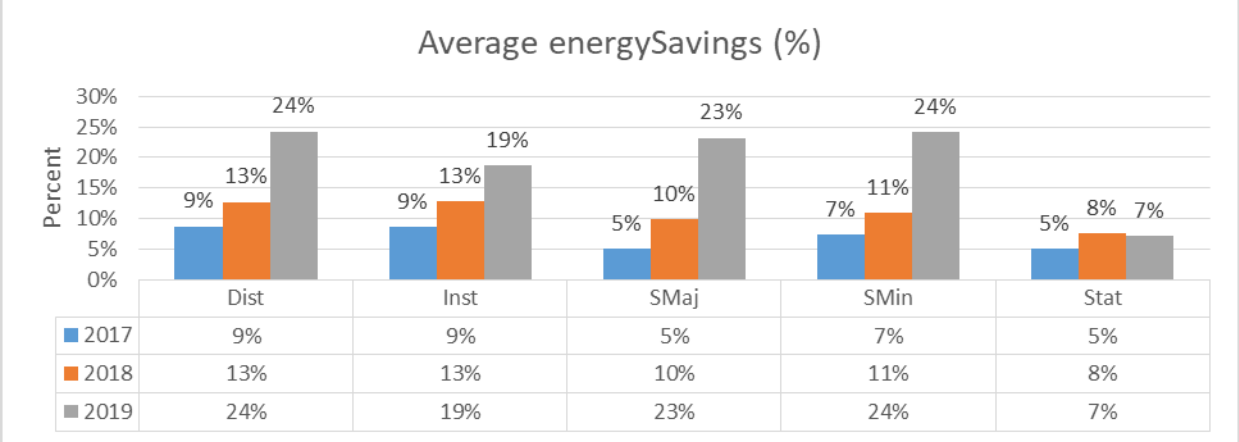


Figure 8: Annual Monthly Average Energy Saving (%) Trend (2016-2019)



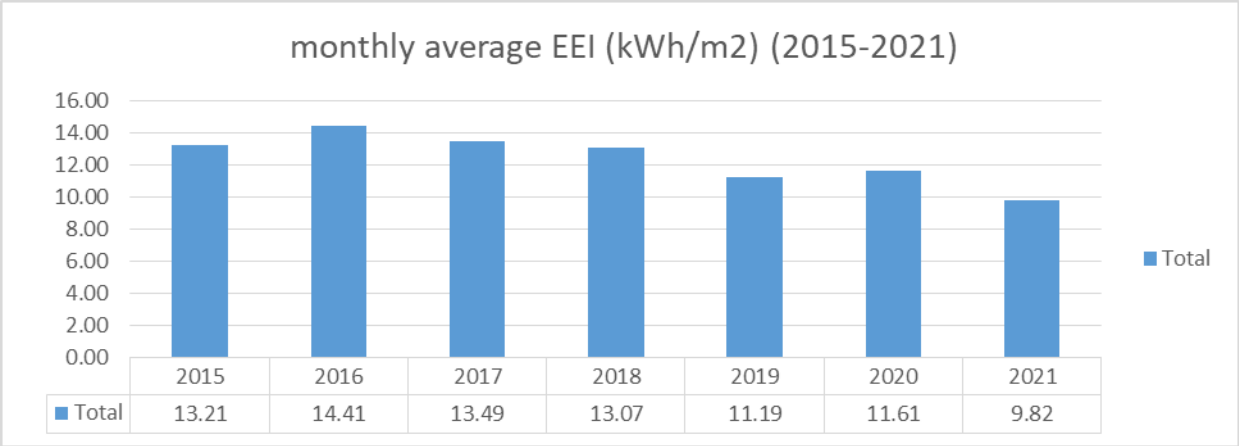
When analyzing the energy consumption savings by category, there are significant savings in the year 2019 for the district, minor specialist and major specialist hospital buildings, which achieved 23%–24%. The energy consumption savings for institution buildings are slightly lower at 19%. However, for state hospital buildings, the energy consumption reduction is the least with only 7% (Figure 6, monthly average energy savings (%) by category (2017-2019). Significant achievements for district, minor, and major specialist hospital buildings mainly contribute to energy-saving measures in lighting and cooling systems. The lighting energy-saving measures are from the replacement of fluorescent lights with LED lights. The cooling system energy saving measures are mainly due to the replacement of split unit air-conditioning with inverter-type air conditioning and the replacement of conventional chiller systems with magnetic drive chiller systems.

Figure 9: Monthly Average Energy Savings (%) by Category (2017-2019)



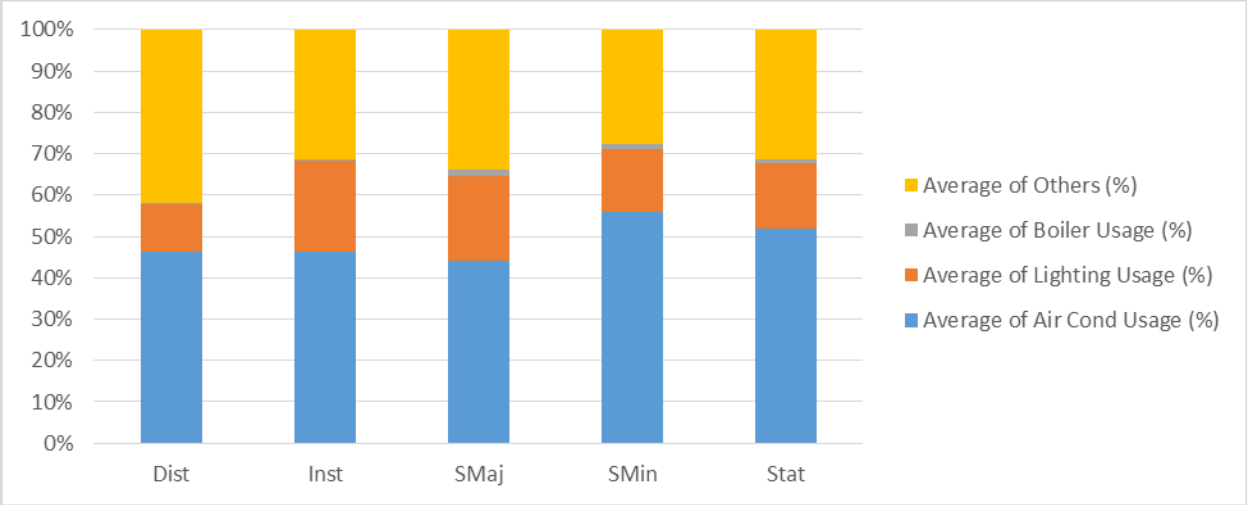
The average monthly energy efficiency index (EEI) in kWh/m2 for MOH buildings shows a downward trend from 2016; please refer to Figure 7 (Monthly average EEI (2015-2021)). This shows that there is a significant improvement in terms of energy efficiency year after year. This improvement in energy efficiency is mainly due to the reduction in energy consumption, and there is no significant variation in the floor area. The overall average EEI for 2021 is 9.82 kWh/m2 per month. If it is translated into the building energy index (BEI) annual energy consumption per year, the BEI will be approximately 117 kWh/m2. The 117 kWh/m2 compared to the commercial building standard is much lower than the 135 kWh/m2 set by MS 1525 as an energy-efficient building (Dwaikat & Ali, 2016).

Figure 10: Monthly Average EEI (2015-2021)



In terms of end-use energy in hospital buildings, energy is primarily used for cooling. Refer to Figure 8. Energy end-use load apportionment, the cooling load apportionment contributed 45%–55% of the total energy consumption. The lighting apportionment contributed between 10% and 20% of the overall energy consumption. However, minor and major specialist and state hospital buildings use energy for water heating using a boiler system of less than 5%. Others contributed between 30% and 42% of the energy consumption normally used for biomedical and office equipment.

Figure 11: Energy End-Use Load Apportionment



Discussion: The energy consumption performance of MOH buildings improved with the introduction of a sustainable energy management program in 2016. In 2019, MOH buildings achieved 22.62%. With this achievement, the sustainable energy management program has assisted the MOH buildings in the introduction of energy efficiency activities especially for LED lighting retrofit, cooling system retrofit, and

some renewable energy introduction. The renewable energies that have been commonly implemented in MOH buildings are solar photovoltaic and solar hot water systems for water heating and air conditioning. Apart from energy efficiency and renewable implementations, staff should be aware of energy consumption savings. This is prevalent where MOH buildings that do not implement any energy efficiency and renewable energy implementations still, manage to achieve more than 5% energy consumption savings through awareness in which these buildings achieve 2-star EMGS certification. The requirements to obtain 2-star EMGS certification are that the buildings must demonstrate that they have achieved at least 5% energy consumption savings. Based on Excel data, as of December 2019, 118 of 145 MOH buildings have achieved two-star certification.

The findings from data analysis show that efforts from the hospitals to achieve EMGS certifications have produced a positive result of 22.62% energy savings by the end of 2019. By that time, most high-energy-consuming hospitals, especially those that fall under state and specialist hospitals, had yet to achieve 3-star certification. The best period to study the overall performance of the hospital is from 2023 and above, as most hospitals will return to their normal operations by the middle of 2022. Further studies are recommended to observe the implication of COVID-19 disease on energy consumption, especially from the perspective of energy performance.

5. Managerial Implications and Recommendations

Obtaining EMGS certification requires compliance with seven criteria. The criteria for EMGS certification include the elements of performance. With the introduction of SEMS and EMGS certification, the energy management program at the hospitals has shown significant improvement in the organization's commitment to energy reduction. The commitment from the top management of the hospital has had a significant influence on the successful implementation of SEMS and EMGS certification. It is expected that by the end of 2024, all hospitals under the MOH will obtain three-star certification.

Conclusion: The MOH is the first ministry in Malaysia to have started a sustainable program for all its buildings since 2016. This initiative has resulted in RM21 million a year from energy consumption savings. Based on our analysis, the MOH could achieve annual energy savings of RM100 million a year through this energy management program. Thus, MOH has also contributed to the Malaysian initiative to reduce CO2 emissions by 45% by 2030 (Malaysia International Trade Investment, 2018). The successful implementation of energy reduction should be a leading example for all other ministries in the Malaysian Government and all Malaysians. Therefore, Malaysians could understand the impact of energy consumption and start saving on energy consumption. At the very least, Malaysians could learn how to reduce energy consumption and minimize energy wastage. For further studies, other sustainability initiatives have been implemented at Malaysian hospitals, such as the waste management program, Green Building Certification, and indoor air quality. All these programs including the sustainable energy management program are part of the MOH initiative under their Sustainable Program. These programs are worth studying for their impact on the environment.

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The Mediating Effect of Entrepreneurial Self-Efficacy between Business Incubator Funding and Business Success: A Conceptual Paper

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Abstract: Business incubation plays a crucial role in sustaining business success in both emerging and developing countries. Business incubators help businesses in developing countries effectively use innovation to reduce poverty and sustain social and economic development and growth. This conceptual paper focuses on the effect of funding in business incubator practices on business success in the context of Palestine. Additionally, this study strives to establish the mediating effect of entrepreneurial self-efficacy on the relationship between funding and business success. This study will apply a quantitative approach to collect data from businesses in Palestine. The Partial Least Squares (PLS) method will be used to analyze the data. This study adopted a resource-based view (RBV), which claims that resources, skills, and capabilities are valuable tangible and intangible resources that lead to business success. If empirically supported, the proposed framework may provide effective assistance for business incubators, entrepreneurs, business owners, and managers in developing countries such as Palestine. Therefore, the results of this study will help provide academic research, future research, government, and related agencies with guiding principles and information.

Keywords: *Business Incubator; Funding; Entrepreneurial Self-Efficacy; Business Success.*

1. Introduction and Background

The literature on entrepreneurship uses the economic viewpoints of revenue and worker growth to assess business success (Yong & Hassan, 2019). Previous studies have established a connection between business success and financial outcomes. However, recent scholarship has adopted a more nuanced perspective on business success, acknowledging that business owners frequently view outcomes other than financial ones as accomplishments (Rani et al., 2019). As non-financial objectives may result in alternative performance efforts, many entrepreneurs are motivated to launch a firm based on lifestyle or personal factors (Hatak & Zhou, 2019). Few studies have evaluated the success of entrepreneurs, despite the fact that many criteria have been employed to determine success rates and performance (Genty et al., 2015). In addition, research has demonstrated that knowing the characteristics that contribute to entrepreneurial success is important for businesses, particularly for entrepreneurs, investors, and economic stability (Okoye et al., 2017). Business incubations are tools that have emerged to help startup companies establish and grow their businesses. A business incubator is an organization or platform that provides administrative support, funding, and other aid to start-ups (Usupbaev, 2023).

The issue of funding for business incubators is crucial because it has a significant impact on whether enterprises survive. All entrepreneurs in a study on the difficulties faced by startups battled with financing their businesses (Sefton & Rönkkö, 2020). Startups lack a trade history, in contrast to more established businesses, and bear risks related to investing in brand-new businesses that affect the financial structure of small businesses (Atherton, 2012). 2 Business actors require entrepreneurial self-efficacy in addition to business incubators, which shows confidence in their ability to choose the least hazardous course of action. Entrepreneurial self-efficacy is a conviction in one's ability to plan the resources of action necessary to manage future circumstances (Mei, et al., 2017). As a result, the primary goal of this research is to create a conceptual framework for academic understanding of how funding in business incubator practices affects business success and to investigate the mediating role of entrepreneurial self-efficacy in this relationship. The remainder of this paper is organized as follows: a literature review on business success, funding, and entrepreneurial self-efficacy. The discussion is supported by a review of the Resource-Based View (RBV) theory, a conceptual framework for the study, and a conclusion.

2. Literature Review

Overview of Palestine Business Incubation: Palestine is one of the developing countries located in the southern part of the Mediterranean shores which has been occupied since 1948 and divided into territories including the Gaza Strip in the South and the Westbank in the middle. Gaza Strip and the West Bank suffer from economic deterioration, and a high unemployment rate (OCHA, 2018). Geographic fragmentation has led to structural imbalances in the economy, resource access, and labor market, which have led to a significant dependency on external revenue sources, particularly foreign aid. The unemployment rate in Palestine was quite high. According to the Palestinian Central Bureau of Statistics, the annual average unemployment rate in Gaza grew by as much as 11 percentage points in 2023. Young people fare the worst, with rates of unemployment of at least 65% and labor underutilization of at least 77%. Despite having one of the youngest and best-educated populations in the Middle East, Palestine has an alarmingly high unemployment rate, particularly in the Gaza Strip (PCBS, 2023). Since the Gaza Strip has been under siege for more than ten years, the economy of Gaza has been severely damaged, and many young people have been unable to find fulfilling employment (PCBS, 2023).

The Palestinian economy struggles to generate jobs and lacks industrial resources. However, many people believe that there is no way for them to support their families or make a life. This reflects the reality that the market is too limited to accommodate the huge influx of recent graduates from universities each year. Thus, the information technology industry remains one of the few bright spots through business incubators, which offer a crucial channel for job creation and income opportunities, seeking to establish an innovative business, and encouraging the creation of jobs through the implementation of projects that can withstand economic downturns. BI in Palestine plays a vital part in the country's economic growth, mainly to fight poverty and unemployment (Morras, et al., 2019). In addition, since the first incubator opened in 2004, eight incubators have been established in different parts of Gaza in Palestine by 2023, and the number of business incubators has increased dramatically. By offering facilities for starting new enterprises as well as financial and technological assistance, they are developing powerful partnerships in the development of new businesses (MAS, 2019). This section highlights the review studies vital to BS, funding in business incubator practices, entrepreneurial self-efficacy, and resource-based view (RBV).

Business Success: Al-Damen, (2021) defined business success as the ability of a business to contribute to jobs and wealth creation through business start-up, through a range of supporting resources including training, funding, marketing, and networking supports in an atmosphere conducive to new venture development, survival, and early-stage growth. BS is the degree to which a business succeeds in achieving its goals (Asri & Ferdous, 2015). In addition, both financial and non-financial factors may be used to gauge an entrepreneur's BS (Rhodes & Butler, 2004). Non-financial measures include individual fulfillment, entrepreneurial self-efficacy, customer satisfaction, and development of the individual. Financial measures include financial revenue, profits, employees, rates, and return on assets, whereas non-financial measures measure BS by surviving and growing profitably and whether firms are on a path toward profitability or are only marginally profitable (Masuo et al., 2001). Incubator success often depends on the stakeholders' goals. Sometimes, the goals are not clear from the beginning, and the methods for gauging performance are not always related to these goals. When incubators establish fresh businesses, create employment, spread technology, and bring in money for stakeholders and the government, they are deemed to be successful. The success of businesses in technological incubators is typically seen in a classic linear manner, like the innovation process: a new firm or start-up would stay in the incubator for a few years, graduate, and develop ideally (Pidduck et al., 2023).

Business Incubator Funding: A business incubator is a facility that is specifically developed to advance the growth and success of new ventures through a range of supporting resources including infrastructure, business support services and networking supports in an atmosphere conducive to new venture development, survival and early-stage growth (Al-Damen, 2021). There are a few different ways to fund a startup incubator, including grants, loans, and private investment. Rosado-Cabero et al. (2023) emphasize that funding is very important in business incubator practices both public and private funds.

Funding is defined as monetary support to the start-up, from the government and institutions owned by the government such as support schemes, mediation of contacts to financiers, and direct support in the financing of innovation projects which entrepreneurs take while starting their business or enhancing the business (Dwivedi & Mishra, 2013). As a business incubator to help start-ups embark on their business, funding is important to ensure the success rate. Funding can be in the form of grants and loans. Normally, the source of funding will be Business incubations are tools that have emerged to help startup companies establish and grow their businesses. A business incubator is an organization or platform that provides administrative support, funding, and other aid to startups (Usupbaev, 2023). According to Van Dijk (2014), funding is a vital resource because it provides entrepreneurs with the start-up and expansion cash they need. The lack of early-stage funding during a start-up's early stages of development is one of the key barriers to business growth and success. The so-called "valley of death," the stage of a start-up where investments in R&D and business development still outnumber the sales and income produced, cannot be crossed by start-ups without early-stage funding. Funding can be termed to be a significant factor of any established company, especially for start-up businesses as it determines a substantial part of financial support contributes to 25% of the BS (Akinruwa, et al., 2013).

Entrepreneurial Self-Efficacy: According to Campo (2011) defined entrepreneurial self-efficacy as the degree to which one believes that he or she is able to successfully start a new business venture. Self-efficacy in entrepreneurship refers to the conviction that one can effectively launch and manage a firm. It is a crucial element in entrepreneurship because it affects the choice to launch a firm, the amount of work put into it, and tenacity in the face of difficulties (Bandura, 1977). Segal, et al. (2005) defined entrepreneurial self-efficacy as one's confidence in their capability and ability to succeed in the process of starting a business. Goal beliefs and control beliefs comprise a multidimensional concept known as entrepreneurial self-efficacy. The goal beliefs of an entrepreneur are evaluations of their capacity to participate in actions that will result in successful task or outcome fulfillment during business start-ups. According to Drnovek et al. (2010), control beliefs are an entrepreneur's perceptions of their capacity to rein in negative ideas and strengthen positive ones while pursuing goals.

Funding (Business Incubators Practices) and Business Success: Business incubators, which are a major factor in corporate success, are crucial to economic growth. By creating new jobs and expanding into new industries, they are helping increase employment. Business incubators enable greater productivity without necessarily altering input through thorough innovation. Despite their tremendous contribution, they have an extremely poor survival rate. Owing to their youth and small size, the difficulties they encounter are frequently related to resource constraints (Serio et al., 2020). Startups frequently have financial difficulties, and these issues have a big impact on whether or not they survive. Owing to their features, such as being more reliant on resources and requiring more funding to continue, HW startups in particular face this problem (Pikkupeura & Qawir, 2023). According to Olkiewicz et al. (2018), business incubation practices help entrepreneurs in the initial phases of their ventures. It entails offering tools, such as funds, to assist entrepreneurs in expanding their businesses which can help enterprises thrive by providing them with capital. According to Batra et al. (2003), ensuring accessibility to funds enhances business growth 4 and development and in turn, influences overall BS. Therefore, this study proposes the following hypothesis:
H1: There is a significant relationship between funding and business success.

Funding (Business Incubators Practices) and Entrepreneurial Self-Efficacy: Funding is a crucial resource, and entrepreneurial self-efficacy may affect its effectiveness, to improve the chances of BS, it is crucial to consider ESE when sponsoring business incubation programs (Baria, & Arshadb, 2020). Individuals with high self-efficacy have the ability to achieve entrepreneurship goals, as they are more likely to perceive the possibility of high profit, social recognition personal satisfaction, and to predict failure. Similarly, it is reported that young entrepreneurs' abilities and expectations determine their career choices (Fitzsimmons & Douglas, 2011). The association between financing for business incubation and BS has been linked to entrepreneurial self-efficacy, which has been identified as a potential mediator. Therefore, this study proposes the following hypothesis:
H2: There is a significant relationship between funding and entrepreneurial self-efficacy.

Entrepreneurial Self-Efficacy and Business Success: One of the earliest contributions to the study of entrepreneurial self-efficacy focused on how it affects the establishment of entrepreneurial intentions. Boyd, & Vozikis (1994) extended Bird's (1988) model of entrepreneurial intent by proposing that self-efficacy is a key mediator in determining both the strength of entrepreneurial intentions and the chance that those intentions would result in entrepreneurial activities. Gatewood and her colleagues discovered that personal efficacy influenced the development of nascent entrepreneurs' attributions for starting new businesses when they further examined the effects of self-efficacy on entrepreneurial intentions on populations of nascent entrepreneurs (Carter, et al., 2003). Entrepreneurial self-efficacy in launching a new firm is a critical component in raising the chance of business start-up activity, as demonstrated by Rauch and Frese (2007). According to Yarima & Hashim, (2016), a graduate with entrepreneurship training might not necessarily become an entrepreneur unless he/she possesses entrepreneurial self-confidence Therefore, this study proposes the following hypothesis:
H3: There is a significant relationship between entrepreneurial self-efficacy and business success.

The Mediating Role of Entrepreneurial Self-Efficacy in Funding and Business Success: The relationship between funding in business incubations and BS has been linked to entrepreneurial self-efficacy, which has been identified as a possible mediator. ESE may impact the efficiency of funding for business incubation. According to Kiran and Bose (2020), entrepreneurs with high entrepreneurial self-efficacy levels are more likely to wisely use funds. According to Al-Damen, (2021), there is a high impact of business incubator on BS at business incubators, this can boost BS. The varying definitions of success among business owners demonstrate the subjectivity of the idea of success in the entrepreneurial industry. Every entrepreneur has a different understanding of what success is for them and how it should be assessed. Therefore, using financial indicators alone to determine whether a firm will succeed is insufficient. This study explored the possibility that other psychological traits of non-financial indicators, such as entrepreneurial self-efficacy, also contribute to BS. According to Bandura (1977), entrepreneurial self-efficacy may be applied to task-specific effects, which indicates that a person who manages a business and possesses the self-efficacy construct can firmly hold on to their conviction in their ability to complete the job in entrepreneurial activities. Several studies have examined the relationship between ESE and business success. Miao et al. (2017) found a favorable correlation between entrepreneurial self-efficacy and BS, and ESE impacts economic performance and is favorably correlated with it. In other words, BS depends on entrepreneurial self-efficacy consequently. The findings of Caglayan & Demir (2014) confirm that BS is associated positively with getting funds. Also, Krishnan, et al. (2012) report similar findings that access to funds significantly affects BS; this study proposes the following hypothesis:
H4: Entrepreneurial self-efficacy mediates the relationship between funding and business success.

3. Proposed Conceptual Framework and Underpinning Theory for the Study

Based on a literature review, this study proposes a conceptual framework, as shown in Fig.1. Entrepreneurial self-efficacy is a mediating variable in the relationship between funding in business incubator practices and business success. Additionally, it would be interesting to observe the effect of funding on entrepreneurial self-efficacy and business success in the Palestinian scenario. Fig. 1: Conceptual Framework According to Penrose's resource-based view (RBV) hypothesis, businesses with the most effective managerial resources would be able to achieve the highest levels of development and profitability (Penrose, 1959). Which are produced using its special resources (Wernerfelt, 1984; Barney, 1991). RBV is a strategy for enhancing a start-up's competitive advantage that can be traced back to the effective use of priceless tangible or intangible resources. The importance of information, particularly in internal and external situations, is another point the RBV makes (Barney, 1991). Furthermore, the RBV's theoretical approach is crucial, especially for small businesses, which are likely to rely substantially on the traits and abilities of their owners (Lerner & Almor, 2002). In this study, we concentrated on both tangible and intangible resources, particularly the entrepreneur's self-efficacy. According to Shamsudeen, Keat, and Hassan (2017), entrepreneurial self-efficacy is an entrepreneurial quality that is intangible and valued among organizational resources that gives a start-up a competitive edge over its rivals and fosters business success. Thus, the proposed framework seeks to confirm the relationship between entrepreneurial self-efficacy and funding for business success, derived from the RBV theory.

4. Conclusion

In Palestine, due to the limited resources and the high unemployment rate, entrepreneurship has become a national priority and an opportunity for wealth-seeking individuals. It impacts the level of economic and social welfare (Tajpour & Hosseini, 2021). Entrepreneurial self-efficacy is crucial to the success of their businesses. Incubation funding is a crucial resource, and entrepreneurship self-efficacy may affect its effectiveness, to improve the chances of business success, it is crucial to consider entrepreneurial self-efficacy when sponsoring business incubation programs (Sulistyowati, 2023). The notion of entrepreneurial self-efficacy was used in this study to define the conceptual framework of the significance of funding as a business incubator practice for business success by acting as a mediator between the interactions of the independent and dependent variables. Although the present research demonstrates the significance of entrepreneurial self-efficacy in business success, this study contends that this link may be strengthened by incorporating entrepreneurial business success. Additionally, for these linkages to be robust, this conceptual framework requires independent empirical research. Therefore, future empirical research should investigate the connection between business success and (business incubator practices) such as training, funding, marketing, and networking. This demonstrates that entrepreneurial self-efficacy can accurately predict a business's success. This result is consistent with other studies on the relationship between entrepreneurial self-efficacy and business success (Rosli and Hatinah, 2016). Thus, the findings of this study are consistent with those of other studies (Baria, and Arshadb, 2020; Cabrera and Mauricio, 2017; Franco et al., 2016; French et al., 2017; Lo, et al., 2016). Furthermore, additional activities used in business incubators, including training, marketing, networking, and monitoring, may be incorporated to further verify the research and assess the impact of entrepreneurial self-efficacy on the development of a business.

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Analysis of Barriers to Green Data Centers Implementation in Malaysia, using Interpretive Structural Modelling (ISM)

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Abstract: The data center market is expected to grow at 7% during 2022- 2027 and the market size is to reach RM2.0 billion in 2027. The high impact of ICT contributes to high energy consumption, which will impact the environment and greenhouse gas emissions. To reduce energy consumption is to introduce a green data centre. Implementing a green data center involves the introduction of energy-efficient measures for the data center. This will include using energy-efficient ICT equipment and energy-efficient facilities equipment, especially the HVAC system. The successful introduction of the green data center involves new technologies in which there will be barriers that need to be addressed. Based on the study, green awareness and the benefit of switching to green data centers is essential for green data center initiatives in Malaysia.

Keywords: *Green Data Centers, Energy Consumption, Greenhouse gas, Interpretive Structural Modelling (ISM).*

1. Introduction and Background

Typically, a data center represents an area with a large concentration of electronic equipment and power density within a limited space. Malaysia has a strong potential to become a regional hub for Data Centers (DC) as well as co-location (CoLo) providers based on several factors including cheaper land, lower electricity cost and good infrastructure, skilled workforce, political stability, good international connectivity (Malaysia International Trade Investment, 2018). The data center market is expected to grow at 7% during 2022-2027 and the market size is to reach RM2.0 billion by 2027 (Arizton, 2022). The global green data center market is expected to reach US35 billion by 2026 (Insight, 2020). The Malaysian data center industry is growing aggressively where the market size would cross USD 800 Million, and the market is targeted to grow at 8% during 2020-2025. The key players are VADS Berhad, Keppel Data Centers, Alpha Data Centre Fund, Katalyst Data Management, and Regal Orion (Market, 2020).

2. Literature Review

High energy consumption at data centers is not new, study total world electricity consumption of servers and associated cooling and infrastructure equipment from data center operations has roughly doubled from 2000 to 2005, to about 123 billion kWh and has become a growing concern (Koomey, 2007). Power and cooling costs have been the main cost contributors to new data centers. It is a big challenge, but there are ways to mitigate this. The primary equation sounds simple: it reduces data capacity and reduces energy consumption. The trick, of course, is to shrink the services which may not be possible. Software and hardware technologies like virtualization, consolidation, live migration and cloud computing could be enhanced to reduce the consumption of energy (Uddin & Rahman, 2011) Running data center operations requires system operational frameworks, especially in preparing the operational structure of implementing new technologies in a more systematic, comprehensive, controlled, and timely manner to overcome deficiencies in greening data center (Uddin & Rahman, 2012). Enterprises, governments, and societies at large are poised to tackle environmental issues which subsequently contribute to greenhouse gas emissions from the increase in ICT usage (Uddin, Shah, & Memon, 2014).

The impact of data center operations where Google and Microsoft paid millions of dollars for energy bills (Qureshi, 2004) and this leads to 50 tons of carbon dioxide emissions a year (Hu, Li, & Sun, 2021). With the challenges of climate change, there have been growing numbers of green data centers deployed as mitigation (Hu et al., 2021). Green data centers focus on reducing power consumption by increasing energy efficiency (Ren, Wang, Urgaonkar, & Sivasubramaniam, 2014) and to explore into opportunities in implementing renewable energy and fuel cells (Deng, Liu, Jin, Li, & Li, 2014). However, the second approach has limitations where the renewable energy is intermittent and fuel cells lead to high temperatures (Tripathi, Vignesh, & Tamarapalli, 2017). Most of the measures for a green data centre are to minimize the use of power

consumption thru energy-efficient ICT equipment and energy-efficient supporting equipment, especially the HVAC system (Hu et al., 2021).

Green Data Centre Technical Code in Malaysia: A technical code for the Specification for Green Data Centers under section 185 of Act 588 (Communications and Multimedia Act 1998) was to provide the guidance required by private, government and commercial data centers on the minimum requirements for green data centers to establish policies, systems, and processes to improve data center energy efficiency. It will result in a reduction of the facility's operating costs and the carbon footprint of the industry. Briefly, the technical codes described the following recommendations (MCMC et al., 2015):

- Power usage effectiveness (PUE) to be 1.6 and below
- Supply air temperature (SAT) above 23oC
- Relative humidity ratio (RHR) between 30% to 60%
- UPS system efficiency (USE) above 90%

3. Research Methodology

Based on barrier analysis in sustainability studies, the Interpretive Structural Modelling (ISM) method is a widely used and well-established methodology for identifying relationships among specific items that define a problem or an issue when IS is a well-established methodology used by researchers (Attri, Dev, & Sharma, 2013). By definition, ISM is an interactive learning process in studying the interrelationships among various elements related to the issue (Warfield, 1974). The model is formed to portray the structure of a complex issue or problem in a carefully designed pattern implying graphics as well as words (Raj, Shankar, & Suhaib, 2008).

The ISM Processes: The ISM process is a procedure to obtain the best potential barriers for the promotion of green data centers' financial mechanisms, they recommend the step-by-step procedure as follows (Attri et al., 2013):

- Identify the factors and sub-factors that affect spending on energy efficiency and green data centers.
- Create a contextual relationship between each of the factors and sub-factors that were identified in an earlier step.
- Create a Structural Self-Interaction Matrix (SSIM).
- Formulate the SSIM Reachability Matrix and examine the same section for contextual transitivity relationships.
- The final reachability matrix obtained from step 4 is partitioned into different levels.
- Create a Digraph based on the relationship of the final Reachability Matrix and remove the transitive relationship.
- The resulting digraph was converted to the ISM model form by substituting the sub-factor.
- The ISM model generated through development in step 7 checks whether it is necessary to make modifications.

A literature review was conducted based on studies of green technology and green data center implementation. The compilation of barriers from the literature review is as per Table 1: Compilation of barriers to energy efficiency implementation from the literature review.

Table 1: Compilation of Barriers to Energy Efficiency Implementation from the Literature Review

	(Kangas, Lazarevic, & Kivimaa, 2018)	(Morabito, Wang, & Payne, 2020))	(Ige, Inambao, Olanrewaju, Duffy, & Collins, 2020)	(Sengar et al., 2020)	(Clairand, Briceño-león, Member, Escrivá-escrivá, & Pantaleo, 2020)	(Liu, Development, Group, & Noor, 2020)	(Murshed, 2020)	(Bertoldi, Boza-kiss, Economidou, Palermo, & Todeschi, 2020)
Communication	X	X				X		
Information	X		X			X		
Awareness	X					X		
Financial Support	X			X				X
Institutional involvement	X	X		X				
skills	X			X				
Market	X		X	X				
OrganiSational			X					
Behavioural			X					
Economic			X	X	X	X		
Cost			X			X		X
Legal& regulatory				X	X			X
Environment					X			
Technology		X		X	X		X	X
Priority		X						

4. Results

Structural self-interaction modelling (SSIM): The results of the literature review then develop the structural self-interaction matrix (SSIM), as shown in Table 2. According to the ISM methodology, the four symbols stated below were applied to represent the direction of relationships between two barriers (i and j):
V: Barrier i will influence barrier j, e.g., Barrier 1 (B1) will influence Barrier 3 (B3), thus the relationship is denoted as 'V' in the SSIM;
A: Barrier i will be influenced by barrier j, e.g., B1 will be influenced by B2, thus the relationship is denoted as 'A' in the SSIM;

X: Barrier i and j will influence each other, e.g., B1 and B12 will influence each other, thus the relationship is denoted as 'X' in the SSIM;
O: Barriers i and j are unrelated, e.g., there is no relationship between B1 and B9, thus the relationship is denoted as 'O' in the SSIM.

Table 2: Structural Self-Interaction Modelling

	Barriers	I	J B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1
1	Communication	B1	O	A	O	O	V	X	V	A	A	A	A	A	X	X	
2	Information	B2	O	V	V	O	V	X	V	A	O	V	A	X	X		
3	Awareness	B3	A	V	V	V	V	X	V	V	O	X	X	A			
4	Financial Support	B4	O	V	O	X	X	A	V	V	X	V	X				
5	Institutional involvement	B5	O	A	V	V	O	O	O	V	V	V					
6	skills	B6	A	A	O	O	A	A	A	A	A						
7	Market	B7	A	O	O	A	V	A	X	X							
8	Organizational	B8	A	X	V	A	A	X	X								
9	Behavioural	B9	V	X	V	O	V	A									
10	Economic	B10	X	O	V	O	V										
11	Cost	B11	V	A	V	O											
12	Legal& regulatory	B12	O	O	V												
13	Environment	B13	O	O													
14	Technology	B14	V														
15	priority	B15															

Reachability Matrix: After attaining the SSIM, it must be converted to an initial reachability matrix (binary matrix) using numbers 0 and 1. Therefore, the initial reachability matrix is developed based on SSIM and using the rules of substitution, as follows:

- If the cell (i, j) is determined by 'V' in the SSIM, the relevant cell in the matrix of the initial reachability would convert to number 1 and the cell (j, i) would convert to number 0.
- If the cell (i, j) is determined by 'A' in the SSIM, the relevant cell in the matrix of the initial reachability would convert to number 0 and the cell (j, i) would convert to number 1.
- If the cell (i, j) is determined by 'X' in the SSIM, both the cells (i, j) and (j, i) would convert to number 1 in the matrix of the initial reachability.
- If the cell (i, j) is determined by 'O' in the SSIM, both the cells (i, j) and (j, i) would convert to number 0 in the matrix of the initial reachability.

The final reachability can be referred to in Table 3- Final reachability matrix

Table 3: Final Reachability Matrix

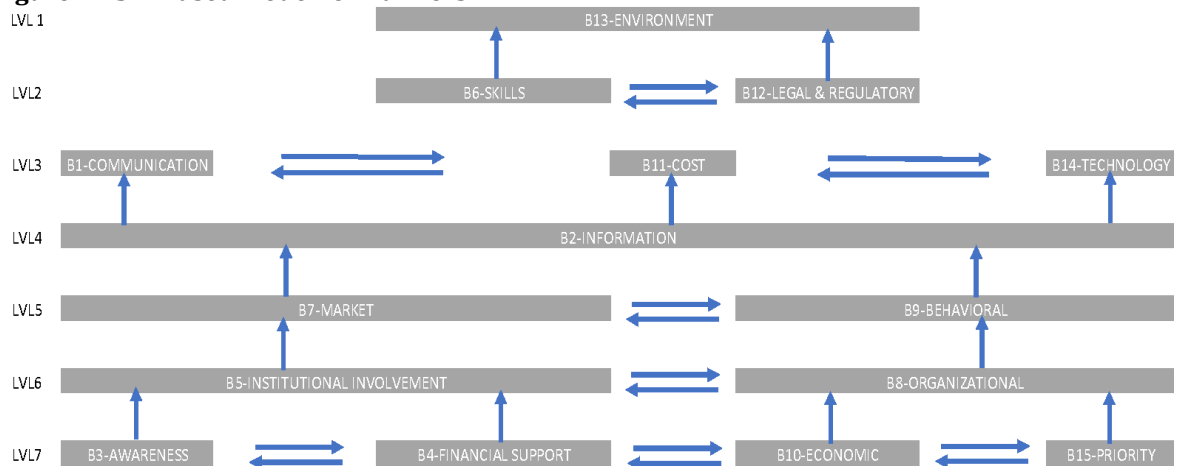
	Barriers	I	J B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	Driving Power
1	Communication	B1	1	0	0	0	1	1	1	0	0	0	0	0	1	1	0	6
2	Information	B2	0	1	1	0	1	1	1	0	0	1	0	0	1	0	0	7
3	Awareness	B3	1	1	1	0	1	1	1	1	0	1	1	0	0	1	1	11
4	Financial Support	B4	0	1	0	1	1	0	1	1	1	1	1	1	0	1	1	11
5	Institutional involvement	B5	0	0	1	1	0	0	0	1	1	1	1	1	1	1	0	9
6	skills	B6	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	5
7	Market	B7	1	0	0	0	1	0	1	1	1	0	1	1	1	0	0	8
8	Organizational	B8	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	9
9	Behavioural	B9	1	1	1	0	1	0	0	0	0	1	1	1	0	1	0	8
10	Economic	B10	1	0	1	0	1	1	1	1	1	1	1	1	0	1	0	11
11	Cost	B11	1	0	1	0	0	0	1	1	0	0	0	0	0	1	1	6
12	Legal& regulatory	B12	0	0	1	0	0	0	0	0	0	1	0	1	1	0	1	5
13	Environment	B13	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	4
14	Technology	B14	1	0	1	0	0	1	0	0	1	0	1	0	0	0	1	6
15	priority	B15	1	0	1	1	1	1	0	0	1	1	1	1	1	1	0	11
	Dependence Power		10	5	11	3	8	8	8	7	7	8	11	9	8	9	5	

Level Partition and ISM Base Model: From Table 3- Final reachability matrix, the reachability set composes the barriers themselves and other barriers that it may influence. In contrast, the antecedent set comprises the barriers and the other barriers that may influence it. Subsequently, these sets' intersections are required to verify all the barriers and levels of different barriers. The barriers with the same reachability and the intersection sets occupy the top level in the ISM hierarchy. The top-level barriers are those barriers that will not lead the other barriers above their level in the hierarchy. Once the top-level barrier is recognized, it will be removed from consideration. Then, the same process will be repeated to identify the barriers to the following level. This process is continued until the level of each barrier is obtained. Table 4: level partition shows the 15 barriers and their reachability sets, antecedent sets, intersection sets, and levels. The level identification process of these barriers is completed in eight iterations. As illustrated in Table 4: level partition and the relationship of the barriers can be referred to as per Figure 1-ISM-based model for barriers.

Table 4: Level Partition

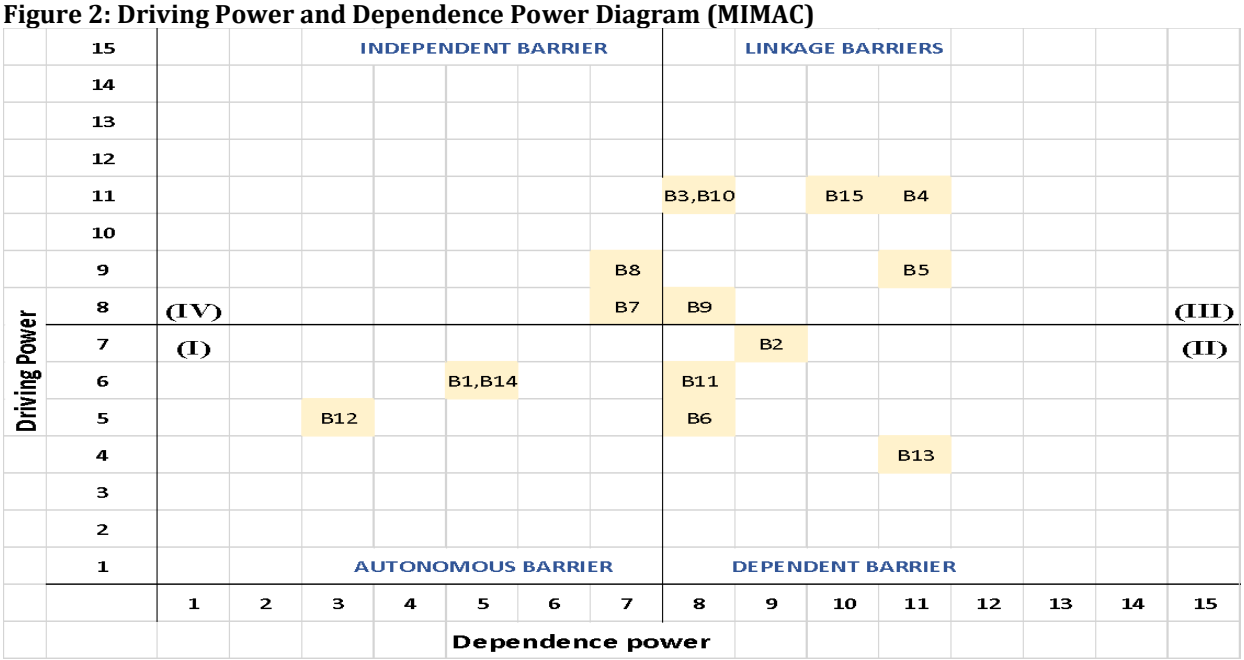
Barriers	Reachability set	Antecedent set	Intersection set	levels
B13	13	B2,B3,B4,B8,B9,B10,B11,B12,B13,B14,B15	13	I
B6	6,12	B2,B3,B4,B5,B9,B10,B12,B15	6,12	II
B12	6,12	B4,B5,B15	6,12	II
B1	1,11,14	B3,B4,B11,B12,B14	1,11,14	III
B11	1,11,14	B1,B2,B3,B4,B7,B9,B10,B15	1,11,14	III
B14	1,11,14	B2,B3,B4,B8,B9	1,11,14	III
B2	2	B1,B3,B4,B5,B6,B9,B10,B11,B15	2	IV
B7	7,9,	B4,B5,B7,B10,B13,B14,B15	7,9,	V
B9	7,9	B1,B2,B3,B4,B7,B10,B11,	7,9	V
B5	5,8	B3,B4,B5,B6,B7,B8,B9,10,B13,B14,B15	5,8	VI
B8	5,8	B3,B4,B5,B7,B8,B10,B11,	5,8	VI
B3	3,4,10,15	B1,B2,B5,B6,B7,B8,B12,B15	3,4,10,15	VII
B4	3,4,10,15	B4,B5,B6,B7,B8,B9,B10,B12,B15	3,4,10,15	VII
B10	3,4,10,15	B1,B2,B3,B8,B10,B13,B14,B15	3,4,10,15	VII
B15	3,4,10,15	B1,B3,B6,B7,B8,B9,B10,B11,B14,B15	3,4,10,15	VII

Figure 1: ISM-Based Model for Barriers



MICMAC Analysis Graph: MICMAC is the abbreviation for 'Matriced Impacts Croises-Multiplication Applique and Classement' (Cross-Impact Matrix Multiplication Applied to Classification), developed from the multiplication properties of matrices. Godet initially introduced MICMAC analysis in 1986 to examine the driving power and dependence of enablers. This analysis is to distinguish the main enablers that drive the model in a variety of classes. The driving power and dependable power for each barrier are tabulated in the MICMAC table, obtained from the final reachability matrix by summation of rows to analyze driving power and summation of columns to study dependency power as per Figure 2 Driving power and dependence power diagram (MIMAC).

Figure 2: Driving Power and Dependence Power Diagram (MIMAC)



Autonomous Barriers, Quadrant I: This quadrant does not have much influence on the model; therefore, if the barriers are in this area then they will be virtually isolated since they are relatively disconnected from the model. The barriers under autonomous quadrant I that do not influence other barriers are B1, B12 and B14.

Dependent Barriers, Quadrant II: This quadrant contains barriers that have weak driving power but strong dependence power. The barriers under dependent quadrant II have weak driving power, but strong dependence power the barriers are B2, B6, B11 and B13.

Quadrant III: This quadrant contains linkage barriers that have both strong driving and dependence powers. They are also considered unstable whereby any action on them will have an impact on other barriers as well as themselves. The barriers under linkage quadrant III with strong driving power and dependence power are B3, B4, B5, B9, B10, and B15.

Independent barriers, Quadrant IV: This quadrant shows the independent barriers, involving those that have strong driving power and weak dependence power. These barriers under independent quadrant IV have strong driving power, but weak dependence powers are B7 and B8. Barriers to market and organization.

Discussion: Based on the MIMAC diagram, there are two barriers positioned within the independent quadrant. The two barriers are B8-Organisation and B7-Market. The organizational commitment barrier positioned in the MIMAC diagram shows that it is slightly below the mid-point of the dependence scale and above the mid-point for driving power. It shows that the organization's barrier has less dependency on other barriers, and at the same time, it has higher driving power compared to other barriers. Market availability is also positioned in the independent quadrant below the mid-point of the dependence scale and slightly above the driving power scale.

Based on the MIMAC diagram, two barriers have the highest driving force and one point higher the dependence power but are located just within the linkage quadrant. There are two barriers, namely B3-awareness and B10-Economy. The position of these two barriers compared to the market and organization; these two barriers seems more dominant and influence other barriers.

Comparing the MIMAC analysis and ISM analysis, the B8-organisation barrier committed in the ISM model has a dependency on level 7 barriers such as B10-Economy and B15-Priority. B8- The organizational barrier also has a mutual dependency on B5-Institutional involvement. The B7-Market has a dependency on the level 6 barrier, which is the B5-Institutional involvement barrier. The B7-Market has a mutual dependency on the B9-Behaviour barrier. The ISM model also observed that B5-Institutional involvement is the dependent barrier for both the B8-Organisation and B7-Market. The ISM model also shows that the dependency of B7-Market is dependent on barrier B8- Organization, which must go through another dependency from the B9-Behavioral barrier.

Based on the MIMAC diagram, there are two barriers positioned within the independent quadrant. The two barriers are B8-Organisation and B7-Market. The organizational commitment barrier positioned in the

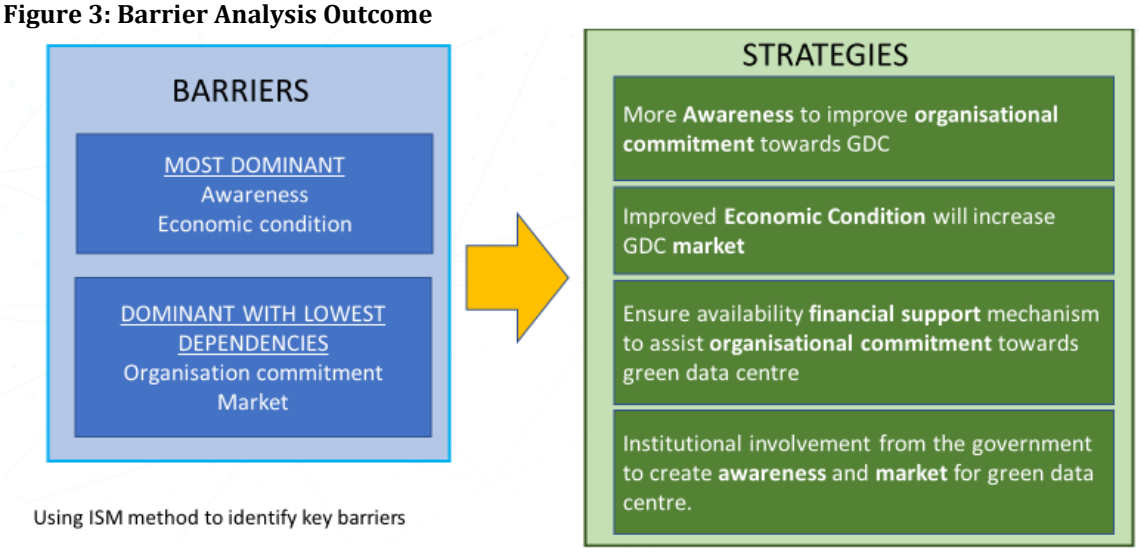
- Awareness amongst industry actors is the most dominant barrier—more awareness programs are needed for all the actors in the green data center. The government plays a significant role in providing institutional support and creating awareness amongst the actors.
- The nation's economic climate is the driving force for both the private and public sectors in promoting green data center initiatives.
- To minimize the organizational barrier towards green data centers, organizations must prioritize commitment to sustainable energy programs or energy efficiency programs.
- The economic condition also influences organizational commitment to the green data center. If the economic condition is good, the organization will be willing to commit to a green data center.
- Awareness of green data centers can also influence organizational commitment, thus more awareness programs by the government to support this program.
- An organizational commitment to green data center initiatives is also influenced by the financial support available, especially from financial institutions.
- To have more institutional involvement, especially from government agencies to create markets for the green data center. Maybe this initiative should start at the government premises as a showcase to the market.
- In supporting the market for green data centers, organizational behavior also plays a mutual role between them. Thus, an awareness program is essential to improve organizational behavior towards

energy conservation.

- There is an indirect relationship between market and organizational commitment—the relationship between market and organizational commitment moderated by behavior. Similarly, the relationship between market and organizational commitment can be moderated by institutional involvement.

In summary, the barrier analysis outcome and summarized strategy are as per Figure 3: Barrier analysis outcome.

Figure 3: Barrier Analysis Outcome



5. Managerial Implications and Recommendations

The data center market is set to grow by 7% during 2022-2027, expected to reach RM2.0 billion by 2027. It will be an overwhelming success for the Malaysian ICT industry in which I could provide better FDI opportunities which could lead to more ICT and Green jobs. Based on this study, government incentives provide a catalyst for transforming a traditional data center into a green data center. More studies could be explored in the implementation of green data technologies which will be more cost effective in focusing on the Malaysian data centers. In addition, awareness of current government incentives could further be explored to benefit the ICT industry more to switch to more green ICT operations in Malaysia.

Conclusion: The primary barriers to green data center implementation in Malaysia are the awareness of the green data center and the economic conditions of the country. Improving awareness of green data centers on their impact on the environment. The green data center implementation will require additional costs. These additional costs will be transferred to the consumers. But, with the importance of managing big data nowadays, the government has to step in various ways to support the implementation of the green data center, such as providing some incentives in terms of tax rebates which have been introduced for other green and renewable energy projects. Providing interest rate rebates for green data centers could also spur more interest from the operators. The future of green data centers is here to go for the future. The government, with a focus on supporting climate change mitigation actions, has to initiate more innovative financial incentives either directly or indirectly through financial institutions. Grants are being issued by the government for conducting energy audit buildings in Malaysia, and a similar concept could be introduced for green data center implementation to acquire energy-efficient equipment. Further study is required in the economic and financial aspects of the implementation of a green data center.

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Has the World of Finance Changed? A Review of the Influence of Artificial Intelligence on Financial Management Studies

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Abstract: Artificial intelligence (AI) has had a tremendous impact on financial management research, revolutionizing how financial data is analyzed and decisions are made. It has the ability to improve accuracy and efficiency while also lowering costs and providing fresh insights into financial markets and investments. This review will look at some of the important areas of financial management research that AI has influenced. One of the most notable effects of AI on financial management research has been in risk management. AI algorithms, with their ability to analyze vast amounts of data, can detect patterns and anomalies that humans may not notice right away and have had a significant impact on financial forecasting and prediction, generating predictions about future market movements and investment opportunities by analyzing historical data, market trends, and other relevant factors. In conclusion, artificial intelligence (AI) has had a tremendous impact on financial management research, revolutionizing how financial data is analyzed and decisions are made, with significant potential to disrupt traditional financial management techniques. AI has the ability to increase accuracy and efficiency, cut costs, and provide fresh insights into financial markets and investments. As AI technology advances, its impact on financial management studies is likely to rise.

Keywords: *Artificial Intelligence (AI); Financial Management Studies, Financial Data.*

1. Introduction and Background

With roots in the early 20th century, artificial intelligence (AI) has a lengthy and fascinating history. The term "artificial intelligence" and the Dartmouth Conference, which is regarded as the birthplace of AI research, were first used by computer scientist John McCarthy in the 1950s, introducing the idea of AI for the first time. From rule-based systems to machine learning and deep learning, artificial intelligence has significantly advanced over the years. The term artificial AI describes the simulation of human intelligence in machines that are programmed to carry out tasks that would typically require human intelligence (De Bruyn, Viswanathan, Beh, Brock & Von Wangenheim, 2020). By using data and algorithms, AI empowers machines to reason, learn and make decisions.

Since the first AI-based trading systems were created in the 1980s, AI has been used in finance for a considerable amount of time. In the 1990s, machine learning applications such as fraud detection and credit scoring began to use neural networks and other machine learning techniques. With applications like algorithmic trading and risk management, AI did not, however, start to be more widely used in the finance industry until the early 2000s. In areas like robo-advisory services and sentiment analysis using natural language processing, the use of AI in finance increased significantly in the 2010s. For instance, to achieve the highest levels of efficiency in customer analysis and asset management, robo-advisors use cutting-edge technologies such as AI, robot process automation, and machine learning (Belanche et al., 2019; Shanmuganathan, 2020). With applications in areas like fraud detection, credit scoring, investment management, and customer service, AI is becoming more and more pervasive in the world of finance today. Considering the increasing volatility of capital markets, fluctuations in virtual currencies, and inflation stated that there is a growing demand for long-term investments founded on the rise of stable asset management.

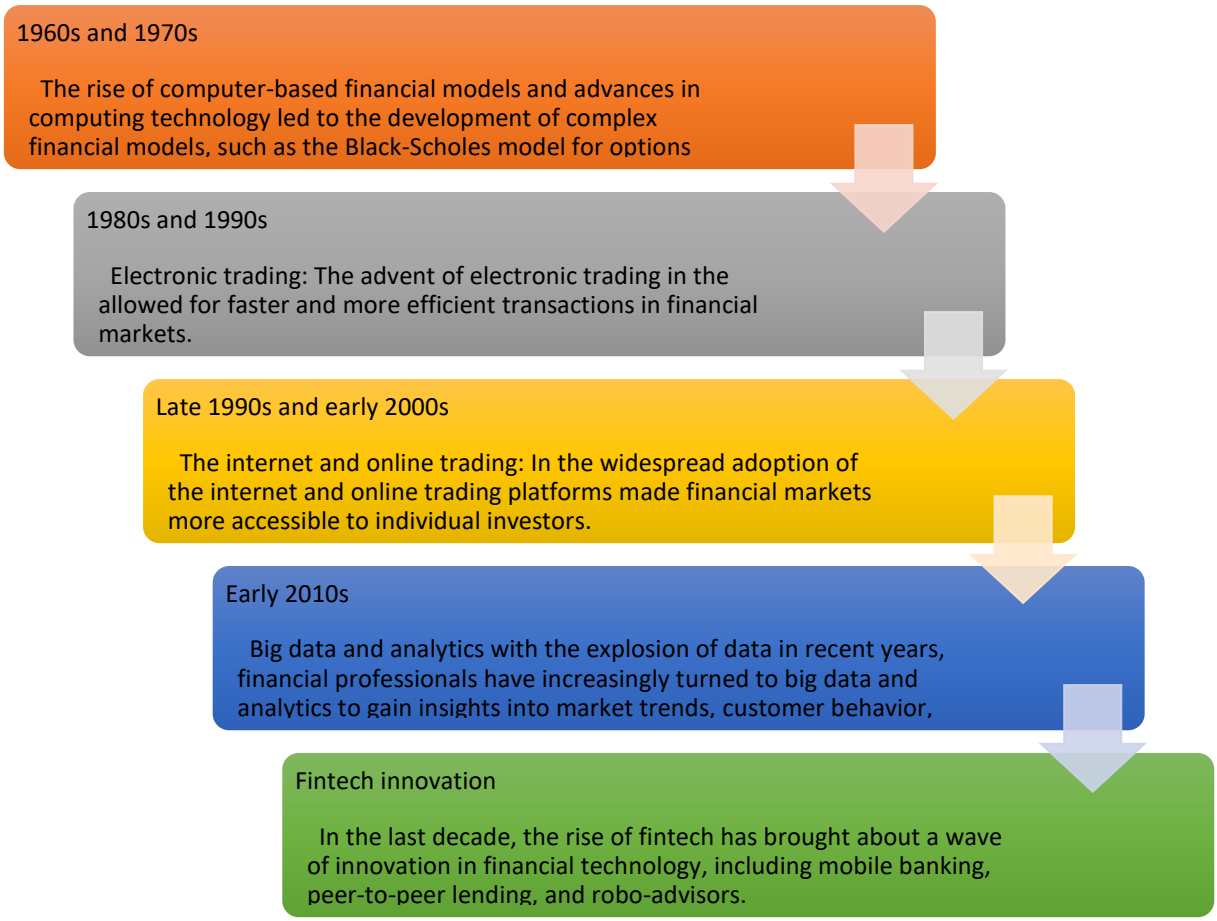
AI has provided various tools and techniques to analyze and manage financial data more efficiently and effectively than ever before. With the ability to learn from data, AI can help predict market trends, detect fraudulent activity, and provide personalized financial advice to clients. One of the main benefits of AI in the

financial area is its ability to process large volumes of data in real-time, providing instant insights to financial professionals. This allows them to make better-informed decisions, reducing the risk of errors and increasing the speed of transactions. Furthermore, AI can adapt and learn from new data, providing valuable insights that can be used to improve future decision-making. AI has also developed new financial products and services, such as robo-advisors and algorithmic trading. These products use AI algorithms to analyze financial data and provide clients with personalized investment advice without human intervention.

In summary, AI has made investment advice more accessible to a wider range of clients, reducing costs and improving accessibility. Consequently, Cao (2020) concluded that AI has brought significant advancements to financial management studies by enhancing data analysis, automating trading, improving risk management, detecting fraud, personalizing financial services, optimizing portfolios, streamlining customer service, and transforming credit scoring and underwriting processes. These advancements can potentially improve decision-making, increase efficiency, and drive innovation in the financial industry. To ascertain whether the financial landscape has altered, this study will undertake a thorough literature analysis on the influences of AI on financial management studies.

The Evolution of Financial Studies from the Perspective of Technological Advancement: As a result of technical advancement, financial studies have developed tremendously. Figure 1 displays some significant turning moments in the intersection of technological and financial research.

Figure 1: The Evolution in Financial Management



2. The History of AI in the Area of Finance

Financial technologies (Fintech) refer to a variety of innovative business models that have the potential to completely revolutionize the financial services industry (Mamoshina et al., 2018). The fintech business model provides a variety of financial products or services in an automated manner via the widespread usage of the internet (Paul, 2019). These technologies have a variety of uses, including the use of blockchain to build safe and transparent digital identities and the use of AI to analyze data to identify creditworthy borrowers and avoid fraud. The combination of blockchain and artificial intelligence has the potential to greatly improve financial inclusion in India, resulting in increased economic growth and development.

AI, machine learning, cognitive computing, and distributed ledger technologies, which are driving Industry 4.0, can be leveraged to support fintech new entrants and established incumbents (Lopes and Pereira 2019). While blockchain technology has the potential to revolutionize many industries, including finance, the authors argue that many technical and legal challenges, such as scalability and interoperability, and legal challenges, such as regulatory compliance and data protection, must still be addressed. On the other hand, we believe AI and machine learning algorithms can be utilized to monitor financial activities and maintain regulatory compliance (Lee & Shin, 2020; Aziz & Dowling, 2019). Audio processing, knowledge representation, speech-to-text, deep learning, expert systems, natural language processing, machine learning (ML), robotics, and symbolic logic are some additional AI technologies that can be used in the fintech industry to promote financial inclusion (Paul, 2019). It is believed that in 2011, a large number of businesses, including Google, Microsoft, IBM, and Facebook, invested significantly in AI and machine learning to be used in the commercial sector. This is thought to have contributed to the exponential growth of AI technologies.

In the area of finance, AI has been applied for many years. The first uses of AI in finance date back to the 1980s, when machine learning algorithms were employed for fraud detection and credit risk assessment. More advanced AI methods, like neural networks and decision trees, were created in the 1990s and used to solve complex financial issues like stock price prediction and portfolio optimization. The widespread adoption of these techniques at the time was constrained, though, by the high cost of computing power. Advances in computing technology and the accessibility of large amounts of data in the early 2000s paved the way for the development of more sophisticated AI techniques like deep learning and natural language processing (Sharifani & Amini, 2023). These methods have been used in a variety of financial applications, such as algorithmic trading, sentiment analysis of news articles, and fraud detection. With applications in risk management, fraud detection, customer service, and investment management, AI is now a crucial tool in the finance sector. As financial institutions generate more data and technology advances, it is anticipated that the use of AI in finance will increase in the coming years.

3. AI Methodology in Finance Results

AI methodologies used in finance can be broadly categorized into three main areas: (i) Machine Learning; (ii) Natural Language Processing; and (iii) Expert Systems.

Machine Learning (ML): In the field of finance, machine learning is one of the most well-liked and widely applied AI techniques. It is a branch of AI that focuses on developing mathematical formulae and statistical models that let computers learn from data without being explicitly programmed. Based on past data, ML models can be trained to find trends and forecast future occurrences. Applications in finance include fraud detection, credit scoring, portfolio management, and the creation of investment strategies. Finance frequently employs supervised learning, where models are trained on labelled data to forecast new, unforeseen data. For instance, in credit scoring, a model can be trained using historical data on clients who missed payments on their loans and those who didn't to identify trends and causes of defaults. The likelihood of default for new loan applications can then be forecasted using this model. Unsupervised learning, in contrast, is another strategy that can be used in the financial industry. In this method, models are trained on unlabeled data to find patterns or clusters within the data. Unsupervised learning can be applied to this in portfolio management to find groups of stocks that display comparable traits or behaviors.

A third method that can be applied in finance is reinforcement learning, in which models are developed through trial and error to maximize a specific reward or objective. In trading strategies, this can be helpful because a model can eventually learn to make decisions based on market conditions and maximize profits. In summary, machine learning has grown in importance as a tool in finance, allowing for more precise and effective decision-making, allowing financial institutions to better manage risk, and enhancing performance. Processing of natural language (NLP): To extract pertinent information from human language, algorithms are used to analyze it. NLP can be used for voice recognition, language translation, and sentiment analysis of news and social media posts.

Natural Language Processing (NLP): NLP is a branch of AI that focuses on the interaction between humans and computers through natural language. NLP has several financial applications, including sentiment analysis, news analysis, and financial reporting. Sentiment analysis is the process of examining text data to ascertain the writer's general attitude toward a specific entity, such as a business or stock (Kalyani, Bharathi, & Jyothi, 2016). Given that sentiment can affect a company's stock price, this information can be used to guide investment choices. Another use of NLP in finance is news analysis, where algorithms are used to examine news articles and other information sources to find significant events or trends that could have an impact on financial markets. To create trading strategies or choose investments, this information can be used. Additionally, NLP can be helpful in the financial reporting industry because it can be used to extract crucial data from financial statements, such as earnings reports. The financial health of a company can be evaluated using this data, and investment choices can be made.

The NLP model may use supervised learning, unsupervised learning, or a combination of the two. Seemakhurti et al. (2015) classified a group of texts based on their topic-document frequency matrix using this method for the detection of fraud in financial documents. Their analysis has attained the levels of precision that text classifiers typically demand. They think that by using this strategy, it will be possible to spot anomalies or outliers in the financial data that might point to fraud.

Expert Systems: Expert systems are a subset of artificial intelligence (AI) technology that imitates human decision-making in a given field. Expert systems have been applied to financial tasks such as investment recommendation, fraud detection, and credit scoring. To define the problem domain and direct the decision-making process, expert systems rely on knowledge bases that contain rules and algorithms. These guidelines can be updated and improved as new information becomes available because they are based on industry-specific expertise and experience. Expert systems have the benefit of being transparent because the decision-making process can be tracked, audited, and trained to accurately carry out specific tasks. However, they may be constrained in dealing with dynamic and complex situations, necessitating frequent updates. Neural networks, deep learning, and reinforcement learning are additional AI methods used in finance. Large amounts of data are analyzed using these methods to find patterns, predict future events, and spot anomalies. All things considered, AI methodologies have revolutionized the financial sector by enabling quicker, more accurate, and more effective decision-making.

4. A Survey of AI in Finance

Cao and Zhai (2022) provide a comprehensive overview of the application of artificial intelligence (AI) in finance. The authors first introduce the basic concepts of AI and its subfields, including machine learning, natural language processing, and computer vision. They then review the use of AI in various finance-related tasks, such as credit risk assessment, fraud detection, trading and investment, and customer service. They also discuss AI's challenges and opportunities in finance, including data privacy and security, ethical concerns, and the need for human oversight. It thus highlights the importance of interdisciplinary collaboration between finance and computer science to advance the field of AI in finance and highlights the need for ongoing research and development in this area.

AI and Financial Forecasting: AI has the potential to improve financial forecasting significantly. With the ability to process vast amounts of data quickly and accurately, AI can analyze market trends and make predictions more accurately than traditional methods. One way AI is being used in financial forecasting is through machine learning algorithms. These algorithms can learn from historical data and use that

knowledge to predict future trends. This can be particularly useful in predicting stock prices or market trends. Another way AI is being used in financial forecasting is through natural language processing (NLP). These algorithms can analyze news articles and social media posts to gain insight into how people are feeling about certain stocks or companies. This information can then be used to predict future trends in the market. For instance, Carta et al. (2022) discuss the importance of transparency in financial forecasting models and how explainable AI can improve their accuracy and reliability. The authors highlight the challenges in building reliable financial forecasting models, such as the complexity of financial data, the high degree of uncertainty, and the need for accurate and timely predictions. They argue that explainable AI can address these challenges by providing insights into how the models work, which can help users better understand their predictions and make informed decisions. Based on the application of explainable model AI for forecasting stock prices, the authors use a deep learning model to predict the stock prices of a set of companies. They compare the model's performance with and without explainability, showing that it is more accurate and reliable than the non-explainable model. They also provide insights into how the model works, highlighting the importance of features such as historical stock prices, financial statements, news articles, and social media sentiment. In short, the authors highlight the potential benefits of explainable AI for financial forecasting, including improved accuracy and transparency, and provide insights into how these models can be built and applied in practice.

Zaremba and Demir (2023) discuss the potential of a Generative Pre-trained Transformer (ChatGPT) in the finance industry. It highlights the capabilities of ChatGPT in natural language processing (NLP) and its ability to analyze large datasets, which could be used to generate insights and make predictions in financial markets. The paper also discusses the challenges and ethical concerns associated with using AI and NLP in finance, such as potential biases in data and the need for transparency and accountability. Thus, it clearly shows that ChatGPT has the potential to revolutionize the finance industry by enabling more efficient and accurate analysis of financial data. This is supported by Krause (2023) when examining the potential benefits and limitations of using ChatGPT and other AI models as a due diligence tool for private firm investment analysis. The author explains how AI models can assist in analyzing large amounts of data, identifying patterns and trends, and making predictions, which can aid in investment decision-making. The author also acknowledges the limitations of using AI models, including the lack of transparency and interpretability in some models, potential bias, and the risk of overreliance on technology. The paper concludes by suggesting that while AI models can be valuable, they should be used with traditional due diligence methods and human judgment.

AI and Financial Risk Management: The combination of AI with financial risk management has transformed how organizations and institutions reduce risks in the complicated world of finance in recent years. AI has emerged as a significant tool in financial risk management. AI is a discipline of computer science that focuses on constructing intelligent computers capable of executing activities that would normally require human intelligence. AI has dramatically improved the ability of the financial sector to identify, assess, and manage risks by employing complex algorithms, machine learning techniques, and massive volumes of data.

Fraud Detection: AI can detect fraudulent activity in real-time. AI systems can detect patterns that may indicate fraudulent behavior by analyzing massive amounts of transactional data. Xie (2019) investigates the evolution of artificial intelligence (AI) and its impact on the financial sector. According to the author, the introduction of AI technology has resulted in substantial changes in the financial industry, particularly in risk management, fraud detection, and customer service. The article also covers the problems of integrating AI into the financial system, such as worries about data privacy and security, as well as the possibility of bias in AI algorithms. Xie (2019) investigates the impact of AI in boosting efficiency and lowering costs in the finance sector. According to the report, AI-powered chatbots and virtual assistants can provide more personalized and timely customer service. Simultaneously, AI systems can automate processes like data processing and decision-making, allowing human workers to focus on more difficult jobs. This clearly demonstrates the importance of continuing research and development in AI technology to fully realize its potential benefits in the financial industry while resolving concerns about data privacy, security, and ethical considerations. Overall, Xie's study provides useful insights into the ongoing evolution of the financial industry in the age of artificial intelligence.

Risk Assessment: AI can be used to assess and quantify risks. For example, AI algorithms can analyze financial data to calculate the probability of default for a borrower or the expected loss of a portfolio. Mhlanga (2021) explores using machine learning and artificial intelligence (AI) in credit risk assessment to promote financial inclusion in emerging economies. The author discusses the challenges of traditional credit scoring methods and the potential of AI and machine learning algorithms to provide more accurate credit risk assessments. The paper also discusses the regulatory challenges and ethical considerations associated with using AI and machine learning in credit risk assessment. The author argues that applying AI and machine learning in credit risk assessment can contribute to financial inclusion and promote economic growth in emerging economies. Anshari et al. (2021) explore the rise of financial technology (FinTech) and its use of artificial intelligence (AI) in the financial industry. The study emphasizes the potential benefits of FinTech, such as increased financial inclusion, increased efficiency, and cost savings. The authors do, however, point out that there are ethical issues related to the use of AI in FinTech, such as prejudice, privacy concerns, and transparency. According to the study, regulators and policymakers should address these ethical issues to ensure that the use of AI in FinTech is appropriate and benefits society as a whole. Overall, the article gives insights into the convergence of FinTech and AI, as well as the ethical issues that occur as a result of this intersection.

Mhlanga (2020) and Qi and Xiao (2018) explore the impact of artificial intelligence (AI) on the Fintech industry. The authors discuss how AI is being used in various applications such as fraud detection, risk management, investment analysis, and customer service and how it is helping to improve the efficiency and effectiveness of financial services. The article also examines some ethical concerns associated with using AI in finance, including privacy, security, and bias. The authors conclude that AI has the potential to transform the financial industry but that careful consideration must be given to the ethical implications of its use. Overall, the essay provides a useful summary of the junction between fintech and AI, as well as the possible impact on financial services. AI can assist financial organizations in improved risk management and mitigation, potentially lowering the possibility of financial losses. It is crucial to stress, however, that AI is not a replacement for human skill and judgment and should be utilized in conjunction with human oversight.

AI and Financial Education: AI can also be used to improve financial education by making financial information more accessible and understandable to people. Awasthi (2023) and Yue et al. (2023) discuss how the Chat Generative Pre-Trained Transformer (ChatGPT) model can democratize financial knowledge and empower individuals with financial literacy. The authors argued that the traditional approach to financial education, which relies on textbooks, seminars, and lectures, is ineffective in reaching a wide audience due to various reasons such as time constraints, accessibility, and information overload. They suggest that the ChatGPT model can create an interactive and personalized learning experience for individuals seeking financial knowledge. The authors offered an overview of the ChatGPT model, including its strengths and limitations, as well as an explanation of how it might be used to generate natural language responses to financial-related inquiries. They suggest that because the model can be trained on massive financial datasets to give relevant and accurate responses, it may be used to teach financial literacy. Furthermore, they discuss the model's potential limitations, such as the possibility of generating biased responses and the need for ongoing training to ensure the model's accuracy and relevance, emphasizing ChatGPT's potential as a tool for democratizing financial knowledge and empowering individuals to make informed financial decisions. Future research should concentrate on developing more advanced AI models that can better capture the intricacies of financial education and increase broad public financial literacy.

In Personalized Learning, AI can personalize financial education for individual learners. AI algorithms can provide personalized recommendations and learning paths by analyzing user data and behavior. Murugesan and Manohar (2019) highlight the potential of AI to drive financial literacy in the financial sector. They argue that AI can help financial institutions personalize their services and improve the financial decision-making process for consumers. The authors also discuss how AI can provide personalized financial education to consumers, such as chatbots that can answer financial questions and provide guidance on budgeting and savings. They highlight the importance of financial literacy for individuals and the potential benefits for the financial sector in promoting financial literacy through AI. It may be utilized in gamification to build interactive financial games and simulations to assist learners comprehend financial concepts in a fun and engaging way. Pal et al. (2021) investigate the impact of gamification on the financial behavior of young

investors. According to the findings, using gamification approaches in financial apps can boost financial awareness, engagement, and motivation among young investors. The study also emphasizes the importance of developing personalized and interactive financial applications with gamification features to increase financial literacy among young investors. In agreement, Rodrigues et al. (2018) explore gamification's effectiveness in teaching financial education to self-directed bank investors. The authors conducted a case study in Portugal using a web-based platform that incorporates gamification elements such as points, badges, and leaderboards to teach financial education topics. The study found that using gamification elements positively impacted self-directed bank investors' engagement, motivation, and learning outcomes. Participants who interacted more with the gamified platform also reported greater financial knowledge gains than those who did not engage as much. From the study, they suggested that gamification has the potential to be an effective tool for financial education, especially for younger generations who are more accustomed to digital technologies and gaming experiences. The article provides insights and implications for financial institutions, educators, and policymakers interested in using gamification to enhance financial literacy.

Rodriguez-Ruiz et al. (2021) also investigate AI-powered natural language processing (NLP) in analyzing financial news items and reports and producing summaries in an understandable way. This study explores the use of natural language processing (NLP) technologies to test digital literacy skills by presenting a framework for measuring digital literacy that includes analyzing learners' language use and knowledge of technology ideas using NLP techniques such as text mining and sentiment analysis. The results demonstrate that NLP tools can effectively assess learners' digital literacy skills and provide important feedback to instructors by providing a case study utilizing this framework to analyze learners' language use in an online course on digital marketing.

Overall, the article emphasizes NLP's promise in educational contexts for assessing and increasing students' digital literacy. When Niszczota and Abbas (2023) address the prospect of using huge language models, such as GPT, as a financial advisor, Chat GPT might also be the financial advisor. According to the authors, GPT can be trained on massive amounts of financial data and then used to provide forecasts and investment suggestions. The report also looks at the ethical and legal issues of utilizing AI models as financial advisors. It emphasizes the significance of openness, accountability, and regulation in ensuring the responsible usage of these models. However, the ethical and legal ramifications of their use must be carefully considered.

AI and Fraud Detection: AI can significantly improve fraud detection by analyzing large volumes of data in real time and identifying patterns that may indicate fraudulent behavior. Anomaly Detection, Network Analysis, Behavioral Biometrics, Natural Language Processing, and Predictive Modeling Behavioral Biometrics, among others, are the legitimate indicators in explaining the potential of AI use and its relationship towards fraud detection. In explaining this relationship, Bao et al. (2022), in their chapter "Artificial intelligence and fraud detection", explore AI's application in fraud detection in the financial industry. They begin by discussing financial fraud's increasing prevalence and sophistication and the limitations of traditional fraud detection methods. Based on the analysis, various AI techniques have been developed for fraud detection, including supervised and unsupervised learning algorithms, natural language processing (NLP), and network analysis. However, the challenges of implementing AI-based fraud detection systems include the need for large amounts of data, the complexity of integrating AI with existing fraud detection systems, and the potential for false positives and negatives. They note that despite these challenges, AI has the potential to improve fraud detection accuracy and efficiency significantly and can also reduce the cost and time required for manual fraud investigations.

Soviany (2018) also highlights that the case focuses on a Romanian bank that implemented an AI-based fraud detection system, which resulted in a significant decrease in the number of false positives and negatives compared to the bank's previous rules-based system. The article also discusses the importance of explainability and transparency in AI-based fraud detection systems and the challenges of implementing such systems in practice. It indicates the potential of AI in improving payment fraud detection and prevention. Choi and Lee (2018) have surveyed financial fraud methods using machine learning and deep learning methodology and proposed a process for accurate fraud detection based on the advantages and limitations of each research. They presented a machine learning-based overall procedure for detecting financial fraud and compared it to the artificial neural networks approach for detecting fraud and processing vast amounts of

financial data. The experimental results show that the machine learning-based method has higher detection efficiency than neural networks at various ratios, according to the study. In contrast, neural networks achieved exceptionally high detection accuracy at 95: 1 and 99: 1 ratios, which are virtually identical to the actual ratio in the real world. The findings suggest that AI can detect financial fraud in everyday transactions, including errors and fraud using enormous volumes of data.

On the issue of combating cyber threats, Soni (2019) discusses the role of artificial intelligence in combating cyber threats in the banking industry. It highlights the importance of cybersecurity in banking and how AI can enhance security measures. The article explains how AI can be used for threat detection, fraud prevention, and risk management in banking. It also discusses the challenges and limitations of using AI in cybersecurity and emphasizes the need to monitor and update AI algorithms continuously. Generally, the article concludes that AI has the potential to improve cybersecurity in the banking industry significantly. Still, it requires a robust and adaptive approach to address the evolving cyber threats. The same goes for the credit card issue; Nkomo and Breetzke (2020) propose a conceptual model for the use of AI in credit card fraud detection in banks by highlighting the limitations of traditional rule-based fraud detection systems and emphasizing the need for more sophisticated techniques to detect fraud in real-time. The proposed model incorporates machine learning algorithms and data mining techniques to identify patterns and anomalies in transaction data. The authors suggest that the model can improve fraud detection accuracy while reducing false positives and false negatives. They also discuss the challenges and ethical considerations of using AI in fraud detection.

Awotunde et al. (2022) investigate a hybrid machine learning technique for identifying bank loan fraud that integrates decision trees, logistic regression, and neural network algorithms. The system was evaluated on a dataset of loan applications, and the findings demonstrated that it could anticipate fraudulent loan applications with high accuracy. According to the findings, banks might use the technology to improve their fraud detection capabilities and lower the risk of loan fraud. Kaur (2020) adds to this by describing how AI is "Changing the Face of Modern-Day Banks." The study explores the impact of AI on the banking industry, including the changes it has brought to customer experience, fraud detection, risk management, and decision-making processes. It also covers the ethical considerations, labor upheaval, and new business models that arise as a result of integrating AI in banking. The paper finishes by emphasizing the importance of banks embracing AI to remain competitive in the rapidly changing financial world.

By analyzing massive amounts of data and discovering patterns that may suggest fraudulent conduct, AI has the potential to greatly improve fraud detection and prevention. AI systems can swiftly uncover abnormalities and suspicious trends that human analysts may miss due to their ability to handle and analyze enormous amounts of financial data in real-time (Rigano, 2019). AI systems can detect possible fraud attempts and inform financial institutions quickly by continuously monitoring transactions, account activities, and user behaviors. The utilization of AI in fraud detection allows financial institutions to stay one step ahead of fraudsters and mitigate their exposure to financial losses. Real-time monitoring and analysis enable immediate action to be taken upon the detection of suspicious activities, preventing further damage and minimizing the impact on customers (Yaacoub, Salman, Noura, Kaaniche, Chehab & Malli, 2020). Financial institutions can proactively protect their customers' assets and personal information by swiftly identifying and neutralizing potential fraud attempts. AI-powered fraud detection systems can also adapt and learn from new fraud patterns as they emerge (Ryman-Tubb, Krause & Garn, 2018). By constantly analyzing and updating their models based on evolving fraud techniques, AI algorithms can improve their accuracy and effectiveness over time. This adaptability is crucial in the ever-evolving landscape of financial fraud, where new tactics and strategies are continuously being developed. Furthermore, AI can enhance the efficiency of fraud investigations by automatically flagging suspicious transactions and providing valuable insights to fraud analysts (Han, Huang, Liu & Towey, 2020). By narrowing down the focus and highlighting potentially fraudulent cases, AI systems enable fraud investigators to allocate their resources more effectively, leading to faster and more accurate resolutions.

In conclusion, AI's abilities to analyze massive volumes of data, discover trends, and adapt to developing fraud strategies have the potential to revolutionize fraud detection and prevention in financial institutions. Financial institutions may reduce their exposure to financial losses, safeguard their consumers from fraudulent activities, and improve general security and trust in the financial industry by leveraging the

capabilities of AI. Aside from fraud detection, AI can assist in the development of efficient fraud prevention measures (Manser Payne, Peltier, & Barger, 2021). AI algorithms can offer insights that assist institutions in proactively bolstering existing security measures, identifying vulnerabilities, and putting in place efficient protections to stop future fraud events by evaluating past fraud data and patterns.

AI and Behavioral Finance: By giving insights into human behavior and decision-making processes, AI can be utilized to improve behavioral finance. Behavioral finance is the study of how human emotions and cognitive biases influence financial decision-making. Singh, Garg, and Tiwari (2020) investigate AI applications in behavioral finance. They describe how artificial intelligence techniques like machine learning, natural language processing, and sentiment analysis can be utilized to analyze enormous amounts of financial data and forecast market patterns. They also examine the role of AI in financial decision-making, including how it can be used to detect investor biases and improve portfolio management. The authors suggest that AI has the potential to revolutionize the field of behavioral finance but also caution that it is important to carefully consider the ethical implications of using these technologies. Musto et al. (2015) discuss using case-based recommender systems (CBRS) and diversification strategies for personalized finance advisory. The authors propose a hybrid approach combining CBRS with diversification strategies to provide investors with personalized recommendations on allocating their investments. The system is designed to consider the investor's investment history, risk profile, and investment preferences. The authors evaluate the performance of the proposed approach using real-world financial data and find that it outperforms traditional portfolio recommendation methods.

Chun et al. (2021) intend to use deep learning techniques to construct a stock price prediction model based on individual investor emotions. The authors collect data from individual investors' posts on a major online investment community platform in South Korea, then analyze the text and extract emotional aspects using natural language processing (NLP) techniques. They then anticipate stock values using a deep learning algorithm, a long short-term memory (LSTM) model. According to the findings, including emotional elements increases the model's prediction accuracy. The study highlights the potential of using individual investors' emotions as input for stock price prediction models and provides insights into the role of emotions in financial decision-making. Silva (2021) discusses behavioral biometrics in the context of the growing problem of bank fraud and the necessity for more advanced security measures to prevent it in Behavioral Biometric AI. To validate an individual's identification, behavioral biometrics analyzes distinctive patterns in their behavior, such as typing rhythm or mouse movements. Traditional security mechanisms, such as passwords and security questions, are becoming obsolete and open to attack, and behavioral biometrics may offer a more secure option. The article cites several examples of banks and financial institutions implementing behavioral biometrics technology and the potential benefits of using this approach in detecting and preventing fraud. A study by Singh et al. (2022) aims to explore how machine learning can be used to understand the behavioral biases of traders. The article suggests that behavioral biases can be a significant factor in stock market fluctuations, and machine learning can help to identify patterns and relationships that can inform better investment decisions.

By analyzing data from traders, machine learning algorithms can identify behavior patterns indicative of cognitive biases, such as overconfidence, loss aversion, or confirmation bias. This information can help traders to make more informed decisions and avoid costly mistakes. Several examples of how machine learning has been highlighted that can be applied to behavioral finance include sentiment analysis of news articles and social media posts, analysis of trading patterns and prediction of market movements based on historical data (Mehta, Pandya & Kotecha, 2021; Shah, Isah & Zulkernine, 2019). In a nutshell, the study explores the potential of machine learning for eliminating behavioral biases in trading and enhancing investing performance.

AI and Financial Market and Intermediaries: Artificial intelligence is having a huge impact on the financial sector and intermediaries. Artificial intelligence-based systems are being used to analyze market data, monitor trade activity, and spot anomalies or potentially fraudulent behaviors. AI is allowing financial intermediaries to make better-educated investment decisions and produce more accurate market forecasts. AI is also assisting financial intermediaries in identifying market opportunities and hazards, as well as developing more effective ways for managing their investments. Algorithmic trading is a prominent

application of AI in the financial sector. Algorithmic trading entails employing complex algorithms to analyze market data and automatically execute deals. This strategy enables traders to react swiftly to shifting market conditions and capitalize on fresh investment possibilities.

Conduct a thorough analysis of the literature on the application of artificial intelligence techniques in finance and financial markets. It includes stock trading, risk management, fraud detection, credit rating, and other issues. They address the possible benefits and limitations of employing artificial intelligence in finance, as well as future research possibilities in the field. It gives a good summary of the present state of AI research in finance and its implications for financial intermediaries. Furthermore, international financial markets are being impacted by artificial intelligence and the digital era, according to Moşteanu (2019). According to the author, artificial intelligence (AI) has the potential to disrupt traditional financial markets, offering new opportunities and problems for market participants. Moşteanu highlights several areas in financial markets where AI is being employed, including investment management, trading, risk management, and compliance. The paper analyzes the advantages and disadvantages of artificial intelligence in financial markets, such as higher efficiency and lower costs, as well as the possible hazards connected with algorithmic bias and a lack of transparency in AI decision-making. As a result, we argue that, while AI presents both potential and difficulties for financial markets, market players must ultimately decide how to incorporate AI into their operations.

Xie (2019) analyzes the evolution of artificial intelligence (AI) and its implications for the financial system from the same perspective. The author emphasizes the potential benefits of AI in the financial sector, such as higher efficiency, improved risk management, and increased decision-making accuracy. Xie also discusses the risks of AI adoption, such as the potential for AI to worsen existing biases and inequalities in the financial system and the necessity for ethical concerns in the development and deployment of AI technology. As a result, AI has the potential to fundamentally revolutionize the financial sector. However, the ethical and societal ramifications must be carefully considered. Schemmel (2020) investigates the potential influence of AI on financial markets and the necessity for regulatory control. According to the author, artificial intelligence (AI) provides both benefits and difficulties for financial markets, including the possibility for enhanced efficiency, better risk management, and better investment decisions. However, using AI also raises concerns about algorithmic bias, the potential for market manipulation, and the need for transparent and explainable AI systems (Meske, Bunde, Schneider & Gersch, 2022). To solve these difficulties, a regulatory framework is required, which includes the formulation of AI ethics standards, the construction of regulatory sandboxes to test new AI technologies, and the adoption of explicit guidelines for the use of AI in financial markets. By emphasizing the importance of collaboration among regulators, industrial stakeholders, and the academic community, it may be possible to ensure that the benefits of AI are realized while minimizing any hazards.

A study examines the influence of the Revolution Industry (IR 4.0) on the financial industry, where digital technologies such as AI, the Internet of Things (IoT), and blockchain are integrated into industrial processes. According to the authors, Industry 4.0 will have a substantial impact on the financial sector, particularly in risk management, customer service, and operational efficiency. According to the authors, using artificial intelligence and other modern technologies can assist financial institutions in better understanding and managing risk. For instance, machine learning algorithms can be used to analyze large amounts of financial data and identify patterns and trends that may not be immediately apparent to human analysts. This can help banks and other financial institutions to make better decisions about lending, investment, and other activities.

In addition, the authors believe that IR 4.0 has the potential to improve customer service in the banking industry. Chatbots and other automated systems, for example, can be used to provide quick and efficient support to clients. This can help financial institutions cut costs while enhancing client happiness. Finally, the authors argued that Industry 4.0 can help financial institutions improve their operational efficiency. Blockchain technology, for example, can be utilized to create more secure and efficient payment systems. Both financial institutions and their consumers will benefit from reduced transaction processing time and cost. Overall, the article suggests that Industry 4.0 will have a significant impact on the banking industry. Financial institutions must adapt to these changes to remain competitive and deliver high-quality services to their customers.

5. Conclusion

In conclusion, AI has had a huge impact on financial management studies, revolutionizing a number of aspects of the profession. The purpose of this review is to provide an overview of AI's impact on financial management research. AI may provide knowledge and insights on a variety of finance-related issues, such as financial markets, risk management, and investment strategies, among others. AI may play a big role in finance by offering data-driven insights, enhancing efficiency, and aiding informed decision-making due to its ability to process vast volumes of data and analyze complicated patterns. Finally, there is no doubt that the application of artificial intelligence-driven solutions in numerous financial fields will be beneficial. Human input and software like web browsers can aid in creating AI that is dependable, accurate, and practical for many purposes. The system has difficulty with tough or strange situations.

However, it still demonstrates significant progress in this area. Though AI models can provide realistic solutions to certain problems, their accuracy is uncertain because they are still in development. Finally, as a result of AI, financial management studies have undergone a fundamental shift. It has aided in fraud detection, personalized customer service, risk management strategies, automated trading systems, precise financial forecasting, and regulatory compliance. As AI is integrated into financial management research, there are exciting opportunities for increased industry efficiency, accuracy, and creativity.

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The Need to go Beyond Deterministic Data Envelopment Analysis (DEA): A Comparative Analysis with Bootstrapping DEA in Risk Management Efficiency Measurements

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Abstract: This paper attempts to rectify the flaws of deterministic data envelopment analysis (DEA), induced from the characteristics of its approach. The disadvantages have drawn considerable attention in the area of banking efficiency studies, and bootstrapping DEA (BDEA) analysis has been proposed in the literature. This paper provides a comparative analysis of each approach to understand their theoretical foundations and mathematical computations, as well as their strengths and weaknesses. The arguments were empirically supported within the context of risk management efficiency analysis in banking institutions. Finally, the paper proved the need for BDEA analysis to be used while advancing measurement precision for risk management efficiency measurements.

Keywords: *Data Envelopment Analysis, Bootstrapping DEA, Deterministic, Efficiency, Banking Institutions.*

1. Introduction and Background

Data Envelopment Analysis (DEA) has been extensively researched in the fields of science and social science studies. In the vast literature concerning issues in efficiency studies, an extension to the deterministic underscores the accuracy and obtaining more reliable efficiency scores. From a practical point of view, the bootstrapping DEA (BDEA) approach enables to purify of DEA scores from the concept of artificial efficiency, thus minimizing the estimation problems in deterministic measurement. Moreover, the original DEA evaluation assumes that the input and output parameters used in the model estimation translate into perfect measurement of efficiency. DEA is a purely deterministic analytical method and does not contain a stochastic term in its optimized linear programming approach (Filippou and Zervopoulos 2011). By highlighting the uncertainty issue in data, this study provides an alternative methodological approach realizing that the linear programming approach strongly pushes the analysis with a true situation which is never the same as data gathered that has been addressed.

Due to its nature as a deterministic approach, the DEA model of efficiency ignores the fact that all the input and output variables are not deterministic (Simar and Wilson 2008; Sengupta 2000) and it does not account for the measurement of errors and random factor in the data (Al-Rashidi, 2016). Zhang and Bartels (1998) also stated that the estimated mean value of the technical efficiencies was dependent on the parameter values. Banker (1993) verified weak consistency of the DEA estimation particularly when the measurement involves a single input and single output case. As a result, they stressed the need for a stochastic frontier analysis to correct DEA's approach to efficiency measurement. The present work aims to highlight the weakness of the efficiency score obtained by a deterministic DEA approach; particularly when the DEA approach ignores the risk management context required to produce a trustworthy assessment of a firm's risk management efficiency model. The stochastic model is transformed to the DEA deterministic model which will become the basis for the theoretical development of this model.

This paper is organized as follows: Section 2 reviews the stochastic BDEA approach and the need to go beyond the deterministic DEA estimation. This is followed by an introduction to bootstrapping DEA method in the context of risk analysis and management. In Section 4, the bootstrapping approach in risk management efficiency measurement is discussed, followed by the theoretical approach of bootstrapping technique for optimization of DEA in Section 5. Section 6 provides the model and formulation of BDEA. Next, Section 7 provides the comparison of findings between the DEA and BDEA approaches. Finally, Section 8 concludes the paper.

2. Literature Review – The Need to Go Beyond Deterministic DEA Estimation

In this context, Cummins et al. (2003) and Simar and Wilson (1998) believe that DEA can create bias efficiency estimation as it refers to upward bias in finite samples in its evaluation. When the relative measurement of the best practice is observed in the sample, it can create a biased estimator (Maghyereh and Awartani 2012). As the scores in DEA are calculated through an unknown Data Generating Process (DGP) (Xue and Harker 1999) without any confidence interval in the estimation, the results will be dependent on each other, thus creating a dependency problem. The sampling distribution error along with the asymptotic bias, will affect the DEA estimation as the scores generated are less sensitive towards the sampling variation (Gijbels et al., 1999). In addition, the deterministic frontier is a non-statistical method that does not account for any random factor in the data, such as random noise or measurement errors, and it is estimated either by implementing mathematical programming or by means of econometric regression techniques (Al-Rashidi, 2016; Murillo-Zmorano, 2004; Jacobs, 2001).

Verification test statistics have very poor power in small samples, so it does not appear possible for a bank or its supervisor to verify the accuracy of the DEA approach in efficiency estimation unless several years of performance data are available. For instance, Zhang and Bartels (1998) investigated the sample size-bias effect on the mean productive efficiency of electricity distribution industries in Australia, New Zealand and Sweden. The results indicated that an increase in the number of firms reduced the mean of the overall technical efficiency (OTE) of the industry. Using a Monte Carlo simulation on the DEA, Zhang and Bartels (1998) confirm that when the number of observations was added to the sample, more structural inefficiency was observed. This shows that sample size bias leads to potentially wrong interpretations (biased estimation of performance measurement and efficiency estimation).

This discussion highlights the weakness of the efficiency score obtained by a deterministic DEA approach. One particular model for accuracy under uncertainty is called a stochastic DEA model. The stochastic model in DEA is for the possibility of variations in input and output parameters where the efficiency measure of a DMU is defined via joint probabilistic comparisons of inputs and outputs with other DMUs (Huang and Li 2001). Under the stochastic model, Brázdik (2004) emphasizes that the derivation of a nearly 100 percent (1.000) confidence chance-constrained problem is revised. It is necessary to estimate the efficiency score effectively to enhance decision-making and benchmarking strategies (Moradi-Motlagh et al., 2014).

Bootstrapping for Risk Analysis and Management: The bootstrapping model consistently applies the expert's rules to test whether the decisions and predictions from the model are similar to those from the experts (Armstrong 2001). Even though Armstrong uses the judgmental bootstrapping model to evaluate experts' predictions, Allen and Fildes (2001) state that bootstrapping is an accepted procedure in the social sciences and econometrics to provide more realistic outcomes and solutions. The bootstrapping procedure in statistical analysis is required to produce a reliable assessment of a risk management model's accuracy in predicting the efficiency measurement of the firms. Zenti and Pallotta (2000) note that the bootstrapping approach can provide satisfactory assessments of strategic risk. Whether decision-making can be determined as "accepted" or "tolerable" based on risk analysis, the decision must proceed by the accuracy of the assigning and assessing method.

In the banking sector, bootstrapping has been used alongside expert advice since the 1970s. Slovic et al. (1972) propose the bootstrapping approach to examine the security return performance based on specific risk, and Ebert and Kruse (1978) also revealed superior performance in the field of security analysis by developing bootstrapping models for five analysts who forecasted returns for 20 securities using information on 22 variables and its associated risks. Given that the models violated guidelines for developing bootstrapping models, it is surprising that the bootstrapping models were more accurate than analysts for 72% of the comparisons of management capabilities assessment. Previous scholars like Abdel-Khalik and El-Sheshai (1980) use the bootstrapping model to investigate actual default in loans in comparison with figures predicted by 28 commercial bank lending officers. They found that the prediction model by bootstrapping models was as accurate as the prediction of all officers. This bootstrapping analysis before awarding loans helped the banks to evaluate the risk from potential defaults to reduce costs and the likelihood of bias in awarding loans.

Another risk component that has been discussed by Libby (1976) concerns the prediction of bankruptcy for 60 large industrial corporations. But this study in contrast to those illustrated earlier showed that the bootstrapping model used in insolvency risk and its relation to firms' bankruptcy is less accurate compared to experts' opinions and decisions due to both quantitative and qualitative analyses used in the study. However, Goldberg (1976) questions the validity of Libby's results as the analysis suffered from severe skewness in the causal variables and re-analyzed the data. He found that the percentage of times produced by the bootstrapping model beat the expert opinion and increased its accuracy by 49% (from 23% to 72%); which indicates a huge difference in efficiency estimations. Therefore, the bootstrapping model that has been applied to evaluate firms' bankruptcy due to related risk elements is more reliable for risk management evaluation and estimation. In addition to these studies that are guided by conventional financial aspects of efficiency, Chortareas et al. (2013) construct an interesting application of the bootstrapping technique in a more abstract matter of banking efficiency relating to economic freedom. They employed a robust bootstrap procedure to regress the first-stage efficiency scores on economic freedom indices in banks operating in 27 European Union member countries. The variable of economic freedom was proxied by six governance indicators representing government quality that were replicated by 2000 bootstrap replications. Extending bootstrapping to a new area of efficiency analyses this study again highlights the superiority of bootstrapping in accurate measurement of efficiency in financial institutions.

In short, the literature presented in this subsection indicates the ability of the bootstrapping approach in the risk analysis context. Empirical results consistently show that bootstrapping models are associated with increased accuracy in measuring risk elements. The results from the bootstrapping model have always proved to be more accurate than those of expert analysts. Though the relationship between bootstrapping and the risk management context has not been developed theoretically, empirical evidence has found that the principle of the bootstrapping model is able to deliver analyses of specific risks in the banking sector with reliability and accuracy.

In relation to the need for bootstrapping elements to be considered while risk management issues were raised; the bootstrapping technique as an extension to the traditional DEA measurement is pivotal to enhance traditional measurement of firms' efficiency measurement. The study applies the bootstrapping technique to simulated risk management efficiency, which allows for reliable calculations. This method provides a flexible, robust, intuitive and comprehensive risk management efficiency evaluation. To this extent, the focus has been on the relationship between risk management efficiency measures with bootstrapping techniques. For a clearer picture, the example that can be used in this paper is when financial instrument tools such as financial derivative instrument is used for risk management purposes. In banking sectors, while they are facing huge uncertainties in their operations, the accuracy of analysis is highly significant to be performed. It generates financial scenarios over the derivative activity horizon in banking or financial institutions using the information based on derivative usage in hedging activities to minimize financial market risks and the need for multivariate empirical analysis. The usage of the bootstrapping approach extended from the DEA's traditional approach is suitable for addressing the implications of banking performance while facing uncertain environments. Table 1 provides evidence, which employed bootstrapping analysis in deterministic DEA measurements in banking efficiency studies.

Table 1: Summary of Literature Considering Bootstrapping DEA Approach in Banking Environments

ARTICLE	BDEA APPROACH	RESULTS / CONCLUSION
Antunes, J., Hadi-Vencheh, A., Jamshidi, A., Tan, Y., & Wanke, P. (2024). Cost efficiency of Chinese banks: Evidence from DEA and MLP-SSRP analysis. Expert Systems with Applications, 237, 121432.	The study, first, introduces an innovative Data Envelopment Analysis (DEA) model to evaluate the cost efficiency of Chinese banks. Second, it proposes a Stochastic Structural Relationship Programming (SSRP) Model based on neural networks.	The research findings reveal that Chinese commercial banks gradually improved their efficiency from 2010 to 2015, experienced some volatility thereafter, and ended up with an efficiency score of 0.746 out of 1 by the end of 2018. The study also suggests that banks with lower efficiency levels benefit from improved efficiency,

		leading to increased profitability and a focus on traditional banking activities. Conversely, banks with higher efficiency levels should seek alternative, profitable banking ventures to maintain their efficiency.
Tsolas, I. E. (2021). Firm Credit Scoring: A Series Two-Stage DEA Bootstrapped Approach. *Journal of Risk and Financial Management*, *14*(5), 214.	The study employed two-stage data envelopment analysis (DEA) combined with bootstrap and hierarchical clustering.	A bootstrapped DEA-based synthetic indicator is developed to be used with the other performance metrics as inputs to hierarchical clustering to divide sample firms into credit risk clusters. Here, the bootstrapped approach used in this study could aid firms in evaluating their performance and increasing their competitive advantages.
Dia, M., Golmohammadi, A., & Takouda, P. M. (2020). Relative Efficiency of Canadian Banks: A Three-Stage Network Bootstrap DEA. *Journal of Risk and Financial Management*, *13*(4), 68.	The study proposes a novel three-stage (production, investment, and revenue generation) network Data Envelopment Analysis (DEA) with bootstrapping to evaluate the performance of the six big Canadian banks for the period 2000–2017, amid the 2007 financial crisis and the increasing competition level due to new technologies.	Authors have identified the best practices in each stage that can be used as benchmarks by other banks to improve their economic sustainability especially when dealing with financial crisis issues which refers to uncertainty in banking environments. They found that DEA provides more insightful and accurate results in terms of banks' efficiencies.
Khan, I. U., Ali, S., & Khan, H. N. (2018). Market concentration, risk-taking, and efficiency of commercial banks in Pakistan: An application of the two-stage double bootstrap DEA. *Business and Economic Review*, *10*(2), 65-95.	Following Simar and Wilson (2007), the study applies two-stage data envelopment analysis (DEA) with double bootstrapping in the analysis of Pakistan banking institutions for the period 2007 to 2014. With the concentration of uncertainty elements focusing on market concentration, capital risk, credit risk, and liquidity risk, these risks underscore the correlations to the need to use the bootstrapping approach.	Theoretically, the use of bootstrapping DEA analysis within the context of risks enriches the existing literature on banking with new insights. Methodologically, the DEA double bootstrapping procedure allows researchers to evaluate the impact of contextual variables (risk assessment within the context of banking institutions) on the performance of different types of DMUs. Thus, the consideration of DEA with two-stage double bootstrapping advances the understanding of bank efficiency with both systematic and unsystematic risk variables.
Stewart, C., Matousek, R. & Nguyen, T. N. (2016). Efficiency in the Vietnamese banking system: A DEA double bootstrap approach. *Research in International Business and Finance*, *36*, 96-111.	Using banking institutions in Vietnam as DMUs, the study employed efficiency measurement introduced by Simar and Wilson (2007) to explore the determinants of bank efficiency.	The results indicate that the use of bootstrapping elements in DEA measurements could influence Vietnamese banking efficiency and performance affected by the environment and the global financial crisis.

Diler, M. (2011). Efficiency, Productivity and Risk Analysis in Turkish Banks: A Bootstrap DEA Approach. *Journal of BRSA Banking & Financial Markets*, *5*(2).	By addressing the impacts of the 2007 global financial crisis on the efficiency and productivity of Turkish banks from the year 2003 to 2010, the issue of the existence of inherent dependency among DEA efficiency scores with the basic assumption of regression analysis exists. For instance, independence within the sample is violated. Therefore, to eliminate the dependency problem and to be able to make valid statistical inferences, the bootstrapping method is applied.	The findings extended the existing DEA literature by applying the bootstrapping method to improve DEA efficiency and productivity estimates, particularly when observing the impacts of the recent 2007 global financial crisis.

Having examined the relationship between the bootstrapping approach in risk management measurement, it is now necessary to consider the application of bootstrap to ensure the reliability and accuracy of risk management efficiency results (Zakaria & Islam, 2019) and the test model effect the risk management efficiency measurement in banks in an influential way.

Bootstrapping Approach in Risk Management Efficiency Measurement: Most previous studies measure and manage different risk sources using parametric methods (e.g. Medova and Smith 2005; Gil and Polyakov 2003), whereas bootstrapping is able to measure specific risks. For instance, credit risk and default risk, which deal with Credit Metrics, only depend on the rating category without any contribution from idiosyncratic components and are seldom updated and are not sensitive to current market conditions. Marsala et al. (2004) strongly agree that the bootstrapping technique constructs a respected measurement analysis for obtaining a precise description of the risk management measurements. Focusing on one or more types of risk management products, the financial instrument is modelled robustly with a filtered bootstrap approach. In their study, they have applied a filtered bootstrap technique, as they believe that this non-parametric approach is able to simulate the stochastic processes and modelling risk factors. Another study by Hashemi et al. (2013) evaluated the risk assessment process using the bootstrapping approach to solve the issue of non-accuracy in port projects. By applying the bootstrap method, they have structured risk management approach in three phases; the first phase focused on assessing risk issues, providing risk handling plans and monitoring processes; the second phase involved project risk identification where risks are categorized into a specific structure; while the last phase is project risk assessment where non-parametric bootstrap method (B= Mi) is used to obtain compromise final risk ranking. From the findings, the study concludes that the bootstrap confidence interval approach can be applied to risk assessment problems yielding reliable and meaningful results that cannot often be obtained by the traditional approach.

In addition, Huang et al. (2009) have further extended the utility of bootstrapping in the risk management context and proved that the bootstrapping technique can simulate the distribution of future movements in external risk, which can be used as a forecasting tool. This analysis highlighted the remarkable ability of the bootstrapping approach, which not only functions as a bias-corrected technique but is also able to forecast future risk management strategies of the firm. Recently, Antunes et al. (2024) found that using a Stochastic Structural Relationship Programming (SSRP) Model based on neural networks to measure bank efficiency offers numerous advantages. These include the ability to capture nonlinear relationships, high accuracy, adaptability to changing environments, comprehensive multidimensional analysis, data integration, robustness to data variations, real-time assessment, granular insights, risk identification, customization, decision support, longitudinal analysis, benchmarking, and regulatory compliance. However, rigorous data preparation, validation, and model interpretation are crucial to ensure reliable and actionable results for bank management and regulatory purposes.

In short, the bootstrapping technique has several advantages. Before the methodological implications of integrating the bootstrap approach to DEA, this section has not only reviewed the limitations of DEA but has

also established the relationship between the bootstrapping approach and risk management context, which has been neglected in most studies until recently. All this has highlighted the need to bring bootstrapping into dialogue with traditional DEA employed in this study as this study is concerned with generating accurate and reliable measurements of risk management efficiency.

3. Bootstrapping Technique for Stochastic Optimization of DEA – Theoretical Approach

Efficiency Bias Correction, Confidence Intervals Construction and Dependency Issue Incorporating Noise in Data and Sampling Error Issue: This study looks at the implication of using the financial derivative instrument in the context of risk management measurements; hence shows the need for multivariate empirical analysis. The usage of normal bootstrapping extended from the DEA traditional approach is suitable for the raw effect of financial derivatives because of the "volatility" condition on the risk financial market. This basic idea therefore drives the study to apply the BDEA formulations as stochastic amendments to the traditional DEA that is able to address the effect of noise in the data and the sampling error on efficiency estimation. BDEA overcomes a major weakness of DEA, which is its failure to deal effectively with the stochastic element of efficiency estimation (Hawdon 2003). This is because the observed data (input and output) would normally be subjected to the measurement error that can create noise in the data due to omitted input or output variables. Also, there may be events that affect the level of input-output of some of the production units. As in Stochastic Frontier Analysis (SFA), specific assumptions are made in BDEA for evaluating the distribution of the inefficiency to isolate the noise from efficiency.

In addition, Mellenbergh et al. (2008) state that bootstrapping was strongly recommended when the theoretical distribution of the statistics of interest is complex or unknown. Bootstrapping the DEA allows for the estimation of the sample distribution of almost any statistic using a simple method (Munisamy and Danxia 2013; Kao and Liu 2014). Since this procedure is distribution-independent it provides an indirect way of assessing both the actual distribution underlying the sample and the extent of interest derived from this distribution. Thus, the DEA bootstrap can be applied to encounter the intrinsic problems of measurement error in the standard DEA to estimate the bias-corrected DEA efficiency scores (Halkos and Tzeremes 2013; Halkos et al. 2012). Maghyereh and Awartani (2012) state that the DEA estimator tends to become biased when it measures relative efficiency from the best practice observations in the sample. DEA does not provide any assumptions regarding the exogenous factors or measurement error and does not allow confidence intervals. In this type of measurement, DEA may introduce an upward bias in measuring the efficiency scores as it depends on the best practice observations (Barros et al. 2014; Gutiérrez et al. 2014). In contrast, bootstrapping the DEA will correct the efficiencies for bias and estimate confidence intervals for them. This approach was chosen because it can be applied to the institutional efficiency measurement obtaining confidence intervals and bias-corrected efficiency.

In addition, Staat (2001) re-analyzed the original DEA data from Banker and Morey (1986) to conclude that the results were significantly influenced by the number of observations and sample size effect. In an early study on this matter, Efron (1979) introduced a bootstrapping technique as an alternative method of conducting inference when the sample size is small. Following that, Banker (1993) also shows the utility of bootstrap techniques as an alternative method for conducting inferences, particularly with a sample. DEA efficiency scores can also violate the inherent independence within the sample (Casu and Molyneux 2003). Xue and Harker (1999) were perhaps the first to address the problem of inherent dependency on efficiency scores when applied to the regression model. They explained that a number of studies used regression analysis (two-stage DEA) such as Tobit and Ordinary Least Square (OLS) to explain the variation of efficiency scores among different firms. The authors found that the efficiency results produced by the DEA approach were dependent on each other and independent within the sample because the DEA efficiency measured the relative efficiency index, not an absolute efficiency index. Bootstrapping DEA can solve dependency problems with the assumption that "the distances $QDEA - Q*$ are distributed as the distances $Q - QDEA$" (Fried et al. 2008, p.456). Problems can also arise in sampling distributions that are analytically intractable (Alonso et al. 2006). Alonso et al. (2006) also agreed that the bootstrapping approach was able to solve sampling distributions that are hard to trace due to pretesting and nonlinearity. Hence, they proposed a "smoothed bootstrap" procedure to improve the estimation and avoid remarking problems. This study has followed

Atkinson and Wilson (1995) and Simar and Wilson (2000) who applied a smoothed distribution of efficiency values to the generation.

Motivated by these issues that highlight the limitations of the traditional DEA approach, and previous studies that have made improvements to it, this study uses the bootstrap DEA proposed by Simar and Wilson (1998, 2000) as well as Sadjadi and Omrani (2010) who developed a bootstrapping measurement for efficiency studies known as Bootstrapped DEA (BDEA). Based on the literature, this study believes that the BDEA's integration approach will strengthen the DEA and yield more accurate efficiency scores by addressing the following issues:

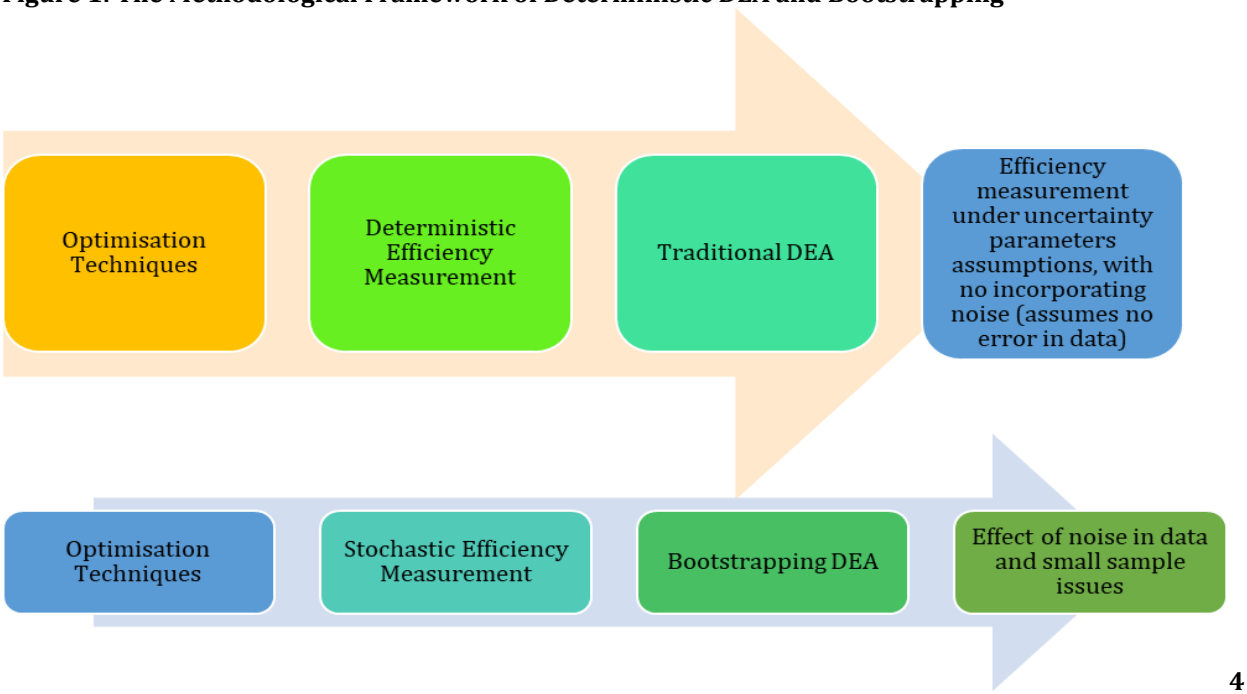
- BDEA can resolve the bias in the parameter estimates, thus, producing more reliable estimations for risk management efficiency (Simar and Wilson 2000; Assaf and Agbola 2011; Johnes 2006).
- BDEA can produce more reliable results in measuring risk management efficiency in banks (Zakaria et al. 2014).
- The bootstrap method predicts the future performance of the decision-making unit (DMU such as firms and organizations) which generally improves both the precision and the reliability of predictions (Johanson 2013; Friedman and Friedman 2013).
- Policy makers in banks will be provided with more trustworthy and dependable findings for them to strategies their risk management plan.

Bootstrap DEA in Banking Efficiency Studies: In 1997, Ferrier and Hirschberg examined the efficiency of Italian banks with the application of the bootstrapping method. The authors adapted the bootstrap technique in the context of the linear programming approach because of its computational power in measuring unknown values in true frontier production functions. They showed how bootstrapping can be used to obtain a sampling distribution of the efficiency scores of individual banks from which confidence intervals and a measure of bias can then be constructed. Ferrier and Hirschberg believe that the results generated by the bootstrapping approach allow the decision-maker to consider the reliability of the calculated efficiency scores more rigorously.

With a similar objective and methodology, Assaf et al. (2011b) evaluated the real values of technical efficiency in Saudi banks using a bootstrapping technique by resampling the original data. They found that the efficiency bias-corrected estimations for every observation were within the confidence interval. They consider the result derived from this analysis to be a statistical advantage over traditional DEA measurement as it used more rigorous criteria for evaluation. The same findings by Zakaria et al. (2014) compared the efficiency of twelve Islamic banks in Malaysia, in which the BDEA approach has been employed to resolve the uncertainty issue of traditional DEA measurement practice. They believe that adopting the BDEA approach is not only essential for a more precise efficiency measurement but also compatible with Islamic banking concepts that differ substantially in objectives and operations from those of conventional banks. The purpose of the BDEA approach is to reduce uncertainties suits Islamic banking principles to avoid any uncertainties in their operations.

In a different study, Assaf et al. (2011a) applied the bootstrap Malmquist index to provide a quantitative measure of productivity (total factor of productivity – TFP) change in Shinkin banks operating in Japan. With further support to the Malmquist results, the study found that efficiency productivity growth based on market share on deposit (MSD), number of branches, ROA, net interest margin (NIM) and deposit concentration ratio, are statistically significant to the efficiency scores except NIM. Based on the comparative results of normal efficiency estimates, they conclude that the bootstrap approach was able to provide less biased scores by correcting the efficiency estimates sensitivity to random variations in the data.

Figure 1: The Methodological Framework of Deterministic DEA and Bootstrapping



4. Bootstrap Data Envelopment Analysis: Model and Formulation

This study addresses the limitation of the DEA approach and obtains a non-parametric envelopment estimator of the DEA efficiency score applying the bootstrapping approach developed by Simar (1992) and Simar and Wilson (1998, 2000) who were pioneers in using the bootstrap in frontier models. This approach basically estimates a true sampling distribution by mimicking the data-generating process (DGP) by re-sampling the DEA data. The resampled data consists of original sample values using a selection of thousands of "pseudo samples" from the observed set of sample data. Repeating this process enables us to build a good approximation of the true distribution. However, Simar and Wilson (1998) retracted this method in the cases of nonparametric frontier estimation, arguing that the "pseudo sample" provided an inconsistent bootstrap estimation of the confidence intervals (the so-called naive bootstrap) since the distance estimation values are close to unity when directly re-sampled from the set of original data. It shows that the consistent information of such confidence intervals is closely dependent on the consistent replication of a DGP. Besides, the DEA estimator may produce a large number of apparently efficient units with $\hat{\theta} = 1$ (the number of such units is likely to increase with p, the number of inputs). It will consequently influence $\hat{F}$ (density function) which will provide a poor estimation of Fnear the upper boundary. In particular, bootstrap estimates may be inconsistent if this issue is not raised.

The bootstrap algorithm starts with some basic definitions:

- A production set is defined as$\psi = \{(x,y)\epsilon R_+^{p+q} | x\ can\ produce\ y\}$, where the amount of some p inputs $x$that can produce $q$outputs$y$, while the set of inputs that make the output level y possible is defined as. $$X(y) = \{x\epsilon R_+^{p+q} | (x,y)\epsilon\ \psi\}$$
- The efficient production limit can be defined as the subset of(y) such that $\partial(y) = \{x | x \in X(y), \theta x \notin Xy \forall \theta \epsilon (0,1)\}$ where it describes the possibility to obtain more outputs with a given level of input. The sets ofψ, (y), θ_1 and (y) are unknown, meaning that, if we assume that some DGP,, generates a random sample$X = \{x_i y_i | i = 1, \dots, n\}$ of $n$homogenous organizations (firms).
- Specifically,$\hat{\theta}_i$ can be obtained by DEA application which indicates that the firm is completely technically efficient. Input orientation has been chosen and defined as $\theta_i = \{\theta | \theta x_1 \in (y)\}$, where it explains the DEA input-orientated efficiency measurements. $\theta_i = 1$ indicates that the input and output unit(x_i, y_i) is fully efficient (100%).

Since DEA estimates a production frontier boundary, generating bootstrap samples is not a straightforward process. This approach is based on the DEA estimator by drawing replacement from the original estimates of theta, $\theta_{(x,y)}$ and then applying the reflection method proposed by Silverman (1986). As the efficiency measures being considered in this study are input-based, the bootstrap is performed over the original risk management efficiency scores. The steps for a smoothed bootstrap algorithm can be summarized as follows:

- Compute the original DEA model to obtain efficiency scores $\hat{\theta}_1 \dots \hat{\theta}_n$ by solving the linear programming models.
- Use the smooth bootstrap that generates a random sample of size $n$from$\hat{\theta}_{i,} = 1, \dots, n$.
- Smooth the sampled values using the formula:

(1) $$\tilde{\theta}_i^* = \{\theta_{Bi} + h\epsilon i^* if \theta_{Bi} + h\epsilon i^* \geq 1 \; or \; 2 - \theta_{Bi} - h\epsilon i^* \; otherwise\}$$

- Use the following formula to obtain the value of $\tilde{\theta}$ by adjusting the smoothed sample value as proposed by *Farrell (1957)*.

(2) $$\theta_i^* = \bar{B} + \frac{\tilde{\theta}_i^* - \bar{B}}{(1 + \left(\frac{h^2}{\hat{\sigma}_\theta^2}\right))½}$$

where:

$$\bar{B} = (\frac{1}{n}) \sum_{i=1}^{n} \theta_{Bi} \; and \; \hat{\theta}_\theta^2 = (\frac{1}{n}) \sum_{i=1}^{n} (\hat{\theta}_i - \hat{\bar{\theta}}) \qquad (3)$$

- Adjust the original input using the ratio$\hat{\theta}/\theta_i^*$.
- Resolve the original DEA model using the adjusted input to obtainθ_{kb}^*.
- Repeat steps 2 to 6 *B* times to provide for *B* sets of estimations which are; samples generated for each bank.

In equation 1 above, *h* is the smoothing parameter, and $\boldsymbol{\varepsilon}$ is a randomly drawn error term. According to Walden (2006), the *h* value is the most difficult step in the procedure. This study uses an alternative procedure of the *"normal reference rule"*, where the *h* value is calculated using the following formula:

$$h = \left[4/(p + q + 2)^{\left(\frac{1}{p}+q+4\right)} * N^{(-\frac{1}{p}+q+4)}\right] \qquad (4)$$

where p equals the number of inputs, q is the number of outputs, and$N$ refers to the number of observations in the sample. The bias of the original estimate of theta will be calculated once the number of desired samples is generated. The following formula will then be computed.

$$bias\hat{\theta}_k = B^{-1} \sum_{b=1}^{B} \hat{\theta}_{kb}^* - \hat{\theta}_{kb} \qquad (5)$$

Then, a bias-corrected estimator of the true value of theta, $\theta(x, y), \hat{\theta}_k^*$, can be computed using the following formula developed by Simar and Wilson (2000).

$$\hat{\theta}_k^* = \hat{\theta}_k - bias\hat{\theta}_k$$

$$= 2 * \hat{\theta} - B^1 \sum_{b=1}^{B} \hat{\theta}_{kb}^* \qquad (6)$$

Given the debate about sample size in the literature, this study realized that there might be a sampling error problem due to our small sample size. Brought by the example of 21 commercial banks in the Asia-Pacific region, this small sample was within the context of not many banks using derivative instruments in their risk management operations. The deficiencies in the sample may create hurdles for more holistic analyses, so this issue will be addressed by a BDEA approach to be performed on the Performance Improvement Management (PIM-DEA) Software, which was introduced by Emrouznejad (2010) to estimate technical efficiency. This approach provides an advanced alternative that can estimate confidence intervals on DEA efficiencies and

incorporate bias correction factors. Thus, this study presents the bootstrap efficiency scores for individual banks in Asia-Pacific countries.

5. Example of Comparative Findings between DEA and BDEA approach in Pure Technical Efficiency

In this study, two stages of bootstrapping were performed. In the first stage bootstrapping DEA was used for efficiency bias estimations in pure technical efficiency (PTE) of the original DEA estimates, where the bootstrapping results are compared to PTE results using the following formula:

$$PTE_1 = (PTE_0 - Bias) \quad (7)$$

Where PTE_1 denotes new pure technical efficiency, PTE_0 denotes previous pure technical efficiency derived from original DEA estimates and $Bias$ denotes the bias derived from bootstrapping analysis. In the second stage, the bias estimates found in the first stage analysis will be subtracted from PTE_0scores and times with scale efficiency (SE) scores. Therefore, the final efficiency results after bias correction are estimated. New efficiency scores are based on the following formula:

$$OTE_1 = PTE_1 x\ SE \quad (8)$$

Where OTE_1 denotes new overall technical efficiency, PTE_1 denotes new pure technical efficiency and SE denotes scale efficiency. This decomposition is unique and depicts the sources of inefficiency accurately, clarifying whether it is caused by inefficient operation PTE, disadvantageous scale efficiency SE, or both. This study presents individual banks yearly (2007-2012) which presents the efficiency of PTE and bias-corrected estimates trend.

A Simulation of Bootstrapping Results Comparing to Pure Technical Efficiency: Extracted from the findings from Zakaria and Islam (2019), in the first stage of analysis, Table 2 summarizes the simulation of findings of annual mean efficiency of 21 Asia-Pacific banks over the period 2010-2012. Column 2 lists the average (mean) of PTE from normal DEA estimated efficiency, and column 3 lists the bias-corrected by bootstrapping for each year. Column 4 presents the average amount of bias by comparing estimated efficiency and bias-corrected estimates. Although the overall mean score indicates that all banks have been inefficient over the years, the whole banking industry risk management efficiency level declined over the period 2010-2012, and declined considerably in 2011, while in 2010, the efficiency scores almost achieve perfectly efficient status. The findings, thus, modified the efficiency estimator by correcting the estimated bias from the original efficiency estimate.

Table 2: The Example of Comparative Findings of Annual Average PTE Estimates for Asia-Pacific Banks based on the Bootstrap Method

YEAR	PTE ESTIMATED EFFICIENCY	BDEA	BIAS-CORRECTED	BOOTSTRAP LOWER BOUND	BOOTSTRAP UPPER BOUND
2010	0.9996	0.9995	**0.00005**	0.9994	0.9995
2011	0.835	0.810	**0.025**	0.728	0.836
2012	0.990	0.989	**0.001**	0.987	0.990
Mean	**0.944**	**0.936**	**0.008**	**0.911**	**0.944**

Note: The sample of all efficiency scores is presented in three decimal places except in 2010 due to the close estimations, and the comparative findings were extracted from Zakaria and Islam (2019).

Based on the bootstrap estimates of 95% confidence interval in the last two columns, the results reflect the relevance of the theory of confidence interval constructed by Simar and Wilson (1998) as the mean (average) of estimated efficiency lies to the right of the estimated confidence intervals. The inverse of the average bias corrected Variable Return to Scale (VRS) efficiency score amounts to 93.6%. This indicates that based on average PTE, the banks in the Asia-Pacific region are managing their resources ineffectively under an exogenous environment. In addition, the results show that the bias in DEA scores is quite small. All bias scores are less than 0.03, which indicates that the results from DEA efficiency scores are relatively stable. However, the results from this table are relatively general. According to Arjomandi (2011), annual average

pure technical efficiency (PTE) does not help in making a fair comparison between the performances of individual banks.

In accordance with the above calculation, it is important to highlight that the stochastic approach takes the missing error portion in efficiency measurement into account. The bias measurement could be upward or downward, while upward bias in estimation applied in stochastic BDEA, downward bias (error is considered in measuring efficiency score) is applied in traditional DEA. Hence, the efficiency results in bias-corrected analyses are influenced by the error portion discarded. The estimation of bias-corrected efficiency may produce lower or higher scores compared to technical efficiency in DEA. Assaf and Matawie (2010) noted that due to the upward bias in the original estimates and the bootstrap correction in the confidence interval (95%), the original estimates lie outside for every observation but close to the lower bound for the confidence interval, whereas the bias-corrected estimates for each observation lie within the confidence interval.

Concluding Remarks: The paper aims to highlight the efficiency trends analysis using both DEA and BDEA measurements. Methodologically, a non-parametric bootstrap provides greater robustness to the studies based on DEA and has the advantage of making it easy for the analysis of this study to estimate the precision metrics such as standard errors and confidence intervals for better risk management efficiency measurement that can be estimated from the sample data (Marinho and Araújo 2021; Davison 1997; Efron and Tibshirani 1994). With bias reduction estimates, new ventures on efficiency measurement based on the derivative instruments usage exhibit higher effectiveness in reducing risk effects. Other than reducing sampling error issues, this approach led to the development of the traditional DEA measurement. It proved to be a fruitful analysis method that led to a refined traditional efficiency model describing small data. Overall, this non-parametric BDEA approach allows the study to interpret the resulting risk measure estimates (Dyson and Shale 2010; Cotter and Dowd 2006) as potential estimates of risk management.

The method of breaking the analysis into non-biased reduction (DEA) and bias reduction (BDEA) has solved the risk management efficiency measurement with a realistic solution (Xue and Harker 1999; Sadjadi and Omrani 2010). The approach and interconnection to the classical efficiency measurement were easily contrasted for better problem-solving and decision making where it merged the two measurement concepts. Again, the method provided transparent, more robust and more flexible ways to ensure the viability of the method. Theoretically, this bootstrapping approach is introduced to strengthen the risk management concept and evaluation. The integrated methodology allows for a targeted analysis procedure that is more comprehensive (Casu and Molyneux 2003; Dong and Featherstone 2006). Specifically, a bootstrap strategy has a significant impact on enhancing the reliability of risk management modelling. Although the BDEA method used in this study is not new, bootstrapping was combined with DEA in ways that have not been experimented upon in previous studies.

In short, after outlining some weaknesses of classical DEA analysis, this paper has introduced the utility of bootstrap characteristics to assist in the development of a BDEA approach. Previous studies were reviewed to show that BDEA is able to solve the issues of uncertainty of noise in the data and small sample size (sampling error) under a linear programming optimization technique. This study provides a good solution through the accuracy of a prediction and estimation that is practical within perplexing environments and has reached a high-level efficient solution method that can solve real problems. By providing the example of risk management efficiency in banking sectors, the argument is that a combination of both DEA and BDEA analysis on risk management efficiency in banks is now able to appropriately incorporate two complementary approaches, hence providing a more sustainable and reliable efficiency measurement for organizations.

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Device Features and/or Personality Traits? Disentangling the Determinants of Smartphone Nomophobia and Pathology among Urban Millennials

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Abstract: Smartphones have emerged as a mobile device that provides users with "smart" functionalities, aesthetics features and capabilities. These smart devices are the “must have” advanced communication tools and have been assimilated as an integral part of the everyday life of their users and mirror personal expressions of the users' lifestyles. Although academic scholars and practitioners have started to venture into a research stream that focuses on behavioral models to elucidate and predict smartphone consumption trends and behavior, however, there is limited empirical research that attempts to unleash factors that triggered smartphone users to become nomophobia (no mobile phone phobia) and consecutively in turn become pathology (also known as addiction or dependency) user. Henceforth, this work seeks to explore both emerging phenomena by developing and validating a research model which is based on the Media Dependency Theory. The structural equation modelling analysis was conducted using Smart Partial Least Square (SmartPLS3) procedure with a dataset of 272 smartphone users who belong to the urban Millennials generational cohort. Two main predictors are hypothesized, which are the smartphone features (software and hardware) and users’ personality traits (openness, neuroticism, and extraversion). The results suggest that multiple facets of smartphone users’ personalities, particularly neuroticism significantly cause the smartphone users to become nomophobia and subsequently pathological. Whereas, the device hardware features have a positive significance effect on nomophobia, nevertheless not trigger pathology. Surprisingly, software features of the smartphone do not offer evidence of their effect on nomophobia as well as pathology. The key findings uncovered from this exploratory research provide rich insights for theoretical and practical implications.

Keywords: *Smartphone Pathology, Integrative Media Dependency Theory, Nomophobia, Personality Traits.*

1. Introduction and Background

Cellphones, then smartphones, became ubiquitous in modern life and consumers have become highly dependent on them - not to make calls so much as connect to the Internet. The continuous innovation of smartphone features and design with new apps, more processing power and broad social media capabilities as well as near-ubiquitous connectivity, are making the smartphone the digital center of our lifestyles. These devices are like small computers in the pockets with vastly more processing power than the computers. Bank of America's 2022 Trends in Consumer Mobility Report found 71% of consumers sleep with their smartphones and 35% say it is the first thing they think of when they wake up in the morning. The report breaks down usage by age and finds younger Millennials (age 20 -25), who grew up with smartphone technology, are the most dependent consumers. The Millennial generational cohort who are born between 1977 and 1996, are often early adopters of new technologies as well as extensive users of the Smartphone. Millennials are tech-savvy and have never known life without being online.

Recently, academic scholars and practitioners have started to venture into a research stream that focuses on behavioral models to elucidate and predict smartphone consumption trends and behavior. Although we have had the technology to let us be connected around the clock for decades, the inclusion of a smartphone as an information enabler takes this to new levels. It makes it possible for anyone to gain access to just about anything they could want or need and that feeds their nomophobia tendencies. However, there is limited empirical research that attempts to unleash factors that triggered smartphone users to be nomophobia (no-mobile phone-phobia) and consecutively become pathological (also known as addiction or dependency) users (Molu et al., 2023). Pathological Smartphone Use (PSU) is an emerging phenomenon that needs to be implicitly understood and addressed adequately. There are extensive studies in Pathological Internet Use

(PIU), but empirical research on the PSU is still lacking. On the other hand, new terminology has been introduced, which is nomophobia (no mobile phone phobia).

Nomophobia has been conceptualized as a "no-mobile-phone" phobia, including the fear of not being able to communicate, the fear of losing connection, the fear of not being able to access information and the fear of losing convenience. Since being introduced there is still exceptionally very little empirical research that has been conducted to validate this new construct. There is limited research that attempts to unleash factors that triggered smartphone users to be nomophobia (no mobile phone phobia) and consecutively become pathological (also known as addiction or dependency) users. Henceforth, this study attempts to explore both emerging phenomena by developing and validating a research model that uses the Media Dependency Theory as the underpinning theory. Both nomophobia and pathological smartphone use are integrated into the research framework. This study aims to disentangle the factors that affected smartphone users to become nomophobia and pathological. The research introduced an integrative MSD model which affords pertinent insights into the factors that influenced PSU and its outcomes. The personality of the users is deemed to be the main factor that affects the smartphone pathology phenomenon.

Millennials are the last generation born in the 20th century and are described as the fastest-growing internet population. They are reported to have sent their selfie to social media 35% or more than the previous generation (Gen X). It is also reported that they send an average of 50 texts in a day (Nielsen Mobile Insights Malaysia, 2020). According to the Economic Planning Unit report in 2022, the number of internet users in Malaysia in 2022 was 718 for every 1000 people. It was reported that for every 1000 people, there are 1418 cellular phones owned (Economic Planning Unit, 2022). Malaysians, especially youth have shown drastically increased in accepting online technology and services. Despite the significant growth, there is still a lack of research in identifying factors influencing PSU and its impact among Millennials in Malaysia. Even though there are also a few studies that are quite similar but are restricted due to with small sample size and using convenience sampling method (Rahim et al., 2020). However, the current study will be a comprehensive study in determining the predictors of nomophobia and smartphone pathology use among Millenials who reside in urban areas, specifically in the cities of Klang Valley, Malaysia. This study will be using a modified MSD theory, which incorporates the media system and psychology system as the predictor variables and nomophobia and pathology as dependent variables.

2. Literature Review

A report from Nielson, a mobile analytics firm, says for a growing number of consumers, mobile technology dependence has crossed over into addiction, and that it's a global trend. Regular users, consumers who admit to accessing apps between once and 16 times daily, grew from 784 million to 985 million in just a year, a 25% increase. So-called super users, consumers who use apps between 16 and 60 times daily, grew even more in that same period, from 440 million to 590 million, a 34% increase. Accordingly, mobile addicts are consumers who use apps 60 times or more per day. This group is growing at the fastest rate, from 176 million in Q2 2019 to a whopping 280 million in Q2 2020, a 59% increase," the company said.

Nomophobia: Nomophobia is considered a modern-age phobia introduced to our lives as a result of the interaction between people and mobile information and communication technologies, especially smartphones (Augner & Hacker, 2012). It refers to the fear of not being able to use a smartphone and the fear of not being able to communicate, losing the connectedness that smartphones allow, not being able to access information through smartphones and giving up the convenience that smartphones provide. Researchers at Iowa State University have developed a questionnaire to determine whether a smartphone user's addiction to their phone is healthy or reaches the severity of having nomophobia. The questionnaire studied four dimensions of the "no-mobile-phone" phobia, including the fear of not being able to communicate, the fear of losing connection, the fear of not being able to access information and the fear of losing convenience. The test was evaluated on more than 300 people, and the results showed that it's an accurate predictor of whether a person actually has nomophobia, i.e. the fear of being without a phone. The test involves ranking how strongly you disagree (designated by "1" on a scale of 1 to 7) or agree (designated by "7" on the scale) with 20 statements. The result is calculated by totaling the response numbers, with the higher the score corresponding to a greater level of nomophobia.

The dependence on the phone becomes an issue and veers into homophobia territory when it interferes with daily routine and leads to a preoccupation with your phone. But nomophobia also comes with other markers, including an irrational fear of being away from your phone and unable to check it, the sudden urge to check your phone regardless of whether there was a buzz or notification that you got a message, and having difficulty waiting to check your phone in situations where you shouldn't, like during a meeting or conversation with a person. The research builds on a University of Missouri study published in January which found being separated from your iPhone can have a real psychological and physiological effect, including impaired thinking. Clayton (2016) asserts that iPhones are capable of becoming an extension of ourselves such that when separated, an individual experiences a lessening of 'self' and a negative physiological state.

Pathology: Today, smartphones are no longer devices for one-to-one communication through voice and texting services. They are used as a device for internet surfing, email checking, online chats, time management, entertainment, playing online/offline games, pictures and video sharing, self-expression, establishing identity and developing and running various mobile applications. This led to increasing concerns about the pathological use of mobile devices, for instance, technology addiction (Rahim et al., 2020). Smartphone pathology is a double-edged sword: they create and destroy opportunities. The term pathology (also known as addiction or dependency), in any context, is typically associated with negative outcomes. Therefore, it is not surprising to see many researchers have focused on the negative implications of addiction. However, this research will be conducted to investigate factors that cause an individual to become pathological with a smartphone. Looking at and understanding the major role smartphones are now playing among young adults, it is not shocking as Millennials are reported to be more dependent on their smartphones. The Millennials will constantly use and expose their smartphone openly in public. These phenomena happened because the brand and features that their smartphone, which they carried will portray who they are in the world. Recently in 2023, it was found that within 15 minutes of walking, 79 percent of the respondents will start reaching for their phones. It is also reported in the same study, that 68 percent of the respondents sleep with their phones switched on. Surprisingly 67 percent of the respondents will check their smartphones even though it is not ringing or vibrating and 46 percent admitted they cannot live without having their smartphones (Jahrami, H, 2023).

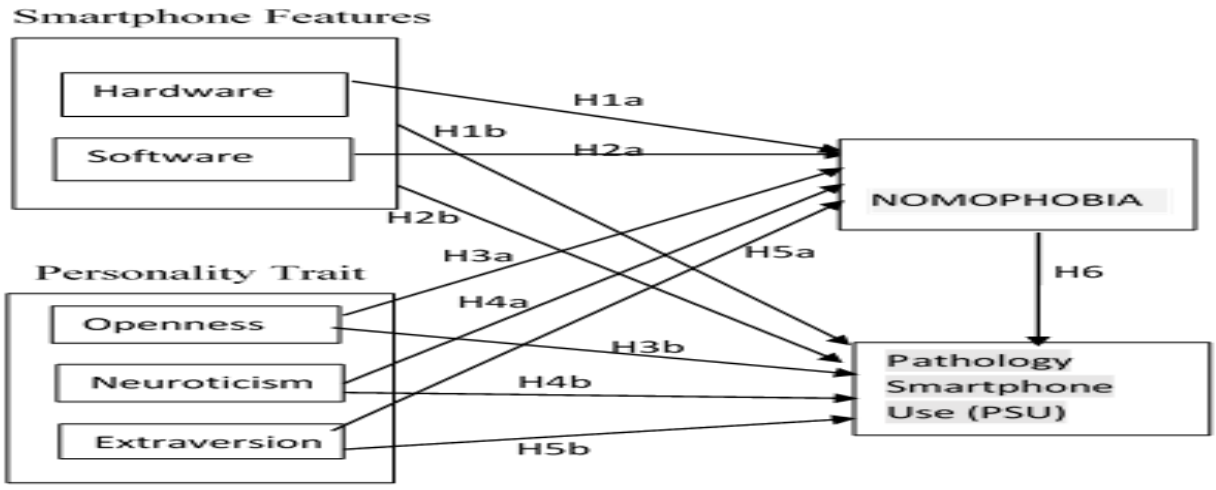
Smartphone Hardware: The hardware such as the design of the smartphone or in other words the tangible parts of the smartphone such as the shape, color and size. The screen design and quality also influence one's behavior in using the smartphone. The screen quality of a mobile device is very much related to the screen size and graphic pixels. Different consumer acts differently towards the screen quality. Some prefer a larger screen; some prefer smaller size devices and therefore, are willing to sacrifice the screen size. Some consumers never care less about the screen quality. The weight and its unique features such as its torch light and waterproof system are also being sought by smartphone users. Nevertheless, its sound system quality, logo and memory capacity are also highly important factors among smartphone users. Consequently, as users begin using mobile devices for different functions, their frequency of usage will also increase (Kheradmand, 2023). Thus, the study hypothesizes:
H1a: Mobile device hardware positively influences Nomophobia.
H1b: Mobile device hardware positively influences Pathological Smartphone Use.

Smartphone Software: Consumers who are familiar with their smartphones are quite comfortable using the device. Therefore, whether the technology is easy to use will not influence their adoption decision. These users also have good knowledge of what m-commerce can offer, and hence will not be attracted to use m-commerce based on the perceived ease of use (Eichenberg et al., 2021). The mobile device is turning into multifunctional devices that are not exclusively utilized for communication purposes, but also, they are used for calendars, instant messaging, social networking, and even playing games. That is why the researcher believes that due to the varying applications that mobile device provides to their users, this software agent can increase their pathology towards their smartphone (Rodriguez-Garcia et al., 2020). Thus, the study hypothesizes:
H2a: Mobile device software positively influences Nomophobia.
H2b: Mobile device software positively influences Pathological Smartphone Use.

User's Personality: Among many elements associated with smartphones, personality has been shown to profoundly influence Internet use (Mohtasham-Amiri & Taghinejad, 2022). One of the causes is that personality types can be utilized to identify how people prefer to take in information and what methods they utilize to process that data. These preferences are signals of the type of environment, which one feels most contented with and that will work best. Among early researchers who linked personality to the internet are Hamburger and Ben-Artzi (2000). They measured the level of extraversion and neuroticism among Internet users. Extraverts are generally impulsive, enjoy excitement, and crave social interaction. In their research, Şahin et al. (2022) found, that more extroverted students were more likely to be addicted to their cell phones than their less extroverted counterparts. In addition, extroverts are more likely to report problematic mobile phone use compared with students low on the extraversion trait. The neurotic person is characterized by moodiness, an anxious, worrying individual who is overly emotional and reacts too strongly to all types of stimuli (Dalbudak et al., 2020). Generally, neurotics are highly emotional and exhibit strong emotional responses to a variety of stimuli. The neurotic or emotionally unstable person may use their cell phone as a means of coping with stress and anxiety. A number of research studies have found that stress/anxiety is related to problematic mobile phone use (Gaurav Kohli et Al., 2021; Coenen & Gorlich, 2022). Furthermore, it was found that chronic stress and low emotional stability are significantly associated with problematic mobile phone use (Marengo et al., 2020). They reported extroverts and neurotics are positively related to social-leisure activities such as random surfing.

Therefore, the study hypothesizes:
H3a: Openness personality traits will positively influence nomophobia.
H3b: Openness personality trait will positively influence Pathological Smartphone Use.
H4a: Neuroticism personality trait will positively influence nomophobia.
H4b: Neuroticism will positively influence Pathological Smartphone Use.
H5a: Extraversion personality traits will positively influence nomophobia.
H5b: Extraversion personality trait will positively influence Pathological Smartphone Use.
H6: Nomophobia positively influences Pathological Smartphone Use.

Figure 1: Research Model



3. Research Methodology

The research used two phases of methodology design where at the preliminary phase qualitative approach via focus group discussion was conducted. A preliminary study was carried out by having three sessions of focus groups. Relevant findings are adopted and observable facts are subsequently used in developing the quantitative survey instrument. The preliminary study was conducted to gain deeper insights into the antecedents of smartphone pathology and the factors influencing mobile shopping. This study will be a quantitative study with empirical testing of the prevailing research questions by using primary data to achieve the research objective. The data will be collected using self-administered structured questionnaires.

To the researcher's best knowledge, no prior information on the stipulated population units was available, which suggests there is no sampling frame available for reference. Therefore, the use of probability sampling is impossible. As an alternative, this study needs to employ non-probability sampling.

Under nonprobability sampling, quota sampling is recognized to be superior compared to convenience and judgment sampling. Hence, this study will use quota sampling, where the sample will be selected purposively. Thus, in this sense, the demographic characteristics of interest reflect the actual proportion of the population distribution (Tull and Hawkins, 1987). The target population for this study is the millennial smartphone users that reside in urban areas (KL/Selangor/Putrajaya) aged 20 to 40 years old. Since the main research objective is to explore and predict which factors influence nomophobia and smartphone pathology SEM variance-based is the most appropriate analysis software. Using the snowball method, the data was then collected through an online questionnaire. 272 respondents qualified to proceed until the end. Since this is an exploratory survey, therefore Smart Partial Least Squares (SmartPLS) will be utilized to analyze the data. The respondents are confined to millennials ranging from age 20 to 40 years old who own smartphones. Based on exploratory research, six subscales have been adapted and extended to suit the research setting. The scale consists of 52 items covering the subjects of hardware, software, personality, smartphone pathology and nomophobia. The instrument was employed by using a seven-point Likert scale (1 denotes strongly disagree, while 7 denotes strongly agree).

4. Results

Four questions were included in the questionnaire to obtain the demographic characteristics of the respondents, and they were gender, age, education and income. The personal information of the respondents in this research is presented in Table 1. Of the 272 respondents, 39.7 percent (108) were male and 60.3 percent (164) were female. In the age category, 27.9 percent of the respondents were aged between 20 – 25, 33.5 percent were between 26 to 30 years old, 18.8 percent were aged 31 to 35 years old and 19.8 percent were 36 to 40 years old. The majority of the respondents have completed tertiary education (91.5 percent). With regards to monthly personal income, 27.9 percent (76) were less than RM2, 000; 33.1 percent (90) between RM2, 001 to RM4, 000; 19.9 percent (54) earned between RM4, 001 to RM6, 000; 8.5 percent (23) earned RM6, 001 to RM8, 000 and 4.0 percent (11) have income more than RM10, 000.

Table 1: Summary of Respondent's Profile

Characteristic	Frequency	Percentage
Age		
20 – 25 years old	76	27.9
26 – 30 years old	91	33.5
31 – 35 years old	51	18.8
36 – 40 years old	54	19.8
Gender		
Male	108	39.7
Female	164	60.3
Education		
SPM	23	8.5
Diploma	36	13.2
Bachelor Degree	156	57.4
Master Degree	47	17.3
PhD	7	2.6
Others	3	1.1
Income		

Less than RM2,000	76	27.9
RM2,001 - RM4,000	90	33.1
RM4,001 - RM6,000	54	19.9
RM6, 001 - RM8, 000	23	8.5
RM8, 001- RM10, 000	18	6.6
Above RM10, 000	11	4.0

Measurement Model Analysis: To conduct the regression analysis, the data need to be valid and reliable. Validity was measured by using two criteria which are convergent validity and discriminant validity. Convergent validity consists of factor loadings, average variance extracted (AVE) and composite reliability (CR) as in Table 2.

Table 2: Convergent Validity

Construct	Item	Loadings	CR	AVE
Hardware	HW1	0.795	0.906	0.660
	HW2	0.790		
	HW4	0.792		
	HW6	0.820		
	HW7	0.862		
Software	SW1	0.799	0.936	0.708
	SW2	0.834		
	SW3	0.917		
	SW4	0.888		
	SW5	0.858		
	SW7	0.742		
Personality			0.735	0.957
Extraversion	PE1	0.945		
	PE2	0.752		
Neuroticism	PN1	0.789		
	PN3	0.845		
	PN4	0.910		
	PN5	0.846		
Openness	PO4	0.887		
	PO5	0.866		
Pathology	PSU4	0.709	0.866	0.670
	PSU5	0.712		
	PSU6	0.730		
	PSU8	0.808		
	PSU9	0.793		
Nomophobia		0.888	0.903	0.651
		0.888		
		0.701		
		0.788		
		0.754		

While discriminant validity using Fornell and Larcker as summarized in Table 3. Within this study, the factor loadings mostly exceeded 0.7 at the acceptance rate of 0.7 (Hair et al., 2010). The factor loadings ranged from 0.701 to 0.917. The AVE of the result indicates that all the variables have a value greater than 0.5 which means that less error remains (Hair et al., 2022). The highest AVE is personality which is 0.957 followed by smartphone software at 0.708. The lowest AVE is smartphone pathology which is 0.670. Based on Table 2, it is initiated that all of the AVE and CR values are more than 0.5. Fornell and Larcker's analysis summarized in Table 3 also shows that all the diagonal values are above their horizontal and verticals values respectively. Hence, all variables achieved reliable and valid results as they are near 1.0 (Henseler et al., 2015).

Table 3: Discriminant Validity

	Extroversion	Hardware	Neuroticism	Nomophobia	Openness	Pathology	Software
Extroversion	**0.876**						
Hardware	0.273	**0.775**					
Neuroticism	0.011	0.101	**0.847**				
Nomophobia	0.210	0.229	0.384	**0.822**			
Openness	0.426	0.383	0.066	0.232	**0.857**		
Pathology	0.150	0.196	0.413	0.808	0.190	**0.813**	
Software	0.286	0.704	-0.017	0.109	0.410	0.057	**0.824**

Structural Model Analysis: Figure 2 illustrates diagrammatically the results of conducting an SEM Analysis by using SmartPLS 3 and six hypothesized paths were tested.

Figure 2: Structural Analysis

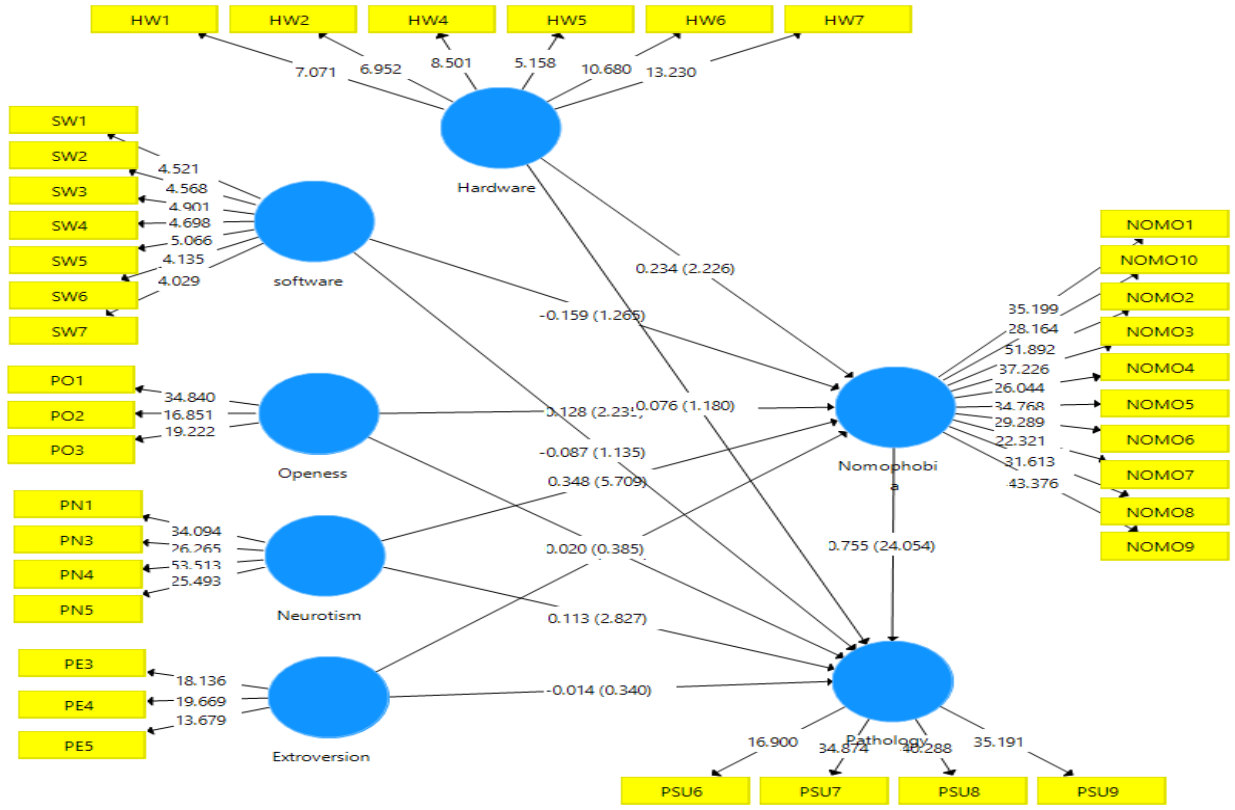


Table 4 summarizes the results of tested hypotheses and answers the research objective of the study. To test the hypotheses, we estimated a structural equation model with 7 latent variables (three personality traits, two smartphone feature dimensions, Nomophobia and Pathological use of smartphones) Specifically, the predictors are regressed against two dependent variables which are homophobia and pathology. Six hypotheses are supported and five are not supported. The strongest path is Nomophobia and Pathology, significant path is indicated by the highest t-value (24.049). The findings illustrate that personality traits play an important role in influencing respondents to be nomophobia and pathological. Openness, Neuroticism and Extraversion have significant positive influences on the formation of Nomophobia. However, Neuroticism affects Pathology smartphone use. Thus, it shows that the personality of a person and the hardware feature of the smartphone are very important in determining a person to become Nomophobia. A person who is moody

and temperamental may be more likely to be nomophobia and subsequently pathological. The finding also indicates that there is a strong relationship between Nomophobia and Pathology.

Table 4: **Hypothesis Testing**

HYPOTHESIS	Std Beta	T-value	P-Values	Decision
H1a: Hardware -> Nomophobia	0.234	2.280	0.023	Supported
H1b: Hardware -> Pathology	0.076	1.230	0.219	Not supported
H2a: software -> Nomophobia	-0.159	1.281	0.200	Not supported
H2b: software -> Pathology	-0.087	1.130	0.259	Not supported
H3a: Openness -> Nomophobia	0.128	2.175	0.030	Supported
H3b: Openness -> Pathology	0.020	0.377	0.706	Not supported
H4a: Neuroticism -> Nomophobia	0.348	5.808	0.001	Supported
H4b: Neuroticism -> Pathology	0.113	2.746	0.006	Supported
H5a: Extraversion -> Nomophobia	0.133	2.247	0.025	Supported
H5b: Extraversion -> Pathology	-0.014	0.335	0.738	Not supported
H6: Nomophobia -> Pathology	0.755	24.049	0.001	Supported

5. Discussion and Conclusion

In conclusion, the result indicates that the hardware feature of a smartphone could inflict a person to become nomophobia. Surprisingly, the software features have no evidence to inflict a person to become nomophobia. Generally, all personality traits that have been hypothesized in this study have evidence to inflict a person to become nomophobia. However, only neuroticism personality traits found to inflict an individual to be smartphone pathology. The result indicates that an individual who suffers from Nomophobia could lead to smartphone pathology. The personality trait of neuroticism is deemed to be the main factor that inflicts a person to be nomophobic and has smartphone pathology. To the best knowledge of the authors, this is the first research endeavor to incorporate both Nomophobia and Smartphone Pathogy in a research model. However, a replication study to further validate the plausibility of this new Media Dependency model in predicting smartphone Pathology and Nomology is fertile for further research endeavors in gaining deeper insights into who is more susceptible to nomophobia, probably based on generational cohort or by education attainment. It is also interesting to unravel why several hypotheses were not supported.

The research findings intrigue the researchers of why software features do not significantly contribute to the formation of nomophobia as well as Smartphone Pathology. Future research should unlock these surprising results as we expect that respondents become nomophobia because of the advanced communication technology and innovative apps that influence individual consumption of smartphone behaviour. Notably, the research finding unveils that the key predictor of Nomophobia and Smartphone Pathology is neuroticism. This finding was in line with the findings mentioned by Mohtasham-Amiri and Taghinejad (2022). The significance of the study lies in the fact that it adds new insight into the understanding of the predictors of Nomology and Smartphone Pathology. Thus, future research should be conducted to further validate and test the present model to further advance the knowledge of these emerging phenomena by a different generational cohort of consumers, such as Gen Z. The present findings afford important implications for smartphone marketers and product designers in developing new apps that could reduce the dark side effects of smartphones.

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The Regression Analysis of Factors Contribute to University Students' Academic Performance

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Abstract: Malaysia Education Blueprint 2015-2025 (Higher Education) mainly highlighted sustaining the quality of higher education in this country. One of the crucial focuses is concerned with improving the graduate's academic performance. Align with the Government's aim UiTM has taken a progressive action to blend the current environmental scenario and higher education reform as espoused by the Minister of Education. The UiTM Strategic Plan 2025 was established to improve its performance as well as the quality of Bumiputera's education quality. This study reports on assessing the various outer factors related to university students' academic performance concentrating on the relationship between teaching and learning approaches, family and peer influences and student's financial with academic performance among UiTM's students. A theoretical framework was constructed to examine the relationship between variables. Next, a quantitative study has been carried out to gather the respondent's feedback. An adapted survey consisting of 25 items with 5 point Likert scale was distributed to 497 respondents using the convenience sampling procedure. Data were then analyzed using the Statistical Procedure for Social Science (SPSS) to test the hypotheses. The result confirmed the hypothesis in determining the significance between the constructs. Family and peer influence was identified as the most influence factor on student academic performance ($r = 0.584$, $p = 0.000$, $p < 0.05$). The result also revealed that the teaching and learning approach and family and peers influence the student's academic performance.

Keywords: *UiTM, teaching and learning, family and peer influence, financial, academic performance.*

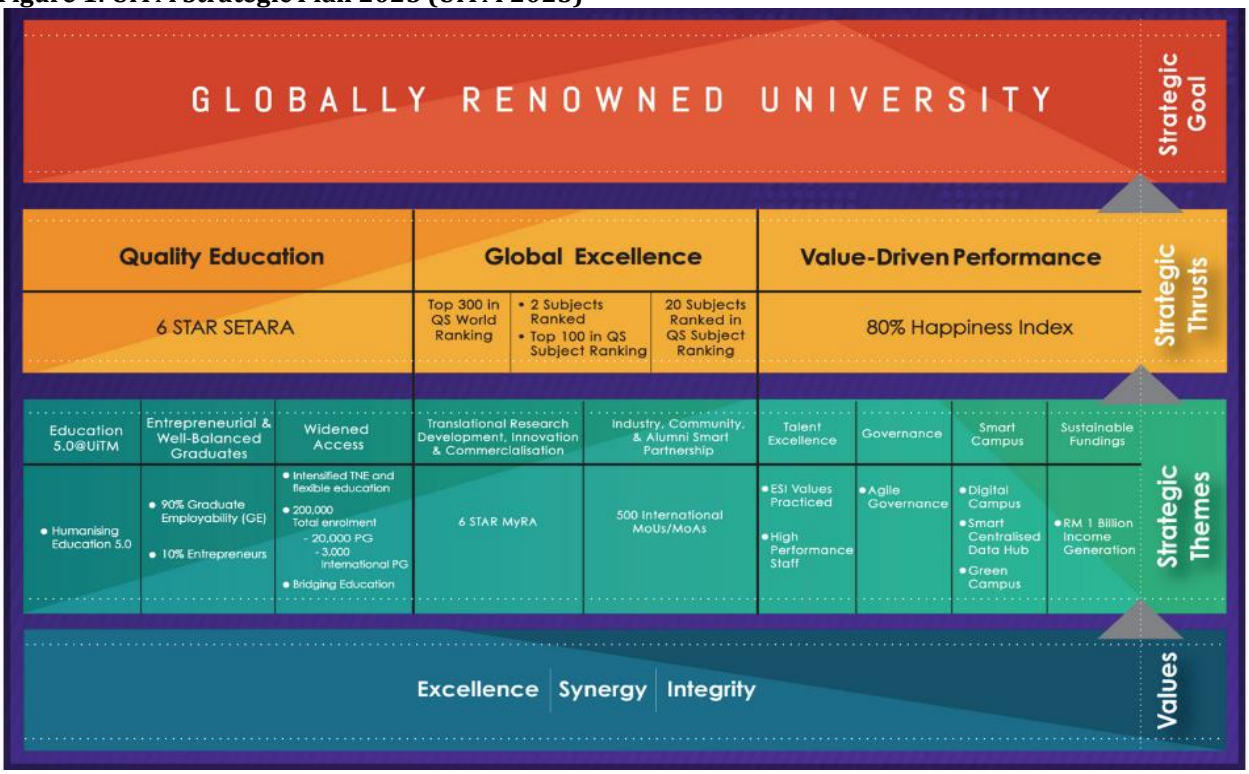
1. Introduction and Background

Academic performance is one of the main indicators in measuring the student's performance. Realizing this concern UiTM has highlighted 22 key initiatives (KI) in the UiTM Strategic Plan 2025 and the first initiative is focusing on students' academic quality. This project outlined the strategy to Embark on Forward Thinking Assessment for Student Learning Progress and Development through evidenced-based practice, data-driven learning, learning experience and learning analytics. The main objective of this strategy is to continuously enhance the quality of students' performance. Demonstrated in UiTM Strategic Plan 2025 (UiTM 2025) (Figure 1) the key initiatives its strategic goal UiTM aims at becoming Globally Renowned University by 2025. It anchors on three (3) Strategic Thrusts including Quality Education, Global Excellence and Value-Driven Performance. Then each strategic thrust is associated with identified Strategic Themes. Focusing on Strategic Thrust 1 UiTM has strategized six (6) areas of concern consisting of 6 STAR SETARA, 200,000 students' enrolment, Education 5.0, balanced student nurtured with ESI and I-DART values and entrepreneurial skill and mindset. All the areas will significantly contribute to the student's life-long learning process as well as their academic performance. The role as an academic institution UiTM continuously emphasizes the quality of teaching and learning activity.

Apparently, the teaching and learning approach is one of the factors that influence the academic performance of university students. Teaching and learning styles play a crucial role in the academic world. A well-developed teaching and learning styles can help students enhance their learning and thus encourage self-directed learning (Ab Razak, et al (2019). Educators should be able to recognize the crucial factors that positively contribute to the student's academic performance including the learning and teaching styles, environment, resources, technology, their level of knowledge, financial stability, personality and other influencing factors. Nevertheless, little attention is paid to the compatibility of the educators' teaching style with students' learning styles, which play a vital role in how much knowledge the students can gain from the material presented in class (Aldajah, Haik & Moustafa, 2014). Ramli (2020) states in his research, that a student who is in a learning environment that has access to reasonable infrastructure and environmental

services can learn comfortably to achieve better academic performance. Because of this situation, it is vital for the UiTM as the education provider to adapt to the newly emerged technology and review and change the curriculum into an integrated competencies curriculum and more active teaching-learning along with the changing era to improve and maintain students' high academic performance (Imran et al 2019).

Figure 1: UiTM Strategic Plan 2025 (UiTM 2025)



In June 2022, the Ministry of Higher Education Malaysia revealed that a total of 17,613 public university students dropped out, while 5,165 students stopped their studies without mentioning a reason in 2021. The ministry also added that personal or family issues, as well as financial difficulties, led to these circumstances (Free Malaysia Today, 2022). According to Amy, George, John and Cynthia (2017), lower academic achievement can lead to high dropout rates. The root causes of student academic struggles in Malaysia need to be addressed proactively and constructively to prevent low academic performance among its students. Based on the highlighted issues this study attempts to answer the following research hypothesis:

- H1a, There is a significant positive relationship between teaching and learning approaches and academic performance among respondents.
- H2a, There is a significant positive relationship between family and peer influences and academic performance among students.
- H3a, There is a significant positive relationship between student's financial and academic performance among students.

2. Literature Review

This study adapts the Theory of performance (Elger, 2012) and the Family Stress Model (Conger & Conger, 2002). Elger's theory intended to explain that many factors contribute to academic performance. As a result, an individual's performance level is particularly equal to the achievements, which encourages succession through grades. One of the components is "Environment"; one's surroundings generally affect individual performance. This would mean the environment surrounding an individual's life could impact one's performance ability, which is described as learning and teaching factors in this study. However, these

situations could have either a positive or negative influence. Also, a student's mental and physical well-being ishighlighted as being an aspect that contributes to performance (Elger, 2012).

According to Mallika et al. (2022), many researchers have shown an interest in investigating all the variables that influence students' academic performancein university, and many studies have attempted to establish a direct causal relationship between various factors and students' academic performance. Previous studies have highlighted various factors that impact academic performance, including teaching and learning approaches, family and peer influences, and the student's financial situation (Ab Razak et al., 2019). The family Stress Model suggests that financial problems can significantly influence individuals' well-being and functioning, including their academic performance for university students. This theory suggests that financial constraints and concerns create stress and strain on individuals, which can manifest in various ways that impact their educational outcomes (Conger & Conger, 2002). Financial issues can also affect students' access to educational resources and opportunities. For instance, students facing financial constraints may be unable to purchase necessary textbooks, attend extracurricular activities, or participate in internships or research opportunities that could enhance their academic performance.

Academic Performance: The term student academic performance can be described as how well a student is performing in their academic endeavors, such as their grades, test scores, and overall knowledge and understanding of the material (Hamann, Pilotti & Wilson, 2020). In Malaysia, higher educationsystems such as universities use Grade Point Average (GPA) as a means to measure student's grades for each semester based on marks calculated from each course taken. This grade is obtained by multiplying and dividing marks by number of credit hours taken. To calculate the rest of the semester, Cumulative Grade Point Average (CGPA) are measure of academic performance by the sum of total grade points for all semesters, divided by total credit hours for all course codes. As a recognition, students who excel in acquiring above GPA of 3.5 in a semester are awarded the 'Dean's Award' also known as 'Dean's Honors' and 'Vice Chancellor Award' as a reward for a CGPA of 3.5 at the end of the academic year.

However, this can differ according to the grading system in the university, for example, Universiti Malaya and Universiti Putra Malaysia allowa GPA of 3.7, with at least 15 credit hours to be awarded with 'Dean's Award', while Universiti Teknologi Mara and Universiti Malaysia Sarawak allows GPA 3.5 with at least 12 credit hours to be awarded (HEP Universiti Malaya Regulation, 2019; Universiti Malaysia Sarawak, n.d.). An excellent academic performance for university students is not just essential for meeting requirements in completing their studies; it also impacts on student's ability to apply knowledge in their chosen field and better transition into industry. Strong academic record can open doors to opportunities such as internships, scholarships, graduate programs or job opportunitiesand provide students with a competitive advantage over their peers (Camacho-Morles et al., 2021).

Teaching and Learning: Academic performance is thought to be significantly influenced by teaching and learning strategies, and it is acknowledged that these strategies can aid students in enhancing their learning and promoting self-directed learning. According to evidence, not everyone learns in the same way (Maya, Luesia, and Perez-Padilla, 2021). As stated by Kaufman (2018), "the beliefs held by teachers about their preferred ways of teaching and learning" are the conceptions about teaching and learning. These include what teaching and learning are, as well as what teachers' and students' duties are. Traditional and constructivist ideas of teaching and learning were divided into two categories by various academics. The traditional model, also known as teacher-centered teaching, emphasizes learning via obtaining knowledge from textbooks and teachers by viewing the teacher as a presenter of knowledge and the student as a recipient of knowledge or a passive learner. Contrarily, conceptual conception, also known as student-centered instruction, emphasizes the value of experience and active learning processes that foster discovery, collaboration, and critical thinking by treating the teacher as a mentor and the student as a willing participant.

Research shows that students and educational institutions must understand the ideal teaching and learning approaches. Students should customize these approaches to meet their distinctive learning demands because they typically have preferences for how they prefer to learn or comprehend a subject. Assessing students' ideal learning techniques or styles is crucial for enabling flexibility in educators' pedagogical approaches (Azlan et al., 2020). According to Kapur (2018), a positive learning environment fosters a sense of

involvement, safety, and belonging while supporting students' needs, interests, and ambitions. Numerous studies have employed standardized methods to recognize and comprehend the learning styles and preferences of their students, but none have examined the relationship between the teaching style and the unique preferences of the students and academic success. In addition, studies by Chetty et al. (2019) demonstratethat when teachers and students have similar approaches to learning, students learn more, retain more knowledge, and perform better.

Therefore, more research is required to examine the connection between the academic performance of university students and teaching and learning. Additionally, Newton & Salvi (2020) claim that one of the shortcomings of the study on teaching and learning techniques is the absence of analysis of the alignment of teaching and learning approaches. The purpose of this essay is to look into how academic achievement among university students and teaching and learning interact. The necessity of identifying the most productive teaching and learning modalities will be demonstrated to those working in the education sector and it will encourage further discussion in the classroom about the issues brought on by inadequate preparation of students' instruction and learning resources.

Family and Peers Influence: The influences of family and peers are important to university students as they may boost theiracademic performance. According to Jie, Xue, Wangshui, Gong and Zhiming (2018), students who have stronger social support from family and peers in the university have better academic achievements and a lack of social support from family and peers may contribute to mental healthdisorders, especially depression, among university students (Alsubaje et al., 2019), and this situation may affect their academic performance. Therefore, family and peers play a vital role byproviding social support that can inspire students to stay motivated to face all challenges andproblems associated with academics. As an impact, students will be motivated to work harderduring learning to improve academic performance. Additional research is necessary to test therelationship between family and peers' influences and student's academic performance.

Moreover, there is a need to investigate this issue because there has been a significant amountof research done by other countries mostly on the influence of family and peers on student's academic performance Olufemi, Adediran & Oyediran (2018). Thus, the purpose of this research is to investigate the university student academic performance which is affected by family and peers' influence factors. This research will show how family and peers influence university students' academic performance.

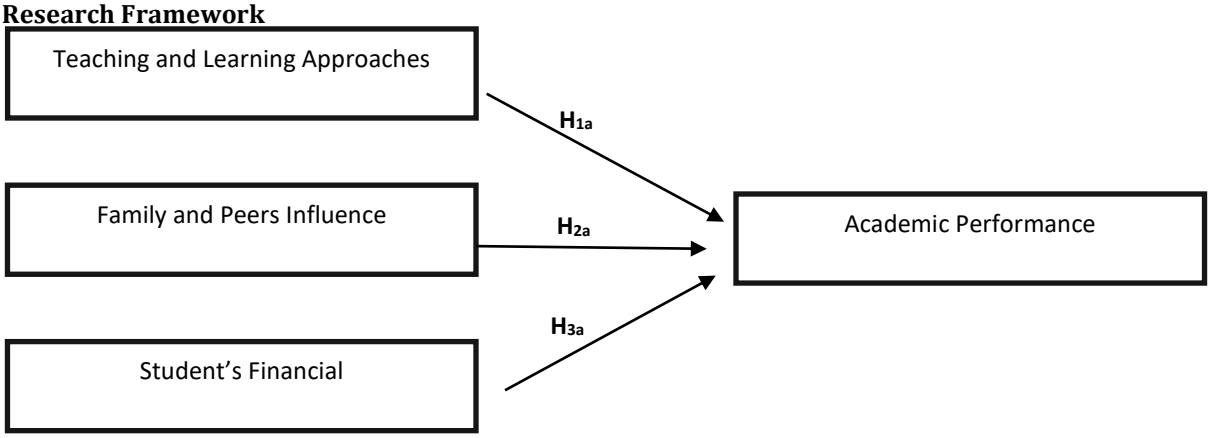
Students Financial: Sala (2022) defines financial problems for students as a circumstance in which the studentis unable to pay school fees in the short or long term. This situation is where individual stressesis being brought on by money worries. Financial hardship is something that many individuals aredealing with, and it may have a big influence on things like motivation, academic performance, and mental health. Next, student's financial problem also refers to the difficulties or challenges faced by students related to their financial circumstances including the inability to afford educational expenses, high tuition fees, living costs and other financial obligations associated with pursuing higher education (Perman, 2019). Student's financial problems including trouble paying tuition fees, a lack of financial help and living expenses, are the study's final independent variable. A student's financial problems can have a negative impact on a student's academic performance, according to various studies that have looked into the relationship between a student's financial problems and academics.

Financial stability has several benefits, including a sense of security and peace of mind. However, financial struggles are common and are expected to worsen among university students, particularly those who come from low-income families. In Malaysia, financial problems amonguniversity students are a major issue that must be solved since they contribute to a variety of problems, including health concerns and academic performance Norazla, Yusuf & Al-Majdhoub (2020). Financial difficulties among students have become worse these days due to the increased, cost of living. To survive, students must work part-time to support their living expenses. As a result, their bodies will be exhausted from work, and they will lose focus during class. According to otherstudies done in the Philippines, students who had financial difficulties would work part-time while studying to sustain their personal and school needs (Acbang et al., 2019).

This situation becomes worse when this financial problem affects their academic performance. Another study done by (Carréon et al., 2019) mentioned that students' finances are one of the factors that affect student's academic performance as it may lead to academic failure. Therefore, additional research is necessary to test the relationship between a student's financial and academic performance. In addition, there has been some research done on studentfinancial and academic performance in a few places, so there is a need to investigate this issue.Thus, the purpose of this study is to investigate university students' academic performance, whichis affected by student's financial factors. This research will show how students' finances affect university student's academic performance, which is the primary issue in this case.

Research Framework: The Research framework is a diagrammatical representation that shows the relationship between the constructs. The first component of the framework consists of teaching and learning approaches, family and peer influence and student finances which acted as the independent construct next the academic performance plays the role as a dependent construct.

Figure 2: Research Framework



3. Research Methodology

The collection of quantitative data was part of this investigation. Primary data and secondary data were the two categories of data sources that the researchers concentrated on. Based on the preliminary data obtained from the sample's self-administered questionnaire, the primary data was acquired. Additionally, to assist this research, researchers also consulted secondary data from sources including articles, the internet, and journals. The data was obtained from 497 of the population among students with Bachelor's Degrees in Health Administration (BA235). UiTM Puncak Alam. Then Krejcie and Morgan (1970) were applied to identify the required sample size. Based on the table numbers of required sample size for the available population is 111 students. Next to obtain the respondents' feedback a questionnaire with 25 items was adapted. Then all the feedback was analyzed using SPSS version 21.

4. Results

Table 1: Demographic Analysis

Section	Items	Frequencies	Percentage (%)
A- Gender	Male	21	18.9
	Female	90	81.1
B- Age	19-22 years old	36	32.4
	23-26 years old	75	67.6
C- Semester	1	10	9.0
	2	9	8.1
	3	12	10.8
	4	28	25.2
	5	52	46.8
D- CGPA	2.50-3.00	5	4.5

	3.01-3.5	46	41.4
	3.5 and above	60	54.1

Table 1 shows that 90 respondents (81.1%) are female, meanwhile 21 respondents (18.9%) are male. It also shows that 75 respondents (67.7%) were aged between 23 to 26 years old, followed by 36 respondents (32.4%) aged between 19 to 22 years old. Semester represents the semester the respondents are currently studying. The highest percentage is shown by Semester 5 with 52 respondents (46.8%), meanwhile, the lowest percentage isfrom Semester 2 with 9 respondents (8.1%). The remaining Semester 1 recorded 10 respondents (9.0%) and Semester 3 recorded 12 respondents (10.8%). In the context of Cumulative Grade Point Average (CGPA), it is shown that 60 respondents (54.1%), scored above 3.5 pointer, followed by 46 respondents (41.4%) scored between 3.01 to 3.5 pointer. The remaining 5 respondents scored between 2.5 to 3.00 pointers.

Table 2: Reliability Statistics

Variable	No. of Items	Cronbach's Alpha	Strength of Association
Teaching and learning approaches	5	0.773	Excellent
Family and Peer Influence	5	0.816	Excellent
Student's Financial	5	0.767	Excellent
Student's Academic Performance	5	0.806	Excellent

Table 2 represents the result of the reliability analysis for all constructs. The assessment of reliability showed all 25 items successfully achieved an excellent strength of association.

Table 3: Correlation Analysis

Construct		Academic Performance	Teaching and Learning Approaches	Family and Peer influences	Student's Financial
Academic Performance	Correlation Coefficient	1	.410**	.584**	-0.144**
	Sig. (2-tailed)		.000	.000	.132
	N	111	111	111	111

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

The relationship between teaching and learning approaches and student's academic performance among respondents shows in Table 3**.** The result revealed that there is a positive significant relationship between both variables ($r = 0.410$, $p = 0.000$, $p < 0.05$). The strength of the relationship between teaching and learning approaches and student's academic performance is a moderate relationship. The result indicates that the better the academic teaching and learning approaches, the better the student's academic performance.

Lastly, the relationship between students' financial and student's academic performance among respondents shows there is no relationship betweenstudent's financial and student's academic performance ($r = - 0.144$, $p = 0.132$, $p > 0.05$).

Table 4: Regression Analysis Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error ofthe Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.634[a]	.402	.385	.559	.402	23.962	3	107	.000	2.032

a. Predictors: (Constant), Mean_FINE, Mean_FANP, Mean_TANL
b. Dependent Variable: Mean SAP
F change: 23.962, Significant: 0.000, R^2 : 0.402

According to Table 4, the value of F change is 23.962 which is >1 and the significant valueis 0.000 which is less than the critical value (p<0.05) indicating that the regression model is fit (R Square = 0.402) shows that all the independent variables (teaching and learning approaches, family and peers influence and students financial) together explain 40.2% of the variance in student's academic performance. Another 59.8% of the variance is explained by other variables that are not covered in this study.

Table 5: ANOVA[a]

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	22.478	3	7.493	23.962	.000[b]
	Residual	33.459	107	.313		
	Total	55.937	107			

A. Dependent Variable: Mean SAP
b. Predictors: (Constant), Mean_FINE, Mean_FANP, Mean_TANL
F= 23.962, Sig = 0.000, Sig p value <0.05, F >1

Table 5 illustrates that the model is significant as the p-value is 0.000 which is less than the critical value (p<0.05). F statistics is 23.962 (F>1) indicating this model is fit. Hence the regression model is significant. It means there is a relationship betweenindependent variables and dependent variables.

Table 6: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.135	.457		2.486	.014
Mean_TANL1	.049	.125	.042	.390	.697
Mean_FANP	.647	.117	.589	5.513	.000
Mean FINE	-.076	.059	-.097	-1.285	.202

Based on Table 6, the largest beta coefficient is family and peer influence (β= 0.589, p=.000, /p<0.05) explains 58.9% of the variance of student's academic performances. This concludes that family and peers influence make the strongest contribution to explain student's academic performance. Teaching and learning approaches and student finances do not contribute to students' academic performance.

Discussion: Technically the analysis showed there is a moderate positive significant relationship (r=0.410) between the teaching and learning approach and academic performance among faculty of business and management students in UiTM Puncak Alam, Selangor. The p-value (p=0.00, p<0.005) which means that the coefficient is statistically significant. Thus, the hypothesis shows that there is a moderate positive significant relationship between teaching and learning approach and academic performance among faculty of business and management students in UiTM Puncak Alam, Selangor. The result also indicates that the better the teaching and learning approaches, the better the student's academic performance. Hence, hypothesis H1 is supported. It was supported by a study, which found significant evidence that the teaching and learning process was an important factor in the improvement of academic performance because it had a larger Beta value than other factors. Another study by Jayanthi et al (2014) found that effective teaching and learning strategies have been found to significantly enhance students' performance as measured by their cumulative grade point average (CGPA).

Then, the result shows that there is a moderate positive significant relationship (r=0.584) between family and peer influences and student academic performance between both variables. The p-value (p=0.000, p<0.05) shows that the coefficient is statistically significant. Thus, the hypothesis shows that there is a moderate positive significant relationship between family and peer influences and student's academic performance. The

result explained that the better family and peers influence, the better the student's academic performance. Hence, hypothesis H2 is supported. This analysis was by Ab Razak et al (2019), in which the study shows a positive relationship between family and peer influence and academic performance. Most researchers agree that students "academic performance with involvement or guidance by parents has a positive influence on the students. Finally, the result shows that r= -0.144 and the p-value is 0.132 more than p=0.05. This indicates that there is no significant relationship between student's financial and academic performance among respondents. The findings demonstrated that there is no relationship between students' financial and academic performance. Hence, this indicates that hypothesis H_3 has been rejected. It was supported by a study by Norazlan, Yusuf & Al-Majdhoub (2020). In which the study also shows a negative relationship between student financial and student academic performance. However, our findings contradict the study by Ab Razak et al. (2019), in which this study shows a positive relationship between student's financial and academic performance.

There are a few recommendations that can be used and utilized to improve student performance through excellent preparation of teaching and learning approaches. The first recommendation is to guarantee the accessibility of educational resources and building space. When the required learning resources are made available to students, they start to seek knowledge actively rather than being passive receivers of it. Next is to emphasize continuous assessment. It is crucial to continue to ask students for feedback on how their courses are goingto foster an environment that is favorable to an active learning approach. Active learning must be implemented with regular, accurate, and timely assessment. Next, to improve student's academic performance, family and peers also play an important role. Family should play an important role to make sure their children can performwell in their studies. The family should ask how their exam result and give them moral supportto their children. For peers, the student should find good peers. Peers are the ones who are alwayswith students through ups and downs while studying at the university. The student should find a peerwho always motivates them to study. Having these good peers, will influence students' efforts and thus have a good impact on students' academic performance.

5. Conclusion

UiTM ultimately demonstrates its commitment as stated in UiTM Strategic Plan 2025 (UiTM 2025) to secure its position among universities in the world. Consequently, constructing a comprehensive strategy to achieve the institutions' aims requires UiTM to provide and equip a constructive ecosystem for students, graduates and lecturers so that they have a global mindset and are competitive locally and internationally. Therefore, it is significant to understand the factors that affect Malaysian university students' academic performance. Academic performance is a crucial determinant of success in higher education and a crucial part of growth for individuals as well as for society. This activity is significant objectively in supporting the university's aims to become a leading global university of science, technology, humanities and entrepreneurship by 2025.

By identifying factors that influence academic performance, policymakers, educators and administrators can develop effective strategies and policies to enhance student achievement in higher education. This action is very important because from now it requires UiTM to proactively respond to changes and the current needs among its clients include the students' needs. Significantly this study identified the most critical factors that affect student academic performance and can help inform policies and interventions that address the teaching and learning that they operate, family and peer influences of university students, as well as students' financial specifically to achieve the objectives of UiTM Strategic Plan 2025 (UiTM 2025).

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Thematic Analysis to Measure Social Anxiety among Students

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Abstract: The occurrence of social anxiety among students in higher education has become a growing concern, necessitating a comprehensive understanding of effective assessment methods. To address this, a study was conducted utilizing thematic analysis to explain prevailing trends in the measurement of social anxiety. By analyzing ten scholarly articles sourced from the Web of Sciences (WOS) database, the research sought to identify common patterns and themes in the approaches employed to assess social anxiety. The findings of the thematic analysis highlighted several prevalent tools frequently utilized in assessing social anxiety, including the Liebowitz Social Anxiety Scale, the State–Trait Anxiety Inventory, the Social Interaction Anxiety Scale, the Social Anxiety Scale, the Social and Emotional Competencies Evaluation Questionnaire, and the Social Anxiety Scale. These established measurements signify essential resources for researchers and practitioners aiming to comprehensively evaluate social anxiety in university students. This comprehensive review of existing literature not only contributes to a deeper understanding of the methodologies employed in studying social anxiety but also emphasizes the importance of employing a variety of measurement techniques in future research endeavors. By incorporating these findings, scholars and mental health professionals can devise more tailored interventions and support mechanisms to address the growing concerns surrounding social anxiety within higher education settings.

Keywords: *Social Anxiety, Higher Learning Education, Anxiety, Thematic Analysis, Social Anxiety Scale.*

1. Introduction and Background

The COVID-19 pandemic is one of the factors that trigger anxiety and depression worldwide. The World Health Organization (WHO) published a scientific brief in 2022 stating that during the first year of the COVID-19 pandemic, the prevalence of anxiety and depression increased by 25% worldwide. 90% of the countries polled had previously incorporated mental health and psychosocial support into their COVID-19 response plans due to worries about potential increases in mental health issues. However, there are still significant gaps and worries. It is also reported that women are more severely impacted than men, and people with pre-existing physical health conditions are more likely to develop symptoms of mental disorders (WHO, 2022). In the United States alone, almost 15% of children and adolescents received mental health treatment in 2021. According to the statistics, 5.8 million children suffer from anxiety, while another 2.7 million suffer from depression (Kosmo, 2023). In Malaysia, the COVID-19 pandemic has significantly impacted all walks of life, especially those with pre-existing mental health and mental illness problems. 85.5% of the 145,173 calls received by government agencies from March 25, 2020, to May 20, 2021, involved mental health issues requiring emotional support and counselling, such as acute stress, anxiety, depression, abuse, and suicidal behavior.

The Ministry of Health Malaysia (MOH) reported that from January to December 2020, a total of 1,080 suicide attempts were reported in MOH hospitals (Roslan, 2021). Anxiety disorder is categorized into several types: a phobia of something, panic disorder, and social anxiety disorder. According to Datuk Dr. Andrew Mohanraj, President of The Malaysian Mental Health Association, about eight million people in the country aged 18 to 60 are diagnosed with anxiety or anxiety disorder, with female patients continuing to double that of men. However, the estimated eight million people may not have all the symptoms, but there are still one or two characteristics of anxiety (Adnan, 2023). Based on nationwide mental health screening conducted in 2022, The Federal Territory of Kuala Lumpur and Putrajaya recorded the highest rates of depression and anxiety disorders, which represented 70% of cases, followed by Johor (44%), Labuan (33%), and Sabah (23%). Terengganu (3%) and Kedah (6%), in that order, recorded the lowest percentage of cases in Kelantan (1%). From the 336,906 mental health screenings, 24,139, or 7.1% of cases, found depression symptoms, while

32,759 (9.7%) had anxiety symptoms that had already been treated with intervention and further treatment (Halid, 2023).

Based on the provided statistics, it is evident that the prevalence of social anxiety is a significant concern among young individuals. The phenomenon as mentioned above has the potential to exert a substantial influence on individuals' day-to-day experiences and impede their progress in social and emotional maturation (Law, 2022). According to Polat et al. (2022), social anxiety is a psychological condition characterized by excessive fear and apprehension in social contexts, which frequently leads to avoidance behaviors or intense discomfort during interpersonal interactions. The phenomenon might present itself in diverse manners, including challenges in public speaking, apprehension towards criticism or humiliation, and the tendency to avoid social events. To effectively treat and assist those who suffer from this condition, it is crucial to comprehend the fundamental themes and patterns associated with social anxiety in young people. Thematic analysis, as a qualitative research methodology, can provide valuable insights into the lived experiences, viewpoints, and coping strategies employed by young individuals grappling with social anxiety. By examining data collected from several studies and sources, scholars can discern prevailing patterns pertaining to social anxiety among young individuals.

2. Literature Review

Anxiety, a common mental health condition, affects individuals worldwide. Though mental health issues are prevalent, they remain underdiagnosed by healthcare providers (Iqbal et al., 2020). According to the National Health and Morbidity Survey 2019 in Malaysia, the prevalence of generalized anxiety disorder among adults is approximately 2.3%. However, it is important to note that this statistic may not fully capture the true extent of anxiety in Malaysia, as many cases go undiagnosed and unreported. Specifically, a recent study involving 1,821 university students across Malaysia revealed that the prevalence of anxiety among this population was as high as 29% (Mutang et al., 2021). This trend of high anxiety prevalence among university students is not unique to Malaysia, as studies conducted globally have shown similar findings (Lim et al., 2022; Mutang et al., 2021). Anxiety disorders often have their onset during adolescence, a crucial period of development. During adolescence, individuals are more susceptible to experiencing mental health disorders like anxiety, depression, and stress.

Social anxiety, also known as "social terror," is a common mental health issue that affects individuals in social interaction situations. It is characterized by the fear or apprehension of receiving negative evaluations from others, which can lead to negative experiences of anxiety (Lai et al., 2023). It is common for people with social anxiety to have negatively biased thoughts and persistent fears towards social situations and thus tend to avoid them (Abdollahi et al., 2022; Hirsch & Clark, 2004). Social anxiety is a common issue among undergraduate students that can have negative impacts on their academic performance and overall well-being. Numerous studies have highlighted the detrimental effects of social anxiety on students, including physical symptoms of anxiety, reduced cognitive functioning, and poor academic performance (Archbell & Coplan, 2022). The prevalence of social anxiety among undergraduate students in Malaysia is a concerning issue that warrants attention and support. The study on the prevalence of Social Anxiety Disorder among higher education students in Malaysia revealed that social anxiety is a significant mental health problem among undergraduate students. These students experience excessive fear of being negatively evaluated by others in social situations, which impacts their daily lives and interactions. The study found that the participants had experienced symptoms of social anxiety since childhood, although they only became aware of their disorder during their university years (Dialan & Almigo, 2021).

Social anxiety among undergraduate students can give rise to various issues and challenges, both academic and personal. Students with social anxiety might face difficulties in participating and engaging in classroom activities, such as speaking up during discussions or presenting in front of the class. They will also experience limited social engagement hence hindering students from concentrating and participating in group discussion that leads to lower academic performance and difficulty in completing assignments (Scanlon et al., 2020; Kim et al., 2022). This is because classroom environments are inherently social, thus, students with social anxiety will feel discomfort to communicate with others. Social anxiety can impact a student's ability to communicate effectively, which is a crucial skill for both academic and professional success. Teaching and learning

pedagogy used to enhance classroom engagement might also intensify anxiety (Archbell & Coplan 2022; Czekanski & Wolf, 2013). Social anxiety is also associated with maladaptive cognitive processes, social isolation and avoidance behavior in which students may avoid social gatherings and situations that trigger social anxiety as part of their coping mechanism (Kim, 2022; Campbell, 2016). This situation will affect students' ability to maintain meaningful social relationships lead to feelings of isolation and hinder their overall social development.

3. Methodology

Thematic analysis is a valuable approach in conducting literature reviews as it allows for the identification of patterns and themes within the selected subject matter (Riebschleger Grove, Cavanaugh, & Costello, 2017). By using thematic analysis, researchers are able to gain a comprehensive understanding of the topic by extracting key concepts and ideas from various sources. This method allows for the integration of findings from multiple qualitative studies, providing a comprehensive overview of the existing literature on a particular subject. Furthermore, thematic analysis is a flexible research method that can be used when other qualitative methods may not be suitable for the proposed work. The process of conducting a thematic analysis for a literature review typically involves several steps (Fadzil, Taib, & Ishak, 2021). First, researchers must define the specific theme or topic they wish to explore. This could be focused on a specific discipline or field of study, or it could be a broader theme that spans across multiple disciplines. Once the theme is identified, researchers conduct a thorough literature search to gather relevant studies and articles. These studies are then analyzed using the thematic analysis approach, which involves a systematic coding and categorization of the data (Lai, Deber, Jadad & Kuziemsky, 2021). This process aims to identify recurring patterns, concepts, and themes within the literature. The thematic analysis approach is particularly useful in identifying and comparing the use of key concepts across different studies. This method allows researchers to uncover common themes and variations in how certain concepts are understood and utilized within the literature. Thematic analysis also provides a structured and organized way to synthesize and summarize the findings from multiple qualitative studies (Naidoo et al., 2018). By conducting a thematic analysis, researchers are able to identify and highlight key ideas and patterns presented within the literature sources.

In this paper, there are 10 journal articles extracted from Web of Science (WOS) library databases and aims to explore the several measurements used in recent research in the range of 2022 and 2023. The finding as shown in Table 1 depicts the sources of the information extraction and there are different measurements to examine the social anxiety among university students. The findings discussion will be further explained in the next discussion.

Table 1: Factors of Social Anxiety

No	Journal Sources	Sources	Year	Measurement	References
1	The relationship between social anxiety and academic engagement among Chinese college students: A serial mediation model. Journal of Affective Disorders, 311, 247-253.	WOS	2022	The Liebowitz Social Anxiety Scale (LSAS) was used to assess social anxiety symptoms (Liebowitz, 1987).	Mou, Zhuang, Gao, Zhong, Lu, Gao, & Zhao, (2022).
2	Social Support and Post-Injury Depressive and Anxiety Symptoms among College-Student Athletes. International Journal of Environmental Research and Public Health. 2022; 19(11):6458. https://doi.org/10.3390/ijerph19116458	WOS	2022	State-Trait Anxiety Inventory (STAI), (Spielberger, C.D.; Gorsuch, R.L.; Lushene, 1970; 1983)	Sullivan L, Ding K, Tattersall H, Brown S, Yang J, (2022).
3	Peer coach support in internet-based cognitive behavioral therapy for college students with social anxiety disorder: efficacy and acceptability, Cogent	WOS	2022	The Social Interaction Anxiety Scale (SIAS-6; Peters et al., 2012)	Chandra L. Bautista, Allura L. Ralston,

	Psychology, 9:1, 2040160, DOI:10.1080/23311908.2022.2040160				Rebecca L. Brock & Debra A. Hope (2022)
4	Courage: A Potential Mediator of the Relationship Between Personality and Social Anxiety. Psychol Stud 67, 53–62 (2022). https://doi-org.ezaccess.library.uitm.edu.my/10.1007/s12646-022-00641-2	WOS	2022	The Liebowitz Social Anxiety Scale (Heimberg et al., 1999)	Abdollahi, A., Ahmed, A.A.A., Suksatan, W. et al. (2022)
5	The association between flipped learning readiness, engagement, social anxiety, and achievement in online flipped classrooms: structural equational modeling. Education and Information Technologies, 27(8), 11781-11806.	WOS	2022	The SASE was developed by Keskin et al., (2020)	Polat, E., Hopcan, S., & Arslantaş, T. K. (2022).
6	Height dissatisfaction and loneliness among adolescents: the chain mediating role of social anxiety and social support. Current Psychology, 1-9., https://doi.org/10.1007/s12144-022-03855-9	WOS	2022	The Social Anxiety Scale for Adolescents (SASA; La Greca & Lopez, 1998)	Mo, Q. Z. L., & Bai, B. Y. (2022).
7	The Effect of Appearance Anxiety on Social Anxiety among College Students: Sequential Mediating Effects of Self-Efficacy and Self-Esteem. Behavioral Sciences, 13(8), 692.	WOS	2023	Social Anxiety Scale, which was compiled by Peng and Gong (2004).	Liao, J., Xia, T., Xu, X., & Pan, L. (2023).
8	Can a Universal School-Based Social Emotional Learning Program Reduce Adolescents' Social Withdrawal and Social Anxiety? J. Youth Adolescence 52, 2404–2416 (2023). https://doi-org.ezaccess.library.uitm.edu.my/10.1007/s10964-023-01840-4	WOS	2023	Social and Emotional Competences Evaluation Questionnaire (QACSE; Coelho, Sousa, et al., 2015)	Sousa, V., Silva, P.R., Romão, A.M. et al. (2023).
9	The double-edged sword effect of social networking use intensity on problematic social networking use among college students: The role of social skills and social anxiety. Computers in Human Behavior, 140, 107555.	WOS	2023	Social Anxiety Subscale for Self-Consciousness Scale (SASS-CS) (Fenigstein et al., 1975).	She, R., han Mo, P. K., Li, J., Liu, X., Jiang, H., Chen, Y., & fai Lau, J. T. (2023).
10	The relationship between social anxiety and self-injury of junior high school students: Mediation by intolerance of uncertainty and moderation by self-esteem. Front. Public Health 11:1046729.doi:10.3389/fpubh.2023.1046729	WOS	2023	The Social Anxiety Scale (SAS) is a subscale derived from the self-awareness scale compiled by Fenigstein et al. (1975).	Yao Z, Pang L, Xie J, Shi S and Ouyang M (2023)

4. Results and Discussion

From the above discussion, there are 10 approaches of journal articles that measure social anxiety among students in higher learning education. Researchers may use the approaches and choose the appropriate to produce a significant result to measure society's anxiety.

The Liebowitz Social Anxiety Scale (LSAS): The Liebowitz Social Anxiety Scale (LSAS) was used to assess social anxiety symptoms. LSAS has a 24-item scale that measures the level of fear and avoidance of social situations on a 4-point Likert. The fear scale assesses levels of intensity ranging from 0 (none) to 3 (severe fear), while the avoidance scale assesses the frequency of avoidance ranging from 0 (never) to 3 (usually). The total score in the study was created by summing all the fear and avoidance scores, with higher scores reflecting more severe social anxiety symptoms. The Chinese version of LSAS has been validated in previous studies with good reliability and validity (Li, 2018). The Cronbach's α of LSAS in the study was 0.97.

State–Trait Anxiety Inventory (STAI): The State-Trait Anxiety Inventory (STAI) is a psychological assessment tool comprising 40 items. Spielberger, Gorsuch, and Lushene developed STAI in 1970 and 1983. The inventory includes two distinct measures: state anxiety, which is assessed using 20 items, and trait anxiety, which is assessed using 20 items. The scale has demonstrated internal consistency coefficients ranging from 0.86 to 0.95, indicating a high level of reliability. Additionally, test-retest reliability coefficients have been observed to range from 0.65 to 0.75 across a 2-month interval, further supporting the scale's reliability. The trait anxiety subscale measures an individual's general emotional disposition towards different situations that can potentially affect anxiety levels. This assessment uses a 4-point Likert Scale, where respondents indicate their frequency of experiencing these emotions, ranging from "never" to "always" on a scale of 1 to 4. The state-anxiety subscale requires participants to assess their current emotional state about circumstances that could impact their anxiety levels. Participants rate each event on a 4-point Likert scale, ranging from 1 (not experiencing any anxiety) to 4 (experiencing a high level of anxiety). A composite trait-anxiety score (with a potential range of 20–80) and state-anxiety score (with a potential range of 20–80) were computed by summing the responses for each item within their respective subscales. Higher scores on these scales indicate a higher level of anxiety.

The Social Interaction Anxiety Scale: The Social Interaction Anxiety Scale (SIAS) was derived from the study by Peter, Sunderland, Andrews, Rapee, and Mattick (2012). The Social Interaction Anxiety Scale (SIAS) assesses individuals' levels of fear towards general social interactions, employing a Likert-type scale of five points. The SIAS-6 has demonstrated comparable levels of internal consistency (Cronbach's α = 0.90), reliability, and sensitivity compared to the extended version of the assessment tool reported by Peters et al. (2012). The scores ranged from 0 to 24, whereas higher scores indicated greater social anxiety.

Social Anxiety Scale (SASA)

The researchers employed the Social Anxiety Scale for teenagers was derived from the study by La Greca & Lopez, 1998) as a means of assessing social anxiety in teenagers. The participants provided ratings using a five-point Likert scale ranging from 1 (not at all) to 5 (all the time). In the current investigation, the value of Cronbach's alpha provided is 76.

Social Appearance Anxiety Scale: The Social Appearance Anxiety Scale was used to examine the overall level of appearance anxiety among college students which has good reliability and applicability in studies of Chinese student populations (Li, 2020). The scale uses a 5-point scale (1 = strongly disagree, 5 = strongly agree) and has a total of 16 items. The internal consistency coefficient of the scale in this study was 0.94.

Social and Emotional Competences Evaluation Questionnaire (QACSE): In their study, the researchers utilized the social anxiety and social disengagement subscales of the Social and Emotional Competences Evaluation Questionnaire (QACSE; Coelho, Sousa, et al., 2015). The subscales consist of seven items, specifically addressing social anxiety and withdrawal. The offered items are formulated as declarative statements, intended to be evaluated using a four-point rating scale ranging from 0 (representing "Never") to 3 (representing "Always"). The questionnaire was validated for its applicability among teenagers aged 11 to 16. This validation process involved the use of exploratory and confirmatory factor analyses.

The Social Anxiety Scale (SAS): The researchers utilized the Social Anxiety Subscale for the Self-Consciousness Scale (SASS-CS) as a tool to assess the level of subjective anxiety experienced by individuals, as well as their challenges in expressing themselves linguistically and behaving in social situations. The instrument comprises six elements that are assessed using a five-point Likert scale, with response options

ranging from 1 to 5. The range of total scores spans from 6 to 30, with higher scores denoting elevated levels of social anxiety. In the present investigation, the SASS-CS demonstrated Cronbach's alpha and McDonald's omega values of 0.76 and 0.80, respectively.

5. Conclusion

Social anxiety is a prevalent issue among undergraduate students in Malaysia, with a significant impact on their academic performance, personal relationships, and overall well-being (Mazelan & Choi, 2022). Awareness of social anxiety among undergraduate students in Malaysia is crucial to provide support and appropriate intervention. Creating awareness about social anxiety is essential to ensure that society and educational institutions are more sensitive and do not overlook the mental health-related challenges faced by students with social anxiety disorder (Isa et al., 2021). By raising awareness, educational institutions can implement strategies to support students with social anxiety and create an inclusive environment. Furthermore, universities in Malaysia need to provide appropriate treatment and support for students struggling with social anxiety. This research implies to the researchers to further examine the social anxiety among different settings of the research area.

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Determinants of Consumers' Willingness to Purchase Generic Medicines

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Abstract: In Malaysia healthcare costs have posed challenges to the sustainability of the country's dual healthcare system, it is crucial to learn about the factors influencing consumer preferences for generic medicines. The public healthcare system predominantly uses generic drugs, private healthcare providers often prescribe originator brands to their patients. This practice places financial burdens on patients who must fund their medication independently or through private medical insurance. Therefore, the main objective of this paper is to investigate the determinants affecting consumers' willingness to purchase generic medicine in Malaysia. Using convenience sampling, a total of 436 responses was obtained. Descriptive statistics and bivariate logistic regression analysis were employed to examine the influence of sociodemographic factors and individual knowledge on the willingness to purchase generic medicine. The results indicate that age, ethnicity, marital status, education level, household size and income significantly influence the consumers' willingness to purchase generic medicine. Notably, higher education levels and greater income were associated with a higher willingness to opt for generic medicine. Unexpectedly, variables measured by the Theory of Planned Behavior did not contribute substantially to the findings of this study. Nonetheless, individual knowledge was revealed as a significant determinant. To increase the uptake of generic medicines, this study recommends educational programs for both healthcare providers and patients, emphasizing the benefits and safety of generic medicine. Additionally, future research should consider employing a large sample size to ensure adequate representation of the population, and to employ random sampling methods to minimize sampling bias. This research contributes to the broader discussion on cost-effective healthcare solutions and informs policymakers and healthcare stakeholders in Malaysia.

Keywords: *Generic Medicine, Purchase Intention, Knowledge, Attitude, Subjective Norm, Perceived Behavioral Control*

1. Introduction and Background

Generic medicine has been one of the alternative medicines available for patients along with the originator's brand. In developing countries such as Malaysia, the cost of medicine has become a hindrance to the efficient reform of the heavily subsidized healthcare system. The high cost of medicine has put pressure on the dual healthcare system such as ours to sustain in the long run. Although the use of generic medicine is wider in the public healthcare system, most private healthcare providers tend to prescribe the originator's brand to their patients. While the consumers in private health care could pay with either their own out-of-pocket money or private medical insurance, in the long term, such a practice will burden those seeking to fund the cost of medicine individually. Consequently, this may force them to seek healthcare services in public healthcare settings thus increasing the number of visits to public healthcare facilities that are already in a dire state. This study seeks an understanding of determining factors influencing willingness to purchase generic medicine among consumers. By so doing, we are able to justify the private healthcare setting to start prescribing more generic medicine to their patient thus saving the consumer's pocket money to fund their medicine needs.

2. Literature Review

Willingness to purchase is a consumer readiness to consider entering purchase activity. Various individual sociodemographic factors were said to affect purchasing behavior. In a study that examines purchasing decisions towards green products, it was found that respondents' age, education, the number of children

under responsibility and personal income status affect the purchase decision (Witek & Kuźniar, 2021). Age and gender are also considered common factors influencing purchase intention. In the frozen food purchasing decision study, additional elements such as attitude, belief and values were found to affect individual decision-making in purchase activity (Sen et al., 2021). This finding is well supported by behavioral-related studies in various literatures (Bosnjak et al., 2020; Dzulkipli et al., 2019; Dzulkipli et al., 2017). In addition to the behavioral elements, individual knowledge status and awareness of issues and trends play significant roles in determining individual purchase decisions (Dangi et al., 2020). Reading the information about the products and labels also contributes to the purchase intention of the consumer, reflecting the level of awareness of the products influences purchase decisions (Coderoni & Perito, 2020). This shows how the individual's knowledge and awareness of the products and services are important elements that must be equipped to the consumer to prepare them to engage in the purchasing activity. In another study involving potential 'green housing' home buyers, it was found that there was no correlation between sociodemographic factors and the purchase intention, but an individual's behavior was statistically significant to the purchase intention as measured by a specific index (Rosner et al., 2022). The finding provides evidence of how the knowledge acquired by the individual shapes the behavioral attitude and purchasing decision.

Furthermore, the application of the Theory of Planned Behavior (TPB) is tested in the study. The theory of Planned Behavior (TPB) consists of three dimensions that are commonly cited by researchers. The three dimensions or variables in the said theory are attitude, subjective norms, and perceived behavioral control (Ajzen, 1985, 1991; Ajzen & Driver, 1992). Attitude is shaped and developed through an individual's personal experience from one or series of events in their life (Ajzen, 1991; Montano & Kasprzyk, 2008). The experience can be either positive or negative experiences which shape how the individuals decide their lives (Dzulkipli et al., 2019; Jinnah et al., 2020). For subjective norms, it is a projection of an individual's influence surrounding their relationship with family and friends (Ajzen, 1991; Bosnjak et al., 2020). For example, parents' way of raising their children may influence their children's perceived views of certain issues. Every family would have different ways of teaching their children. This is translated as a long-term relationship influenced by closest family and friends. Finally, perceived behavioral control explains individual self-measurement of their ability to perform the behavior. One way to explain the variable is our self-evaluation as to whether we have the means to commit the behavior. For example, when we are willing to purchase goods or services, the individual needs to possess the required amount of income/ money to enable us to purchase the goods or services (Ajzen, 2020; Montano & Kasprzyk, 2008).

The individual's knowledge may impact the purchase of generic medicine. Knowledge about the goods and services can be obtained via freely available information from many sources such as the Internet or consultation and recommendations from the medical practitioner. Sustainable knowledge acquisition about goods and services plays an important role in determining an individual's behavioral intention (Kong et al., 2016). In a study about consumer behavioral intention to stay in green hotels, it was evident that positive knowledge possession influences behavioral intention and willingness to engage in the purchase activity (Teng et al., 2018). A similar result has been discussed in other literature which ratifies the indirect effects of knowledge on behavioral intention (An et al., 2023).

3. Methodology

A total of 436 (87%) out of 500 potential survey respondents were obtained. Data collection took place at the retail pharmacy located in Klang Valley. Convenience sampling was used, and questionnaire forms were developed to elicit the responses from the respondents. Upon agreement to participate, the site investigator distributed the questionnaire forms to the respondents to answer on their own. For data analysis, descriptive statistics were performed on the respondent's profiles. To determine the factors affecting willingness to purchase generic medicine, a bivariate logistic regression analysis was performed. The logistic regression model included sociodemographic variables of the respondents, knowledge, attitude, subjective norms, and perceived behavioral control. These variables were regressed together with purchase intention, as an outcome variable, to produce the logistic regression estimates. All reported p-values were 2-tailed, and the significance level was set at $P < .05$. Stata Statistical Software: Release 14.2 (StataCorp LP, College Station, TX) was used to analyze the data.

4. Results

Demographic profiles of the respondents: Table 1 depicts the profile of respondents in the study. Most respondents in the study were 29 years old or younger (70%). Female respondents (64%) dominated the total number of the total participants with the majority of the respondents being Malay and single (74% and 70% respectively). The majority of the respondents reported having at least an undergraduate degree as their highest education certificate (39%) and reported their household sizes between 1 – 2 people (45%). None of the respondents reported having no education with at least 16% of the respondents reporting having at least a certificate as their educational background. In addition, most of the respondents reported monthly income in the range of below MYR2,500 per month (62%).

Table 1: Demographic profiles of the respondents (N=436)

Characteristics	
Age, n (%)	
≤ 29 years old	306 (70)
30 – 40 years old	74 (17)
41 – 50 years old	50 (11.5)
≥ 51 years old	6 (1.4)
Gender, n (%)	
Female	276 (64)
Male	160 (37)
Ethnicity	
Chinese	54 (12.4)
Indian	60 (13.8)
Malay	322 (73.8)
Marital status, n (%)	
Single	306 (70.2)
Married	130 (29.8)
Education, n (%)	
Certificate	70 (16.1)
Diploma	158 (36)
Undergraduate	170 (39)
Postgraduate	38 (8)
Household Size, n (%)	
1 - 2 people	198 (45)
3 - 4 people	146 (34)
≥ 5 people	92 (21)
Monthly Income, n (%)	
≤ MYR2,500	272 (62)
MYR2,501 – MYR3,500	96 (22)
MYR3,501 – MYR4,500	42 (10)
MYR4,501 – MYR5,500	16 (4)
≥ MYR5,501	10 (2)

Factors Affecting Willingness to Purchase Generic Medicine: Table 2 shows the result of logistic regression analysis which examines the influence of sociodemographic variables of the respondents on the willingness to purchase generic medicine. The model included respondents' demographic characteristics, knowledge of generic medicine as well as variables that were measured by TPB (attitude, subjective norms & perceived behavioral control). The result of the Hosmer-Lemeshow test indicates the model has an appropriate fit ($\chi 2$ = 11.02 p = 0.2005) (Archer & Lemeshow, 2006; Fagerland & Hosmer, 2012), with a reported r-square of 0.20.

Table 2: Factors Affecting Willingness to Purchase Generic Medicine

Factors	Odds Ratio	Standard error	z	p-value
Age				
≤ 29 years old	Ref.	-	-	-
30 – 40 years old	5.667	2.372	4.14	<0.001*
41 – 50 years old	15.515	9.087	4.68	<0.001*
≥ 51 years old	21.610	22.485	2.95	0.003*
Gender				
Female	Ref.	-	-	-
Male	1.527	0.420	1.54	0.123
Ethnicity				
Chinese	Ref.	-	-	-
Indian	0.061	0.034	-4.91	<0.001*
Malay	0.493	0.228	-1.53	0.127
Marital status				
Single	Ref.	-	-	-
Married	0.490	0.165	-2.12	0.034*
Education				
Certificate	Ref.	-	-	-
Diploma	2.867	1.112	2.72	0.007*
Undergraduate	2.886	1.118	2.74	0.006*
Postgraduate	3.759	2.221	2.24	0.025*
Household Size				
1 – 2 people	Ref.	-	-	-
3 – 4 people	1.071	0.335	0.22	0.825
≥ 5	2.156	0.753	2.20	0.028*
Income				
≤ MYR2,500	Ref.	-	-	-
MYR2,501 – MYR3,500	0.477	0.148	-2.38	0.017*
MYR3,501 – MYR4,500	0.201	0.085	-3.78	<0.001*
MYR4,501 – MYR5,500	0.740	0.579	-0.38	0.701
≥ MYR5,501	0.113	0.138	1.79	0.070
Knowledge	2.781	0.848	3.35	0.001*
Attitude	1.406	0.411	1.16	0.244
Subjective Norm	1.068	0.510	0.28	0.783
Perceived Behavioral Control	1.683	0.002	1.72	0.086

* Significant at $p < 0.05$, $R^2 = 0.2031$

The result in Table 2 shows that age, ethnicity, marital status, education level, household size, income, and individual knowledge affect respondents' willingness to purchase generic medicine. As for age, a stepwise increase in the odds ratios was observed among age groups. The older the age category, the more likely the respondents were willing to purchase generic medicine. The willingness of respondents in the oldest age group to purchase generic medicine was 21 times higher than the willingness of respondents in the youngest age category (OR 21.61, $p = 0.003$). On the contrary, Indian respondents were less willing to purchase generic medicine when compared to Chinese respondents (OR 0.061, $p < 0.001$). The finding was similar when marital status was compared. Married respondents had lower odds of purchasing generic medicine when compared to unmarried respondents (OR 0.490, $p = 0.034$). All levels of education showed statistically significant findings, and the odds ratios increased in tandem with the increase in educational level. Those with postgraduate degrees were 3 times more willing to purchase generic medicine than those with the lowest education level (OR 3.759, $p = 0.025$). Although income groups of MYR2,501 – MYR3,500 and MYR3,501 – MYR4,500 were significantly correlated to the willingness to purchase, odds ratios suggest the respondents were less willing to purchase generic medicines when compared with those respondents in the lowest income brackets (≤ RM2,500). None of the TPB variables was found to contribute to the respondents' willingness to purchase generic medicine. However, knowledge was found to significantly influence an individual's willingness to purchase generic medicine (OR 2.781, $p = 0.001$). This finding suggests that those

respondents with knowledge of generic medicine were 2 times more willing to purchase generic medicine than those without such knowledge.

Discussion: The findings of the study highlighted essential characteristics of the respondents that influence the willingness to purchase generic medicine. Factors such as age, respondent's ethnicity, education, household size and monthly income influence participant's willingness to purchase generic medicine. This is consistent with the current body of literature documenting similar evidence (Sen et al., 2021; Witek & Kuźniar, 2021). The influence of knowledge on the willingness to purchase reported in this study is also similar to the findings of previous studies that found a positive correlation with behavioral intention (Coderoni & Perito, 2020; Dangi et al., 2020; Rosner et al., 2022). However, none of the TPB variables was found to correlate with the willingness to purchase generic medicine as evidenced in a few literature reviews (Dzulkipli et al., 2017; Malathi & Mohamed Jasim, 2023; Siuki et al., 2019). This is in contrast with a few behavior-related studies conducted in the past. The differences might be attributed to the distinct personal health status of the consumer and the nature of the disease and health care needs.

5. Conclusion

More education and awareness programs should be organized to increase the population's awareness of generic medicine selection as the first choice among users of healthcare services. The healthcare stakeholders such as doctors who prescribe the medicine, and the patients who receive the medicine prescribed by the medical professionals, should be provided with sufficient training and incentives to prescribe generic medicine to their patients and educate the patients of the generic medicine regarding the consumption impact to their lives from bioequivalence safety to the cost differences they must bear between the generic and original brand medicines. It is hopeful, that by opting for a generic medicine to fulfill the population's health needs, we can further reduce the public's coffer spending on the cost of medicine in Malaysia's healthcare system. The study, however, lacks representative sampling from the population. Convenience sampling employed might have skewed the data to the younger generation leaving the older generation with a small representation. Future studies shall employ random sampling to allow for fairer and more representative sampling from the targeted population as well as to minimize the effects of sampling and selection bias.

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Assessing Event Volunteer Motivational Factors and Quality of Life among University Students

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Abstract: Volunteerism is a selfless and altruistic act of individuals dedicating their time, skills, and resources to support various causes and organizations without financial compensation. Hence, this paper aims to propose a conceptual framework for event volunteer motivation among university students and its impact on quality of life. Motivational factors measured by the volunteer motivational scale were proposed as independent variables, and quality of life as the dependent variable. This variable will regress to identify the relationship between quality of life among university students. The motivation to engage in volunteer work significantly impacts an individual's quality of life. However, few studies have been conducted on the impact of volunteering activities on quality of life. Therefore, this study aims to develop a quality of life framework by considering event volunteer's motivation as independent variables. This study will take place at Universiti Teknologi MARA (UiTM), Puncak Alam Campus whereby students from this university who already experience becoming volunteers will be involved as respondents. It is hoped that the contingency model of sports event volunteer motivation that is developed through this study will contribute to a better understanding of volunteerism and quality of life among students in higher institutions. Encouraging volunteering activities will educate youths to become responsible citizens by practicing a positive quality of life.

Keywords: *Volunteerism, Event Volunteer, Volunteer Motivation, Quality of Life*

1. Introduction and Background

Volunteerism is a powerful and selfless expression of community engagement and civic responsibility. It involves individuals dedicating their time, skills, and energy to support various causes, organizations, or initiatives without expecting financial compensation. Whether it's lending a helping hand during a crisis, working on long-term projects, or contributing to the betterment of society, volunteerism plays a vital role in shaping our communities and fostering a sense of collective responsibility. Event volunteerism in Malaysia is a significant and growing phenomenon. Not only in Malaysia, this activity becomes a global trend and the demand for volunteers, especially in special events, shows how significant they are in this industry (Ahmad, et. al., 2020). This is because volunteering activities are considered a wonderful way to give back to your community and make a positive impact. Whether small-scale to large-scale events, event organizer relies on volunteers' contribution to event operation for successful event hosting (Senevirathna et. al., 2023).

In 2011 the former minister of Higher Education, Datuk Seri Hj. Mohamed Khaled Nordin stated that students need to actively participate in social activities and volunteering programs to mold strong characters and valuable human capital for the country (Nordin 2011). A year later, the Malaysian government allocated RM100 million for the 1Malaysia for Youth (1M4U) Volunteer Fund million (Carvalho & Ahmad, 2012); the government hoped to inculcate the spirit of volunteerism, particularly among youth to build a more developed and progressive Malaysia. Apart from that, the government of Malaysia also used volunteerism activities as a medium to change Malaysian's social attitude and values, especially among youth. According to Pah et al. (2017), the spirit of volunteerism among students is required by the state which reflects the identity and spirit of responsible citizens. Meanwhile, Mirsafian & Mohamadinejad (2012) stated that college students are a group that actively participate as a volunteer in an event and give a positive result on social growth.

However, the increasing demand and competitive market in the industry for event volunteers make it hard for the event organizer to recruit volunteers due to inconsistent participation in voluntary programs (Hamzah et al., 2015; Mirsafian & Mohamadinejad, 2012). Therefore, many reasons that influence the

decision to initially volunteer and factors that should influence the way event volunteers returned also show that the perceived behavioral regulation is the best indicator and the effectiveness of a volunteer program is determined by selecting the right volunteers, putting them in the right roles, and maintaining them by a successful management. Hence, the event organizer must understand the motive of volunteer to ensure that suitable opportunities are provided to ensure satisfaction (Lamb & Ogle, 2019). Event organizers need to find the reason for volunteering in the event, as the motives change depend on the size and characteristics of activities (Ahn, 2018). Understanding volunteer motivation is essential for organizations and volunteer coordinators as it can help them attract, retain, and effectively manage volunteers. Without volunteers, the organization cannot survive (Ahmad et al, 2020). By tapping into these motivations and providing a supportive and rewarding environment, organizations can foster long-lasting volunteer engagement and ultimately achieve their missions more effectively.

2. Literature Review

Volunteerism: Volunteerism generally refers to the act of giving without expecting any return. If social workers get paid for their work, volunteers offer their time and skills without monetary compensation (Sahri et al., 2013). In Malaysia, volunteerism has been recognized as an important aspect of community development and social welfare (Bakri et al., 2021). Moreover, volunteers contribute their skills, time, enthusiasm, moral responsibility, and local awareness to support various social and community initiatives (Hidzir et al., 2021). Event volunteerism in Malaysia plays a vital role in organizing and executing a wide range of events, including cultural festivals, sports competitions, charity fundraisers, and community outreach programs. The significance of volunteerism in Malaysia can be seen through the various events and activities that rely on volunteers (Kamarudin et al., 2020).

Event Volunteers: Volunteer activities are crucial and their contribution that leads to the success of an event can't be denied by others. Involving volunteers in an event will significantly reduce the cost of event operation. Therefore, the vital services offered by event volunteers in event operations have caused a requisite to understand the event volunteer better (Kim et al., 2020). Volunteering can be defined as an action or activity in which time is given freely without expecting any return (Sahri et. al., 2013) to benefit another person, group, or organization (Wilson, 2000). Meanwhile, Holmes et. al. (2010) defines volunteering as a non-salaried service that requires an obligation in terms of time, effort and skills development. The biggest challenges faced by event organizers are recruiting and retention (Senevirathna et. al., 2023); whereas the previous study conducted by Holmes et al. (2022) stated meeting the volunteer expectation is important to ensure the retention for future events.

Volunteer Motivation: Volunteer motivation plays a crucial role in predicting future volunteering intentions (Senevirathna et al., 2023), where volunteer motivation significantly influences an individual's intention to continue volunteering in the future. Jung & Ha (2021) stated volunteers who are motivated by a sense of purpose and fulfillment is more likely to have future intentions to continue volunteering. Furthermore, other studies have shown that volunteers who are motivated by the opportunity to make a difference or contribute to a cause are more likely to have higher intentions of volunteering in the future (Cho et al., 2020). Understanding and nurturing volunteer motivation can be an effective strategy for organizations to retain and foster long-term commitment (Gudzinskiene & Kurapkaitiene, 2022). In addition, factors such as ability and opportunity also impact an individual's future volunteering intentions. Volunteers with the necessary skills and resources are more likely to have future intentions to continue volunteering in an event (Marta et al., 2010). These factors can include things like time availability, access to volunteer opportunities, and support from the organization (Koutrou, 2018).

The volunteer motivation scale is an instrument used to evaluate the underlying motivations of individuals who choose to volunteer for events or organizations (Angosto et al., 2021). It consists of multiple factors and dimensions that help researchers understand the specific reasons individuals have for volunteering. These factors can include interpersonal contact, personal growth, expression of values, career orientation, and extrinsic rewards. (Ahmad et., al. 2020; Bang & Ross, 2009; Bang & Chelladurai, 2003).

Expression of Value: Hidzir et al., (2021), define expression of values as how individuals feel a sense of responsibility towards those who are less fortunate and the importance of being part of essential social communities. In addition, Bang & Ross (2009) stated expression of values is a concern for others where people try to express or act on important values such as their contribution will lead to the success of an event. This element is in line with the purposive by Farrell et al. (1998) where people tend to do valuable things for the community (Bang & Ross, 2009) and aim to give back something to the society. Meanwhile, Strigas & Jackson (2003) stated, that purposive motives relate to the desire of volunteers to benefit their actions to the organization and contribute to the event and the community. With this value, people tend to support and create a healthier community (Hidzir et al., 2021).

Career Orientation: Career orientation expresses gaining experience and career contacts where people who volunteer at the event aim to acquire knowledge and gain career-related experience through volunteering activities (Clary et al. 1998, Bang & Chelladurai 2003). The same elements of understanding are portrayed by Clary et al. (1998) where the understanding functions involve the opportunity among the volunteers to create a new learning experience, exercise knowledge, skills and abilities. Moreover, through volunteering activities individuals can be exposed to new skills and experiences that have the potential to enhance their career development (Xie et al., 2020). For example, volunteering in a relevant field can provide practical experience and networking opportunities that may lead to job offers or advancements in a particular career path. Volunteering also allows individuals to create networks and make valuable connections within their chosen field, which can open doors to career opportunities (Josam et al., 2022).

Interpersonal Contact: The volunteer motivation scale includes the variable of "interpersonal contact" as one of the motivations for volunteering. This variable assesses the extent to which individuals are motivated to volunteer to engage in social interactions and establish meaningful connections with others (Kamimura et al., 2018). In addition, interpersonal contact is described as a situation where people meet and communicate with the purpose to create networking in the community that they serve (Bang & Chelladurai 2003, Bang & Ross 2009). Volunteers who are motivated by interpersonal contact may seek opportunities to interact with others, build relationships, and contribute to the social fabric of their community (Serrat-Graboleda et al., 2021). These individuals may value the personal connections they make while volunteering and may find satisfaction in forming bonds with fellow volunteers, community members, or those they are serving.

Personal Growth: Bang & Ross (2009) identify personal growth as gaining a new perspective, feeling important and needed where volunteers may discover themselves to do unexpected things that will increase their self-esteem. According to Clary et al. (1998), personal growth is a key aspect of volunteer motivation, as individuals may choose to engage in volunteer activities to gain new experiences, acquire useful skills, and develop themselves personally. The types of volunteer opportunities undertaken by respondents were often seen as opportunities for personal growth and sometimes also intended as a part of future life plans, lifelong learning and personal improvement. Ahmad et al. (2020) stated other studies might namely this factor differently such as enhancement egoistic but it leads to the same meaning.

Community Involvement: Community involvement refers to individuals' engagement in activities, initiatives, and events that contribute to the betterment of their local community or society as a whole (Shrestha & Shrestha, 2014). The motive of community involvement in volunteering stems from individuals' desire to actively participate in and contribute to their communities, making a positive impact on others and the overall well-being of society. A study conducted by Bang & Ross (2009) rephrased the wording of the patriotism factor to Community Involvement and found this factor is fit for smaller special events at the local community level and becomes one of the crucial components for recruiting and retaining event volunteers.

Extrinsic Rewards: In the study of volunteer motivation, extrinsic rewards play a significant role in influencing individuals' decision to engage in volunteer activities (Weinberg & Gould 2003). They are external factors that are offered to volunteers to motivate and encourage their participation. Extrinsic focus on tangible incentives such as monetary compensation, gifts, and recognition (Kim et al., 2022); merchandise, food vouchers, monetary, memorabilia, etc. (Bang & Ross 2009). Furthermore, Strigas & Jackson (2003) stated that feeling of satisfaction is classified as an intangible reward that focus on the internal factor that volunteer felt during volunteering activities.

Quality of Life: Quality of life was defined as an individual's satisfaction with his or her life dimensions compared with his or her ideal life. An individual's value system and the cultural environment where he or she lives depend on the evaluation of quality of life (QOL) (Gilgeous, 1998). Back then in the past, the term QOL was not widely used and the term socioeconomic status, level-of-living, and social status was used to composite measures of families' living conditions. Hagerty (2001) defined QOL as s term that implies the quality of a person's whole life, not just a separate part. Based on studies conducted on Quality of life in Japan by Inoguchi and Fujii (2009) found that comprehensive policies aimed at improving family life, such as establishing childcare centers and reducing working hours, were necessary to improve the quality of life and well-being in Japan. Based on studies conducted by Azahan et al. (2009) on the quality of life in Malaysia's intermediate city from urban dwellers perspective the researchers examined their income and distribution, education, health status and family living. Pukeliene and Starkauskiene (2011) mentioned that quality of life can be measured using the model for measurement of quality of life that was categorized into external environment namely natural environment, economic environment, social environment and political environment) and internal environment (physical wellbeing, individual development wellbeing, social wellbeing and material wellbeing. However, Schalock and Verdugo (2002) stated that their quality of life model is composed of eight-first-order correlated factors such as emotional well-being, self-determination, personal development, rights, material well-being, interpersonal relations, physical well-being and social inclusion.

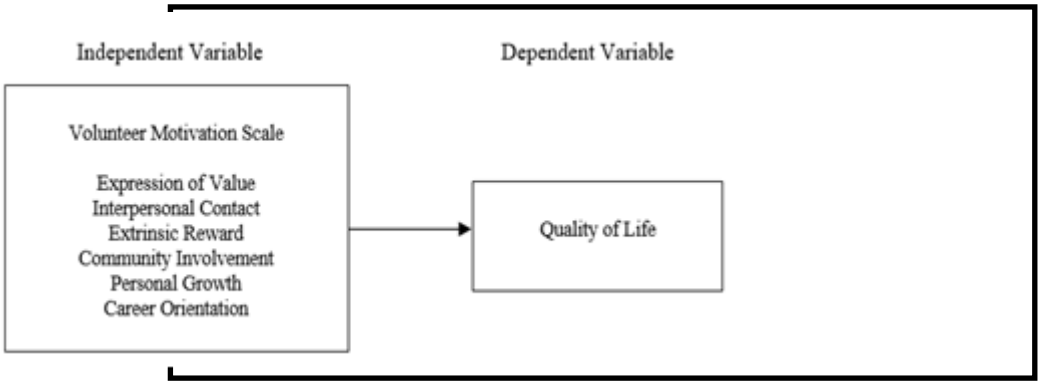
Based on the study conducted by Gray & Stevenson (2020), volunteerism promotes feelings of belonging, which in turn impacts the volunteers' well-being. Through volunteerism, individuals will interact with other volunteers who share the same social identity thus creating a group identity that is fundamental to volunteers' motivations and experiences of volunteering. Positive volunteering experiences can be improved by fulfilling volunteers' desires for social connection, interest, self-growth, recognition, and support (Same et. al., 2020). In addition, a study conducted by Bowe et. al. (2022) on coordinated community help during the COVID-19 pandemic found that volunteerism is not only beneficial to the well-being of the people in need but also to the volunteer who offers the help. This community helping program encourages psychological bonding among community members by building a sense of community identification and unity during the pandemic. In the case of a pandemic situation, community volunteerism helps both volunteers and the community to increase well-being and reduce depression and anxiety.

3. Methodology

The design of the study is correlational research where the analysis developed in this study is based on the examination of the volunteer motivation scale adapted from Bang & Chelladurai (2003) and Bang & Ross (2009). Meanwhile, for quality of life instruments will be adapted from Schalock and Verdugo (2002). The data will be collected among higher institution students who are experienced in volunteering at an event. The research design for this study will be correlation research to explore volunteer motivational factors and quality of life among students in higher institutions. The population of this study will include students from the Faculty of Business and Management (FBM) UiTM Puncak Alam Campus and the sample size for this study will be 300 students. All data will be analyzed using SPSS software. Reliability analysis will be conducted to measure the stability and consistency of the instrument used. Correlation and regression analysis will also be used to measure the correlation and impact between variables.

Proposed Conceptual Framework: To conduct this study, the event volunteer motivational scale serves as the independent variable (IV) which consists of Expression of Value, Interpersonal Contact, Extrinsic Reward, Community Involvement, Personal Growth, and Career Orientation. Meanwhile, Quality of Life is labeled as the dependent variable (DV).

Fig. 1: Conceptual Framework



Based on the framework above, the hypothesis will be tested as the following:

H1: There is a significant relationship between expression of value and quality of life among university students.
H2: There is a significant relationship between interpersonal contact and quality of life among university students.
H3: There is a significant relationship between extrinsic reward and quality of life among university students.
H4: There is a significant relationship between community involvement and quality of life among-university students.
H5: There is a significant relationship between personal growth and quality of life among university students.
H6: There is a significant relationship between career orientation and quality of life among university students.

Practical Implication: This study uncovered several key factors that influence volunteers' involvement in an event. The factors include expression of values, interpersonal contact, career orientation, and personal growth. Event organizers, nonprofits, and community leaders should consider these factors when searching for and hiring volunteers. Furthermore, recognizing the contributions of volunteers and expressing gratitude is not only a sign of appreciation but also a powerful tool to boost morale and motivate volunteers to continue giving their time and energy. It is suggested that future researchers who are interested in exploring similar study in the future are encouraged to use a similar framework.

4. Discussion and Conclusion

Understanding event volunteer motivation is essential for the success of any event and the sustainability of volunteer programs. Volunteers play a pivotal role in the execution of various events, from community service activities to large-scale festivals. Motivating volunteers is not a one-size-fits-all approach; understanding the motive behind the involvement will help event organizers find the volunteers that fit their requirements. This is to ensure that they can work well and have fun with their work at the same time as well as avoid unnecessary pressure while doing their work. The motivation to engage in volunteer work significantly impacts an individual's quality of life. Volunteer work not only contributes to the betterment of society but also has numerous benefits for themselves. It is generally agreed that volunteering plays an important role in contributing to people's subjective well-being or perceived life satisfaction (Dolan et. al, 2008). In the field of conceptualization, the awareness of the importance and the components that form quality of life are increasing in the community (Stimson et al., 1999). For volunteers, engaging in voluntary service can enhance their cognitive functioning and functional ability, as well as improve their perceived life quality (Wang et al., 2022). Previous literature stated that volunteering activities may improve the health and quality of life among volunteers (McDonald et al., 2012) as it is linked with a good environment for living. In

addition, volunteer work also can help individuals maintain their physical and mental well-being (Islam et al., 2015) as well as boost self-esteem, social status, and overall life satisfaction (Aseanty et al., 2022). Therefore the purpose of the study is to identify the factors that determine event volunteers' motivation factors that contribute to the quality of life among volunteers in higher institutions.

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Psychological and Technology Factor Contribute to Social Media Addiction

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Abstract: In the present-day context of worldwide connectivity, social media has emerged as an integral component of many adolescents' everyday routines. However, the seemingly harmless practice of utilizing social networking platforms can swiftly transform into a significant dependency, leading to unfavorable consequences. Adolescents' excessive dependence on social media platforms has garnered significant attention from scholars and practitioners in the mental health field. Psychological and technological elements are recognized as contributing to social media addiction, which has detrimental consequences for adolescents. Hence, the primary objective of this study is to gain a comprehensive understanding of the existing literature about the psychological and technological elements contributing to addiction to social media platforms. The discourse outcomes will illuminate the strategies employed to mitigate social media addiction by addressing the abovementioned factors. This conclusion has significant implications, as it will stimulate further discussion and prompt additional research reviews on the various elements contributing to social media addiction.

Keywords: *Psychological; Social Media, Sociological, Technology, Adolescents, Social Media Addiction*

1. Introduction and Background

The issue of social media addiction has emerged as a significant concern, particularly in the context of adolescent populations. The phenomenon of addictive behavior involves a range of inclinations, including an obsessive preoccupation with social media, compulsive usage patterns, alterations in mood, and even the development of tolerance and withdrawal symptoms (Larson, 2021). Research findings indicate that individuals in their youth are particularly susceptible to developing addictions to social media platforms. Based on empirical investigations of the phenomenon of social media addiction, a discernible association has been observed between this compulsive behavior and various mental health conditions. Extensive research has shown substantial evidence of the adverse consequences of excessive reliance on social media platforms, particularly among young adults, which significantly impact their mental well-being and overall cognitive abilities (Alhusban et al., 2022). Recent studies have demonstrated a significant correlation between excessive usage of social media platforms and the presence of depressive symptoms and anxiety disorders. In addition, the aforementioned addictive conduct has been observed to negatively impact the self-esteem and decision-making capacities of students (Sahimi et al., 2022). The phenomenon of social media addiction is a significant concern that necessitates careful consideration and examination. The phenomenon of social media addiction is a multifaceted matter that might potentially have detrimental effects on the psychological well-being and overall welfare of young individuals. The issue of social media addiction is gaining recognition as a significant concern since it has been found to have negative effects on the mental well-being and overall functioning of young adults (Alhusban et al., 2022).

2. Literature Review

Social Media in Malaysia: In Malaysia, a comparable scenario unfolds where numerous incidents transpire at an alarming rate due to the prevalence of social media addictions. Based on data provided by the International Society of Online Addiction (ISIA), it was found that 37% of parents in Malaysia expressed concerns over the potential conflict between their children's online activities and their responsibilities at home and school. Additionally, 18% of children were observed to exhibit neglect towards essential social interactions. According to Datuk Dr. Andrew Mohanraj, the Deputy President of the Association of

Psychiatrists and Malaysian Mental Health, vulnerable or socially uncomfortable children are at significant risk of developing internet addiction. Dr. Norharlina Bahar, a representative and child psychologist from the International Internet Addiction Society, highlighted the excessive impact of online activities on the brain, leading to biological alterations. According to We Are Social- Hootsuite (2019), Malaysia has achieved a significant milestone in mobile social media penetration, ranking among the top five countries globally and holding the highest position in Southeast Asia. This achievement is shown by the active user base of 25 million, constituting almost 78 percent of the population. Based on the findings of the study, it was determined that the level of internet penetration in Malaysia stood at 80%, encompassing a total of 25.84 million individuals who were connected to the Internet. On average, users typically allocate approximately eight hours each week to internet activities. Malaysia is positioned in the sixth place among Southeast Asian nations, which encompasses Singapore, with Thailand following in the eighth position and the Philippines in the tenth position. The three most prominent social networks in Malaysia, in terms of user activity, are YouTube, Facebook, and Instagram. Based on the findings of the Digital 2019 report, it has been determined that the number of active Facebook users exceeds 24 million, while the number of active Instagram users surpasses 12 million. Additionally, the report indicates that there are over 2.63 million active Twitter users and over 4.7 million active LinkedIn users. Previous research has indicated that there are various manifestations of symptoms associated with social media addiction, encompassing mood, cognition, physical and emotional responses, as well as interpersonal and psychological concerns (Kuss & Griffiths, 2011; Balakrishnan & Shamim, 2013; Zaremohzzabieh et al., 2014; Błachnio et al., 2017). Research studies conducted by Wahid et al. (2022) have revealed that approximately 12% of individuals who utilize various social networking platforms are affected by social media addiction. This study intends to investigate additional factors contributing to social media addiction among adolescents by conducting a thorough evaluation of relevant material from scholarly journal publications.

Overview of Social Media: Social media is defined as a compilation of web applications that enable customers to produce their content and share it online. Social media is diverse and includes forums, e-mail, messaging services, websites, and social networking blogs for web and mobile applications. Shared content entails things like comments, status updates, pictures, messages, multimedia, and text files in the form of electronic information. Such media allow people to interact with other people with mutual interests (Livingstone & Brake, 2010). The most commonly used social media tools are Facebook (FB), Twitter, Instagram, Snapchat, WhatsApp, and LinkedIn. Social media is a very broad term that includes several different types of media: a place where a user can disseminate data to others, enabling everyone to share content that others can share with their internet links and a communication vehicle. Social media is an electronic form of communication that enables customers to produce and share information such as ideas, private messages, and other material. Kaplan and Haenlein (2010) describe social media as "a group of Internet-based apps that build on Web 2.0's ideological and technological foundations and enable user-generated content to be created and exchanged." According to Kietzmann et al. (2011), social media are highly interactive platforms that use and utilize mobile phones and other web-based techniques to promote the development, co-creation, sharing, transformation, and discussion of user-produced content by people, organizations and communities. In practice, social media refers to platforms through which individuals interact among the most common platforms on Facebook, LinkedIn, Twitter, and YouTube, such as forums, blogs, wikis, social networks, and multimedia sites. These platforms could evolve or be replaced by others, but it seems important to address social media use by looking at the specific platforms. Several factors have a significant influence on social media, and this study will further explore personality and technology as the major factors influencing social media addiction.

In Malaysia, there is a significant reliance on social media platforms, with an estimated user base of roughly 26.8 million individuals, representing a substantial 78.5% of the total population. This widespread adoption of social media facilitates communication, fosters connections with others, and enables active engagement in shaping the global community. When examining the age distribution of social media users in Malaysia, it becomes evident that there is a high level of connectivity among those belonging to Generation Z and Millennials. Specifically, an overwhelming majority of users, accounting for 99.8%, are aged 18 and above. The average duration of social media usage among Malaysians amounts to slightly less than three hours per day, which may appear inconsequential. However, this translates to a cumulative usage of over 20 hours per week. The extent of Malaysians' utilization of social media for communication and information purposes is

exemplified by their average monthly usage of 7.7 platforms. For demographic factors, the age group of 25–34, born during the internet boom, has the highest activity level among social media users when segmented by age. Approximately 8.4 million individuals, constituting 31.5% of the total population of Malaysia, fall into this particular demographic. The utilization of social media platforms by young individuals in Malaysia accounts for around one-fourth of the total population, as 28.6% of users fall under the age group below 25 years. The importance of parental supervision over streaming platforms such as YouTube and Netflix is increasingly significant, particularly for underage individuals, given the unrestricted accessibility of internet content. In general, the adolescent population in Malaysia has seamlessly integrated the Internet into their daily routines, employing it for a wide range of purposes, including educational pursuits, recreational activities, and social interactions. When evaluating the effectiveness of social media material, it is crucial to consider age demographics, as distinct age groups exhibit varying levels of engagement with different types of content. The data above holds significant value for companies and marketers, as it empowers them to enhance the customization of their social media efforts by their target audience. Generating precise reports about research of this nature is crucial for businesses to evaluate the effectiveness of social media posts and obtain quantitative insights.

3. Personality and Social Media Addiction

Personality can be described as "the unique and characteristic patterns of thought, emotion, and behavior defining the behavioral style of an individual and influencing his or her interactions with the setting (Atkinson et al. 1993). In addition, personality is the pattern of distinctive ideas, emotions, and behaviors that distinguish one individual from another and persist over time (Phares, 1991). Larsen et al., (2005) define personality as "the set of organized and relatively enduring psychological traits and mechanisms within the individual that affect his or her interactions and adaptations to the environment, including the physical and social environment. The influence of personality is significant when it comes to elucidating the variations observed in problematic internet usage across individuals (Kircaburun et al., 2018). One of the personality dimensions that have been extensively examined in relation to internet addiction is extraversion. Extraversion pertains to individuals' propensity to exhibit friendliness, sociability, and talkativeness. Research indicates that there is a favorable correlation between extroversion and a heightened susceptibility to internet addiction (Hussain & Pontes, 2018). In relation to the utilization of the Internet and social media, there exists a robust and affirmative correlation with extraversion (Cheng et al., 2019). Individuals who exhibit extraverted traits tend to utilize social networking applications as a means to actively participate in social interactions, perhaps resulting in the acquisition of a greater number of social resources through online platforms. Regarding the phenomenon of geek behavior, a study conducted by Wildt & Dieris-Hirche (2019) found that individuals who engage in problematic internet use within the gaming community tend to exhibit lower levels of extraversion and higher levels of neuroticism compared to those who do not display problematic behavior. Additionally, the continuous connectivity facilitated by smartphones is particularly appealing to individuals with extroverted personality traits. Consequently, extroversion has been recognized as a predictive factor for problematic smartphone usage (Pivetta et al., 2019). However, certain recent investigations have failed to validate this correlation (Mitchell & Hussain, 2018). The presence of these inconsistencies may indicate the significance of approaching social networking and internet addiction from distinct conceptual frameworks when examining various forms of risky behavior. Neuroticism is an additional prominent personality trait that pertains to variations across individuals in terms of emotional stability and psychological adaptation. Research has demonstrated a favorable correlation between neuroticism and problematic internet use (Marengo et al., 2020). Research indicates that there is evidence to support the notion that introverted teenagers tend to exhibit heightened levels of internet engagement.

4. Technology and Social Media Addiction

The rapid advancements in digital technology have led to significant adjustments and impacts on how individuals communicate and integrate new technologies into their everyday lives. Individuals can use mobile phones, computers, or notebooks to access social networking sites. These methods of data collection and interaction have become essential tools for generating content and exchanging information. The use patterns of various access strategies can potentially influence user behavior and data exchange on various social networking platforms. For example, if consumers perceive mobile gadgets as intricate, they are less likely to

utilize those (Wakefield & Whitten, 2006). Implementing technological devices into the educational dimension has become essential to educational components due to swift technological advancements. In recent years, these tools and materials have significantly grown, leading to their consistent integration within educational and training contexts. Parents must cultivate positive feelings towards education and technology to enhance the quality of education. Parental monitoring is crucial, as the family setting serves as the primary educational institution for the child. Nevertheless, the significance of this access approach is greatly enhanced when corporations optimize the implementation of novel technologies and ensure their availability to a considerable user base, encompassing devices like smartphones or iPads (Wang et al., 2008). The advent of mobile gadgets, such as iPads, smartphones, and tablets, has facilitated the proliferation of social networking across various platforms. These devices can be considered versatile communication tools for utilitarian and recreational purposes (Lee et al., 2010, Alshammari et al. 2022). Smartphones are extensively utilized throughout various domains, encompassing communication through calling and texting, internet access, navigation, gaming, and engagement with social networks. Smartphones, which have become an integral part of social life, are now considered a technology consumers desire to access at all times due to the availability of many applications. Lee et al., (2019) argue that the compulsion to often check for messages or calls results from habit formation. They further assert that engaging in behaviors that compel an individual to perform these acts can contribute to the development of mobile addiction. An additional discovery indicates that parents exhibit comparable attitudes towards using technology in relation to socio-psychological development when compared across different age groups. However, it is worth noting that parents aged 40 and older demonstrate relatively weaker attitudes towards the use of technology by both themselves and their children.

In today's digital age, technology and social media play a significant role in our daily lives. From staying connected with friends and family to accessing information and entertainment, smartphones have become an integral part of our existence. The development of technology and the many platforms of social media have led to their widespread adoption among adolescents. As a result, the issue of social media addiction has emerged as a significant concern. This addiction can manifest in various ways, such as constantly checking notifications, spending excessive amounts of time on social media platforms, and feeling a sense of anxiety or withdrawal when separated from social media. Research suggests that young people are particularly susceptible to social media addiction due to their increased use of social media and social networking sites. These platforms provide a constant stream of gratification in the form of likes, comments, and shares, which can create a sense of validation and importance. As a result, many individuals find themselves compulsively engaging with social media, often at the expense of other aspects of their lives such as school, work, and personal relationships. The integration of social networking tools with mobile devices has occurred due to the central role of mobile devices in facilitating interpersonal communication and information sharing among individuals (Lipsman, 2010). According to Lipsman (2010), mobile phones enable individuals to communicate through various means, such as voice calls, text messaging, email, and mobile web browsers, facilitating interaction with social networking platforms. In a study by Arthur (2009), technology was defined as the primary and essential means of fulfilling human objectives. The author posited that technology can manifest as a technique, procedure, gadget, or even in more intricate forms, encompassing material and non-material aspects. Irrespective of the context, the execution of a human purpose is consistently regarded as a method or mechanism.

5. Conclusion

In conclusion, social media addiction among adolescents is a pressing issue that requires attention from parents, educators, and mental health professionals. The addictive qualities of social media and their impact on the emotional well-being of adolescents cannot be ignored. To effectively address this issue, it is crucial to implement preventive measures and strategies that promote healthy online behaviors. Furthermore, additional research and engagement with teenagers are needed to increase their awareness of the psychological and social effects of excessive social media use (Felc, 2022). Social media addiction has a detrimental effect on the mental health and functioning of adolescents (Alhusban et al., 2022). Research has consistently shown that social media addiction is associated with various mental health issues such as depression, anxiety, and disruptions in self-perception. Moreover, the addictive nature of social media can impair decision-making abilities and negatively impact psychological aspects such as self-esteem in

socialization with peers. It is important to note that social media addiction is not limited to adolescents, as individuals of all ages can be susceptible.

In addressing social media addiction among adolescents, it is imperative to have a comprehensive understanding of the underlying psychological elements that lead to the emergence and persistence of this phenomenon. Numerous studies have demonstrated that specific personality traits and psychological variables can render individuals more vulnerable to the onset of social media addiction. For instance, those with extroverted personalities are more inclined to utilize social networking services to enhance social interactions (Sindermann et al., 2020). Furthermore, it has been observed that people who encounter challenges with self-perception, social and emotional functioning, and neuroticism exhibit a heightened susceptibility to the development of social media addiction (Günlü et al., 2023). Social media addiction among adolescents encompasses multifaceted psychological and societal dimensions, necessitating a concerted effort to tackle this issue and foster the psychological welfare of young individuals. One potential strategy for mitigating social media addiction among adolescents involves implementing and promoting healthy practices about social media usage. To effectively regulate the use of social media among adolescents, parents and guardians must establish explicit guidelines and boundaries (Wahid et al., 2022). Promoting open channels of communication and providing educational interventions to adolescents regarding the possible hazards and adverse consequences associated with excessive utilization of social media platforms can serve as effective measures in mitigating the risk of addiction. In conclusion, parents should acquire knowledge regarding technological advancements and engage in educational programs facilitated by educators on responsible Internet usage and social media monitoring. Additionally, educators should take the initiative to arrange courses and seminars for parents. From here, all people, from family to school or university, with the support of the government and community togetherness, can control the social media addiction among adolescents. Ultimately, the harmonization in the community and the well-being of the adolescents are getting better for the future.

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Investigating the Causality between Corruption and Economic Growth: A Systematic Review

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Abstract: This study aims to establish a systematic examination of the existing literature pertaining to the causal relationship between corruption and its impact on a nation economic growth. In line with established methodological guidelines, particularly the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), this research adopts a structured approach to comprehensively survey the relevant scholarly landscape. To construct a robust foundation for this investigation, a thorough search for scientific papers within the Scopus and Web of Science (WoS) databases, spanning the years from 2012 to 2022 was conducted. Our selection process ultimately led to the identification and analysis of seven publications that offer substantial empirical insights into the chosen domain of inquiry. Through a careful review of these research papers, a compelling pattern that corruption exerts a profound significant influence on various dimensions of economic growth within a nation emerged. Specifically, the synthesis of the extant literature suggests that corruption exhibits a discernible causative effect on critical economic parameters, notably including but not limited to purchasing power, country debt, political stability and foreign direct investment (FDI). In summary, the amalgamation of these scrutinized research findings underscores the substantial and multifaceted role of corruption as a causal factor in influencing economic growth dynamics. This investigation not only contributes to a deeper understanding of this critical relationship but also underscores the importance of anti-corruption measures in promoting sustained economic development and stability on a national scale.

Keywords: *Corruption, economic growth, Systematic Reviews, PRISMA*

1. Introduction

Corruption, often universally stigmatized, is widely acknowledged to exert a substantial and generally negative influence on a state's economic growth and stability. It is commonly defined as the 'abuse of public power for personal gain.' Within the realm of previous research, a notable divergence emerges, with two prominent theories encapsulating the complex relationship between corruption and economic growth. Corruption appears to be inexorably intertwined with economic growth, either acting as a disruptive force, akin to 'sanding the wheels,' or as a facilitator, akin to 'greasing the wheels' (Erum & Hussain, 2019). The extensive body of research in this domain includes studies by Nur-tegin and Jakee (2020) and Afonso and de Sá Fortes Leitão Rodrigues (2022), which diligently examine the direct impact of corruption on economic growth, providing compelling evidence in support of the 'sanding the wheels' theory. These studies consistently substantiate the hypothesis that corruption, by its nature, hampers economic growth. Conversely, other research, such as that conducted by Akkoç and Durusu-Ciftci (2021), lends credence to the 'greasing the wheels' hypothesis, asserting that corruption can, under certain circumstances, spur economic growth.

Issues, Research Problems and Research Question: For an extended period, researchers have diligently delved into the intricate relationship between corruption and economic growth, culminating in a rich body of both theoretical and empirical studies. The theoretical underpinnings of this discourse have spurred empirical investigations, aiming to elucidate the multifaceted interplay between economic growth and corrupt practices. Indeed, corruption can wield its influence through various channels, yielding diverse economic consequences. One such channel involves the harmful impact of corruption on government revenues, a phenomenon well-documented in studies such as that by Swaleheen et al. (2019). This reduction in revenue, in turn, leads to diminished allocations for critical sectors like health and education. Additionally, corruption has been linked to peculiar effects, such as bolstering financial stability, as suggested by Ben Ali et al. (2020), and exacerbating inflationary pressures, as noted in the research of Uroos et al. (2022). Beyond the realm of economic scholarship, religious and ethical considerations have also influenced the discourse

surrounding corruption and economic growth. This moral stance, as posited by Mimoun et al. (2016), carries the implicit promise of engendering superior economic performance. It is also notable that some global indices, such as the Corruption Perceptions Index (CPI), indicate that a substantial number of nations with higher corruption levels are predominantly Muslim-majority countries, as highlighted by Yunan (2020).

In light of these realities, the need for a tailored and context-specific approach becomes evident—an approach that addresses the unique challenges faced by nations, especially concerning their economic growth trajectories, as emphasized by Kurniawan et al. (2020). The primary research questions that served as the foundation for this article's construction of a relevant systematic review therefore are as follows:
a. What is the causality between corruption and economic growth?
b. What are the different types of methodology used in the study?

The outcomes of this section will assist in determining the discrepancies for future studies related to the impact that corruption has on the development of the economy.

2. Literature Review

Corruption is a complicated social, political, and economic problem that exists in variable degrees in all nations. There is no universal agreement on what constitutes corruption. According to the theory, corruption in the public sector is a misuse of authority. The category of corruption that will be discussed focuses primarily on state corruption, defined as the theft and misappropriation of vast sums of state funds by multiple state officials, particularly political elites and government officials (Fajar & Azhar, 2018). Corruption is the use of positions in the public sector for personal gain. As an illustrative example, beginning with bribery, embezzlement, collusion, and nepotism (Bardhan, 1997). The exchange of goods or services by bureaucrats in exchange for something inappropriate or unreasonable is another definition of corruption (Sandholtz & Koetzle, 2000). Because the corruption index suggests that a greater value implies bad outcomes and a lower value of 20 indicates good results, they discovered that all factors had a positive relationship with corruption. To eliminate corruption, a government should place a greater emphasis on guaranteeing quicker, more sustainable economic growth rather than immediately limiting corruption. Such an approach is seen to be more successful because changes and regulations targeted at economic growth would not face the same level of opposition as implementing a flexible tax rate or increasing penalties for corruption (Moiseev et al., 2020).

Rent Seeking and Corruption: Corruption and rent-seeking are common in most countries. Nevertheless, there are differences in how they are applied and how they affect a nation's prosperity, economic efficiency, and economic growth. Corruption and lobbying are usually separated as types of rent seeking in rent seeking theory. If money or valuable property is handed to politicians or public servants, this should be considered a clear example of corruption. However, most analysts would not consider the decision-makers impacted as corrupt if rent-seeking is performed by launching political campaigns, hiring attorneys and public relations firms, or using public marketing (Lambsdorff, 2002). Dincă et al. (2021) use a public choice approach to investigate the influence of corruption and rent-seeking behavior on economic prosperity in European Union states. The research spans the years 2000 through 2019. This study's findings demonstrate an inverse relationship between the rate of corruption and economic prosperity in all of the nations investigated.

Channel Transmission of Corruption: For all substantial empirical studies on the link between corruption and economic growth, there is limited study on the channel transmission of corruption's influence on economic growth. Mo (2001) was the first to address this issue. He aims to determine the effects of corruption and the channels via which it influences GDP growth rates. Utilizing ordinary least squares (OLS) regression method for 45 nations for the time frame 1970 - 1985, he at first found a negative relationship between 18 corruption and economic growth, however, the extent of the impact declines significantly and becomes statistically insignificant after controlling for other determinants of economic growth notably investment, human capital and political instability. Mo's study discovered that political instability is the most essential channel via which corruption impacts economic growth, accounting for around 53 percent of the overall effect. From 2012 to 2019, a study for a sample of 48 nations, using the CPI as a metric of corruption,

suggests that private investment is a possible transmission channel for corruption (Afonso & de Sá Fortes Leitão Rodrigues, 2022).

Sanding the Wheels or Greasing the Wheels Theory: Regardless of these concerns, there is no obvious convergence of proof when it comes to the consequences of corruption on economic growth. Various research provides two theories to comprehend the link between corruption and economic growth. The first hypothesis characterizes corruption as an impediment to economic growth. This is referred to as “sanding the wheels” (Hoinaru et al., 2020). In the long and short run, the negative association between corruption and economic growth in 48 countries from 2012 to 2019 supports the "sanding the wheels" idea (Afonso & de Sá Fortes Leitão Rodrigues, 2022). The second hypothesis named the "greasing the wheels" concept, on the other hand, suggests a positive 19 relationship between corruption and economic growth. This positive association develops when there is too much bureaucracy and inefficiency, which stifles the growth of new enterprises. Because of the distortions generated by the failure of governmental institutions, corruption is considered the second best remedy. In other words, when economic actors pay bribes to avoid bureaucracy, corruption may boost economic growth. Akkoç and Durusu-Ciftci (2021) investigation in Turkmenistan supports the "greasing the wheels" theory. Turkmenistan has the lowest corruption control, and it is also ranked last in the globe.

3. Methodology

In strict adherence to the rigorous standards delineated in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, the primary objective of this systematic review is to methodically structure the research landscape (Liberati et al., 2009). This is accomplished by conducting a thorough analysis of preceding studies, which involves dissecting the methodologies and theories applied in these studies. Furthermore, this review endeavors to illuminate the intricate nexus between corruption, governance, and economic growth. In the subsequent sections, the steps taken to mitigate bias are expounded upon, in line with the PRISMA checklist. A comprehensive exposition of the systematic review process is provided, encompassing the resources and databases accessed, the rigorous screening procedure, and the discerning selection of relevant articles deemed suitable for inclusion in the present study.

Resources: Scopus and Web of Science (WoS), two interdisciplinary databases, were used as the basis for the article search. WoS is widely regarded as one of the most comprehensive databases available today, housing over 33,000 journals covering over 256 subject areas, such as environmental studies, interdisciplinary social sciences, behavioral studies, economics, and psychology. It ranks them based on three different metrics: citations, papers, and citations per paper, and it includes over a century's worth of complete back records and reference information governed by Clarivate Analytics (Shaffril et al., 2018). Likewise, Scopus is yet another massive database that is available. According to Scopus, it is the "largest single abstract and indexing database ever built," and it has indexed over 14,000 pieces of social science research produced by 4000 different publishers (Burnham, 2008). In addition, Scopus is a database that covers a wide range of fields, such as science, economics, finance, behavior, and psychology, making it one of the most comprehensive resources of its kind. Because of this, the selection of these two databases rendered this study both pertinent and justifiable.

Systematic Review Process for Selecting Articles

Identification: According to PRISMA, there are four steps to the systematic review process (SLR). The review began in October 2022, with the first step consisting of identifying the keywords. Relying on prior research and a thesaurus. As shown in Table 1, corruption and economic growth-related keywords and synonyms were utilized. At this stage, 11 duplicate articles were eliminated following a thorough and careful screening.

Screening: The objective of the initial screening phase was to eliminate duplicate articles. In this instance, 11 articles were eliminated during the initial phase. In contrast, 153 articles were evaluated based on a variety of inclusion and exclusion criteria determined by the researchers during the second stage. The first criterion was the type of literature, and the researchers only considered journal articles because they are the primary

source of empirical data. This further implies that systematic reviews, meta-analyses, meta-syntheses, books, book chapters, and conference proceedings were excluded from the current investigation.

Table 1: The Search String

Database	Keywords used
Web of Science	TS = (("corruption" OR "bribery" OR "extortion" OR "fraud" OR "nepotism") AND ("economic growth" OR "GDP" OR "economic development"))
Scopus	corruption AND economic AND growth AND (LIMIT-TO (EXACTKEYWORD, "Economic Growth") OR LIMIT-TO (EXACTKEYWORD, "Economic Development") OR LIMIT-TO (EXACTKEYWORD, "Corruption")) AND (LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2012))

Eligibility and Inclusion Criteria: Two criteria were used to identify the available and potential articles to be analyzed in this study:
a. The dependent variable in the study is economic growth, while the independent variable is corruption or otherwise to identify the causality between the variables.
b. The study only looks at full-text articles written in English that were published in the field of economics and business, and published from 2012 to 2022.

For records about the scoping review to be recognized, they had to meet the first two criteria. Also, the English-only rule was put in place because English is a global language and most research articles are written in English. It also helps keep things clear and makes it easier to translate the whole text. After the search string was completed, the screening stage was carried out. The data collection resulted in the elimination of 139 articles out of a total of 153 that could have been subjects for further research. The subsequent step was the screening for eligibility, during which the full articles were accessed and analyzed for their content. After a careful reading, the editors decided not to accept 16 of the articles because certain requirements were not met. After that, the final stage is carried out, which consists of reviewing 7 articles that will be helpful for the subsequent investigation.

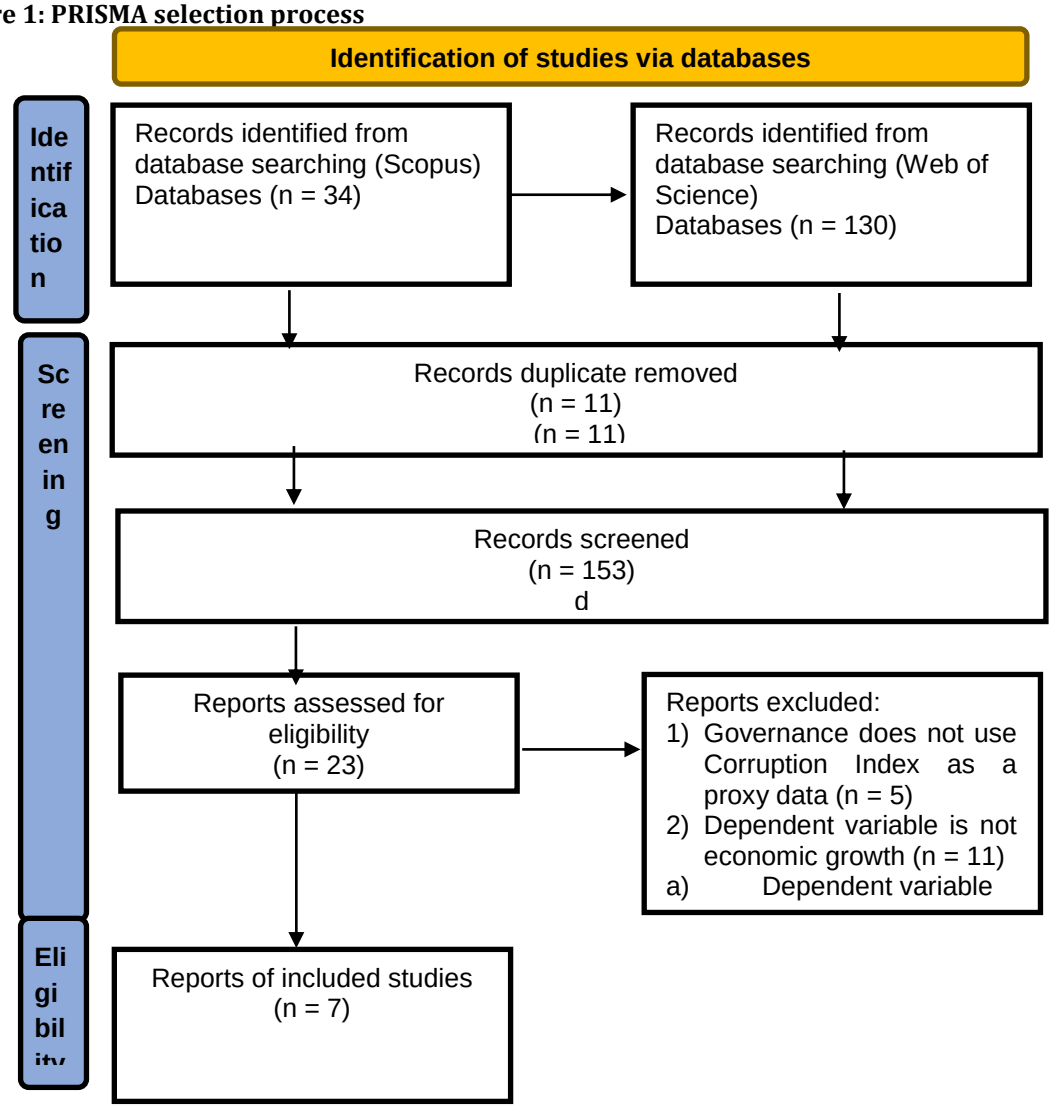
Data Abstract and Analysis: The remaining papers underwent meticulous scrutiny, with particular attention concentrating on studies that directly addressed the predetermined research objectives. This involved a comprehensive review of both the abstracts and full-length articles to identify common themes and draw well-founded conclusions. Furthermore, a quantitative analysis utilizing content analysis was employed to establish a meaningful connection between corruption and economic development.

4. Results and Analysis

Referring to Table 2, both local and international research on corruption and economic growth has received significant attention. In general, most studies used quantitative research methods to look into how corruption affects a country's economic growth. However, there is limited coverage of the causality between corruption and economic growth. The majority of the articles in the table discussed corruption and economic development in low-income countries. Through a variety of mechanisms, including general growth, corruption can influence income inequality and poverty. High corruption can lead to high poverty as higher growth rates are associated with lower poverty reduction and income inequality is detrimental to growth. If corruption widens the income gap, it will also slow down the economy and hence impede efforts to end poverty. Indeed, if a person lives in a society where there is almost no scarcity of resources of any kind, that

person is less likely to be interested in gaining wealth through corruption schemes. This method is widely used in less developed countries where the temptation to engage in corruption is greater as they can significantly increase their utility function. It refers to utility as a fundamental microeconomic idea in utility theory. In several research studies, the independent variables include foreign direct investment, interest on external debt, aid and inflation to assess a country's level of corruption. According to the literature on rent-seeking theory, it has a negative impact on public welfare. One reason is it is not focused on increasing the output and output growth. Additionally, this theory claims that rent-seeking tends to discourage investment. In summary, the main finding that rent-seeking activities hinder economic growth in low-income countries is consistent with findings from other studies too.

Figure 1: PRISMA selection process



(Adapted from Moher et al., 2009)

Table 2: Publication Related to the Corruption and Economic Growth

Author (Year)	Title	Issues and Theory	Methodology and Construct	Findings and Gap
Moiseev et al. (2020)	Investigating the relation between GDP per capita and corruption index	Using traditional econometric multiple regression to model corruption, which is bounded by upper and lower limits, may not produce accurate results, as research indicates that GDP per capita is the most effective predictor of corruption and other macroeconomic indicators do not significantly improve the model's accuracy. Theory of utility	Methodology Ordinary Least Square (OLS) method Dependent Variable Corruption perception Independent Variable GDP per capita	Research has revealed that corruption perception level is most accurately modelled by GDP per capita, as opposed to GDP per capita adjusted by purchasing power parity. Purchasing power parity adjustment is calculated on some unified basket of consumer goods, which may not adequately assess the average living standard since the effective structure of this basket varies drastically across the countries due to their geographical, climatic, political, cultural, economic, historical, gastronomical and other differences.
Wong et al. (2015)	Effects of Rent-Seeking on Economic Growth in Low-Income Economies	The limited focus on rent-seeking as a factor in economic growth in Low-Income Countries (LICs) is noteworthy considering its significant impact on their economies. Theory of Rent-seeking	Methodology Dynamic Panel GMM Estimation Empirical Approach Dependent Variable Real GDP per capita growth Independent Variable Rent-seeking (corruption perceptions index) Total labor force Gross capital formation Total population	Research shows that the practice of rent-seeking (corruption) is unfavorable to economic growth in low-income nations/ Rent-seeking has a negative and significant impact on economic growth in low-income countries (LICs). It supports that rent-seeking activities delay the economic growth of LICs. Limited research examining the effects of rent-seeking activities on economic growth in LICs.

Yuan and Ishak (2022)	Relationship Between Corruption, Governance, and Economic Growth in ASEAN	The prevalence of corruption in ASEAN has had a detrimental effect on economic growth in the region. The theory was not explained.	Methodology Not available Dependent Variable GDP per capita. Independent Variable Corruption Governance	Our findings indicate a correlation between corruption and GDP per capita, with a statistically significant negative effect on economic growth, as predicted by economic theory.
Haruna and Bakar (2020)	Interest rate liberalization and economic growth nexus: does corruption matter?	The majority of recent and earlier research has focused solely on the effect of interest rate adjustments on economic growth without evaluating the significance of corruption. Theory of interest rate liberalization.	Methodology Theoretical methodology The modified version of Driscoll and Kraay's (1998) Cross-sectional dependence and heteroscedasticity test Dependent Variable RGDP per capita Independent Variable Gross capital formation Labor force participation FDI Inflation Credit to private investors by banks Government expenditure Corruption	Labor force and capital stock negatively affect economic growth, whereas credit to the private sector by the bank and FDI emerge as significant contributors to economic growth. The interaction terms of corruption with FDI and CPSB indicate negative effects that show how corruption erodes the benefits of liberalization. The data indicate that the relationship between corruption and foreign direct investment and bank lending to private investors has unfavorable effects. Most of the recent and past studies only examined the impact of interest rate reforms on growth without investigating the relevance of corruption.
Abu and Karim (2015)	The causal relationships among corruption, political instability, economic development and foreign aid: evidence from the economic community of West African states.	Most ECOWAS countries are less developed, very corrupt, and politically unstable, in addition to relying heavily on foreign aid. The theory was not explained.	Methodology Unit root test Cointegration test Granger causality test Dependent Variable Corruption Independent Variable Political instability Economic development Aid	Long-run results indicate a positive unidirectional causality from aid to corruption and a negative unidirectional causality from aid to economic development, as well as a positive bidirectional causality between economic development and corruption in ECOWAS countries. Recent researchers have not paid adequate attention to economic development,

				corruption, political instability and aid, particularly in the ECOWAS region.
Shittu et al. (2018)	The nexus between external debt, corruption and economic growth: evidence from five Sub-Saharan African (SSA) countries	The diminishing growth rate, which is a result of massive indebtedness on the one hand and corruption on the other, has significantly hampered economic stability and recovery efforts. Theory was not explained.	Methodology Panel unit root and panel cointegration test Fully modified OLS and dynamic OLS Granger causality test Dependent Variable GDP per capita Independent Variable Interest on external debt Non-linear effects of external debt Gross capital formation Corruption	The results reveal a positive correlation between corruption and economic growth, as well as a unidirectional causality from economic growth to corruption. Model that combines external debt, corruption, and economic growth. This has not been captured in any recent panel analysis involving these variables in a model.
Antoni et al. (2019)	The Relationship between the Level of Corruption and Economic Growth in Indonesia: An Investigation using Supply Chain Strategy and Bounds Test	Continued corruption will have a negative impact on the country's economy and society. Theory was not explained.	Methodology Auto-Regressive Distributed Lag (ARDL) method Dependent variable Corruption Independent variable Gross regional domestic product (GDP) Perception of index corruption (ICP) Foreign direct investment (FDI) Government expenditure (GE) Inflation (INF) Human Development Index (HDI)	The study found an adverse and statistically significant correlation between corruption and economic growth over the long term. The implication of this research is that weak institutions, indicating the failure of government (corruption) affect the performance of economic growth. Negative and significant relationship between economic growth and corruption at a significant level of 1 percent. As for variables (government expenditure, foreign direct investment (FDI) and inflation) are significant at different levels of confidence.

5. Conclusion and Direction for Future Research

The purpose of this systematic review is to show the causality of corruption to economic growth within the past 10 years from 2012 until 2022 literature. Based on a review of published articles, numerous authors stated that corruption has a significant causality on related study elements such as purchasing power,

country debt, political stability, and foreign direct investment which are studied in greater depth from the perspective of economic growth of a country by the researchers (Moiseev et al., 2020; Wong et al., 2015; Yuan & Ishak, 2022; Haruna & Bakar, 2022). From the first article, it has been proven that GDP per capita is the most accurate method for estimating perceived levels of corruption without adding in other economic indicators such as purchasing power and unemployment rate (Moiseev et al., 2020). To combat the level of corruption in a developing economic country, the government should strive for the country's economic development as a priority as an effective tool to reduce corruption. In low-income countries, it is crucially needed to tackle corruption issues to have fast and stable economic growth by making the right changes on their legal structure.

Few authors have said that corruption has a positive effect when including corruption level on estimating the productivity function, but the test results interpret significant reduction on investment level, hence reducing economic growth level of a country (Shittu et al., 2018). Most of the literature supports the idea that corruption results in a negative impact on economic growth (Moiseev et al., 2020; Wong et al., 2015; Yuan & Ishak, 2022; Haruna & Bakar, 2022) and shows how political instability in an ECOWAS country stunted their economy, spawned the country to rely on foreign aid, and caused the high level of corruption (Abu & Karim, 2015). Policies that are established to foster the political situation will lessen the reliance on foreign aid and reduce the corruption level in this country. Along with this, it is clear that the main cause of corruption is weak establishment in the country's regulation (Antoni et al., 2019). The root cause must be a prelude to being expelled from the beginning of policy development to cater corruption out of an organization for the outset of developing the country’s economy.

There is a limitation that needs to be considered when assessing the results of this study that is, the research paper referred to writing this SLR was published in two different databases (Scopus and WoS). This meant that articles published in different forms of publications including books, conferences, and reviews, were not included. However, 7 journal papers are used to derive conclusions for this analysis, which we believe is sufficient to provide a thorough overview of the literature connecting the causality of corruption to economic growth.

Future research can look into longitudinal studies by tracking the evolution of corruption and its impact on economic growth over an extended period. This would aid in understanding how changes in corruption levels affect economic growth over time and whether the causality relationship holds in the long run. Further research can also investigate the role of institutional reforms in combating corruption by assessing the impact of legal, regulatory, and governance reforms on reducing corruption and fostering economic growth.

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Factors Influencing Purchase Intention towards International Cosmetic Products among Malay Women

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Abstract: An attractive appearance is essential for women. Women are willing to spend money for the sake of taking care of their face and skin by buying trusted cosmetic brands. The utilization of cosmetic items has emerged as a significant aspect across the lifespan, from infancy to old age, with a growing number of consumers engaging in the consumption of such products. Consumers in developing countries prefer well-known international products rather than domestic products because they have more confidence in the quality of foreign products. Hence, the researcher aims to investigate the extent to which product quality, packaging, brand name and promotion influence purchase intention toward international cosmetic products among Malay women in Putrajaya Malaysia. Therefore, a survey of 105 Malay women in Putrajaya Malaysia was conducted to analyze the factors that influence purchase intention toward international cosmetic products. Correlation analysis is used to analyze the data to identify the relationship between the variables. Furthermore, multiple regression analysis is used to assess the significant influential factors toward purchase intention. The result from the survey discovered that only product quality has a significant relationship with purchase intention towards international cosmetic products among Malay women in Putrajaya Malaysia. Packaging, brand name and promotion were not found to have a significant relationship towards purchase intention towards international cosmetic products.

Keywords: *Purchase Intention, Cosmetics Products, International Brands, Malaysian Women, Product Quality*

1. Introduction and Background

Malaysia is a developing nation experiencing monetary development. This nation is honored with a helpful worldwide area, empowering exchange with encompassing nations. With the World Wide Web, the economy has developed at a much greater rate, with exports and imports of products at economies of scale. In this kind of era, consumers in Malaysia seem to be intent on increasing the demand for the purchase of international products. Due to advances in technology and the trend towards globalization, as well as transportation, consumers have access to and are exposed to a great variety of services and products. According to Wang & Chen (2004), consumers in developing countries prefer foreign products or internationally well-known products rather than domestic products because they have more confidence in the quality of foreign products, and consuming foreign products will have an impact on impressing others as they will be associated with high social status and fashion.

An attractive appearance is essential for both women and men. Nowadays, people are willing to spend more money for the sake of taking care of their face and skin by buying trusted cosmetics. The beauty industry is not only catered to glamorous, vain, and spotlight types; the industry is built on the products and services that help us look our best. Cosmetics are much more varied because they include not just makeup, fragrance, and hair color but also toothpaste, deodorant, and other toiletries. Cosmetics can be classified as the products and services that are dedicated to helping us look and smell the way we want or the way we believe we should look for professional reasons. Cosmetics are the most important for women. The intention to use cosmetics is often implicated in wanting to look attractive, but it is also a way to support women's appearance. Body care, also known as cosmetics, is used by women to treat their bodies. The beauty care industry continues to strive to satisfy consumers with a range of innovative cosmetics products to meet their demands and needs. The research objective is to survey the influence of product quality, brand name, and packaging on consumers' purchase intentions for international cosmetic products. The cosmetics industry has been one of the world's driving ventures, and today the cosmetics and toiletries industry in Malaysia has grown quickly. In this era, cosmetics are considered a necessity rather than something that people want for

materialistic ends, especially for women. With the increasing market size and consumer demand, cosmetics firms have to search for new methods and learn to understand the consumer's needs to increase their levels of product satisfaction. Thus, the increase in consumers' satisfaction will positively affect product sales.

Due to the increasing trend of globalization and advanced technology nowadays, local cosmetics are now under pressure to compete with international brands. This is due to the existence of personal shoppers and social networks. A personal shopper is a person whose job it is to help customers select merchandise, such as in a department store or online store. Marketing tools play an important role in providing information to consumers. Nowadays, the producers usually give their products to the influencer to promote or give a review before they launch them in a physical store or online. So, consumers will seek out and gain information about those cosmetics before making purchases. International cosmetics have more exposure due to the advanced social networks of today. For instance, it could deliver its marketing through a variety of mediums; one of the most influential mediums they could use is YouTube. YouTube has more than one billion users per day. This extraordinary revolution has provided lots of opportunities for brands. YouTubers have achieved a status as one of the biggest influencers on social media, gaining a wide, loyal audience to support them. Most of them will send their product to a YouTuber, who is an influencer, to promote and influence the audience, thus gaining visibility for their products or brand. Apart from that, the international products are also well known globally due to the existence of the Sephora store, where consumers can get a variety of choices of cosmetics products, and also because they can get advice on which products are suitable for them from the beautician or consultant in the store itself before they buy the products.

2. Literature Review

Purchase Intention: Purchase intention is a kind of decision-making that studies the reason to buy a particular brand by the consumer (Shah et al., 2012). Purchase intention usually is related to the perceptions and attitudes of consumers. According to Kala & Chaubey (2017), attitude can be explained as a learned preference to act in a consistently good or horrible way towards specific things or objects. Purchase intention may be changed under the influence of price or perceived quality and value (Gogoi, 2013). Purchase intention is a method of examining and forecasting consumer behavior regarding their attention to specific brands and willingness to make purchases (Garg & Joshi, 2018). Purchase intention also considers the scale of a consumer's estimate when making a purchase decision (Ali et al., 2020).

Product Quality: Quality products play a particular role in the analysis of the intention to purchase international cosmetics. To meet their needs and wants and reduce perception risk, consumers always prefer quality products over price. According to Zeeshan (2013), quality is a significant tool for forming a competitive advantage. In addition, quality should be improved every moment (Tariq et al., 2013). According to Chi et al. (2008), the purchasing intentions of consumers depend on product quality. The quality of the beauty care product that a female consumer becomes loyal to a brand (Priyanga & Krishnaveni, 2016). High-quality cosmetics help manufacturers build and maintain the trust and confidence of targeted customers. Consumers are concerned about the quality of cosmetic products before deciding to purchase them. To remain competitive with the cosmetic companies of the competitors, the quality of the products should be improved and concentrated more.
H1: Product quality has a significant relationship with purchase intention.

Brand Name: A brand is a term, name, sign, design, symbol, or a combination of those, that represents the identity of the seller. Brand names represent a promise that sellers give to the buyers (Kotler & Armstrong, 2010). Thus, Keller (2003) states that the brand name is the factor that can attract consumers and demonstrate the product's identity by making the brand name unique and memorable. The brand name is an extremely important decision since it takes a very condensed and reasonable approach to the central theme or key association of a product. Some organizations assign their product a brand name that has nothing to do with emotional experience but is captivating and a name that people can easily remember. According to Kotler & Keller (2018), the core basis for naming a brand is that it should be unique, easy to remember, and attractive to customers. A well-known familiar brand name associated with a positive brand image creates competitive advantages in terms of increasing consumers' interest, attention, and positive evaluation of a product (Porter & Claycomb, 1997).
H2: Brand name has a significant relationship with purchase intention.

Packaging: There are many factors influencing consumer behavior in the purchase of products, such as packaging color, packaging material, printed information, wrapper design, printed information, innovation, and convenience. According to Silayoi & Speece (2004) elements of the packaging are shape, color, symbol, graphics patterns, pictures and size. Images are important since they may serve as a diagnostic piece of information in some product purchase situations (Underwood et al., 2001). Packaging is one of the most important elements of promotion, design, and marketing. According to Mazhar et al. (2015), honest and effective packaging will attract a lot of customers and increase their intention to buy products. If the product has good quality and unique packaging, it remains in the minds of consumers for a long time, and thus consumers want to buy the product at the time of shopping, so its packaging promotes the product itself.
H3: Packaging has a significant relationship with purchase intention.

Promotion: Promotion is classified as one of the key marketing mix factors. Promotion is a part of the promotion mix in marketing activities as well as the marketing tactic of a business entering the market or retaining customers (Berjani & Strufe 2011). Chang & Tsai (2011) proposed communication tools for marketing including advertising, public relations, personal selling, sales promotions, and direct marketing to enhance consumer purchase intention. Promotion is normally made because it provides product details to the market, captures new customers, retains loyal customers, and increases sales. Influence on the intention to purchase can come from any side, one of which is a marketer's brilliant marketing strategy idea to attract consumers (Azurin Sani et al., 2022). Li et al. (2011) indicated that sales promotion is an essential marketing effort, being practiced in limited time and tending to stimulate consumer purchase.
H4: Promotion has a significant relationship with purchase intention.

3. Methodology

The study was conducted among Malay women residing in Putrajaya. Quantitative research through a questionnaire was used to identify the factors influencing purchase intention toward international cosmetic products. A total of 135 questionnaires were distributed and 105 questionnaires were meaningful for analysis purposes. Correlation coefficients were used to identify the relationship between the variables. Furthermore, multiple regressions were used to identify the significant factors that influence purchase intention towards international cosmetic products.

4. Results

Profile of Respondents: Table 1 displays a summary of the demographic information of respondents who participated in the study.

Table 1: Demographic Information Pertaining to Respondents (n=105)

Variables	Frequency	Percentage
GENDER		
Male	0	0%
Female	105	100%
Total	**105**	**100%**
AGE		
below 20 years old	5	4.76%
21–30 years old	60	57%
31–40 years old	36	34%
41 years old and above	4	3.8%
Total	**105**	**100%**
MARITAL STATUS		
Single	62	55%
Married	43	45%
Total	**105**	**100%**
INCOME LEVEL		
Below RM1000	24	22.86%
RM1000–RM2000	14	13.33%

RM2001–RM5000	46	43.81%
Above RM5000	21	20%
Total	**105**	**100%**

Reliability Analysis: Table 2 presents the reliability outcomes for both independent variables, including product quality, brand name, packaging, and promotion, as well as the dependent variable, which is purchase intention.

Table 2: Reliability Analysis

Variables	Cronbach's Alpha	Reliability Analysis (Sekaran & Bougie, 2013)
Purchase Intention	.740	Good
Product Quality	.664	Moderate
Brand Name	.779	Good
Packaging	.792	Good
Promotion	.766	Good

The Cronbach's Alpha value for purchase intention is 0.740, signifying a strong and reliable result. In addition, Cronbach's Alpha for product quality is 0.664, suggesting a moderately reliable outcome that remains within an acceptable range. The Cronbach's Alpha for the brand name is 0.779, indicating a good and dependable result. Furthermore, Cronbach's Alpha for packaging is 0.792, showcasing a solid and reliable outcome. Lastly, Cronbach's Alpha for promotion is 0.766, which also points to a dependable and acceptable result.

Correlation Analysis: Table 3 displays correlation analysis to demonstrate the strength of a linear relationship between dependent variables and independent variables. The correlation coefficient is used to measure the correlation. The correlation coefficient indicates the level of two variables is related. Scores vary from 1 to -1. A perfect positive correlation is represented by a value of one, whereas a perfect negative correlation is represented by a value of one. Closer to zero indicates a weak association.

Table 3: Correlation Analysis

Dependent Variables	Independent Variables			
	Product Quality	Brand Name	Packaging	Promotion
Purchase Intention	.633**	.467**	.437**	.081

(*p<0.05; **p<0.001)

The result found a moderate correlation between purchase intention and factors that are product quality ($r = 0.633$, $p < 0.01$), brand name ($r = 0.467$, $p < 0.01$) and packaging ($r = 0.437$, $p < 0.01$). There was a weak relationship between purchase intention and promotion ($r = 0.081$).

Regression Analysis: To further investigate the significant relationship between dependent variables and independent variables, multiple regression equations were conducted. Table 4 provides the results of multiple regression.

Table 4: Multiple Regression Analysis

Independent Variable	Dependent Variable: Purchase Intention
Product Quality	.535**
Brand Name	.095
Packaging	.093
Promotion	-.069
R^2	0.418
F	17.932**

(*p<0.05; **p<0.001)

Using multiple regression procedures, product quality was found significantly related to purchase intention (B = 0.535, p < 0.01). In contrast, other factors, brand name (B = 0.095), packaging (B = 0.093) and promotion (B = -0.069) were found not significantly related to purchase intention. Using multiple regression procedures, the model consisting of product quality, brand name, packaging and promotion was found to be significant where the R^2 = 0.418 explaining 41.8% of the variance in purchase intention (F = 17.932, p < 0.01).

Discussion: This research aims to gain a better understanding of the relationship between factors (i.e., product quality, brand name, packaging, and promotion) and purchase intention towards international cosmetic products. The results of this research were obtained through various statistical analyses, correlation analysis, Cronbach's Alpha, and regression analysis. These analyses provided valuable insights into the factors influencing consumers' decisions to purchase international cosmetics products. Based on correlation analysis, only promotion showed a non-significant and negative correlation with purchase intention. In contrast, the remaining three variables namely product quality, brand name, and packaging were found to be significantly and positively correlated with purchase intention. Regression analysis showed that only product quality has a significant relationship with purchase intention. The result is in line with empirical studies including Tsiotsou, (2006). In contrast, the three remaining factors, packaging, brand name and promotion were found not significantly related to purchase intention. These results provide valuable insights for marketers and businesses aiming to enhance their strategies and decision-making in the international cosmetics industry. The study's rigorous statistical analyses and reliability tests lend credibility to the conclusions drawn, making them applicable and useful for both academic research and practical business applications.

Managerial Implications and Recommendations: Given that product quality showed the highest level of significance in influencing purchase intentions, companies should prioritize the quality of their products. This implies maintaining high-quality standards and continuous improvement in product development. To leverage the correlation between product quality and purchase intention, companies should invest in consumer education and awareness campaigns. Providing comprehensive information about their products can help consumers make informed decisions. Since brand image, packaging, and promotion did not demonstrate significant effects, companies may need to reevaluate and refine their promotional and marketing strategies. This could involve adopting more effective approaches or exploring new channels to attract a larger client base. The study suggests that there might be other factors influencing purchase intention that were not considered in the research. Companies should conduct additional research to identify and understand these factors to further enhance their marketing strategies.

5. Conclusion

In conclusion, the researcher determined that the variable with the highest level of significance was product quality, whereas brand image, packaging, and promotion did not demonstrate significant effects. Therefore, it may be inferred that a correlation exists between the quality of a product and the intention to make a purchase. Therefore, the company needs to enhance consumer awareness and understanding of its product through the provision of comprehensive information. In addition, the firm should use effective promotional and marketing strategies to attract a larger client base and stimulate product purchases. To enhance the scope of future investigations, the researcher needs to take into account additional variables that were not encompassed in the present study. This study was limited to the examination of four variables that impact the purchasing behavior of Malay women in relation to international cosmetics. However, it is important to acknowledge the potential existence of other factors that could influence the dependent variable of purchase intention. For the purpose to enhance the study's independent variable, it is recommended that the researcher includes additional aspects in future investigations, such as the examination of customer behavior within the context of Malaysia. On the other hand, by optimizing the methodology for the research, it is believed that the outcomes of the research can be enhanced.

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With or Without Emojis? A Conceptual Paper on Food Vendor Instagram Caption towards Customer Engagement

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Abstract: This conceptual paper investigates the impact of emojis on customer engagement in food vendor Instagram captions. Emojis have gained traction in online communication, but their influence on customer engagement in the context of food vendors remains unexplored. Drawing on concepts of customer engagement, social media marketing and semiotics, the research explores how emojis capture attention, convey emotions, enhance communication, and foster customer engagement. Through qualitative interviews with food vendors and customers in Kulim, this research aims to identify patterns and themes related to the impact of emojis on customer engagement. The findings of this research are expected to contribute to the growing body of literature on social media marketing and stimulate further investigation into the utilization of emojis for enhancing customer engagement on social media, enabling food vendors to leverage emojis effectively in their Instagram captions as an effective strategy to cultivate stronger engagement.

Keywords: *Emojis, Consumer Engagement, Social Media, Page Captions*

1. Introduction and Background

In recent years, social media platforms have revolutionized the way businesses interact with customers and foster brand loyalty (Kaplan & Haenlein, 2010). Instagram, in particular, has emerged as a dominant force in the realm of social media, especially in the food industry where visually appealing content plays a crucial role. As businesses adapt to the ever-evolving landscape of Instagram, they continually seek innovative strategies to captivate their audience and enhance customer engagement. One strategy that has gained considerable traction is the strategic use of emojis in captions.

Emojis, as pictorial representations of emotions and ideas, have become an integral part of digital communication, providing a visual context that enhances the overall message and potentially influences engagement levels between businesses and their customers (Derks, Fischer, & Bos, 2008; Miller, 2017). They offer a concise and expressive way to convey sentiments, tone, and intentions within Instagram captions. By incorporating emojis, businesses aim to create a more engaging and relatable communication style, forging a stronger connection with their customers.

While emojis have been widely adopted in informal online communication, their impact in formal business contexts, such as food vendor Instagram captions, remains an area that requires further exploration and understanding. Scholars have recognized the significance of emojis in online communication, highlighting their ability to convey emotional nuances, enrich textual meaning, and foster a sense of connectedness (Derks, Fischer, & Bos, 2008; Miller, 2017). However, the specific application of emojis in the context of food vendor Instagram captions requires more empirical research to comprehend their influence on customer engagement and the factors that influence their effectiveness.

Therefore, the primary objective of this conceptual paper is to explore the potential of emojis in food vendor Instagram captions and examine their impact on customer engagement. By reviewing existing literature on emojis, customer engagement and social media marketing, this paper aims to conceptualize the potential effects of incorporating emojis in food vendor Instagram captions. Additionally, it will identify the factors that may influence the effectiveness of emojis in engaging customers. By shedding light on this relatively unexplored topic, this paper contributes to the growing body of knowledge in social media marketing, with a specific focus on the role of emojis in customer engagement within the food industry.

Research Objectives

- To examine the impact of incorporating emojis in food vendor Instagram captions on customer

engagement metrics
- To investigate the emotional responses elicited by emojis in food vendor Instagram captions and their influence on customer engagement.
- To identify the potential drawbacks and considerations associated with using emojis in food vendor Instagram captions.

Research Questions
- How does the use of emojis in food vendor Instagram captions impact customer engagement metrics compared to captions without emojis?
- What specific emotions are evoked by emojis in food vendor Instagram captions, and how do these emotional responses influence customer engagement and perception of the brand?
- What are the potential drawbacks and considerations associated with using emojis in food vendor Instagram captions, such as misinterpretation, cultural differences, and perceived professionalism, and how do these factors impact customer engagement and the overall effectiveness of the captions?

2. Literature Review

In recent years, social media platforms, particularly Instagram, have revolutionized the way businesses interact with customers and foster brand loyalty (Kaplan & Haenlein, 2010). The use of emojis in Instagram captions has gained attention as a potential strategy to enhance customer engagement within the food industry (Alalwan et al., 2017). These pictorial representations of emotions and ideas have become an integral part of digital communication, providing a visual context that enhances the overall message and potentially influences engagement levels between businesses and their customers. While emojis are widely adopted in informal online communication, their impact in formal contexts, such as business communication remains a subject of ongoing debate and exploration.

Scholars have recognized the significance of emojis in online communication, emphasizing their capacity to convey emotional nuances, enrich textual meaning, and foster a sense of connectedness (Derks, Fischer, & Bos, 2008; Miller, 2017). Research on emojis has shown their potential to evoke emotional responses, enhance brand personality, and facilitate customer-brand interactions (Chen & Xu, 2019; Labrecque et al., 2013). Emojis can elicit positive emotions and create a sense of familiarity, which contributes to customer engagement and brand attachment (Hu, 2018). Moreover, the visual appeal of emojis in Instagram captions can capture users' attention and increase the likelihood of interaction and information processing (Phua et al., 2017).

Social media platforms, including Instagram, have become essential communication tools for businesses, allowing food vendors to share updates about their products, menu changes, special promotions, and upcoming events (Boyd & Ellison, 2007). Leveraging Instagram's features, such as stories, posts, and live videos, food vendors can keep their customers informed in real-time, leading to enhanced customer engagement and satisfaction. Additionally, these platforms facilitate two-way communication, enabling customers to interact with businesses through comments, likes, and direct messages (Wirtz & Göttel, 2018). This interaction fosters meaningful conversations and personalized engagement, strengthening the bond between the vendor and the customer, and increasing customer loyalty and advocacy.

The visually-driven nature of Instagram makes it an ideal platform for food vendors to showcase their products in an appealing and enticing manner (Yadav et al., 2013). By leveraging high-quality images and videos of delicious food items, vendors can capture the attention of potential customers, stimulating customer engagement and creating a visual identity that resonates with their target audience.

Hence, the use of emojis in food vendor Instagram captions has gained popularity as a strategy to enhance customer engagement. Their ability to convey emotional nuances, enhance textual meaning, and capture users' attention makes them valuable tools for businesses in the food industry. By leveraging social media platforms like Instagram and incorporating emojis strategically, food vendors can foster a stronger connection with their customers, stimulate engagement, and ultimately build brand loyalty. However, further

research is needed to fully understand the impact and effectiveness of emojis in formal business communication contexts, specifically within food vendor Instagram captions.

The Importance of Emojis in Instagram Caption

Emotional Expression and Engagement: Emojis have become a ubiquitous part of online communication, profoundly influencing how individuals express emotions and convey meaning in digital conversations (Bouhnik & Deshen, 2014). These graphical representations of emotions, concepts, and ideas play a crucial role in enhancing communication and fostering engagement, particularly on platforms like Instagram. In the context of food vendor Instagram captions, emojis offer a unique opportunity to infuse textual content with an emotional layer (Chen & Xie, 2015). They enable food vendors to convey sentiment, tone, and intent concisely and in a visually appealing manner. For instance, a smiling face emoji can effectively communicate happiness or satisfaction associated with a delicious dish, while a heart emoji can express love and appreciation for a particular food item.

Strategic incorporation of emojis allows food vendors to establish a more engaging and relatable communication style, forging a connection with their audience (Muniz & O'Guinn, 2011). When customers come across emojis in Instagram captions, they often experience a sense of familiarity and emotional resonance, leading to increased interest, interaction, and ultimately, customer loyalty. Furthermore, emojis help overcome the limitations of text-based communication by providing additional context and clarifying the intended meaning of a message (Walther et al., 2012). They can prevent misinterpretations and misunderstandings, ensuring that the message is accurately and effectively conveyed.

Thus, emojis serve as powerful tools for emotional expression and engagement in digital communication. When strategically incorporated into Instagram captions, food vendors can establish a more engaging and relatable communication style, evoke emotions, and create a stronger connection with their audience. Emojis not only add visual appeal but also aid in conveying sentiment, tone, and intent, thereby enhancing the overall effectiveness of communication on social media platforms like Instagram.

Visual Appeal and Attention Grabbing: Emojis are widely recognized for their visual appeal and ability to capture attention in a cluttered digital environment (Ding et al., 2019). For food vendor Instagram captions, emojis provide an opportunity to go beyond plain text and add a vibrant and eye-catching element to messages (Eskola et al., 2018). By incorporating emojis strategically, food vendors can enhance the visual appeal of their captions. The use of emojis allows food vendors to infuse personality and context into their messages, showcasing the unique characteristics of their brand (Ko & Chang, 2020). By carefully selecting emojis that align with their brand identity and desired tone, vendors can make their captions more memorable and recognizable to their audience.

The visual appeal of emojis contributes to increased engagement and brand recall. As users scroll through their Instagram feeds, emojis act as visual hooks, capturing attention and encouraging users to engage with the content (Saravanakumar & SuganthaLakshmi, 2012). Memorable and visually appealing captions are more likely to be shared, commented on, and remembered by viewers, leading to increased engagement and brand visibility.

However, it is important to consider various factors that may influence the impact of emojis on customer engagement. The context, in which emojis are used, such as the type of food being promoted and the target audience, can play a significant role in their effectiveness. Cultural considerations should also be taken into account as interpretations of emojis may vary across different cultures and regions (Derks, Fischer, & Bos, 2008). Additionally, the placement and frequency of emojis within Instagram captions, as well as their alignment with brand image and authenticity, can impact customer engagement (Phua et al., 2017; Miller, 2017). Furthermore, attention should be given to caption length and the strategic use of emojis to convey specific messages.

In summary, by utilizing emojis strategically, food vendors can enhance the visual appeal of their Instagram captions and capture the attention of their audience. However, the effectiveness of emojis in customer engagement is influenced by various factors that should be carefully considered to optimize their impact.

The Impact of Emojis on Customer Engagement

Enhancing message enhancement and engagement: Research has consistently shown that emojis serve as valuable tools for enhancing message interpretation, comprehension, and context understanding (Dresner & Herring, 2010). In a digital landscape where communication often relies solely on text, emojis provide visual cues that help convey tone, sentiment, and intent more effectively (Kim & de Araujo, 2018). By strategically incorporating emojis into their Instagram captions, food vendors can enhance the clarity and precision of their messages.

Emojis act as supportive elements that complement the textual content, providing additional context and aiding in conveying the intended meaning (Kim & de Araujo, 2018). For example, a food vendor describing a spicy dish can use a flame emoji to reinforce the level of heat, ensuring that customers understand the intensity of the flavor. This use of emojis adds visual cues that enhance the overall message comprehension and make it more engaging for the audience.

Moreover, emojis add emotional depth and nuance to messages, overcoming the limitations of text-based communication (Tiene & Drennan, 2018). They allow food vendors to express feelings, moods and reactions in a concise and visually appealing manner. By using emojis that align with the emotions they want to convey, vendors can ensure that their messages are understood accurately and elicit the desired emotional response from the audience. Additionally, emojis aid in the interpretation of humor, sarcasm, or irony in captions, which can be challenging to convey through text alone (Tiene & Drennan, 2018). Emojis provide visual cues that assist in clarifying the intended tone, preventing misinterpretations, and enhancing overall message comprehension.

In summary, emojis play a vital role in enhancing message interpretation and comprehension on Instagram. By utilizing emojis strategically, food vendors can provide visual cues, add emotional depth, and clarify the intended tone of their captions. This leads to clearer communication, minimizing misinterpretations, and ensuring that the message is accurately understood by the audience.

Evoking Positive Emotions and Engagement: Emojis possess a remarkable ability to evoke positive emotions, which in turn enhances customer engagement and connection. As visual representations of emotions, emojis elicit immediate emotional responses from viewers, creating a sense of relatability and establishing a stronger bond between the food vendor and their audience (Cho & Cheon, 2014). When food vendors use emojis that align with their brand personality and effectively convey the desired emotions, they can tap into the power of emotional engagement. For example, a heart-eyes emoji used to express admiration for a delectable dessert can evoke a feeling of delight and excitement in customers, making them more likely to engage with the post by liking, commenting, or sharing it.

Furthermore, emojis help to create a more enjoyable and memorable customer experience. They inject a sense of playfulness and lightheartedness into captions, making the content more engaging and appealing to the audience (Fernández-Dols & Carrera, 2004). By evoking positive emotions, emojis contribute to a positive association with the food vendor's brand, fostering a sense of connection and loyalty among customers (Huang & Wang, 2016).

The use of emojis in Instagram captions also encourages customers to actively participate in the conversation. Emojis are easily recognizable and relatable, making it easier for customers to express their sentiments and engage with the vendor's content (Van Kleef, 2009). By incorporating emojis that encourage responses or reactions, such as question marks or thumbs up, food vendors invite their audience to join in the conversation and actively engage with the post.

In summary, emojis play a significant role in evoking positive emotions and enhancing customer engagement. By selecting emojis that align with their brand personality and effectively convey desired emotions, food vendors can create a more enjoyable and memorable customer experience. This emotional connection leads to increased engagement, as customers are more likely to interact with the content and develop a stronger sense of loyalty towards the vendor's brand.

Facilitating Personalization and Relationship Building: The strategic use of emojis in Instagram captions allows food vendors to personalize their communication and establish a more informal and friendly tone (Bruns & Stieglitz, 2018). This personal touch fosters a sense of authenticity, relatability, and approachability, which is crucial for building strong relationships with customers. Emojis provide food vendors with an opportunity to humanize their brand and create a more relatable online persona (Djafarova & Rushworth, 2017). By carefully selecting emojis that reflect their brand personality and values, vendors can convey a sense of identity and differentiate themselves from competitors. For instance, a food vendor with a focus on sustainable practices may use nature-related emojis to reinforce their commitment to the environment (Okazaki, Li, & Hirose, 2015).

Moreover, emojis add a layer of informality and playfulness to captions, creating a more relaxed and friendly atmosphere (Statista Research Department, 2022). This tone resonates well with customers, making them feel more comfortable and connected to the vendor. By infusing their captions with emojis, food vendors can bridge the gap between digital interactions and real-life experiences, fostering a sense of familiarity and building trust with their audience. The use of emojis also allows for a more personalized form of communication. Vendors can tailor their captions to specific segments of their audience, using emojis that are relevant and appealing to those particular groups (Statista Research Department, 2022). This level of personalization makes customers feel seen and understood, strengthening the bond between the vendor and the customer.

In summary, emojis facilitate personalization and relationship building by humanizing the brand, creating an informal and friendly tone, and allowing for a more personalized form of communication. By leveraging emojis strategically, food vendors can establish a deeper connection with their audience, foster trust and loyalty, and ultimately enhance customer satisfaction and engagement. To date, limited research has been conducted specifically on the impact of emojis in food vendor Instagram captions on customer engagement (Tiwari & Buse, 2020). Therefore, there is a need for further exploration to understand the potential effects, benefits, and challenges of incorporating emojis in this context. Such research can provide valuable insights for food vendors seeking to optimize their Instagram caption strategies and enhance customer engagement. In conclusion, the literature reviewed suggests that emojis have the potential to influence customer engagement on social media platforms. While emojis are widely used in informal online communication, their impact in more formal contexts, such as business communication, requires further investigation. Understanding the role of emojis in food vendor Instagram captions can help businesses maximize their effectiveness in engaging their target audience.

3. Methodology

Research Design: The research design for this study is qualitative as it seeks to explore the experiences, perceptions and attitudes of food vendors in Kulim regarding the use of emojis in Instagram captions. Qualitative research is well-suited for gaining in-depth insights and understanding of participants' subjective experiences and perspectives. Semi-structured interviews will be employed as the primary data collection method. This approach allows for flexibility and adaptability during the interviews, enabling the researcher to explore relevant themes and gather detailed insights from participants. The use of semi-structured interviews allows for a balance between guiding the conversation based on the research objectives and allowing participants to share their unique perspectives and experiences.

Data Collection: The semi-structured interviews will involve a set of predetermined open-ended questions and prompts to guide the discussion. These questions will be developed based on the research objectives and the conceptual framework derived from the literature review. The questions will be designed to elicit participants' thoughts, experiences, and attitudes towards the use of emojis in their Instagram captions as well as any perceived impact on customer engagement. The interviews can be conducted either in person or remotely, depending on the participants' preferences and feasibility. Creating a comfortable and private setting for the interviews will be crucial to encourage participants to share their experiences openly. This will help ensure that the data collected accurately reflects participants' perspectives and insights.

The interviews will be audio-recorded with the participant's consent to ensure accurate capturing of the information shared. An interview guide will be developed based on the research objectives and conceptual framework. The guide will consist of open-ended questions and prompts designed to facilitate discussions on relevant topics, including participants' perceptions of emojis in Instagram captions, motivations for using emojis, the perceived impact on customer engagement, challenges faced and strategies employed.

Sampling: For sample selection, a purposive sampling technique will be employed to select participants who meet specific criteria for inclusion in the study. The criteria will include being a food vendor in Kulim, Malaysia, actively using Instagram as a marketing platform and having experience or knowledge about incorporating emojis in their Instagram captions. This approach will ensure that participants have relevant insights and experiences related to the research topic. The sample for the interviews will be selected using purposive sampling. This approach allows for the intentional selection of participants who meet specific criteria, such as being food vendors in Kulim, actively using Instagram as a marketing platform and having experience or knowledge about incorporating emojis in their captions. Efforts will be made to ensure diversity in the sample by considering factors such as the type of cuisine, popularity, and level of engagement on Instagram.

Efforts will be made to ensure diversity in the sample to capture a range of perspectives. Factors such as the type of cuisine offered, popularity of the vendor and level of engagement on Instagram will be considered during the participant selection process. This diversity will enrich the findings and provide a comprehensive understanding of the impact of emojis on customer engagement across different food vendors in Kulim.

4. Results

In terms of data analysis, thematic analysis will be employed. The interview recordings will be transcribed verbatim and the transcripts will be thoroughly reviewed to become familiar with the data. Initial codes will be generated by systematically coding the data and identifying meaningful segments relevant to the research objectives. These codes will be organized into themes and sub-themes, capturing the key ideas and patterns in the data. Data analysis software or manual coding techniques will be used to manage and analyze the data, ensuring rigor and reliability in the analysis process. The identified themes will be interpreted in light of the existing literature and the conceptual framework to provide meaningful insights into the impact of emojis on customer engagement.

Ethical considerations will be addressed by seeking ethical approval from the relevant institution or ethics committee. Participants will receive clear information about the study's purpose, voluntary nature, and the confidentiality of their data. Informed consent will be obtained from participants before the interviews, and their identities will be anonymized during data reporting and analysis to ensure confidentiality and privacy.

5. Conclusion

In conclusion, this conceptual research paper delved into the impact of emojis on customer engagement in the context of food vendor Instagram captions. Through a thorough analysis, we explored the advantages and considerations of incorporating emojis into captions and their influence on customer engagement. Our examination of existing literature and theoretical analysis reveals that emojis play a significant role in bolstering customer engagement on social media platforms, particularly on Instagram. Emojis offer a visually appealing and succinct method of conveying emotions, expressing ideas, and establishing a sense of connection with the audience. By strategically utilizing emojis in captions, food vendors can effectively capture their target audience's attention, evoke positive emotional responses, and cultivate higher levels of engagement.

The findings suggest that emojis can contribute to increased likes, comments, and shares, which are crucial metrics for measuring customer engagement on Instagram. Emojis can aid in conveying brand personality, forging a friendly and relatable image, and fostering a sense of community among followers. Furthermore, emojis can transcend language barriers and appeal to a diverse audience, enabling food vendors to engage with a broader customer base. However, it is essential to acknowledge that the impact of emojis on customer

engagement may vary depending on factors such as the target audience, cultural context, and the specific message being conveyed. Possible drawbacks include misinterpretation, cultural disparities, and the risk of appearing unprofessional if emojis are used excessively or inappropriately. Therefore, food vendors must carefully consider their target audience and the contextual appropriateness of emojis to ensure effective communication and avoid potential pitfalls.

To conclude, this conceptual paper underscores the potential benefits and considerations associated with incorporating emojis into food vendor Instagram captions to enhance customer engagement. The findings emphasize the need for thoughtful and strategic integration of emojis to create an engaging and meaningful interaction with the audience.

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Understanding Whistleblowing Intention Among Public Sector Employees in the Northern Region of Malaysia: Does Gender Matter?

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Abstract: The objective of this study is to determine the factors influencing whistleblowing intention among public sector employees. This study utilized the Theory of Prosocial Behavior which includes contextual determinants (policy and procedure, training, responsiveness of management, reporting channel, financial reward, seriousness level of wrongdoing) and individual determinants (knowledge, trust) as independent variables while whistle blowing intention is the dependent variable. Additionally, this study also includes gender as a moderating variable in the relationship between the contextual and individual determinants toward whistleblowing intention. The data was collected from 123 public sector employees in the northern region of Malaysia (Perlis, Kedah, Penang) from various ministries via an online survey questionnaire and analyzed using SmartPLS. This study found that there is a significant relationship between all independent variables and whistleblowing intention, except for the responsiveness of management. Additionally, gender was found to be significant in the relationship between several independent variables and whistleblowing intention.

Keywords: *Whistleblowing intention, public sector, theory of prosocial behavior*

1. Introduction and Background

Corruption and unethical behavior continue to be a global issue for both private and public sector management. Because they are the executive body that manages and spends public funds, the public sector has always been associated with issues of corruption, integrity, and other unethical conduct. In 2022, the Corruption Perceptions Index (CPI) for Malaysia was given a score of 47 on a scale from 0 (highly corrupt) to 100 (very clean), ranking 61st out of 180 countries (Transparency International, 2023). This illustrates that the public sector in Malaysia is not doing enough to eradicate malpractice and corruption effectively. As a consequence, the government organization's credibility will be impacted (Nawawi & Salin, 2018). It is of the uttermost importance to develop robust and effective integrity systems in the public sector to ensure that unethical behaviors do not undermine the public's confidence in the government as a whole (Moreira, 2019). Therefore, whistleblowing is recommended as an approach to eliminating wrongdoings such as corruption (Md. Lazim et al., 2022). Ismail et al. (2018) define whistleblowing as the reporting of any misconduct that happens within an organization. The Malaysian government implemented a National Anti-Corruption Plan (NACP) in 2019 that includes whistleblowing as a strategy to eliminate corruption and unethical conduct.

However, not everyone has the courage to come forward as a whistleblower due to the potential risks involved. In some organizations, whistleblowers are not welcome. They will be labelled as troublemakers and will be exposed to numerous risks, including being terminated, blacklisted, detained, sued, or, in the worst-case scenario, assaulted or homicide (Zainol et al., 2018). Before deciding whether or not to report, individuals will evaluate the potential positive and negative implications. As whistleblowing is a difficult decision that is susceptible to harm and risk, numerous studies have been carried out to understand the motivating variables that might encourage and attract a potential whistleblower to come forward. Dozier and Miceli (1985) asserted that variables such as individual and situational factors will impact the whistleblowing decision-making process. Thus, a variety of potential factors may influence the intention of public sector employees to blow the whistle (Abdullah Sani et al., 2022). Furthermore, Pratolo et al. (2020) suggested using a moderating variable in examining whistleblowing intention. Due to inconsistent findings among previous whistleblowing literature on gender, this study employed gender as a moderating variable in the relationship between contextual and individual determinants and whistleblowing intention.

This study provides academics with useful insights for underpinning the theory of prosocial behavior by explaining determinant factors, which are contextual and individual factors that influence whistleblowing intentions. In addition, this study enhances the body of knowledge regarding the moderating effect of gender in influencing whistleblowing intention, especially for the population of public sector employees in the northern region of Malaysia. From a managerial perspective, this study will assist public sector management in creating a strategic whistleblowing plan for combating the corruption and unethical conduct that happen within the public sector by considering the factors that are included in this study.

2. Literature Review

Whistleblowing Intention: Whistleblowing intention is defined as the probability that someone will decide to come forward and disclose the witnessed wrongdoing (Rustiarini & Sunarsih, 2017). In achieving its goals and objectives, one of the most challenging issues encountered by the organization is misbehavior and malpractice, such as corruption and any other unethical behavior. Hence, the information provided by the internal employee is seen as beneficial guidance and information for the management in dealing with this inappropriate behavior, so that they are aware of the issues and wrongdoings that occur within their organization. In addition, whistleblowing helps to stop misbehavior, fraud, or criminal activity within the organization before it gets out of hand, as well as minimize the potential damages and costs to the organization and its members (Smaili, 2023).

Contextual Determinants

Policy and Procedure and Whistleblowing: Whistleblowing policy and procedure are the internal channels of communication that encourage employees to report the observed wrongdoing that happens within the organization (Barnett et al., 1993). It will be used as a set of strategies and guidelines to establish the environment required for effective whistleblowing management. To make sure the employees understand their roles in the organization's effort to combat misbehavior, policy and procedure should communicate the organization's expectations towards their employees regarding whistleblowing and clearly explain the whole process of the whistleblowing procedure. Hassink et al. (2007) indicate that the basic pillars of an effective whistleblowing policy should include the nature of violations to be reported, officials or bodies to whom wrongdoing should be reported, reporting guidelines and formalities, confidentiality and anonymity, protection from retaliation, and investigation details. Previous studies have found that the availability of the whistleblowing policy and procedure will increase whistleblowing intentions (Previtali & Cerchiello, 2022; Li et al., 2020). Accordingly, the first hypothesis is derived as follows:
H1: There will be a significant relationship between policy and procedure and whistleblowing intention among public sector employees in the northern region of Malaysia.

Training and Whistleblowing: Generally, training is defined as structured learning activities that might enhance knowledge, skills, or attitudes to improve individual performance (Huang, 2021). The knowledge, skills, and attitudes that they gained from the training provided will assist them in ethical decision-making in the future. Due to the potential risk and threat, training will reduce the whistleblower's pressures and constraints due to their natural discomfort (Previtali & Cerchiello, 2022). Furthermore, training is one of the mediums through which management can convey the values of their policies and procedures to their employees (Zarefar et al., 2020). Therefore, training will ensure the whistleblowing policy and procedure meet organizational expectations and values. Previous studies revealed that training is one of the determinant factors influencing whistleblowing intention (Previtali & Cerchiello, 2022). Accordingly, the second hypothesis is derived as below:
H2: There will be a significant relationship between training and whistleblowing intention among public sector employees in the northern region of Malaysia.

Responsiveness of Management and Whistleblowing: Whistleblowing demonstrates a commitment to combating misconduct. When employees are committed to doing something for the organization, they anticipate that management will be similarly committed. Therefore, the employee anticipates that the company will treat the allegations of wrongdoing seriously and respond firmly to such reports (Scheetz, 2016). Their effectiveness and positive response to the reports demonstrate their commitment to combating

wrongdoing in their organization. Based on past experiences and beliefs, employees have their expectations of their management. If a prior whistleblowing effort ended in a poor outcome (i.e., a non-serious approach), people tend to be reluctant to reveal any information in the future because they assume the management will not be serious about resolving the issue (Scheetz, 2016). If a previous whistleblowing effort resulted in a favorable outcome (i.e., satisfactory handling of the reports), people tend to be motivated to report any observed wrongdoing that occurs within the organization (Alleyne et al., 2017). It was found that the responsiveness of management influences whistleblowing intentions (Naufal et al., 2020). Therefore, the third hypothesis is derived as below:

H3: There will be a significant relationship between the responsiveness of management and whistleblowing intention among public sector employees in the northern region of Malaysia.

Reporting Channel and Whistleblowing: When employees encounter and observe misbehavior in the workplace, they may choose to remain silent or to inform others. Therefore, the reporting channel seems to be a medium of communication that allows employees to report perceived wrongdoings at work. This will allow the potential whistleblower to formally and in good faith speak up to the employer. Communication might be directed either to an internal source within the organization (e.g., the human resources department or the internal audit department) or to an external third party (Zhang et al., 2013). Both channels of reporting have their own advantages and disadvantages (Gundlach et al., 2003). Organizations that foster and provide clear reporting channels for misbehavior and corruption will inspire the employees of the organization to blow the whistle (Kanojia et al., 2020). As a result, the reporting will be acknowledged as legitimate behavior by the organizations. It was found that reporting channels influence whistleblowing intentions (Rajeevan, 2020; Kanojia et al., 2020). Therefore, the fourth hypothesis is derived as below:

H4: There will be a significant relationship between reporting channels and whistleblowing intention among public sector employees in the northern region of Malaysia.

Financial Reward and Whistleblowing: Financial reward was defined as a reward in the monetary form obtained by employees as a substitute for the contributions they provide to the company (Pradnyanitasari et al., 2021, as cited in Kusumayanti et al., 2022). There has been a debate among previous researchers on the relationship between financial reward and whistleblowing. Whistleblowing behavior should be regarded as the norm and should not be rewarded because normal behavior does not merit a bonus, and it may also lead to false reports for personal advantage, such as claiming rewards (Teichmann & Falker, 2021) or inflicting reputational damage on organizations (Rajeevan, 2020). However, some researchers stated that the financial reward may motivate the whistleblowing intention. In the dilemma situation, the financial reward is the booster that encourages potential whistleblowers to come forward (Teichmann & Falker, 2021) if the reward is attractive enough to draw their attention (Hardi et al., 2020). It was found that financial reward influences whistleblowing intention (Al-Olimat, 2020; Hardi et al., 2020). Therefore, the fifth hypothesis is derived as below:

H5: There will be a significant relationship between financial rewards and whistleblowing intention among public sector employees in the northern region of Malaysia.

Seriousness Level of Wrongdoing and Whistleblowing: Alleyne et al. (2017) define the seriousness level of wrongdoing as a person's perception of the degree of the consequences of unethical behavior, and it will influence a person's judgment in decision-making (Jones, 1991). There are various ways a person can determine the seriousness of wrongdoing. Employees may prefer to report a serious issue than a non-serious one because they predict greater damage to the company if it is not disclosed (Hanif & Odiatma, 2017). Additionally, despite the monetary worth of a behavior, certain behaviors, such as sexual harassment, racial discrimination, or age discrimination, may be considered serious issues (Brink et al., 2015). Therefore, people will have various viewpoints about how serious an act of wrongdoing is, which will influence their decision about whether to report it or not. It was found that the seriousness level of wrongdoing influences whistleblowing intention (Khan et al., 2022; Kanojia et al., 2020). Therefore, the fourth hypothesis is derived as below:

H6: There will be a significant relationship between the seriousness level of wrongdoing and whistleblowing intention among public sector employees in the northern region of Malaysia.

Individual Determinants

Knowledge and Whistleblowing: To make morally and ethically appropriate decisions, a person must have a sense of what is right (Sankovic, 2018). The employees must be aware of the whistleblowing policy and understand the importance of whistleblowing in their organization. This includes having awareness of the reporting process and procedure as well as the belief that the practice of whistleblowing to combat unethical behavior is beneficial to them and their organization. The knowledge possessed by an individual related to the importance of whistleblowing and awareness of the process and procedure will assist them in deciding whether to disclose the witnessed wrongdoing or not. Okafor et al. (2020) indicated that, generally, people may believe that whistleblowing will eradicate unethical behavior and corruption in public sector administration, yet there is a low level of awareness of whistleblowing programs being implemented by the government. It was found that knowledge influences whistleblowing intentions (Chang et al., 2017). Therefore, the seventh hypothesis is derived as below:
H7: There will be a significant relationship between knowledge and whistleblowing intention among public sector employees in the northern region of Malaysia.

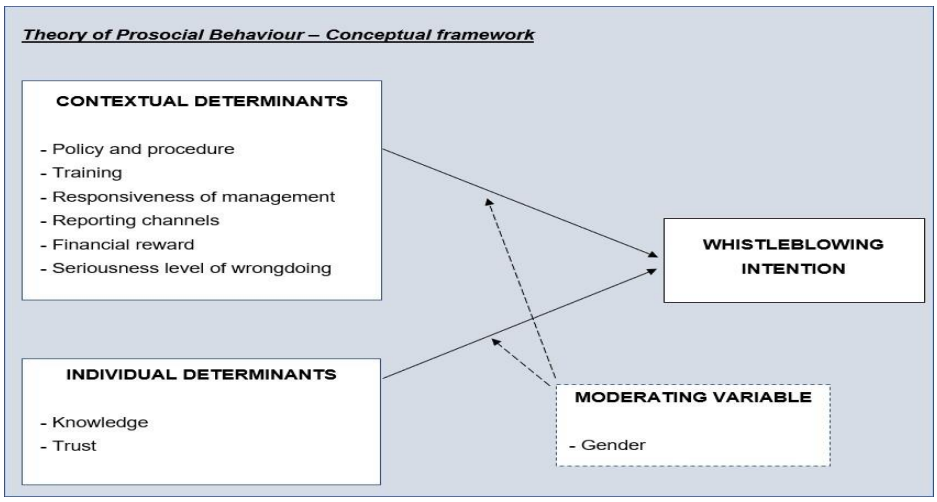
Trust and Whistleblowing: Robbins and Judge (2013) defined trust as a positive expectation or hope toward the words, behaviors, and policies of other people that will influence a person's decision-making (Simpson et al., 2013). Trust in leadership will result in positive behaviors such as commitment to an organization and high employee performance (Tyas & Utami, 2020). In relation to whistleblowing, trust is one of the vital elements that build up confidence among potential whistleblowers because they are disclosing a sensitive and confidential issue and may receive potential harm.

When an employee trusts their supervisor, they will feel free and safe to speak out about any issue or viewpoint. This is due to the fact that trust enhances a person's confidence that the leader will cooperate and help resolve the report (Geng, 2017). It was found that trust influences whistleblowing intentions (Tyas & Utami, 2020; Yang & Xu, 2020). Therefore, the eighth hypothesis is derived as below:
H8: There will be a significant relationship between trust and whistleblowing intention among public sector employees in the northern region of Malaysia.

Gender as Moderating Variable: According to Hajiabbasi et al. (2022), there are differences in the information processing mechanisms between males and females. As a result, these differences will lead to differences in the decision-making process between males and females. This is supported by Helmayunita (2018), which indicates that there is a significant influence for men and women in whistleblowing intentions because of the differences in construction and personality between males and females. Some of the previous studies found that females have stronger whistleblowing intentions compared to males (Hajiabbasi et al., 2022). Meanwhile, it was found that males have stronger whistleblowing intentions compared to females (Chang et al., 2017). In addition, it was found that gender has no relationship with whistleblowing intention (Nawawi & Salin, 2018). Meanwhile, gender as a moderating variable in the whistleblowing study has been examined earlier by Hajiabbasi et al. (2022), Puni and Hilton (2019), and Lasmini (2018). Therefore, the ninth hypothesis is derived as below:
H9: There will be a significant moderating role of gender in the relationship between factors (contextual determinants and individual determinants) and whistleblowing intention among public sector employees in the northern region of Malaysia.

Theory of Prosocial Behavior: According to Brief and Motowidlo (1986), prosocial behavior can be explained as a member's behavior or action towards another person or organization to which they are affiliated to promote well-being. The theory of prosocial behavior has been widely used in earlier studies on whistleblowing since it is a form of prosocial behavior. This behavior consists of both selfish motives (egoistic) and unselfish motives (altruistic) on the part of whistleblowers (Dozier & Miceli, 1985). The individual who engages in this behavior strives to satisfy the individual's motivation as well as benefit others. The ultimate goal of whistleblowing is to eradicate the unethical conduct and wrongdoing behavior that happen within organizations. This theory consists of individual determinants as the elements that derive from the individual and contextual determinants, which derive from the institutional, organizational, and environmental determinants (Brief & Motowidlo, 1986).

Figure 1: Research framework



3. Methodology

This study applied quantitative research, and the data was collected via an online survey from 123 public sector employees in the northern region of Malaysia, which covers Perlis, Kedah, and Penang. A stratified random sampling technique was used to segregate the population based on the state of the workplace, which is Perlis, Kedah, and Penang. Followed by quota sampling to ensure that certain groups are fairly represented in the study. Participants were asked to rate the degree to which they agreed with each of the statements using a 6-point Likert scale. In total, 46 items were used to measure nine variables. Data were analyzed using structured partial least squares modeling (PLS-SEM), and Smart PLS version 4 statistical software was used for the data analysis. This study adopted measurement questions from previous research and adapted them based on the suitability of this study. Six-point Likert scales ranging from strongly disagree to strongly agree were used to measure the variables in this study. Chomeya (2010) stated that to emphasize discrimination and reliability, the researcher should use the 6-point Likert scale to help the respondents choose the answer, as there is no neutral point. The measurement was taken from Otchere et al. (2022), Latan et al. (2018), and other previous researchers.

4. Results

Respondent's Profile: There were 123 total respondents involved in this study. Table 1 shows that 57.72% of the respondents are female and the other 42.28% are male. In detail, most of the respondents are working in Kedah (50.41%), another 38.21% are working in Penang, and the remaining 11.38% are working in Perlis. Public sector employees from the Ministry of Education had the highest number of respondents in this study, which was 44.72%, followed by the Ministry of Health (20.33%), the Administration of State Government (12.20%), the Ministry of Higher Education (7.32%), the Ministry of Home Affairs (4.88%), the Ministry of Rural and Regional Development (2.44%), the Ministry of Agriculture and Food Industries (2.44%), the Prime Minister's Department (1.63%), the Ministry of Finance (1.63%), the Ministry of Housing and Local Government (1.63%), and the Ministry of Transport (0.81%).

Table 1: Respondent's Background and Profile

Variable	Frequency	Percentage
GENDER		
Males	52	42.28
Females	71	57.72
Total	123	100%
State of Workplace		
Perlis	14	11.38
Kedah	62	50.41

Penang	47	38.21
Total	123	100%
Ministry		
Prime Minister's Department	2	1.63
Ministry of Home Affairs	6	4.88
Ministry of Health	25	20.33
Ministry of Finance	2	1.63
Ministry of Rural and Regional Development	3	2.44
Ministry of Education	55	44.72
Ministry of Higher Education	9	7.32
Ministry of Transport	1	0.81
Ministry of Agriculture and Food Industries	3	2.44
Ministry of Housing and Local Government	2	1.63
Administration of state government	15	12.20
Total	123	100%

Measurement Model

Reliability and Validity: In this study, all constructs were above 0.70, which met the rule of thumb for composite reliability, and all constructs in Cronbach's alpha also met the rule of thumb of being larger than 0.60. In addition, the value of AVE is larger than 0.50, indicating that they have met the acceptable standard of convergent validity.

Table 2: Measurement Model Analysis

Variables	Items	Loadings	Ave	Cronbach's Alpha	Composite Reliability
	WI1	0.922			
Whistleblowing intention	WI2	0.889	0.678	0.876	0.912
	WI3	0.907			
	WI4	0.708			
	WI5	0.654			
	PP1	0.893			
	PP2	0.889			
Policies and procedures	PP3	0.903	0.680	0.899	0.925
	PP4	0.858			
	PP5	0.856			
	PP6	0.457			
	TR1	0.839			
Training	TR2	0.780	0.619	0.847	0.890
	TR3	0.809			
	TR4	0.842			
	TR5	0.649			
	RM1	0.783			
Responsiveness of management	RM2	0.843	0.700	0.893	0.921
	RM3	0.809			
	RM4	0.888			
	RM5	0.856			
	RC1	0.767			
Reporting channels	RC2	0.851	0.671	0.877	0.911
	RC3	0.779			
	RC4	0.879			
	RC5	0.815			
	RW1	0.933			
Financial reward	RW2	0.951	0.759	0.892	0.926

	RW3	0.827			
	RW4	0.760			
	SL1	0.934			
Seriousness level of wrongdoing	SL2	0.946	0.859	0.946	0.961
	SL3	0.933			
	SL4	0.894			
	KN1	0.574			
Knowledge	KN2	0.908	0.618	0.786	0.862
	KN3	0.891			
	KN4	0.722			
	TRST1	0.781			
	TRST2	0.743			
	TRST3	0.908			
Trust	TRST4	0.922	0.739	0.949	0.957
	TRST5	0.913			
	TRST6	0.887			
	TRST7	0.876			
	TRST8	0.829			

Discriminant Validity

Discriminant validity for this study was tested by applying the Heterotrait-Monotrait Ratio Correlations (HTMT) criterion suggested by Hair et al. (2022). The result shown in Table 3 indicates that all values were below 0.90, which confirms that the discriminant validity in this study has been established. Having such results confidently confirms that the model for this study has adequate reliability and validity.

Table 3: HTMT Criterion Analysis

	KN	PP	RC	RM	RW	SL	TR	TRST	WI
KN									
PP	0.697								
RC	0.839	0.827							
RM	0.739	0.825	0.895						
RW	0.258	0.378	0.496	0.338					
SL	0.604	0.275	0.312	0.346	0.152				
TR	0.583	0.555	0.698	0.595	0.595	0.312			
TRST	0.780	0.739	0.835	0.765	0.369	0.284	0.558		
WI	0.720	0.747	0.619	0.670	0.351	0.467	0.613	0.524	

Structural Analysis: The results in Table 4 present the hypothesis testing in the structural model for this study. Firstly, all the Variance Inflation Factor (VIF) values for the inner model are below 5, which mean that collinearity has no substantial effect on the structural model for this study.

Policy and procedure were found to have a significant relationship with whistleblowing intention ($\beta = 0.511$, $p < 0.05$). Furthermore, in terms of the effect size, the f^2 values show that this variable has a moderate effect on this model. Therefore, **H1 is accepted**. This finding implies that the availability of policies and procedures will encourage whistleblowing intentions. This result is in line with the studies conducted by Previtali and Cerchiello (2022) and Li et al. (2020). According to Li et al. (2020), the availability of the whistleblowing policy helps employees understand that any wrongdoings that happen within the organization constitute a threat to the organization and even harm to the public, and it will provide them with clear guidelines on what they need to do after they witness the wrongdoing that happens within the organization.

Training was found to have a significant relationship with whistleblowing intention ($\beta = 0.203$, $p < 0.05$). Furthermore, in terms of the effect size, the f^2 values show that this variable has a small effect on this model. Therefore, **H2 is accepted**. This finding implies that whistleblowing training will encourage whistleblowing intentions. This result is in line with the study conducted by Previtali and Cerchiello (2022). As whistleblowing is a complex situation, ethics training will improve problem-solving capacity and help one make proper decisions when facing ethical dilemmas (Cho & Song, 2015). The training is the key moment to enhance knowledge and understanding regarding how to react and what they need to do when they observe wrongdoing.

The responsiveness of management was found to have no significant relationship with whistleblowing intention ($\beta = 0.186$, $p > 0.05$). In addition, in terms of the effect size, the f^2 values show that this variable has a small effect on this model. Therefore, **H3 is rejected**. This finding is an indication that whistleblowing intentions are not influenced by the responsiveness of management. This result is in contrast with the study conducted by Naufal et al. (2020). However, this result is in line with Salleh and Yunus (2015). According to Nurhidayat and Kusumasari (2018), whistleblowing is regarded as a positive duty that, if not carried out, will instigate a breach of morality. Therefore, whether management's response was positive or negative, employees will continue to report because it is their duty and responsibility, as well as fulfilling their altruistic motives, to protect the organization from unethical conduct.

The reporting channel was found to have a significant relationship with whistleblowing intention ($\beta = -0.275$, $p < 0.05$). Furthermore, in terms of the effect size, the f^2 values show that this variable has a small effect on this model. Therefore**, H4 is accepted**. This finding implies that the availability of the reporting channel will discourage whistleblowing among employees. This result is in contrast with Kanojia et al., 2020, who found that the presence of a reporting channel will encourage whistleblowing intentions. However, Amoako et al. (2022) revealed that employees prefer the informal reporting channel. They also indicate that, recently, several studies have revealed that social media has played a key role in disseminating information. As technology is at its peak and internet facilities are accessible when needed, social media is a great platform for employees to disclose witnessed wrongdoing rather than a formal reporting channel.

Financial reward was found to have a significant relationship with whistleblowing intention ($\beta = 0.133$, $p < 0.05$). Furthermore, in terms of the effect size, the f^2 values show that this variable has a small effect on this model. Therefore, **H5 is accepted**. This finding implies that a financial reward will encourage whistleblowing intentions. This result is in line with the studies conducted by Al-Olimat (2020). Although it is argued that whistleblowing behavior should be considered the norm and therefore should not be rewarded, it will be a booster to influence and attract prospective whistleblowers when they are in a dilemma (Teichmann & Falker, 2021). As per the prosocial spirit, instead of just fulfilling the altruistic motives, they will also fulfill the egoistic motives when they gain a financial reward after reporting the wrongdoing.

The seriousness level of wrongdoing was found to have a significant relationship with whistleblowing intention ($\beta = 0.136$, $p < 0.05$). Furthermore, in terms of the effect size, the f^2 values show that this variable has a small effect on this model. Therefore, **H6 is accepted**. This finding implies that the whistleblowing intention will be high if the wrongdoing is serious. This study is in line with the studies conducted by Khan et al. (2022) and Kanojia et al. (2020). Employees report a serious issue more than a non-serious one because they predict greater damage to the company if it is not disclosed (Hanif & Odiatma, 2017). As per prosocial spirit, they will fulfill their altruistic motives, which are to protect others (their organization and its members) from disaster.

Knowledge was found to have a significant relationship with whistleblowing intention ($\beta = 0.318$, $p < 0.05$). Furthermore, in terms of the effect size, the f^2 values show that this variable has a small effect on this model. Therefore, **H7 is accepted**. This finding implies that the high level of whistleblowing knowledge possessed by the employee will increase the employee's whistleblowing intention. This result is in line with the study conducted by Chang et al. (2017). According to Okafor et al. (2020), the management of the public sector should use social media, television and radio advertisements, and other channels to promote the whistleblowing campaign and increase awareness about the benefits and procedures of whistleblowing. The whistleblowing intention will increase when they have the understanding and belief that whistleblowing is a

positive behavior that benefits themselves, their members, the organization, and the country (M. Ariff et al., 2019). As per the prosocial spirit, they will fulfill their altruistic motives when they utilize their knowledge to help others stop the misconduct that happens within the organization.

Trust was found to have a significant relationship with whistleblowing intention (β = -0.160, $p < 0.05$). Furthermore, in terms of the effect size, the f^2 values show that this variable has a small effect on this model. Therefore, **H8 is accepted**. This finding implies that trust will discourage whistleblowing intentions. This result is in line with the study conducted by Lavena (2013). High levels of trust will make it difficult for the employee to formally report witnessed misconduct (Lavena, 2013). It is because the employee will informally inform the supervisor that they trust regarding the witnessed wrongdoing instead of using the formal channel that has been established by the organization.

Table 4: Structural Model Analysis and Hypothesis Testing

	VIF	Path coefficients	p-value	f^2 value	Decision	R^2 values	Q^2 values
KN > WI	2.730	0.318	$p < 0.05$	0.104	Supported		
PP > WI	2.500	0.511	$p < 0.05$	0.294	Supported		
RC > WI	4.567	-0.275	$p < 0.05$	0.047	Supported		
RM > WI	3.330	0.186	$p > 0.05$	0.029	Rejected	0.644	0.538
RW > WI	1.585	0.133	$p < 0.05$	0.031	Supported		
SL > WI	1.565	0.136	$p < 0.05$	0.033	Supported		
TR > WI	2.051	0.203	$p < 0.05$	0.056	Supported		
TRST > WI	2.830	-0.160	$p < 0.05$	0.025	Supported		

According to Hair et al. (2022), the most commonly used measure to evaluate the structural model's explanatory power is the coefficient of determination (R^2) value, which represents a measure of in-sample predictive power. The R^2 values for this study were 0.644, which indicates that the model's explanatory power is substantial (Cohen, 1988).

This study employed the technique of predictive relevance of Q^2 analysis and PLS prediction which was suggested by Hair et al. (2022), to test the structural model. The Q^2 value for this study was 0.538, which is greater than zero. Henceforth, the predictive relevance of this model was established. The results of the PLS prediction procedure in Table 5 show that all indicators in the PLS-SEM analysis have lower RMSE (or MAE) values compared to the naive LM benchmark. Therefore, it can be concluded that this model has high predictive power.

Table 5: PLS predict procedure

	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
WI1	0.560	0.440	0.709	0.505
WI2	0.569	0.419	0.724	0.525
WI3	0.549	0.417	0.702	0.497
WI4	0.797	0.528	0.811	0.587
WI5	0.653	0.491	0.749	0.538

Partial Least Square – Multigroup Analysis (MGA): As suggested by Cheah et al. (2020), MGA was used in this study to analyze gender as a moderating variable. Table 6 indicates the results of the PLS-MGA analysis in analyzing the moderating effect of gender in the relationship between the independent variables and the dependent variable. PLS-MGA is an appropriate nonparametric technique to evaluate the group differences existing within subgroups of data for estimation parameters (Sarstedt et al., 2011) and to understand which among them are meaningful and significant (Sarstedt et al., 2014). The results found that gender is significant in moderating the relationship between reporting channel, seriousness level of wrongdoing, and knowledge toward whistleblowing. For the reporting channel and seriousness level of wrongdoing, the differences showing the negative sign concluded that the whistleblowing intention is higher among female employees compared to male employees. This result is in line with the studies conducted by Hajiabbasi et al. (2022) and Puni and Hilton (2019). Whereas, for knowledge, the differences showing the positive sign concluded that the whistleblowing intention is higher among male employees compared to female employees. This result is in line with the study conducted by Chang et al. (2017).

There is a significant influence for men and women in whistleblowing intentions because of the differences in construction and personality between men and women (Helmayunita, 2018). In addition, males and females have differences in the information processing mechanism (Hajiabbasi et al., 2022). In this study, male and female employees had different perceptions and points of view on the reporting channels, the seriousness level of wrongdoing, and their knowledge. Then, these differences contributed to the differences in their whistleblowing intentions, where female employees have stronger whistleblowing intentions for the reporting channels and seriousness level of wrongdoing, while male employees have stronger whistleblowing intentions for knowledge.

On the other hand, it was found that gender is not significant in moderating the relationship between policy and procedure, training, responsiveness of management, financial reward, and trust. The findings explained that there is more or less similar whistleblowing intention among male and female employees. This result is in line with the study conducted by Nawawi and Salin (2018). Miceli and Near (1992) have explained that the difference between genders is marginal, and the explanation behind the phenomenon is not clear. According to Lasmini (2018), the failure of gender to moderate other relationships is due to an insufficient number of samples representing each gender. Therefore, H9 is partially accepted.

Table 6: PLS-MGA analysis for the moderating variable

Relationship	Difference (Male-Female)	*p*-value
KN -> WI	0.841	p < 0.05
PP -> WI	0.338	p > 0.05
RC -> WI	-0.853	p < 0.05
RM -> WI	0.092	p > 0.05
RW -> WI	-0.137	p > 0.05
SL -> WI	-0.286	p < 0.05
TR -> WI	0.090	p > 0.05
TRST -> WI	-0.229	p > 0.05

5. Conclusion

As a conclusion, the findings of this study will help public sector management foster whistleblowing among public sector employees, achieve the NACP's objectives, and improve the ranking and performance of the CPI. The public sector management should have a look at the determinant factors of the policy and procedure, training, reporting channel, financial reward, seriousness level of wrongdoing, knowledge, trust, as well as gender, to encourage whistleblowing among public sector employees in Malaysia. On the other hand, this result will contribute to the body of knowledge regarding the determinant factors of whistleblowing intention and gender as the moderating variable among public sector employees.

The existence of obstacles and limitations in the implementation stages of any research is indispensable. The first limitation of this study is that it was found that there was no significant relationship between the responsiveness of management and whistleblowing intention. Furthermore, this study found that gender has no significant influence on moderating the relationship between policy and procedure, training, responsiveness of management, financial reward and trust toward whistleblowing intentions. These insignificant results may be due to the limitations of the sample size in this study. Therefore, it is suggested for future research to increase the number of samples.

Second, in this study, gender as a moderating variable was exploited. Other moderating variables, such as job position, service tenure, and other variables, can be employed in further studies. Third, the population of this study was public sector employees based on ministries under PSD's administration. As corruption and integrity issues are always associated with the enforcement agency, it is recommended for future research to understand the whistleblowing intentions among the employees of the agency. Lastly, the possibility of social desirability bias may exist. The respondents may be driven to give a response or answer based on a socially desirable outcome, which is to please their peers and others, rather than the actual situation or their genuine thoughts.

Discussion: The findings from the customers' age groups concur with H1 (the different customer age groups experience mobile network operators differently) and are compatible with the study conducted by (Amoah, Radder, & van Eyk, 2018; Jonas, Radder, & van Eyk, 2019; Radder & Han, 2015). Respondents aged between 19 and 30 constituted the higher number of customers who experienced network operators differently. About 51.8%experienced the operators similarly.

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Exploring FinTech Lending: The Influence of Financing and Economic Factors on the Success of Peer-to-Peer (P2P) Funded Loans

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Abstract: This research intends to integrate financing and economic factors into a unified model to explore their influence on P2P lending successful fundraising. An innovative framework of the ARDL method was utilized to explore the short and long-term effects of the factors model to allow the P2P lending players to make informed decisions and develop effective strategies for sustainable FinTech lending practices. Information asymmetry is a persistent concern, and the quality of information provided by both internal and external sources plays a crucial role in determining lender decisions. It aims to offer a holistic understanding of how these elements interact and collectively influence P2P lending loan success, emphasizing the importance of transparency and efficient online lending practices.

Keywords: *FinTech, P2P lending, ARDL*

1. Introduction and Background

As a nascent microcredit market, the digital peer-to-peer (P2P) lending platform serves as a bridge for individuals seeking borrowing and investment opportunities. In this online P2P lending market, borrowers and lenders can easily engage in lending and borrowing activities upon verification of their information, resulting in a streamlined process that benefits both parties. Malaysia is recognized for its regulatory benchmarking in ASEAN alternative financing, offering opportunities for small business start-ups that face funding constraints. Notably, the emergence of new online lending methods, such as P2P lending, has raised concerns about information imbalances between borrowers and investors (lenders). In the context of P2P lending, information asymmetry occurs, wherein lenders lack as much information about the borrower's reliability as the borrower itself. In the context of P2P lending, borrowers seeking funds may possess more information about their financial situation, creditworthiness, and repayment capabilities than the lenders on the platform. To ensure the long-term sustainability of the platforms, it is essential for them to ensure competitive lending practices that involve efficient selection. Understanding various industry sectors and financial profiles (internal factors) is crucial when granting loans to mitigate the risk of default. During periods of financial instability, the stringent regulations imposed on traditional banks have led borrowers to explore alternative financing options like P2P lending. This choice is favored due to its quick processing, paperless procedures, higher returns, lack of impact on credit ratings, and greater flexibility.

The information encompassed platform interest rates offered for the campaign, loan tenure, and investment size. On the other hand, economic factors pertain to external influences that impact lenders' decisions when selecting their investment opportunities. The comprehensive examination of both internal and external factors in successful P2P fund lending yields a deeper understanding, as some factors may yield immediate effects on lending success, while others may take time to manifest their influence. Analyzing both short- and long-term impacts aids in assessing the risk associated with different factors. Certain factors may have significant short-term effects but might be less relevant in the long run, whereas others may play a crucial role in the platform's long-term viability. As far as our knowledge extends, this marks the first analysis of its kind in the Malaysian context since the inception of P2P lending in 2017.

Our focus is to establish a stable P2P successful fund lending model over the short and long-term period a combination of financing and economic factors. The current study relies on empirical data from P2P lending markets. We examine the success of P2P loans, focusing on two distinct themes that set our research apart from previous studies. Unlike earlier research that concentrated on internal determinants at one time, we combine them with other external factors and assess their short- and long-term impacts, representing a novel approach. Additionally, our research contributes to the emerging literature on P2P lending marketplaces by

analyzing the transparency of information gaps among P2P players, studying lenders' and borrowers' behaviors, and promoting platform development to address the issue of information asymmetry.

2. Literature Review

In the P2P lending research, empirical studies have primarily focused on either financing or economic factors in isolation, with limited attempts to integrate both aspects into a comprehensive model. This research intends to bridge this existing gap in the literature by combining financing and economic factors within a unified model. The aim is to create a holistic analytical framework that encompasses the interplay between financial and economic variables and their influence on fundraising in P2P lending. By merging these two critical dimensions, this study seeks to provide a more nuanced and accurate understanding of the multifaceted factors driving P2P lending success. It acknowledges that lending dynamics are inherently intertwined with both the financial aspects, such as interest rates and loan terms, and the broader economic conditions, including inflation and economic growth. Consequently, this research endeavors to shed light on how these factors interact and collectively shape the fundraising outcomes in the P2P lending environment.

The review of the past research is categorized into three bases. Firstly, a review of the previous theoretical model on related past research. Secondly, there are a total of five independent variables which three variables namely platform interest rates, loan tenure and investment size reviewed under the financing factors. Finally, the remaining two variables (Based Lending Rates and inflation) are categorized under the economic elements. The roles of financing factor that contributes to the success of P2P lending has proven to be caused by several groups including the platform interest rate, loan duration, and investment size.

Theoretical Model Framework: There were only a few research covered the theory that relates to P2P loan success. A model developed by Zhang, Li, Hai, Li, and Li, (2017) categorizes influencing factors into four aspects: basic information, loan details, credit history, and social factors. These include a risk assessment as such considering the borrower's age, gender, loan amount, annual interest rate, repayment period, and borrower descriptions. Using binary logistic regression, the study explores the factors affecting loan approval, with loan status as the dependent variable. Results indicate that annual interest rate, repayment period, description, credit rating, prior successful and failed loans, gender, and borrower credit score significantly impact loan availability. Higher interest rates, better credit ratings, more successful loans, being female, and a higher credit score enhance loan approval chances, while longer repayment periods, the absence of descriptions, and a history of failed loans reduce approval likelihood. Similarly, Kurniawan and Wijaya (2020), developed a model on factors such as the loan amount, loan duration, interest rate, gender, and loan history that influence loan approval in the context of Indonesian P2P lending. The findings of their study indicate that the loan amount, loan duration, and loan history exert the most substantial influence on borrowers' decisions to secure loans, suggesting that these loan attributes convey pertinent information that guides loan approval processes. Conversely, both interest rate and gender were found insignificant effects on loan approvals. Hence, they suggest that loan funding decisions predominantly hinge on the meaningful signals provided by specific loan characteristics.

In addition, Gavurova, Dujcak, Kovac, and Kotásková (2018) highlighted a logistic regression model by only using platform information on a borrower (loan applicant) characteristic. The debt-to-income ratio emerges as the most influential variable, exhibiting a substantial negative impact, while the variable related to the type of home ownership records the highest negative effect. Out of the 48 factors under consideration, 28 exert a positive influence, while 20 factors demonstrate a negative impact. A recent study by Yunies Edward, Nur Fuad, Ismanto, Dorkas Rambu Atahau, and Robiyanto (2023) conducted Ordinary Least Squares (OLS) regressions to investigate how loan information, specifically loan ranking, estimated profit shares, and financing duration, impacts the level of funding garnered from multiple sources. These findings align with both theories, indicating that the information available about the loan serves as a signal influencing the success of project funding. Notably, the ranking and financing duration significantly affect the success of the P2P Sharia lending platform, whereas the estimated profit share does not exhibit a significant impact. Short-term loans tend to attract more funding, while the reverse holds for longer-term loans. Additionally, loan ranking provides lenders with immediate insights into borrowers' creditworthiness, prompting lenders to steer clear of loans with low rankings to mitigate the risk of loan defaults.

Despite the isolation of the internal financing factors that lead to P2P lending success, the influence on the economic factors by the monetary control and transmission towards the P2P lending industry also should not be overseen. A rise in policy rates, for example, would trigger a transition towards borrowing through P2P platforms. The increased concentration of borrowers attracts more participants to deposit on the platform, subsequently boosting the advantages for borrowers who opt for the platform services (Wong & Eng, 2020). This results in greater liquidity availability, leading to a reduction in platform loan rates. Business investments and, consequently, the inflation rate increase despite monetary tightening measures. Moreover, an indirect effect of macroeconomic and the P2P platform interest rates shows that investors and borrowers in the evolving P2P credit market are keen to understand the connection between overall P2P interest rates and the broader economy. Additionally, they have affirmed that the diversity in P2P interest rates among different grade categories is influenced by three underlying macroeconomic factors: macroeconomic default rates, investor uncertainty, and the market's fundamental value (Foo, Lim, & Wong, 2017). Therefore, considering both factors in P2P lending loan success enhances risk assessment, loan pricing, decision-making, risk mitigation, and the ability to adapt to market changes, ultimately improving the overall lending experience for all parties involved.

Financing Factors: The significance of lending rates on P2P platforms is noteworthy when it comes to conveying the elements of a successful loan on the platform (Canfield, 2018; Nigmonov, Shams, & Alam, 2021; Yunies Edward et al., 2023). Canfield (2018), highlighted a significant finding on loan quality control represented by credit rating, influenced by the assigned interest rates. Higher interest rates were applied to borrowers with a higher risk of default to monitor loan quality. Borrowers with high-interest rates on their debts were generally perceived as problematic borrowers with a high risk of bankruptcy. P2P platforms employing bidding procedures tended to have lower maximum loan amounts, while those using public pricing systems had higher total loan volumes. The commonly used lending rate in the Malaysian market was the published pricing with a simple interest rate, calculated intuitively as a predetermined percentage and excluding the cumulative period. In contrast, the effective interest rate is considered the compounding period, often leading to higher borrowing costs by the end of the loan period. Internet lending has made accessing the capital market easier for potential participants, facilitating the matching of supply and demand for financial services. In this thriving industry, selecting market procedures to harmonize demands and desires for money, along with the parameters (price) of exchanges, is an important and contentious topic.

The loan duration plays a vital role in determining the interest rates applied during the lending process. In the P2P lending context, empirical evidence shows loan length is highly associated with loan approval, with shorter loan periods increasing the likelihood of credit authorization (Kurniawan & Wijaya, 2020). To mitigate risk, lenders in the P2P industry often prefer short-term loans, especially in emerging economies. Galak, Small, and Stephen (2011) stated that shorter loan durations result in lower borrowing risk and higher investment returns. Consequently, short repayment terms are commonly chosen to elicit higher bids from lenders on P2P lending platforms. In a Malaysian study, Khan and Xuan (2021), found that the length of the borrower's loan positively affects the likelihood of successful online P2P lending. However, the distinctive types of financing offered in P2P lending resulted in contrasting findings where it turned to be insignificant in the long-term towards the loan success due to the condition and needs of the business entity Ofir, Tzang, & Radzyner, 2022). Differently, in China's P2P lending, investors crucially select prospective borrowers with longer loan terms and substantial loan amounts (Tao, Dong, & Lin, 2017).

Investment size refers to the total amount of funds invested by lenders to create capital for P2P financing on the platform. In the Malaysian market, the cumulative investment size from investors can be categorized into various investor types, such as retail, sophisticated high net-worth enterprise (HNWE), angel, and sophisticated high-net-worth individuals (HNWI) investors (Securities Commission Malaysia, 2021). Investment size is sensible in the lending success operation as it creates credibility and financial stability from the perspective of lenders and P2P platforms (Risman, Mulyana, Silvatika, & Sulaeman, 2021). Over the past decade, fintech lenders have rapidly gained market share in different loan industries. However, it remains uncertain how traditional commercial banks will respond to the aggressive entry of fintech lenders (He, Jiang, Xu, & Yin, 2021). When banks and non-bank lenders offer complementary services, banks can strategically shift their investments into areas with less fintech lender activity. This is because the marginal value of investment increases due to the complementarity of fintech services. While there is limited direct

evidence of the impact of investment size by P2P investors on fund success in this study, the participation of investors in P2P lending is deemed significant. Luo, Xiong, Zhou, Guo, and Deng, (2011) emphasized the importance of data-driven investment decision-making, using specific investor profiles based on past returns, risk preferences, investing experience, and investor reliability to enhance P2P lending decision-making.

Economic Factors: As the related past research on the economic factors was scarce, the conceptual relationship between initial loan rates and P2P loan success is little. Nevertheless, a different concept of macroeconomic effects with the P2P default probabilities can be deduced from the standard operating procedures of the capital market. In economies with higher proportions, lenders prefer larger premiums, increasing the pressure on borrowers to repay the loan. Additionally, as actual borrowing rates and debt amounts rise, credit screening becomes more expensive. Consequently, higher interest rates reduce borrowers' ability to meet loan agreements, leading to an increased likelihood of default. However, conventional investigations into the relationship between interest rates and loan defaults have produced inconsistent findings. Nigmonov et al., (2021), observed a substantial coefficient effect of lending interest rates, proxied by municipal rates, on P2P lending performance through the chance of default. The mixed effects over time of the BLR and inflation have been highlighted in previous empirical studies (Phuong Mai Le, Matthews, Meenagh, Minford, & Xiao, 2022; Wong & Eng, 2020; Zhao, Li, Wang, & Ma, 2021). Increased loan rates hinder borrowers' ability to fulfill financial obligations, resulting in higher loan delinquencies that transform into non-performing loans. Furthermore, the testing results supported the hypothesis that loan success is positively correlated with high-interest rates.

Inflation has a significant impact on the actual cost of outstanding debt repayment. There is a negative association between inflation and loan success, as rising prices can lead to increased household spending and reduced employability, known as the Phillips curve. Additionally, inflation diminishes the actual value of income due to "wage stickiness," thereby limiting the cash available to borrowers. As a result, loan repayment terms become more stringent, leading to a decrease in loan portfolio quality. Empirical evidence shows that inflation is a crucial economic indicator that substantially affects the P2P lending sector (Foo et al., 2017; Naysary & Daud, 2021; Nigmonov et al., 2021; Wong & Eng, 2020). However, standard financial market analysis has produced conflicting results, showing inconsistent relationships between inflation and loan performance. Inflation distorts lending-borrowing activity and saving decisions, leading to restrictions on borrowing operations in financial markets or within financial institutions. However, there is a research gap regarding the relationship between the inflation rate and the success of alternative funding for small businesses adopting fintech characteristics within an economy. An empirical financial literature review reveals that many researchers have examined the effects of inflation on borrowing decisions in conditions of P2P loan default rather than its success.

3. Model Specification

In evaluating the impacts of financing and economic factors determinants on the success of P2P lending in Malaysia, encompassing both long-term and short-term effects, the analysis is grounded in available time-series data and employs the Ordinary Least Square (OLS) methodology. The initial application of the OLS technique establishes the relationship between independent and dependent variables. Nonetheless, utilizing differenced variables in regressions might lead to the omission of long-term characteristics or insights into the equilibrium relationship among the variables. To tackle this, we employ the autoregressive distributed lag (ARDL) bound test model to explore the long-term repercussions (Pesaran, Shin, & Smith, 2001). However, according to Narayan (2005), the critical values identified by Pesaran et al., (2001), might potentially introduce a biased conclusion about the series' cointegration. Narayan (2005), has substantially reduced the impact of these critical limitations.

Pesaran et al., (2001), highlighted that the presence of a long-term association is tested with two independent statistics. The F-test was used to compare the null hypothesis [all coefficients in the factor model are jointly equal to zero $(H_0: \beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0)$ to the alternative hypothesis [all coefficients in the level variables are jointly non-zero $(H_\alpha: \beta_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0)$], where the Wald test

was adopted in the equation. The Wald test evaluates the short-term effects of accumulation in the influence of financing determinants on P2P funding success.

$$P2P_{i,t} = \alpha + \sum_{i=1}^{p} \alpha_{1i} P2P_{j,t-1} + \sum_{i=0}^{q} \alpha_{2i} Pir_{t-1} + \sum_{i=0}^{r} \alpha_{3i} LT_{,t-1} + \sum_{i=0}^{s} \alpha_{4i} ISZ_{,t-1} + \sum_{i=0}^{t} \alpha_{5i} BLR_{t-1} + \sum_{i=0}^{u} \alpha_{6i} Inf_{t-1} + \varepsilon_t \quad (1)$$

According to equation 1, α is constant, P2P_(i,t) is the total of successful P2P lending fundraised at time t, Pir_t is the average of platform interest rate, over a time of t, LT_t is lending tenure, over a time of t, ISZ_t is an average of investment size, for a time of t, BLR_t refers to the based lending rate, for time of t, INF_t is the inflation rate, for time of t, ε_t is the margin of error, while, the sequence of p,q,r,s,t, and u are optimum lag orders based on the least AIC or SIC value. The process of applying linear ARDL involves sequential steps, commencing with the stationary test. Stationary unit root tests ascertain that all variable series are integrated at levels less than I(1). The effectiveness of this technique is negated if any variable is found to be integrated at I(2), as determined by the F-statistic used for evaluating long-term relationships.

$$P2P_{i,t} = \frac{\alpha}{1-\sum_{t=1}^{p}\alpha_{1,t}} + \frac{\sum_{i=0}^{q}\alpha_1}{1-\sum_{t=1}^{p}\alpha_{1,t}} Pir_t + \frac{\sum_{i=0}^{q}\alpha_1}{1-\sum_{t=1}^{p}\alpha_{1,t}} LT_{j-t} + \frac{\sum_{i=0}^{q}\alpha_1}{1-\sum_{t=1}^{p}\alpha_{1,t}} Cs_{j-t} + \frac{\sum_{i=0}^{q}\alpha_1}{1-\sum_{t=1}^{p}\alpha_{1,t}} BLR_{j-t} + \frac{\sum_{i=0}^{q}\alpha_1}{1-\sum_{t=1}^{p}\alpha_{1,t}} Inf_{j-t} + ECT_i \quad (2)$$

$$P2P_{i,t} = \alpha - \lambda ECT_{t-1} + \sum_{i=1}^{p-1} \beta_{1,t}\Delta P2P_{i,t-1} + \sum_{i=1}^{q-1} \beta_{2,t}\Delta Pir_{i,t-1} + \sum_{i=1}^{r-1} \beta_{3,t}\Delta LT_{i,t-1} + \sum_{i=1}^{s-1} \beta_{4,t}\Delta Isz_{i,t-1} + \sum_{i=1}^{t-1} \beta_{5,t}\Delta BLR_{i,t-1} + \sum_{i=1}^{u-1} \beta_{6,t}\Delta Inf_{i,t-1} + \varepsilon_t \quad (3)$$

Once the integration orders for all variables are determined, equation (2) can be computed using the Ordinary Least Squares (OLS) method. Subsequently, an optimal lag period is determined based on the Akaike information criterion (AIC) and Schwarz information criterion (SIC), thus finalizing the comprehensive definition of the ARDL model. After establishing the long-term equilibrium relationship among the determinants, the investigation delves into examining the enduring associations for the determinants of P2P lending platforms using the ARDL dynamic estimation in equation (1). The computation of enduring correlations among the independent variables in the model for successful P2P fundraising is depicted in equation (2). Following the determination of the long-term relationship and coefficients, the short-term Error-correcting Model (ECM) is calculated. The ARDL-centred approach for evaluating the components of efficacious P2P fundraising is presented in equation (3). In this context, the Expected Coefficient of Adjustment (ECT) is anticipated to display both a negative value and statistical significance. A robust long-term correlation is suggested when the ECT exhibits negativity, and this coefficient is expected to possess a negative sign and bear statistical significance.

In addition, to ensure the credibility of the model, validation involves conducting diagnostic tests encompassing serial correlation, normality, functional form, and heteroscedasticity. Moreover, for assessing the steadfastness of the model coefficients, Brown, Durbin, and Evans, (1975) have suggested a cumulative

sum (CUSUM) and cumulative sum of squares (CUSUMQ) stability tests with the outcomes presented in graphical representations to be executed.

4. Conclusion

The primary objective of this paper is to explore the interplay between financing determinants and economic factors in both the long and short run concerning the decision-making process for the success of P2P funds in Malaysia. Through a comprehensive analysis of these interrelated variables, the study offers valuable insights that illuminate the P2P lending landscape. The research highlights the pivotal role of factors like loan tenure, investment size, platform interest rates, BLR, and inflation rate in influencing P2P lending success. The interactions among these factors emphasize the complex array of forces that shape the outcomes of P2P lending ventures. Additionally, the paper underscores the importance of comprehending both short and long-term effects to obtain a nuanced understanding of the underlying dynamics.

It is anticipated that there will be a long and short-run cointegration between the financing and economic factors toward P2P successful fund lending. An estimation of a positively significant correlation in the case of loan tenure, expecting that in the long term, the magnitude of investments channeled into P2P platforms contributes to the growth of P2P lending. This aligns with the operational dynamics of P2P platform providers, where the relationship between lenders and borrowers hinges on the equilibrium of funds supply and financing demand. Consequently, a higher invasion of investor funds into the P2P platform results in an increased number of available loans. On another note, the long-term estimation equation involving economic determinants expects that an increase in the Base Lending Rate (BLR) will enhance P2P fundraising success due to the indirect impact of the conventional lending market. However, inflation's influence is anticipated to manifest in a different direction. In the short term, the positive effect of loan tenure implies that the incorporation of longer loan durations within the model aims to mitigate the risk of default in repayment. Meanwhile, the roles of platform interest rates for both time frames expecting an inconclusive relationship, attributed to the varying mechanisms employed across different platforms. Based on statistical data, individuals continue to engage with P2P platforms despite the imposition of high-interest loans, in pursuit of expeditious business financing.

Finally, the insight gleaned from this paper offers a foundation for future research and exploration in the domain of P2P lending. This study offers evidence regarding determinants that offer an additional perspective on the influence of factors affecting the success of P2P funding. It is worth noting that the absence of credit score data in the model could be supplemented in future studies, potentially enhancing the insights further. Additionally, a promising direction for future research lies in investigating the resilience of the P2P lending sector amidst economic crises, assessing how platform effectiveness compares to conventional bank lending to ensure the platform's continued viability.

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Factor Influencing Consumers Preference in Klang Valley Market: A Study of Natural Personal Care Products

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Abstract: Several research studies have been conducted to investigate the factors that can influence the brand preference of consumers. However, there are very few studies that examine the factors that influence consumers' brand preference toward personal care products in the Klang Valley of Malaysia. This study was conducted to ascertain the factors that influence consumer brand preference for personal care products in Klang Valley to fill the void. This investigation included 3984 Klang Valley residents who had purchased and have a brand preference toward personal care products as a sample. Quantitative research was conducted by disseminating the devised questionnaire to the targeted number of participants online. 384 valid responses were collected from 450 distributed survey questionnaires and analyzed using SmartsPLS Software. The contribution of this current study will be the reference for marketers who are producing natural personal care products in setting the right strategy to create and maintain their brand preference among customers.

Keywords: *Brand preference, consumer, brand trust, brand experience, natural personal care*

1. Introduction and Background

The term "cosmetic" encompasses a wide range of products that enhance an individual's appearance and promote personal hygiene. The burgeoning growth of the Malaysian cosmetics industry in recent years can be attributed to the increasing preoccupation among both genders with personal appearance. Indeed, the cosmetics industry within the nation has emerged as a burgeoning market with ample potential for expansion. The business is anticipated to experience substantial growth due to the introduction of novel products that align with evolving customer preferences. As a result of these circumstances, the outlook for the business appears highly promising. The study of consumer behavior encompasses a wide range of topics, including the examination of individuals' purchasing patterns, preferences, motivations for making purchases, and behaviors exhibited during the shopping process. Numerous factors can influence an individual's purchasing decisions, encompassing social, cultural, ethnic, personal, and economic considerations. To achieve success in their marketing endeavors, marketers must possess a comprehensive comprehension of the determinants that influence customer decision-making (Widiastuti, Sukesi, and Handayani, 2023; Ameen, Cheah, and Kumar, 2023). Understanding the dynamics of customer preferences over time necessitates the investigation of whether alterations are attributable to specific product attributes or a combination thereof. The factors influencing consumer preferences for personal care products remain ambiguous. The present study aims to investigate the factors influencing brand preference among individuals residing in the Klang Valley region of Malaysia in the context of personal care products.

2. Literature Review

Brand preference: Brand preference is one of the key elements in consumer brand connections. The ultimate goal in customer-brand relationships is brand preference (Chiu et al., 2017). A strong attachment to a brand is known as a brand preference. Brand preference is perceived as a "true affection, more than a feeling". Brand preference is "passionate and emotional feelings for a trading name". Brand preference has been rationalized as the strongest emotional link between a company and its customers. When consumers can relate to a brand as an individual that they can prefer just like they prefer someone else, brand preference can develop. An established brand must be able to convey to consumers that its products are of higher caliber.

Original brands were distinctive marks given in one form or another by the owners of the company's product or service.

Brand Trust: Brand trust is the intrinsic factor of customers that help create a confidence level, and it aids in fulfilling customers' demands by providing matching goods and services (Adnan et. al., 2023; Lv, 2022). Consumers are influenced by brand trust when deciding what products to purchase. Brand trust is the willingness of consumers to believe in the brand at all risks because there is hope for the brand to give a positive value. It is a major contributor to the conception of brand preference for establishing a favorable customer-brand relationship (Ahmed et al., 2023). Customer-brand trust is a vital precursor for influencing customer-brand preference (Chavadi et al 2023). It flourishes customers' attitudes and behavior toward a particular brand to establish a loving bond with the brand (Vo, 2023; Khan, Hashim & WeiYing, 2023). So, the first hypothesis for this study is proposed as:
H1: Brand trust positively influences consumer-brand preference.

Brand Experience: Brand experience is a concept of consumers' perceptions. The brand experiences subjective, internal consumer responses (sensations, feelings, and cognition) and behavioral responses evoked by stimuli that are part of a brand's design, identity, packaging, communications, and environment (Singh & Singhal, 2023). Brand experience is composed of the customer's sensory, affective, behavioral and intellectual components for feeling an immersive experience through the brand (Widiastuti, Sukesi & Handayani, 2023; Ameen, Cheah & Kumar, 2022). Various research studies provide evidence that brand experience is responsible for brand preference. Brand experience develops an affective attachment between the brand and the customer. Therefore, the next hypothesis for the study is proposed as follows:
H2: Brand experience positively influences consumer-brand preference.

Brand Self-expressiveness: The brand acts as a symbol for the consumers which they associate with certain individuals (Boon, Fern & Chee, 2020). The symbolic aspect of the brand enables consumers to express themselves in society. Self-expressiveness of the brand is defined as, the customers' perception of the degree to which the specific brand enhances one's social self and/or reflects one's inner self (Faheema, Suresh & Sharma, 2022; Abd Aziz & Ngah, 2019). Consumers want to be a part of specific reference groups and they want to maintain their unique selves (Kamwendo & Maharaj, 2022; Lv, 2022; Ameen, Cheah & Kumar, 2022). The notion of self is categorized as social self, inner self, ideal self, and real self. The social self refers to the public image consumers want to attain by being a member of a reference group and the inner self refers to the personal satisfaction of the consumer (Kamwendo & Maharaj, 2022). The real self is the actual image of the consumer, while the ideal self is the image a consumer desires to have. Accordingly, the third hypothesis under this study is proposed as:
H3: Brand self-expressiveness positively influences consumer-brand preference.

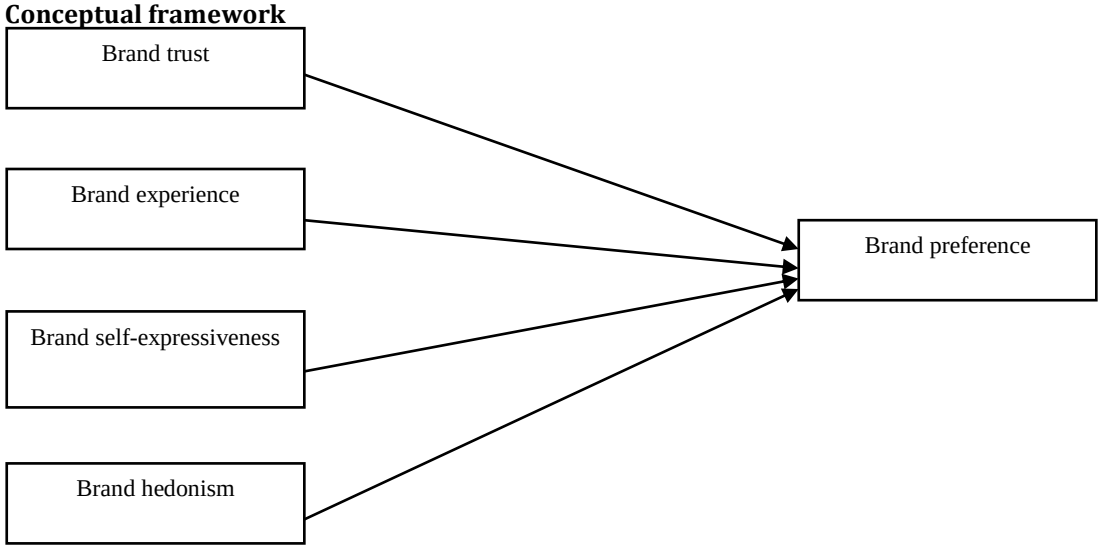
Brand Hedonism: The hedonic aspect of the product is defined as, "the consumer's perception of the relative role of hedonic benefits offered by the product category". Perceived hedonic value is vital to a marketing strategy because the perceived value can influence consumers' beliefs, wants, and expectations of the products (Pambekti, Nugraha & Yusfiarto, 2023). Brand hedonism is related to the extent to which a brand is equipped with the 'fun, exciting, thrilling, and pleasurable' dimensions (Davis et al, 2019). A customer prefers a hedonic brand to experience the excitement through the brand (Kulshreshtha et al., 2019). The hedonic attributes of the brand pointed out that the hedonic abilities of the brand can generate higher emotional responses that lead to brand preference. Hedonic facets of customer-brand relationships are explicitly linked to brand preference. Zhang and Wang, (2023) provided insights about the hedonistic aspects of a brand positively influence brand preference (Helmi et al., 2023). Hence, the fourth hypothesis under this study is proposed as:
H4: Brand hedonism positively influences consumer-brand preference.

Price of the brand: Consumers expect at the time of making a purchase decision from the selection of car models to satisfy their quality, brand image, performance, price, sales, and after-sales quality criteria. The majority of consumers only care about price (Halim, 2023; Pramukti & Hendayana, 2023). The price of a brand influences both the consumer purchasing decision and the sales margin (Kleih, Lehberger & Sparke, 2023; Hidayah et. al., 2023). The price of the product is the amount that purchasers are expected to pay.

There are two prevalent categories of product prices on the market. When a product has a high price on the market, its brand image is the most important factor. Some products have reduced brand prices, which is a beneficial strategy for brands and consumers who rely on the brand's previous price value (Jung, Lee & Chung, 2023). Different price levels for different products influence consumer behaviors because the brand's price determines the consumer's perception of the brand.

H5: the price of the brand positively influences consumer brand preference.

Figure 1: Conceptual framework



3. Methodology

The research was executed by implementing a structured questionnaire. The survey will be divided into three sections. For Section A, the respondents need to answer the screening question, the respondent can be a consumer who purchases personal care products. Section B, Section C, Section D, Section E and Section F consist of four independent variables Brand Trust, Brand Experience, Brand Self-expressiveness, Brand Hedonism and price of the brand. In Section G includes a dependent variable called brand love, which customers who buy personal care products use to decide whether they intend to purchase a product. Finally, in Section H the respondents will answer for their demographic profile. The researcher acquired from the designated malls and supermarkets using sample or census surveys. The sample design is a simple random sampling in Selangor targeted consumers who used personal care products. A total number of 450 questionnaires have been distributed and 384 are valid to be used in this study. The data collected from the questionnaire have been analyzed by using SmartPLS Software.

4. Results

In evaluating models, even though PLS-SEM simultaneously estimates the measurement model and the structural model, we followed the procedure (Hulland, 1999). The analysis and interpretation of the estimated model occurred in two stages: first, the reliability and evaluation of the measurement model, and then, the testing of the structural model. We assessed the item reliability, convergent validity, and discriminant validity to validate the study measurement model (Hair et al. 2014). The individual item dependabilities were first evaluated using the indicator's loadings on its latent variables. As recommended by Gotz et al (2009), the loadings of all individual item reliability on their respective latent variables are greater than 0.7, indicating a high degree of individual item reliability. Using composite reliability, each of the latent constructs' construct reliability was calculated. Cronchbach's composite reliability for all constructs exceeded the level of 0.7 recommended by Gotz et al, 2009), indicating that all constructs have good reliability. Consequently, the discriminant validity of our data is assured by passing this evaluation as presented in Table 1.

Table 1: CR Value

	Cronbach's Alpha	rho_A	Composite Reliability
BRAND PREFERENCE	0.717	0.860	0.724
EXPERIENCE	0.746	0.865	0.720
HEDONISM	0.756	0.842	0.721
PRICE	0.612	0.922	0.821
SELF EXPRESSIVE	0.767	0.934	0.879
TRUST	0.763	0.895	0.836

To evaluate the convergent validity of the model's reflective block, Fornell and Larcker (1981) suggest using an average variance extracted (AVE) greater than 0.5. A value of AVE less than 0.5 is insufficient because the increased variance is due to error variance and not indicator variance (Gotz et al, 2009). Table 2 demonstrates that all latent constructs meet the prescribed minimum level of 0.5. Therefore, it was determined that all latent constructs were sound and satisfactorily valid. According to the research on PLS-SEM (Fornell and Larcker, 1981; (Gotz et al, 2009), the average variance extracted (AVE) is also useful for assessing discriminant validity. If the square roots of the AVEs of the latent variables are greater than the correlations among the latent variables, discriminant validity is established (Chin, 1998; Fornell & Larcker, 1981; (Gotz et al, 2009). The findings in Table 2, demonstrate that the data also passed this test, ensuring their discriminant validity.

Table 2: Fornell and Lacker (1981) criterion

	BRAND PREFERENCE	EXPERIENCE	HEDONISM	PRICE	SELF EXPRESSIVE	TRUST
BRAND PREFERENCE	0.706					
EXPERIENCE	0.686	0.715				
HEDONISM	0.716	0.894	0.776			
PRICE	0.878	0.757	0.803	0.822		
SELF EXPRESSIVE	0.863	0.780	0.784	0.883	0.829	
TRUST	0.858	0.849	0.873	0.903	0.888	0.773

Table 3: Heterotrait-monotrait ratio (HTMT)

	BRAND PREFERENCE	EXPERIENCE	HEDONISM	PRICE	SELF EXPRESSIVE	TRUST
BRAND PREFERENCE						
EXPERIENCE	0.702					
HEDONISM	0.684	0.768				
PRICE	0.820	0.785	0.779			
SELF EXPRESSIVE	0.813	0.726	0.671	0.747		
TRUST	0.850	0.074	0.671	0.614	0.710	

According to (Henseler et al., 2015), the "Heterotrait-Monotrait ratio (HTMT)" of correlations must be evaluated for discriminant validity. HTMT readings must be <0.85. The current result for the current research as presented in Table 3, all the item scores <0.850 with the score from 0.702 to 0.779 indicate that validation of discriminant validity has been proven, and the model is trustworthy for further processing.

Table 4: Hypothesis Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
TRUST -> BRAND PREFERENCE	0.374	0.374	0.084	4.441	0.000
EXPERIENCE -> BRAND PREFERENCE	-0.111	-0.108	0.060	1.834	0.067
SELF EXPRESSIVE -> BRAND PREFERENCE	0.336	0.334	0.061	5.518	0.000
HEDONISM -> BRAND PREFERENCE	-0.106	-0.102	0.059	1.815	0.070
PRICE -> BRAND PREFERENCE	0.412	0.409	0.068	6.101	0.000

Hypothesis 1 proposed consumer trust has a significant relationship with brand preference. As presented in Table 4, the result shows (β=0.374, t=4.441, p=0.000) which is significant where trust toward the brand has a significant relationship with personal care brand preference among the consumers in Selangor. Hypothesis 2 proposed that consumer experience has a significant relationship with brand preference. The result show (β=-0.111, t=1.834, p=0.067) which indicate insignificant result where consumer experience toward the brand didn't have a relationship with brand preferences. In addition, self-expression has a significant relationship with brand preferences with the score (β=-0.106, t=5.518, p=0.000) which indicates that hypothesis 3 is supported. For consumer hedonism, it shows an insignificant result with the score (β=0.412, t=1.815, p=0.070) which indicates that hypothesis 4 is not supported. Finally, the price of the brand of personal care product has a significant relationship with brand preference with the score (β=0.412, t=6.101, p=0.000).

Discussion: The augmentation of consumers' brand preferences can be notably influenced by their exposure to personal care products. The occurrence of favorable encounters between consumers and a specific brand of personal care products engenders a heightened propensity for subsequent repurchase behavior and the dissemination of positive recommendations to others. The discerning consumer base places significant importance on personal care products that offer concrete advantages (Widiastuti, Sukesi, and Handayani, 2023; Ameen, Cheah, and Kumar, 2022). When a brand consistently fulfills the demands and expectations of consumers through the provision of products of superior quality, it shall cultivate a favorable reputation and augment brand preference. Moreover, it is worth noting that personal care commodities imbued with captivating aromas and opulent consistencies, including but not limited to moisturizers, conditioners, and body cleansers, possess the potential to augment the sensory encounter and vice versa, as elucidated by Adnan et al. (2023) and Lather & Singh (2023). If a product fails to meet the aforementioned expectations or falls short of delivering the promised benefits, it is likely that customer dissatisfaction will ensue, potentially resulting in a decline in brand preference. The occurrence of unfavorable product efficacy encounters has the potential to diminish consumer confidence and undermine the trust placed in a particular brand. The impact of thoughtful and aesthetically pleasing packaging on the consumer's perception of a personal care product is a subject worthy of scholarly consideration. According to the findings of (Susilo, 2023), it has been observed that the utilization of visually appealing designs, packaging that serves a functional purpose, and succinct descriptions outlining the key attributes of a product can significantly contribute to the enhancement of the overall consumer experience, thereby resulting in a lasting impact. The adverse consequences of personal care product packaging that exhibits leakage, substandard quality, or a flawed design can significantly undermine the holistic consumer experience.

The concerns may be linked to a perceived deficiency in meticulousness or subpar quality management, resulting in a decline in consumer favoritism towards the brand. Consumers can foster a sense of trust and reliance in brands that exhibit a steadfast commitment to transparency, wherein they prefer unambiguous and precise details about their product compositions and safety prerequisites. Through the cultivation of brand confidence, transparency engenders a heightened proclivity towards the brand among consumers who are actively seeking alternatives that prioritize safety and sustainability (Singh & Singhal, 2023; Susilo, 2023).

By placing these factors at the forefront of their strategies and consistently providing exceptional consumer experiences, personal care brands can foster robust brand preference, enhance customer loyalty, and attain a competitive edge within the market.

The utilization of personal care products that facilitate the manifestation of individuality among consumers has the potential to augment their inclination toward a particular brand. When individuals employ personal care products as a means of self-expression, they cultivate a more profound emotional affiliation with the brand, thereby engendering a heightened inclination. The utilization of personal hygiene products serves as a means for individuals to manifest their unique identities and preferences, as posited by Boon, Fern, and Chee (2020). The references cited in the provided text include the works of Abd Aziz and Ngah (2019) as well as Faheema, Suresh, and Sharma (2022). These references are repeated multiple times in the given sequence. Consumers often exhibit a proclivity for selecting personal care products based on their values, encompassing a range of factors such as sustainability, adherence to cruelty-free practices, utilization of natural ingredients, and various other ethical considerations. When a brand effectively mirrors the values held by consumers and enables the realization of their desired way of life, a profound sense of collective identity is fostered, thereby engendering a notable increase in brand preference. The phenomenon can be attributed to the capacity of personal hygiene products to elicit emotional responses and foster a state of enhanced psychological and physical welfare. The establishment of a robust emotional connection between brands and their target consumers can be achieved through a comprehensive understanding of the emotional needs of the latter, coupled with the creation of products that effectively elicit positive emotions or cater to specific concerns such as self-care, relaxation, and confidence (Kamwendo & Maharaj, 2022).

The establishment of an emotional bond between consumers and a brand has the potential to heighten brand preference, as individuals actively seek out products that evoke feelings of happiness and contentment. The utilization of a distinct brand of personal hygiene products may serve as an indicator of one's affiliation with a specific social group or community. The elevation of consumers' brand preference occurs when they perceive a congruence between their brand preference and the values or preferences held by their ideal social circle. The selection of a particular brand of personal care products by individuals can be attributed to their inclination toward social acceptance and validation (Ronka et al., 2023). Personal care brands possess the potential to establish profound connections, fortify brand preference, and foster enduring customer loyalty through the astute recognition and strategic exploitation of consumers' inherent yearning for self-expression. Within the realm of the personal care industry, the capacity to provide consumers with products that enable them to articulate their distinct identities and values holds significant influence as a determinant of brand preference.

The impact of hedonism on brand preference manifests itself across diverse domains, yet its influence on brand preference for personal care products appears to be constrained. This limitation stems from the rationale that individuals' selection of personal care products is primarily driven by their utilitarian merits, encompassing aspects such as skincare efficacy, hygiene maintenance, and targeted therapeutic benefits. The findings of Pambekti, Nugraha, and Yusfiarto (2023) suggest that although hedonic experiences have the potential to augment overall satisfaction with a product, consumers tend to prioritize the product's efficacy and appropriateness to their requirements. According to the research conducted by Pambekti, Nugraha, and Yusfiarto (2023), it is observed that functional characteristics tend to outweigh hedonic ones in the process of selecting personal care products. The utilization of personal care products is a common occurrence in daily routines, wherein the emphasis lies predominantly on their utilitarian and efficacious attributes, rather than solely catering to pleasurable experiences.

The prioritization of usability, efficiency, and efficacy by consumers is crucial for attaining desired outcomes, as evidenced by the scholarly works of Zhang and Wang (2023) and Helmi et al. (2023). Notwithstanding the verity that the augmentation of overall satisfaction can be attributed to a pleasurable sensory encounter, it is not necessarily the principal factor influencing the predilection for personal care products. The variability of consumer preferences in the realm of personal care has been observed to be substantial, as noted by Zhang and Wang in their seminal work published in 2023. The appreciation for various aspects of products can vary among individuals. For instance, Helmi et al. (2023) have noted that some individuals prioritize functionality, simplicity, or specific functional benefits. On the other hand, some prioritize hedonic experiences and exhibit

a preference for luxurious or indulgent products. The potential influence of hedonic attributes on brand preference within the realm of personal care products may be constrained due to the wide-ranging nature of consumer preferences (Halim, 2023; Helmi et al., 2023). While hedonism may retain a certain degree of relevance within the realm of the personal care industry, it is plausible to assert that its influence is poised to be comparatively less pronounced when juxtaposed with the salience of functional attributes, pricing dynamics, accessibility considerations, and the reputation of established brands. In the realm of personal care product selection, it is imperative to recognize that hedonic experiences, while significant, do not function as the exclusive determinant of brand preference. Instead, they assume a supplementary role in the decision-making process.

The development of brand preference is significantly influenced by consumer confidence in personal care products. When there exists a sense of trust between consumers and a brand, it tends to influence their decision-making process, resulting in a higher likelihood of selecting the brand's products over those offered by competing entities. The establishment of consumer trust is contingent upon the consistent security and reliability of personal care products. The demonstration of a brand's commitment to consumer safety can be observed through various aspects, including research, quality control, and compliance with regulatory standards (Adnan et al., 2023; Lv, 2022). When consumers hold the belief that a brand's products possess the capability to effectively attain the desired outcomes while avoiding any potential negative consequences, their inclination to choose and exhibit preference towards said brand is heightened. Singh and Singhal (2023) have previously published works that are relevant to the topic at hand. The level of consumer trust in personal care brands is positively correlated with the extent to which these brands offer transparent disclosure regarding the constituents of their products.

There is a growing apprehension among consumers regarding the potential risks associated with allergens and chemicals. To cultivate the trust of consumers who prioritize the safety of ingredients, brands must adopt certain strategies. These strategies include transparently disclosing the complete list of ingredients, refraining from incorporating hazardous substances and providing comprehensive explanations regarding the purpose and advantages associated with each ingredient. Furthermore, it is worth noting that brands that possess independent certifications or endorsements from esteemed organizations have the potential to enhance consumer confidence (Vo, 2023; Khan, Hashim, & WeiYing, 2023). The presence of organic, cruelty-free, and eco-friendly certifications serves as a testament to a company's unwavering dedication to upholding ethical principles in both its business operations and the quality of its products. The aforementioned certifications are widely regarded as markers of a brand's reliability, thereby resulting in a heightened inclination towards the brand. Moreover, personal care brands that uphold coherence and transparency in their promotional discourse, encompassing the employment of precise product assertions and the abstention from misleading content, engender a sense of confidence among consumers (Susilo, 2023) The establishment of a perception among consumers that a brand exhibits transparency, honesty, and alignment with their values engenders a profound sense of trust and loyalty (Lv, 2022; Ameen, Cheah, and Kumar, 2022).

Based on the findings presented in Table 4, it can be inferred that the pricing of personal care products holds considerable influence over consumers' brand preferences. Notwithstanding the recognition that brand preference is influenced by a multitude of factors beyond price, it remains undeniable that price exerts a significant impact on consumer behavior and brand preference. The degree of price sensitivity among consumers exhibits variability. The potential impact of price on consumer behavior is a topic of considerable interest and research within the field of marketing. It has been widely recognized that price can play a significant role in shaping consumers' purchasing decisions, particularly when it comes to specific products or categories. If a personal care product exhibits a significantly elevated price point in comparison to analogous products within the market, consumers who prioritize price considerations may opt for a more economical alternative, consequently exerting an influence on their inclination toward a particular brand (Halim, 2023; Pramukti & Hendayana, 2023). The cumulative nature of expenses related to personal hygiene products has been noted in recent literature (Halim, 2023; Pramukti & Hendayana, 2023). According to the scholarly work by Lather and Singh (2023), it is evident that... The impact of a brand's product affordability on consumers' inclination to engage in repeat purchases and exhibit brand loyalty is a significant factor to consider. A brand that offers products at a price-effective price point has the potential to attract a broader spectrum of consumers.

The willingness of consumers to allocate a higher monetary value towards products that are perceived to possess superior quality or prestige is a well-documented phenomenon in the literature (Kleih, Lehberger, & Sparke, 2023; Halim, 2023; Pramukti & Hendayana, 2023). However, it is important to note that consumers also maintain the expectation of receiving commensurate value in exchange for their monetary expenditure. If the price of a personal care item exceeds its corresponding benefits or perceived value, potential buyers may be deterred from acquiring the said brand, consequently leading to a decline in brand preference. Furthermore, it is worth noting that the personal care industry operates within a highly competitive landscape, characterized by the presence of multiple firms that provide similar products (Hidayah et al., 2023). The impact of price competitiveness on brand market share and consumer preference is a significant area of study. The attainment of a competitive advantage over rival brands can be achieved by those brands that effectively achieve a harmonious equilibrium between price and value (Brina & Suriyok, 2023; Hidayah et al., 2023). The impact of price on brand preference exhibits variability contingent upon the individual consumer and the specific product category under consideration. However, it is imperative to acknowledge that price assumes a fundamental role in the context of personal care brands. To cultivate and sustain brand preference within a highly competitive market, it is imperative for brands to effectively navigate the intricate interplay between pricing strategies, product quality, and the holistic consumer experience (Jung, Lee, & Chung, 2023). In conjunction with pricing, various factors including the effectiveness of the product, its safety profile, marketing endeavors, customer support, and the reputation of the brand collectively exert a substantial influence on the formation of brand preference.

Managerial Implications and Recommendations: This research can enrich the concept of brand preference should be built with a good marketing mix and add positive attitudes and consumer satisfaction. Furthermore, a better understanding of what constitutes brand preference in this area can prove to be quite useful for producers, marketers, and suppliers who are interested in doing this brand preference area. The practical implication of this research can be a reference for marketers who are producing natural personal care products. It is recommended that further study examine any other possible factors that can be the new predictor of brand preference.

5. Conclusion

A comprehensive comprehension of the factors that contribute to brand preference in this domain can be highly advantageous for producers, marketers, and suppliers aiming to enhance the consumption of natural products. The practical implication of this research is that it can serve as a valuable resource for marketers involved in the production of natural personal care products. It provides insights that can assist them in formulating effective strategies and cultivating consumer loyalty towards their beloved natural personal care products. One primary suggestion for future researchers is to consider increasing the sample size of respondents to enhance the statistical power and generalizability of the findings. Additionally, expanding the geographical scope of the study by including more diverse locations can provide a more comprehensive understanding of brand preference and enable researchers to explore variations in consumer behavior across different states or regions. Furthermore, future studies should explore other potential determinants of brand preference.

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Service Quality Dimension during Open and Distance Learning (ODL) in UiTM

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Abstract: This study investigates how students in the Faculty of Business and Management at UiTM perceive the service quality dimensions of their lecturers during Open and Distance Learning (ODL). The study is unique because it is the first time UiTM implemented Open and Distance Learning (ODL) instead of the usual face-to-face learning, due to the Malaysian government's instruction of Movement Control Order (MCO). The servqual model is used to calculate service quality dimensions such as reliability, responsiveness, assurance, empathy, knowledge, and communication. Utilizing quantitative methodology, a survey questionnaire is used to collect data. The implication of this study for policymakers regarding the enhancement of ODL is to maximize student satisfaction by prioritizing essential dimensions. This study's findings can be utilized by ODL universities to enhance pedagogical dimension, management of atypical situations, academic service delivery, and quality, as well as to guide the implementation of effective ODL strategies.

Keywords: *Service Quality, ODL, MCO, UiTM*

1. Introduction and Background

COVID-19 compels Universiti Teknologi MARA to continue its education via Open and Distance Learning (ODL) due to a series of Movement Control Order orders from the government. This is essential to ensuring that COVID-19 can be eradicated from the general population. This period of Open and Distance Learning (ODL) necessitates a study of the service quality as perceived by ODL learners, i.e., the students. Setting appropriate service quality standards at ODL University typically depends on management's comprehension of student needs, service quality expectations, and the ranking of service quality dimensions. Commonly, the contents of online classes are presented in a webinar format with high interactivity and recordings of live, in-person sessions with limited opportunities for interaction (Parramore, 2019). These distinctions between synchronous and asynchronous modes of delivery make it nearly impossible to evaluate the quality and efficacy of these classes (Parramore, 2019).

It is extremely difficult for every educational institution to implement online learning for the first time. These obstacles include limited internet access, difficulty disseminating course content and assessing learning outcomes, and unfamiliarity with the used platform (Al-Baadani & Abbas 2020). Inadequate training, facilities, and infrastructure, as well as students' lack of physical and psychological readiness, all hinder the success of ODL (Munezero, Irura, Kirongo, Etiegni & Suhonen, 2016). Therefore, suitable facilities must be provided, and teachers must also receive suitable training to create suitable learning materials for students (Ismail et al., 2020, Kumar & Owston 2016). However, ODL has several positive characteristics, including its ability to reach a global audience (Paul & Glassman, 2017), its unique functionality (Picciano, 2009), accessibility (Kintu, Zhu, & Kagambe, 2017), and its adaptability (Gilbert 2015). It is believed to be a complementary means of not only instilling the concept of lifelong learning but also promoting it (Adnan & Anwar, 2020).

This study aims to examine ODL time and student perceptions of service quality dimensions. The purpose of this study is to evaluate how students perceive service quality dimensions from the perspective of ODL students. The study will assist ODL strategists in determining the areas with the greatest number of ODL learners so that resources can be allocated more efficiently to areas that have a greater impact on service quality. This study will add up pedagogical dimension (Pereira, 2005), and unusual situation management (Sultan & Tarafder, 2007), delivery (Mpine & Asteria, 2019), accomplishment (Sembiring & Rahayu, 2019), cost & time (Perera, Abeysekera, Sudasinghe, Dharmaratne, 2017), behavioral intention (Perera & Abeysekera, 2019) and quality academic service (Šereš, Lukić, & Lukić, 2019).

2. Literature Review

Open and distance learning (ODL), also referred to in the literature as Distance Education, is defined by Grif (2016) as a planned teaching and learning process utilizing a small number of technologies as a mode of instruction for learners who are geographically separated from their lecturers. According to Grif (2016), there are two types of online distance learning (ODL) interactions: synchronous and real-time using selected technologies. The second type is asynchronous, or delayed, interaction between students and instructors using the chosen technologies. Internet-based one-way and two-way communication may be among these options for chosen technologies. These transmissions include but are not limited to, open broadcast, closed circuit, cable, microwave, broadband lines, fiber optics, satellite, or wireless communications devices; audio conferencing; or DVDs and CDs if used in conjunction with any of the aforementioned technologies.

Commonly, the contents of online courses are presented in a webinar format with high interactivity and recordings of live, in-person sessions with limited opportunities for interaction (Parramore, 2019). These distinctions between synchronous and asynchronous delivery modes make it essentially impossible to evaluate the quality and efficacy of these classes (Parramore, 2019). Although the service quality concept was initially introduced and adopted by the marketing industry, it has since gained popularity in other service industries, such as education. In education, service quality is typically associated with student satisfaction.

Parasuraman, Zeithaml and Berry (1985) defined service quality in terms of the disparity between customer expectations and perceptions. When customer perceptions exceed expectations, there is high service quality. To identify and eliminate service quality gaps in organizations, Parasuraman, Zeithaml, and Berry (1988) developed the Gap model of service quality. The purpose of the model was to analyze organizational processes and relationships that may contribute to service quality disparities. Parasuraman et al. (1985) identified five gaps in the data. (1985) can be summed up as follows: i) the gap between ODL learners' expectations and ODL providers' expectations; and ii) the gap between ODL learners' expectations and ODL providers' ii) the discrepancy between the ODL provider's perception of what ODL students want and the service quality specifications iii) the distinction between service quality and actual encounter iv) the gap between experience and the promises made by ODL providers; and v) the gap resulting from the preceding gaps.

After studying banking, telecommunications, insurance, maintenance, and other service industries, Parasuraman et al. (1985, 1988, 1991) created the Servqaul model for measuring service quality. Customer expectations and perceptions are evaluated using the servqual model. However, this investigation is restricted to customer expectations. The original Servqual model comprised ten dimensions; these were later reduced to five: Tangibles, Assurance, Empathy, Dependability, and Responsiveness (Parasuraman et al, 1988). This study will add up pedagogical dimension (Pereira, 2005), unusual situation management (Sultan & Tarafder, 2007)), delivery (Mpine Makoe & Asteria Nsamba, 2019), accomplishment (Sembiring, & Rahayu, 2019), cost & time (Perera, Abeysekera, Sudasinghe & Dharmaratne, 2017), Behavioral Intention (Perera & Abeysekera, 2019) and quality academic service (Šereš et al, 2019). Consequently, this study will examine the service quality provided by UiTM for Open and distance learning.

This study will utilize the questionnaire survey designed by Wong, Ong and Kuek (2012), in which Servqual is measured across six dimensions: dependability, responsiveness, assurance, empathy, knowledge, and communication. Reliability is defined as the ODL provider's ability to effectively deliver the learning, while responsiveness is defined as the ODL provider's capacity to provide timely assistance (Wong et al., 2012). In addition, Wong, Ong and Kuek (2012) define assurance as the knowledge and courtesy of learning providers that instill confidence in the ODL learning process itself, and empathy as the caring attention shown by ODL learning providers to ODL learners. Lastly, the dimensions of knowledge and communication focus on the knowledge of the ODL learning provider regarding the subject matter and the communication process between ODL learning providers and ODL learners, respectively (Wong et al., 2012).

3. Methodology

This investigation employed the quantitative research methodology. A combination of methods, including a questionnaire survey, was utilized to collect data. This questionnaire is based on Wong, Ong and Kuek (2012),

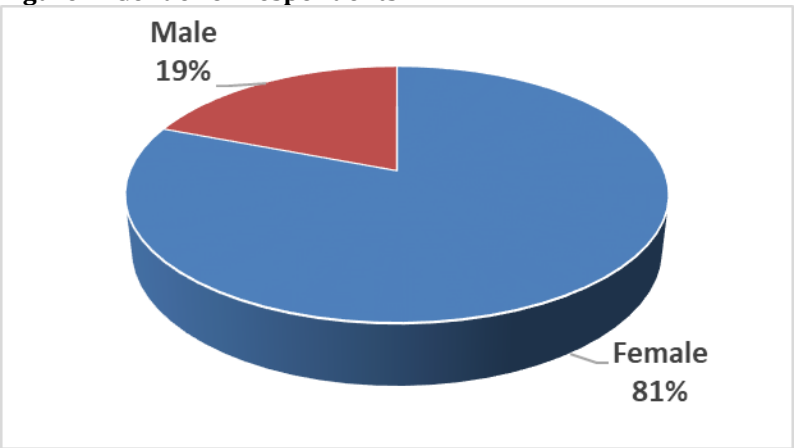
who utilized SERVQUAL dimensions. This study adopted the SERVQUAL dimensions of dependability, responsiveness, assurance, empathy, knowledge, and communication (Wong et al., 2012). This SERVQUAL dimension was intended to evaluate the ODL learning experience of students.

Students from the Faculty of Business and Management at UiTM Cawangan Selangor were the ODL students. According to Krejcie and Morgan's (1970) sampling method table, the sample size for a population of 6,000 is 361. Thus, the sample size for the Faculty of Business and Management was 361 students. The selection of these students was based on techniques for random sampling. The questionnaire survey was based on a 5-point Likert scale from Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. The questionnaires were sent via WhatsApp and Telegram to all first-through-sixth-semester students from all programs in the Faculty of Business and Management. The questionnaire survey was distributed over the course of three months so that students had ample time to respond. The analysis of survey data utilized SPSS and examined the mean of the responses from the students. This is to gauge the student's learning experience during the MCO.

4. Results

This section of the findings presents an overview of the respondents who took part in the study. A demographic profile of the respondents which includes information on gender and place of ODL was discussed, followed by a discussion of the study's means and regression. As shown in Figure 1, the statistic indicates that the majority of the respondents in the study were female, comprising 81 percent of the total. Conversely, only 19 percent of the respondents were male. This finding draws attention to the fact that this distribution of female to male respondents closely mirrors the gender distribution among students at the university. This suggests that the study's sample aligns with the actual gender distribution of the university's student population.

Figure 1: Gender of Respondents



Source: Author's Tabulation

According to Figure 2, the majority of online students were located in Selangor, followed by UiTM Kampus Puncak Alam and Kuala Lumpur with a total of 220, 37, and 31 students, respectively. This is also consistent with the admissions policy of the UiTM degree program, which gives priority to students who live closer to the campus rather than those who live further away. As for those who attended online classes in the UiTM Puncak Alam campus, this is a mechanism for assisting students who had difficulty with ODL during the time they were home.

The findings in Table 1 indicate that the course content offered by UiTM during MCO is rated by the students. Most of the respondents rated mean between 2.21 to 2.31 which indicates that the respondents were almost neutral to disagree with the construct on the course content during the MCO. The respondents were almost neutral to disagree that the course contents were clear, well organized, appropriate and allowed students to fully participate. The findings might be anticipated because this was the first time, UiTM has conducted all

learning as ODL, which during the MCO. Thus, there is vast room for improvement in delivering the course content during the ODL.

Figure 2: Respondent's Place of ODL during MCO



Table 1: Course content during MCO

Statement	Mean	Std. Deviation
Learning objectives were clear	2.22	1.352
Course content was organized and well-planned	2.21	1.358
The course workload was appropriate	2.31	1.297
Course organized to allow all students to participate fully	2.28	1.351

Source: Author's Tabulation

Furthermore, the findings on reliability dimensions, as in Table 2, revealed almost similar findings where the respondents rated the mean between 2.22 to 2.31 which indicates that the respondents were almost neutral to disagree with the construct on the reliability. The respondents were almost neutral in disagreeing with the reliability of the lecturer's time and promises made during the MCO. This finding reiterated the fact that the lecturers needed time to adjust to the new environment of ODL, thus there could be some hiccups in the reliability of services provided by the lecturers.

Table 2: Servqual Dimensions of Reliability

Statement	Mean	Std. Deviation
My lecturers provide their services at the time they promise to do.	2.22	1.360
My lecturers tell me exactly when services will be performed.	2.27	1.379
My lecturers perform services right the first time.	2.22	1.360
When my lecturers promise to do something by a certain time, they do so.	2.31	1.365

Source: Author's Tabulation

The findings on the responsiveness, as in Table 3, reveal almost similar findings where the respondents rated mean between 2.15 to 2.32 which indicates that the respondents were almost neutral to disagree with the construct on the responsiveness. The respondents were almost neutral in disagreeing with the responsiveness and promptness of the lecturer to the student's request. It should be noted that with the new technology where everything is on the finger, every student's request can be channeled and escalated quickly. However, previous findings relate to this finding where adjustments of the lecturers hinder the promptness and responsiveness of lecturers to these requests.

Table 3: Servqual Dimensions of Responsiveness

Statement	Mean	Std. Deviation
My lecturers are never too busy to respond to my requests.	2.26	1.214
When I have a problem, my lecturers show a sincere interest in solving it.	2.26	1.346
My lecturers give me prompt service	2.15	1.300
My lecturers are willing to help me.	2.32	1.385

Source: Author's Tabulation

According to Table 4, the findings recorded the lowest rated mean between 2.01 to 2.36 which indicates that neutral to almost disagree with the assurance. The respondents were neutral to almost disagree that the lecturers were courteous, had confidence, and acted professionally. This is because the fact the screen relationship has some limitations where the trust could not be enhanced and shown between the respondents and the lecturers.

Table 4: Servqual Dimensions of Assurance

Statement	Mean	Std. Deviation
My lecturers are consistently courteous with me.	2.19	1.274
My lecturers instilled confidence in me.	2.26	1.279
My lecturers conduct themselves professionally.	2.36	1.366
My lecturers have the knowledge to answer my questions.	2.01	.932

Source: Author's Tabulation

Table 5 indicates that the majority of respondents gave a high mean rating, as compared to previous constructs, between 2.39 and 2.49, indicating that they were nearly neutral on this empathy construct. Respondents were almost evenly split on whether the lecturer gave personal, individual attention in the best interest to meet the student's specific needs. Because this was the first time UiTM conducted all learning as ODL during the MCO, the results should be appraised to see that lecturers are likely to be more accommodating during MCO. However, there is significant room for improvement in empathy during ODL.

Table 5: Servqual Dimensions of Empathy

Statement	Mean	Std. Deviation
My lecturers give me personal attention.	2.39	1.168
My lecturers give me individual attention.	2.46	1.139
My lecturers have my best interests at heart.	2.49	1.179
My lecturers understand my specific needs.	2.43	1.205

Source: Author's Tabulation

In addition, the findings on the dimensions of knowledge, as shown in Table 6, were nearly identical, with mean ratings ranging from 2.24 to 2.44, indicating that respondents were neutral to the knowledge construct. Respondents were almost evenly split on whether the lecturer had good knowledge in teaching areas, was involved in research and was able to give practical illustrations of the reality. This finding reaffirmed the fact that a lecturer's knowledge is less likely to be affected by the MCO.

Table 6: Servqual Dimensions of Knowledge

Statement	Mean	Std. Deviation
My lecturers have good knowledge about the teaching areas.	2.35	1.392
My lecturers are involved in research.	2.24	1.334
My lecturers can provide real-world examples in their lectures.	2.44	1.392

Source: Author's Tabulation

Table 7 shows that the majority of respondents gave this communication construct a high mean rating compared to previous constructs, between 2.36 and 2.44, indicating they were nearly neutral on this construct. Respondents were nearly split down the middle on whether or not the lecturer communicated well

with the students and was able to provide a review of the student's development. Because this was the first time UiTM conducted all learning as ODL during MCO, the results should be evaluated and emphasized that physical communication would not be able to replace communication via gadgets. The hybrid communication between physical and online communication should be optimized to achieve a more satisfactory learning experience.

Table 7: Servqual Dimensions of Communication

Statement	Mean	Std. Deviation
My lecturers communicate well with me.	2.36	1.334
My lecturers communicate well in class.	2.44	1.407
My lecturers can provide feedback about my progress.	2.40	1.313

Source: Author's Tabulation

The findings on responsiveness, as shown in Table 8, revealed a mean score between 2.17 and 2.28, indicating that they were almost neutral as opposed to the responsiveness of the instructor during the MCO construct. Respondents were nearly neutral or opposed to the lecturer's responsiveness in terms of stimulating class learning, class periods and grading. It should be noted that with the new technology, where everything is at the student's fingertips, every request can be quickly routed and escalated. However, previous research indicates that adjustments made by lecturers inhibit their promptness and responsiveness to these requests.

Table 8: Servqual Dimensions of Skill and responsiveness of the instructor during MCO

Statement	Mean	Std. Deviation
The instructor was an effective lecturer/demonstrator	2.21	1.340
Presentations were clear and organized	2.17	1.321
Instructor stimulated student interest	2.28	1.310
Instructor effectively used time during class periods	2.26	1.336
The instructor was available and helpful	2.24	1.348
Grading was prompt and had useful feedback	2.25	1.315

Source: Author's Tabulation

The study then proceeded to employ regression as a key methodological approach in its subsequent investigative phase. The results of the regression analysis unveiled a noteworthy revelation regarding the statistical significance of the various items under investigation. A considerable proportion of the examined items exhibited an absence of significant statistical evidence.

Despite the substantial prevalence of items that did not attain statistical significance, it is imperative to underscore that a distinct subset of nine items emerged as compelling exceptions. These nine items represented only five constructs of Servqual in this study. The constructs are reliability with a single item, assurance with a single item, empathy with a single item, knowledge with a single item, and the skills and responsiveness of the instructors during MCO with the highest five items.

The majority of five items of 3 servqual constructs indicate a significant positive relationship with the course contents offered during MCO. These 3 constructs with significant positive relationship are reliability with a single item, knowledge with a single item and skill and responsiveness of the instructor with four items. The other 2 constructs of assurance and empathy revealed a significant negative relationship with the course content offered during MCO.

Table 9: Regression Result of the Study

Variables	Coefficient	Standard Error	Significance	VIF
Constant	0.144	0.157	0.360	
Reliability [My lecturers provide their services at the time they promise to do.]	0.174	0.060	0.004***	2.767
Assurance [My lecturers instill confidence in me.]	-0.139	0.060	0.021**	2.470

Empathy [My lecturers give me personal attention.]	-0.133	0.068	0.051*	2.633
Knowledge [My lecturers have good knowledge about the teaching areas.]	0.112	0.053	0.036**	2.334
Skill and responsiveness of the instructor during MCO [Instructor was an effective lecturer/demonstrator]	0.155	0.074	0.038**	4.191
Skill and responsiveness of the instructor during MCO [Presentations were clear and organized]	-0.134	0.068	0.049**	3.416
Skill and responsiveness of the instructor during MCO [Instructor stimulated student interest]	0.205	0.068	0.003***	3.358
Skill and responsiveness of the instructor during MCO [Instructor effectively used time during class periods]	0.119	0.063	0.059*	2.996
Skill and responsiveness of the instructor during MCO [Grading was prompt and had useful feedback]	0.216	0.073	0.003**	3.869

*Legend- *** significant at 1%, ** significant at 5%, * significant at 10%,*
Source: Author's Tabulation

5. Conclusion

Through the Open and Distance Learning (ODL) offered to all students, this study contributes to our understanding of managing education in the face of the unavoidable effects of the COVID-19 pandemic. The study found that the course content offered by UiTM during the MCO was clear, well-organized, and appropriate, and allowed students to fully participate. However, there was room for improvement in delivering the course content during the MCO. The reliability and responsiveness constructs showed that respondents were almost neutral to disagree. In addition, the assurance and empathy constructs showed that respondents were neutral to almost disagree with the lecturer's courteousness, confidence, and professionalism. However, the screen relationship had limitations where trust could not be enhanced. Furthermore, the knowledge and communication constructs showed that respondents were neutral indicating that lecturers' knowledge is less likely to be affected by the MCO and the lecturer communicated well with students and provided reviews on their development. The responsiveness dimensions revealed that respondents were almost neutral as opposed to the lecturer's responsiveness during the MCO. The new technology allowed for quick-routed and escalated requests, but previous research indicates that adjustments made by lecturers inhibit their promptness and responsiveness to these requests. The study employed regression analysis and found that reliability, assurance, empathy, knowledge, skills and responsiveness of instructors had significant positive relationships with the course content offered during the MCO.

These findings supported Parasuraman et al. (1985) which can be summed up as follows: i) the gap between ODL learners' expectations and ODL providers' expectations; and ii) the gap between ODL learners' expectations and ODL providers' ii) the discrepancy between the ODL provider's perception of what ODL students want and the service quality specifications iii) the distinction between service quality and actual encounter iv) the gap between experience and the promises made by ODL providers; and v) the gap resulting from the preceding gaps.

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Service Operations Mastery: A Holistic Toolset for Achieving Operational Excellence and Service Superiority

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Abstract: Effective operations management is central to achieving superior operational performance, whether in the manufacturing or service sector. While many studies have examined the importance of operations in manufacturing, less attention has been given to service operations management, particularly from the perspective of service operations managers. This study aims to bridge this gap by developing a comprehensive instrument for service operations management. By combining qualitative and quantitative approaches, we identified six key elements that underpin service operations management: Equipment Management, Human Initiatives, Service Delivery Control (SDC), Certifications, Technology Usage, and Service Delivery Design (SDD). Confirmatory factor analysis (CFA) confirmed the one-dimensionality of these factors, demonstrating their close interconnection. The instrument exhibited strong reliability and validity, enabling it to provide a structured framework for the empirical understanding of operations management in the service sector.

Keywords: *Service operations management, operational performance, holistic instrument, confirmatory factor analysis, comprehensive framework*

1. Introduction and Background

In a rapidly evolving global business environment, service providers face increasing pressure to adopt sustainable operational practices to gain a competitive advantage (Fred, 2011). To effectively respond to these changes, service providers have developed strategies to protect against threats and capitalize on opportunities. Research has shown that effective operational practices can lead to superior operational performance (Won et al., 2007; Miyagawa and Yoshida, 2010), enabling organizations to compete effectively in the marketplace. While manufacturing management practices can be applied to services, it is essential to conduct an in-depth study due to the inherent disparities and contradictions between service and manufacturing organizations, making service operations management unique.

Operations capabilities are fundamental sources of sustainable competitive advantage. They result from the interactions of operations management practices, which are responsible for managing value-creating activities throughout the transformation of resources from the input to the final output stage. Heizer and Render (2011) identified ten critical decision areas in operations management, including location, process and capacity design, inventory management, layout, quality management, product and service design, job design, supply chain management, scheduling, and maintenance.

Johnston and Clark (2012) have highlighted that service operations management is similar to manufacturing operations but distinct due to the strategic role of the customer as a source of variation in the service delivery process. Schmenner (1986) and Chase and Tansik (1983) have proposed categorizing service systems based on the degree of customer contact and service customization, recognizing the role of customer interaction in determining the nature of the service delivery process. Roth and Menor (2003) argued that service providers need to strategically align the targeted market segments, the composition of service offerings, and the design of the service delivery system. These elements interact to influence the customer's response to the service delivery process. Therefore, an operations strategy perspective is vital to deploy resources effectively, offering the right services to the right customers at the right times.

Furthermore, Mabert and Showalter (1981) have identified nine-level components within a service system, including the internal organization, external organization, technology, customers, front-line employees, support employees, product mix, service mix, and customer interface. Assessing efficiency in service delivery necessitates a focus on the customer's role in the service system, emphasizing the significance of customer interactions across all operational aspects. While operations practices can lead to operational performance,

many efforts have resulted in failure and wasted resources. Investments in operational activities can be costly and time-consuming before any impact is realized (Evan and Lindsay, 2005). Given these challenges, service operations managers must identify the most effective approach to optimize efficiency.

A contemporary issue or gap in this research topic is the need to explore the integration of emerging technologies and digitalization in service operations management. As the service industry increasingly adopts digital solutions and automation, understanding how these advancements impact operational performance, efficiency, and competitive advantage becomes crucial.

Thus, this study focuses on service delivery processes from the perspective of service managers. It aims to identify critical factors and establish relationships between various aspects of service operations management. The research adopts a consistent approach to instrument development, following procedures recommended by Churchill (1979), which are widely accepted for creating measurement instruments (Tinsley and Tinsley, 1987). The study delves into the unique context of service operations management, offering insights into the operational practices and strategies that contribute to competitive advantage in the dynamic global business landscape.

2. Literature Review

In today's rapidly changing global business environment, service providers face mounting pressures to not only survive but thrive. The need for sustainable operational practices to achieve a competitive advantage has become paramount (Fred, 2011). To adapt to these changes, service providers have continuously developed strategies to mitigate threats while capitalizing on emerging opportunities. A substantial body of research has demonstrated that effective operational practices are a pathway to superior operational performance (Won et al., 2007; Miyagawa and Yoshida, 2010). These practices enable organizations to compete effectively in the marketplace. While the principles of manufacturing management practices naturally seem applicable to services, the transferability of these practices to the service sector is more nuanced. There are inherent discrepancies and contradictions between service and manufacturing organizations that call for a deeper and distinct examination of service operations management (Won et al., 2007; Miyagawa and Yoshida, 2010).

Operations capabilities serve as critical sources of sustainable competitive advantage for organizations. They leverage assets and practices to achieve superior performance, and they are the result of interactions within operations management practices. Operations management involves the management of value-creating activities from the input stage through the final output stage. Key decision areas in operations management encompass location, process and capacity design, inventory management, layout, quality management, product and service design, job design, supply chain management, scheduling, and maintenance (Heizer and Render, 2011). Johnston and Clark (2012) posit that service operations management shares similarities with manufacturing operations management but has one critical difference: the role of the customer as a source of variation in the service delivery process. Schmenner (1986) introduced the concept of labor intensity and the consumer's interaction and service customization matrix to categorize service delivery processes into four categories: service factory, service shop, mass service, and professional service. This categorization is based on the level of customer interaction and the nature of service creation, which inherently introduces uncertainty into the delivery process.

On another note, Roth and Menor (2003) argue that service providers must consider the strategic alignment of three elements: the targeted market and segments, the complex bundle of service offerings, and choices in service delivery system design. The interaction of these elements influences the customer and, in turn, the customer's response to the service delivery process. From an operations strategy perspective, it is crucial to deploy resources effectively to provide the right offerings to the right customers at the right times. The comprehensive and intricate nature of service systems and their operational components have long been a focal point of research within the realm of service operations management. Mabert and Showalter (1981) set the stage by underlining the significance of comprehending the various components within a service system and their dynamic interplay within the broader context of service operations. Their framework identifies nine levels of components, encompassing internal organization, external organization, technology, customers, front-line employees, support employees, product mix, service mix, and customer interface. These elements

collectively constitute the multifaceted landscape of service operations, where the efficiency and effectiveness of interactions among them are paramount.

Recent scholarship continues to recognize the foundational importance of understanding and optimizing the intricate components of service systems. In the contemporary landscape, service organizations are confronted with an ever-evolving array of challenges and opportunities. The customer interface, in particular, has become a focal point of interest, as customers increasingly serve as active participants in shaping service experiences (Hao et al., 2015). The integration of technology has also assumed a central role, affecting the external and internal organizational aspects of service operations (Baptista et al., 2021). These recent developments underscore the need for service operations managers to reevaluate the role and impact of various components within the service system.

One of the persistent challenges faced by service operations managers is the efficient allocation of resources to improve operational performance. Evan and Lindsay (2005) highlight that while the potential of operational practices to enhance performance is well-established, a substantial number of endeavors often result in suboptimal outcomes. The allocation of resources for operational improvements frequently demands substantial investments in terms of cost and time, with immediate results being elusive. In such a complex and dynamic environment, service operations managers must adopt a discerning approach to ensure that their investments yield optimal efficiency.

In light of the aforementioned challenges, contemporary research increasingly recognizes the significance of data-driven decision-making and technology utilization in service operations management. Hao et al. (2015) demonstrate how data analytics and customer-centric approaches can empower service organizations to enhance the customer interface and overall service quality. Baptista et al. (2021) discuss the adoption of technology and digital tools to streamline internal processes and improve external service delivery. These insights are indicative of a growing awareness within the field of service operations management regarding the need to leverage data and technology for optimizing operational efficiency. The evolving landscape of service operations management continues to emphasize the importance of understanding the intricate components within a service system and the efficient allocation of resources. Contemporary research underscores the pivotal role of data analytics, customer-centric approaches, and technology adoption as mechanisms for improving the customer interface and overall service performance. As service organizations navigate the challenges of the modern business environment, they must remain vigilant and adaptive in their pursuit of operational excellence.

Effective operations management stands as a linchpin in achieving superior operational performance, both within the manufacturing and service sectors. The significance of operations management in manufacturing has been extensively explored in the literature, with numerous studies underscoring its pivotal role in optimizing processes, reducing costs, and enhancing product quality (Stevenson, 2018). However, relatively less attention has been devoted to service operations management, particularly from the unique vantage point of service operations managers. In the evolving landscape of business, services have emerged as a fundamental component of the global economy. This paradigm shift has accentuated the need for a nuanced understanding of service operations management, which, despite sharing similarities with manufacturing operations, boasts distinctive attributes. Within this context, this study seeks to address a conspicuous gap in the literature by crafting a comprehensive instrument tailored to service operations management.

By adopting a multifaceted research approach that integrates qualitative and quantitative methodologies, this study discerns and delineates six fundamental components that constitute the bedrock of service operations management: Equipment Management, Human Initiatives, Service Delivery Control (SDC), Certifications, Technology Usage, and Service Delivery Design (SDD). The selection of these elements is rooted in their indispensable roles in shaping the dynamics of service operations. Equipment Management underscores the efficient handling of equipment and resources, ensuring they remain a wellspring of operational efficiency (Haddara et al., 2017). Human Initiatives encompass a spectrum of factors, including the commitment of top management, job design, and workspace optimization, all of which influence the performance of service delivery (Gül et al., 2019).

Service Delivery Control (SDC) pertains to the meticulous monitoring and management of service delivery variations, drawing on technology, checklists, and statistical tools (Bucic et al., 2020). Certifications encompass the evaluation of supplier performance, employee skills, and process improvement initiatives, fostering partnerships and process enhancement (Sun et al., 2019). Technology Usage is instrumental in integrating communication technologies and innovations such as self-service kiosks, amplifying customer engagement and operational flexibility (Yi et al., 2018). Service Delivery Design (SDD) refers to the intricate planning of service delivery, incorporating elements like benchmarking, process flowcharts, and customer-centric requirements, which collectively dictate the ability of service providers to meet customer expectations (Wu et al., 2019).

Confirmatory factor analysis (CFA), a robust statistical tool, has ratified the interconnectedness of these six factors by confirming their one-dimensionality. This intricate interplay between these elements corroborates the holistic nature of service operations management. The developed instrument has proven its mettle through robust reliability and validity assessments, rendering it an invaluable tool to facilitate a structured exploration of operations management within the service sector.

This study, set in a service context, specifically focuses on delivery processes from the perspective of service managers. It offers an opportunity to identify critical factors and determine the relationships between them in the realm of service operations management. The instrument development approach aligns with the procedures recommended by Churchill (1979), which are widely accepted in the field of research. In sum, this study emphasizes the indispensable role of effective operations management in achieving superior operational performance, particularly within the service sector. The comprehensive instrument crafted here, validated through CFA, offers service operations managers a structured framework to comprehend and optimize their operational strategies, ultimately enhancing their ability to thrive in a dynamic and competitive service environment.

3. Methodology

The research methodology employed for this study involved a comprehensive examination of the existing body of literature, encompassing prescriptive, conceptual, and empirical works. Additionally, valuable insights were obtained through interviews with service operations managers from various sectors in Malaysia, specifically in the fields of hospitality, health services, airlines, and higher education. The goal of these interviews was to delve into the operational practices of their respective organizations and identify constructs that are underrepresented in the literature but hold significance in the service industries (Hudson & Ozanne, 1988).

The feedback gathered from these interviews underwent a thematic analysis, following the guidelines of Boyatzis (1998), to uncover key themes. From the findings, four overarching constructs emerged: the technological literacy of employees, total service delivery knowledge, flexible layout to accommodate fluctuations, and the integration of technology within the operations management function (Mohar et al., 2016). Building on insights from the literature review and interviews, a total of 65 items were identified. These items were assessed for content validity by experts with a strong background in operations management research. Duplicate items were identified and removed, and adjustments were made to enhance clarity and simplicity, including word substitutions and sentence restructuring. Following these refinements, a questionnaire with 57 items was finalized.

The questionnaire comprised four sections: an introductory letter to the respondent, a respondent's profile (Section A), questions (Section B), and questions related to the organization's operations capability (Section C). All questions were presented in English and were randomly structured as statements within the questionnaire. A uniform Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was used to measure responses. Feedback on the drafted questionnaire was sought from experts in the service industry and academia to identify any ambiguities, omissions, or errors. The majority of the experts concurred that the questionnaire effectively addressed the pertinent issues in service operations management.

To identify potential survey participants, a list of hotels, private hospitals, and private higher education institutions was obtained from reputable sources such as the Malaysian Association of Hotels, the Association of Private Hospitals Malaysia and the Ministry of Higher Learning of Malaysia. Additionally, thirty airline operations managers from different airports in Malaysia, representing major carriers including Malaysian Airlines, Air Asia, and Malindo Air, were targeted for participation.

Before the main survey, the drafted questionnaire was piloted on 250 respondents, resulting in a response rate of 40%. The scale purification process commenced with the computation of Cronbach's alpha coefficient (Cronbach, 1951) based on Churchill's recommendations. A cutoff value of 0.70 and above was adopted to ensure the internal consistency of the new scales, as per the guidelines of Nunnally and Bernstein (1978). The reliability coefficient for the variables was found to be 0.85, exceeding the required threshold and indicating both internal consistency and satisfactory reliability in their original form. At this stage, no items were eliminated, as they may contribute to constructs spanning across various factor domains (Ahire et al., 1996).

4. Results

Multivariate Test of Normality: Ensuring the normality of data is a fundamental step before applying inferential statistical techniques, particularly when working with a substantial number of items. Deviations from normality may lead to distortions and bias, rendering the analysis complex and obscuring the detection of assumption violations (Hair et al., 2010). Any violation of normality assumptions can jeopardize the reliability of inferences and lead to erroneous interpretations.

A multivariate test of normality was conducted using the approach recommended by Johnston and Wichern (1992). This approach involved calculating D2 for each subject and plotting it against the quantiles of the $\chi 2$ distribution. The scatter plots of chi sq vs. di_sq displayed a high degree of fit with R2 = 0.99, signifying that the data adhered to multivariate normality.

To assess the factorability of the data before performing factor analysis, several analyses were undertaken as suggested by Hair et al. (2010). Inter-item correlations were examined visually, revealing substantial correlations, with many correlation coefficients exceeding 0.30. The Bartlett test of sphericity, which tests whether the correlation matrix contains significant correlations among some of the variables, yielded significant results ($p < 0.01$) with χ^2 (57, N = 100). Moreover, the Kaiser-Meyer-Olkin (KMO) measure, indicating overall sampling adequacy, was calculated and achieved an index of 0.85, well above the threshold for adequate sampling as per Kaiser's (1970) criteria.

Additionally, the anti-image correlation was assessed to gauge the sampling adequacy of individual items. Inspection of the matrix revealed that all individual items had correlations well above the acceptable threshold of 0.5, with values ranging from 0.60 to above 0.90. This series of checks collectively confirmed the suitability of the data for factor analysis.

Factor analysis, employing principal axis factoring and latent root criterion for factor extraction, was conducted. Factors with eigenvalues exceeding 1.0 were retained, and items with factor loadings greater than 0.5 were included in the factor solution (Hair et al., 2010). Items with communalities below 0.5 were deemed insufficiently explained by the factor solution and were consequently removed. The exploratory factor analysis (EFA) revealed six meaningful factors, accounting for 70.7% of the variation in the data.

Table 1: Results of Factor Analysis

No	Factor Name	Variables	Eigenvalues	Percentage of Variance	Cumulative Percentage of Variance
1	Factor 1	Outsourcing, Readily available...	14.44	45.11	45.11
2	Factor 2	Standard operating procedures (SOP)...	2.67	8.34	53.45
3	Factor 3	Equipment and facilities utilization...	2.11	6.60	60.05
4	Factor 4	Maintenance by vendor...	1.21	3.77	63.82
5	Factor 5	Inter department communication...	1.11	3.46	67.28
6	Factor 6	Supplier relationship...	1.08	3.38	70.66

The final results of the factor analysis, as presented in Table 1, include the factor names, variables loading on each factor, eigenvalues, the percentage of variance explained by each factor, and the cumulative percentage of variance explained by the factors.

Confirmatory Factor Analysis (CFA): Face validity, which aims to ensure that constructs are operationally defined in a way that clearly conveys the intended meaning, and content validity, which focuses on the relevance of the questionnaire's content about the constructs, was assessed qualitatively. Given the rigorous development process of the questionnaire, involving a comprehensive review of relevant literature and input from experts in the service industries, both face and content validity was ensured (Bohrnstedt et al., 1983; Kaplan and Saccuzzo, 1993).

Construct validity and reliability are integral components of research methodology (Hattie, 1985; Anderson and Gerbing, 1991). These aspects demand the assessment of unidimensionality, which signifies that a set of measures is rooted in a single underlying construct or trait. To examine unidimensionality, Lisrel 8.3 was employed to confirm the extent to which the six factors in the model represent the same construct. Multiple fit indices were simultaneously considered to evaluate the model's goodness of fit. The fit indices for the six factors are presented in Table 2.

Table 2: Six Factors Fit Indices

No.	Fit Indices	Indices
1	Chi square	Chi sq: 784.96, df: 441
2	Relative Chi-Square (X^2/df)	1.80
3	Root Mean Square Error of Estimation	0.06
4	Standardized Root Mean Square Residual	0.06
5	Normed Fit Index (NFI)	0.91
6	Non Normed Fit Index (NNFI)	0.96
7	Comparative Fit Index (CFI)	0.96

The Chi-square statistic for the data was χ^2 = 784.96 with 441 degrees of freedom. The relative likelihood ratio between χ^2 and its degrees of freedom (χ^2/df) was 1.80, which is indicative of a good fit. Root Mean Square Error of Estimation (RMSEA) and Standardized Root Mean Square Residual (SRMR) were both indexed at 0.06, falling within an acceptable range. Additionally, the Normed Fit Index (NFI) and Non Normed Fit Index (NNFI) were indexed at 0.91 and 0.96, respectively. The Comparative Fit Index (CFI) for this model was indexed at 0.96. These indices collectively met the criteria for an acceptable fit.

Moreover, considering the number of observations (N < 250) and the number of observed variables (N ≥ 30), as suggested by Hair et al. (2010), the model should exhibit a significant χ^2, a CFI exceeding 0.92, an SRMR less than 0.09, and an RMSEA less than 0.08. In this case, all six factors met these recommended thresholds.

Hence, it can be concluded that the model fits well and adequately approximates the population. Reliability testing was performed following the establishment of unidimensionality. The reliability coefficients for all the factors are presented in Table 3. The values met the requisite criteria, demonstrating the internal consistency and satisfactory reliability of each factor in its original form.

Table 3 also presents the Bentler Bonnet indices for the respective factors. The coefficient values exceeded 0.90, indicating strong evidence of convergent validity. Discriminant validity assesses the extent to which a factor is distinct from other factors, capturing unique phenomena not accounted for by other constructs (Hair et al., 2010). Discriminant validity was assessed using a Chi-square ($\chi 2$) difference test, comparing the $\chi 2$ values of restricted and unrestricted models. The degree of freedom (df) was less than one for each additional path estimated. All 15 discriminant validity checks produced statistically significant $\chi 2$ differences at $p < 0.005$, confirming discriminant validity.

Criterion-related validity evaluates the extent to which one measure predicts the values of another measure. In this study, criterion-related validity was established by correlating the dimensions scores with operations capability, as displayed in Table 4. All factors exhibited positive correlations with operations capability, establishing criterion-related validity for all the factors. The study confirmed a relatively strong relationship among the six factors, with correlations ranging from 0.500 to 0.878, except for factor 6 and factor 5, which had a correlation of 0.380. All correlations were statistically significant at $p < 0.001$, indicating that these factors collectively form a dynamic model that influences the attainment of an organization's operations capability.

Table 3: Cronbach Alpha and Bentler Bonnet Indices

No.	Factors	Cronbach Alpha (α)	Bentler Bonnet Indices
1	Equipment management	0.90	0.91
2	Human initiatives	0.87	0.96
3	Service delivery control	0.94	0.96
4	Certifications	0.89	0.98
5	Technology usage	0.76	0.94
6	Service delivery design	0.86	0.93

Table 4: Correlation Matrix: Six Factors and Operations Capability

Factors	Operations Capability
Equipment management	0.361
Human initiatives	0.455
Service delivery control	0.370
Certifications	0.369
Technology usage	0.299
Service delivery design	0.356

Note: All correlations were statistically significant ($p < 0.01$).

Managerial Implications and Recommendations: The findings of this study highlight the dynamic and interconnected nature of service operations management dimensions, where the interplay among these dimensions significantly influences an organization's operational capacity. This observation aligns with the conceptual frameworks proposed by Mabert and Showalter (1981) and Roth and Menor (2003), which underscore the systemic nature of service operations management. These results underscore the distinctive nature of service operations management, differentiating it from manufacturing operations management, largely due to the six identified elements. This aligns with Amis et al.'s (2004) argument that the evolution of service operations management has been influenced by manufacturing management practices, signaling a shift towards a more service-oriented operations management.

Furthermore, the integration of communication technologies and the adoption of features like safe layouts, employee feedback mechanisms, and self-service kiosks act as catalysts for information exchange, facilitating both vertical and horizontal integration within different service delivery areas. Simultaneously, these technologies empower and involve customers in the service process (Chathoth, 2007; Heim & Peng, 2010). Enhanced utilization of technology and its applications in the service delivery system provides a foundation for effective equipment management. With strategies like outsourcing, readily available information, communication technologies, and standard operating procedures in place, efficient equipment management is achievable. This combination also enables both customers and employees to participate in complex processes, preventing service failures (Chase & Stewart, 1994), fostering flexibility in service delivery, and promoting customer engagement.

Moreover, the study underscores the importance of human-related elements in adapting the service delivery system to evolving operational requirements and challenges (Forza and Filippini, 1998; Tsai, 2006; Senaji and Nyaboga, 2011). A stronger commitment from top management, effective job design, and well-equipped workspaces contribute to improved service delivery process performance, enhancing overall operational capability (Lollar et al., 2010).

Service delivery design plays a pivotal role in ensuring efficient service delivery. Benchmarking, process flowcharts, technological applications, the integration of customer requirements, and improvement programs aid service providers in delivering the expected level of service. Service delivery control (SDC) involves monitoring and regulating variations in service delivery, facilitated by technology, checklists, service design tools, and statistical tools. The implementation of error-proof procedures in service delivery control reduces process variability, minimizes rework, and enhances overall process efficiency (Evan and Lindsay, 2005; Ahire and Dreyfus, 2000). Statistical tools and methods are integral to process management and play a significant role in monitoring and controlling operational processes (Benner and Tushman, 2003).

Additionally, the study highlights the significance of certifications, including supplier ratings, staff skill levels, employee certifications, and online booking and purchase processes. Certifications can foster supplier development programs that encourage ongoing collaboration between organizations and their suppliers to enhance technical, quality, delivery, cost capabilities, and process improvement. Such collaborative efforts create stability in capacity while enhancing the competitiveness of both parties in the market. In conclusion, this research underscores the critical role of service operations management in ensuring the success and sustainability of service providers in a dynamic global business environment. The complex interplay of factors such as equipment management, human initiatives, technology utilization, and service delivery design is essential in achieving operational excellence and a competitive edge. This comprehensive approach to service operations management enables organizations to adapt, thrive, and meet the evolving needs of their customers.

By developing a deeper understanding of the nuanced challenges and opportunities in service operations management, organizations can optimize their investments, minimize wastage, and deliver high-quality services that meet customer expectations. In a world where services are a cornerstone of the economy, this research offers valuable insights for service providers seeking to thrive and prosper in the ever-changing landscape.

5. Conclusion

In a nutshell, the findings of this research shed light on the intricate and interconnected dynamics within the realm of service operations management. The interplay among various dimensions highlighted in this study significantly influences an organization's operational capacity, underscoring the systemic nature of service operations management. This aligns with the conceptual frameworks proposed by Mabert and Showalter (1981) and Roth and Menor (2003), emphasizing the uniqueness of service operations management when compared to manufacturing operations management.

The integration of communication technologies, safe layouts, employee feedback mechanisms, and self-service kiosks has a profound impact on information exchange and integration within service delivery areas. Moreover, it empowers both employees and customers, promoting effective equipment management, flexibility in service delivery, and customer engagement. This underscores the evolving nature of service operations management, shifting towards a more service-oriented approach, as argued by Amis et al. (2004).

Human-related elements, such as top management commitment, job design, and well-equipped workspaces, also play a crucial role in enhancing service delivery process performance. These factors contribute to overall operational capability and the adaptability of the service delivery system. Service delivery design, supported by benchmarking, process flowcharts, technology integration, and customer-centric improvement programs, is pivotal in ensuring efficient service delivery. Service delivery control, aided by technology and statistical tools, helps regulate variations and minimize rework, leading to enhanced process efficiency. Certifications, including supplier ratings, staff skill levels, employee certifications, and online booking and purchase processes, facilitate supplier development programs and collaboration between organizations and their suppliers. This collaborative effort fosters stability in capacity and competitiveness in the market.

Thus, this research underscores the critical role of service operations management in ensuring the success and sustainability of service providers in a dynamic global business environment. The intricate interplay of factors like equipment management, human initiatives, technology utilization, and service delivery design is crucial in achieving operational excellence and maintaining a competitive edge. This comprehensive approach enables organizations to adapt, thrive, and meet the evolving needs of their customers, making it essential in the ever-changing landscape of the service industry.

By gaining a deeper understanding of the challenges and opportunities within service operations management, organizations can make informed decisions to optimize their investments, minimize wastage, and deliver high-quality services that align with customer expectations. In a world where services are a cornerstone of the economy, this research offers valuable insights for service providers looking to not only survive but thrive in an ever-evolving landscape.

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A Study on Sentiment Analysis on Airline Quality Services: A Conceptual Paper

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Abstract: Airline quality service is crucial for airlines to remain competitive in the industry. The quality of the services of these airlines must meet customer satisfaction and other aspects of the overall service experience. The levels of service quality in an airline service may impact satisfaction and loyalty which may influence customer sentiment. Concerning the importance of airline quality service, customer sentiment towards the service must be investigated and one of the ways to analyze it is by using sentiment analysis. Sentiment analysis is the chosen tool nowadays to analyze comments or reviews made on these services, which may be positive, negative, or neutral. Using sentiment analysis, will not only help potential customers to view the overall sentiment portrayed, but organizations can also use the findings to improve their organization to be more competitive. Thus, this paper will focus on reviewing several recent works related to sentiment analysis as a tool for assisting organizations in assessing the quality of services in the airline industry. As a result, a new framework for assessing the quality of service for the organizations, especially the airline company will be proposed.

Keywords: *Sentiment Analysis, Airline Quality Service, Customer Review*

1. Introduction

Every year, a significant number of individuals choose air travel as their preferred mode of transportation, relying on various airlines to facilitate their journeys. The level of customer satisfaction and loyalty is heavily influenced by the quality of airline services, making it a critical factor in an intensely competitive market. Therefore, airlines must comprehend customer sentiment and identify the key factors that shape it. To achieve this, sentiment analysis, a technique that examines textual data, such as customer reviews, can provide invaluable insights into the polarity of sentiment, whether it is positive, negative, or neutral. By leveraging sentiment analysis, potential customers, and airline companies, whether Full-Service Carriers (FSCs) or Low-Cost Carriers (LCCs), can develop a profound understanding of the strengths and weaknesses exhibited by different airlines and their services. The purpose of this paper is threefold. Firstly, it aims to conduct an extensive literature review on sentiment analysis in the airline industry. Secondly, it proposes a conceptual framework for assessing service quality using sentiment analysis. Lastly, it discusses the implications of the findings for various stakeholders. Four primary objectives have been established for this study:

- To provide an overview of the current state of research concerning sentiment analysis in the airline industry.
- To explore the benefits and challenges associated with utilizing sentiment analysis to evaluate service quality.
- To propose a conceptual framework specifically tailored to conducting sentiment analysis for airline services.
- To investigate the implications of the findings for airline companies, customers, and researchers.

The paper is structured as follows: Section 2 provides an extensive review of existing literature on sentiment analysis in the airline industry. Section 3 outlines the sentiment analysis process. Section 4 introduces a conceptual framework for assessing service quality and discusses the findings' implications. Finally, Section 5 concludes the paper by discussing its limitations and suggesting avenues for future research.

2. Literature Review

Overview of sentiment analysis: Sentiment analysis, also referred to as opinion mining, is a computational

approach that aims to extract and analyze sentiments, opinions, and emotions expressed within textual data (Hemmatian & Sohrabi, 2017). By utilizing natural language processing (NLP) and machine learning algorithms, sentiment analysis classifies text into positive, negative, or neutral sentiments, providing valuable insights into the overall sentiment conveyed in the text (Rumelli et al., 2019). The significance of sentiment analysis has been widely acknowledged in various industries, including the airline sector, due to its ability to effectively analyze large volumes of textual data and unveil customer sentiment (Kwon et al., 2021; Patel et al., 2023).

Sentiment analysis in the airline industry: Sentiment analysis has gained significant popularity in the airline industry as a means of understanding customer sentiment towards services and evaluating overall service quality (Kang et al., 2022; Kwon et al., 2021). Recent studies have examined sentiment in online reviews of airline services, establishing a strong link between customer sentiment, airline choice, and satisfaction (Ahmed & Rodríguez-Díaz, 2020; Lucini et al., 2019; Ractham, 2021). These findings highlight the importance of accurately assessing and comprehending customer sentiment in meeting expectations and improving perceptions of service quality.

To facilitate sentiment analysis in the airline industry, researchers have proposed various frameworks and methodologies. For instance, Lucini et al. (2019) developed a novel framework for measuring customer satisfaction in the airline industry using text mining of Online Customer Reviews (OCRs). Their analysis of over 55,000 OCRs identified 27 dimensions of satisfaction and provided recommendations for airline companies to enhance their competitiveness. Notably, customer service for first-class passengers, comfort for premium economy passengers, and luggage handling and waiting time for economy-class travellers emerged as crucial factors. Cabin staff, onboard service, and value for money were identified as the top three dimensions predicting airline recommendation.

Existing literature in the airline industry consistently confirms the correlation between service quality, customer satisfaction, loyalty, and sentiment. Numerous studies have demonstrated a positive association between service quality and customer satisfaction, indicating that satisfied customers tend to express positive sentiments towards airline services (Agarwal & Gowda, 2020). For example, Agarwal and Gowda (2020) examined the impact of airline service quality on customer satisfaction and loyalty in India, finding that dimensions such as reliability, responsiveness, assurance, empathy, and tangibles positively influenced customer satisfaction, which in turn affected loyalty. Similarly, Law et al. (2022) investigated the relationship between airline service quality, customer satisfaction, and repurchase intention among Laotian air passengers, discovering that all dimensions of service quality had a positive effect on customer satisfaction and repurchase intention. Farooq et al. (2018) explored the impact of service quality on customer satisfaction in Malaysia Airlines, revealing a positive and significant influence of dimensions such as airline tangibles, terminal tangibles, personnel services, empathy, and image on customer satisfaction.

Furthermore, customer sentiment, as a significant emotional attitude, plays a crucial role in shaping customer loyalty and encouraging repeat business within the airline industry. Recent studies strongly support this notion, providing evidence of the intricate relationship involved (Lin et al., 2018). For example, Lin et al. (2018) examined the Malaysian airline industry and found that trust acts as a positive and influential factor that mediates the link between customer satisfaction and customer loyalty. This highlights the vital role of trust in building long-lasting relationships with customers. Similarly, Sukri et al. (2014) compared customer satisfaction and loyalty between Malaysia Airlines and Air Asia, identifying key factors such as service quality, price, and the overall customer experience as critical elements that influence customer satisfaction and loyalty. By understanding and addressing these factors, airlines can effectively shape customer sentiment, improve satisfaction levels, and ultimately cultivate strong customer loyalty. This is particularly important in the highly competitive airline industry, where long-term success depends on maintaining a loyal customer base.

In conclusion, sentiment analysis has proven to be a valuable tool for understanding customer sentiment in the airline industry. By analyzing textual data, sentiment analysis offers insights into customer opinions, attitudes, and emotions regarding airline services. Its application has led to the development of frameworks and methodologies for assessing service quality and enhancing customer satisfaction. The interplay between

service quality, customer satisfaction, loyalty, and sentiment underscores the importance of effectively analyzing customer sentiment.

Studies on sentiment analysis of airline services: Studies on sentiment analysis of airline services employ natural language processing techniques to analyze and categorize customers' emotional responses towards airlines. This method can be applied to various sources of text, including reviews, comments, tweets, and blogs. Sentiment analysis in the airline industry aims to gain insights into customer satisfaction, loyalty, and word-of-mouth, enabling targeted improvements to enhance the overall service experience.
Several studies have explored sentiment analysis in the airline industry using different machine learning and deep learning techniques. For example, Patel et al. (2023) applied sentiment analysis to airline reviews using a range of machine learning and deep learning techniques. They compared the performance of Google's BERT algorithm with other methods, such as Naive Bayes, Support Vector Machine, Decision Tree, and Random Forest. The study demonstrated that BERT outperformed the other methods in terms of accuracy, precision, recall, and F1 score.

Aljedaani et al. (2022) conducted a research study to analyze sentiments expressed on Twitter in the US airline industry. Their hybrid approach combined lexicon-based methods with deep learning models like CNN, LSTM, GRU, and CNN-LSTM to improve sentiment accuracy. The study compared the impact of TextBlob with Afinn and VADER on classification accuracy, highlighting the effectiveness of their proposed methods in sentiment analysis. Gupta and Bhargav (2022) surveyed various machine-learning techniques for sentiment analysis in the airline industry and discussed their strengths and weaknesses.

Another research study introduced a new deep learning model that successfully integrated various word embeddings with deep learning techniques to analyze a dataset consisting of tweets related to six major US airlines. The study focused specifically on conducting multi-class sentiment analysis, which involves categorizing sentiments into multiple classes or categories (Hasib et al., 2021). Malik et al. (2020) discussed the application of a containerized microservice approach using Docker technology for airline sentiment analysis. They implemented and compared eight machine learning algorithms to analyze and classify tweets into positive, negative, and neutral sentiments. Experimental results using the Twitter US Airline Sentiment dataset demonstrated the superior performance of Support Vector Machine, Multinomial Naive Bayes, Stochastic Gradient Descent, and Random Forest algorithms compared to others.

These studies highlight the potential of sentiment analysis as a tool for evaluating service quality in the airline industry. By utilizing sentiment analysis, both customers and airlines can benefit from the insights derived from a large volume of online text data. Customers can make informed decisions based on collective sentiment, while airlines can use this feedback to improve service quality and foster customer loyalty. However, sentiment analysis faces challenges related to handling noisy data, sarcasm, irony, ambiguity, subjectivity, and contextual nuances. Thus, further research is necessary to address these concerns and advance the development of robust frameworks and methodologies tailored for sentiment analysis in the airline industry.

Existing frameworks and methodologies: Various frameworks and methodologies have been developed to analyze customer sentiment in the airline industry, providing structured approaches for extracting insights from textual data (Table 1). These frameworks play a crucial role in assessing the quality of airline services. For instance, Kwon et al. (2021) conducted sentiment analysis on Skytrax posts, using frequency analysis, latent Dirichlet allocation, and lexicon-based sentiment analysis to identify the main topics and sentiments in online reviews.

Table 1: Frameworks and Methodologies

Authors	Dataset	Framework
Kwon et al. (2021)	Skytrax	Frequency analysis, latent Dirichlet allocation, and lexicon-based sentiment analysis
Kumar and Zymbler (2019)	Airline tweets	Machine learning techniques - word embedding with the Glove dictionary approach and n-gram analysis
Kaur and Malik (2021)	Tweets from six major US airlines	Machine learning algorithms like SVM, Naïve Bayes, and Random Forest

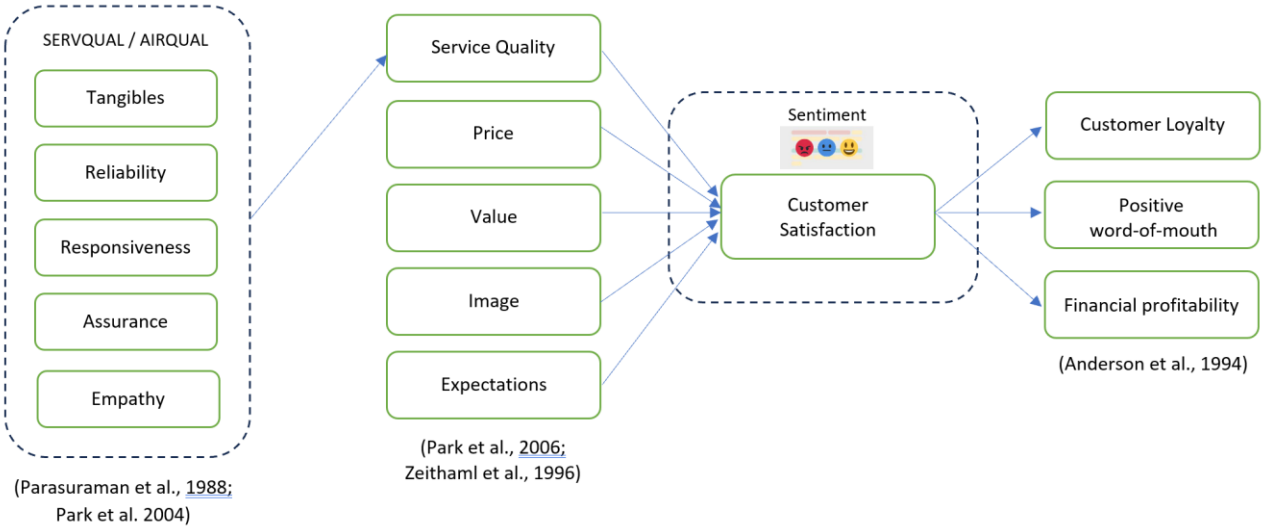
Similarly, Kumar and Zymbler (2019) employed machine learning techniques, such as word embedding with the Glove dictionary approach and n-gram analysis, to extract features from airline tweets. They utilized support vector machine (SVM) and artificial neural network (ANN) architectures to classify tweets into positive and negative categories. Additionally, they employed visualizations like word clouds and bar graphs to highlight reasons for negative comments. In another study, Kaur and Malik (2021) performed sentiment analysis on airline systems using machine learning algorithms like SVM, Naïve Bayes, and Random Forest. They focused on a dataset of tweets from six major US airlines and evaluated algorithm performance using metrics such as accuracy, precision, recall, and F1-score.

These frameworks demonstrate the potential of sentiment analysis as a tool for evaluating service quality in the airline industry. By leveraging sentiment analysis, both customers and airlines can benefit from the wealth of online text data. Customers can make informed decisions based on collective sentiment, while airlines can use the feedback to improve their services and foster customer loyalty. However, sentiment analysis faces challenges related to handling noisy data, sarcasm, irony, ambiguity, subjectivity, and contextual dependency. Future research should address these issues and develop more robust frameworks and methodologies for sentiment analysis in the airline industry.

Relationship between service quality, customer satisfaction, loyalty, and sentiment: Numerous studies have investigated the relationship between service quality, customer satisfaction, loyalty, and sentiment within the airline industry. These studies shed light on the crucial role of service quality in shaping customer satisfaction and loyalty which, in turn, influences the sentiment expressed by customers. Figure 1 shows the relationship between service quality, customer satisfaction and sentiment.

Service quality is a key factor that influences customer satisfaction and loyalty in the airline industry. It encompasses various dimensions such as tangibles, reliability, responsiveness, assurance, and empathy, which are measured using models like SERVQUAL or AIRQUAL (Parasuraman et al., 1988; Park et al. 2004). Customer satisfaction levels are influenced by multiple factors, including service quality, price, value, image, and expectations (Park et al., 2006; Zeithaml et al., 1996). Customer satisfaction, in turn, leads to favorable outcomes such as customer loyalty, positive word-of-mouth, and financial profitability (Anderson et al., 1994).

Figure 1: Relationship between service quality, customer satisfaction and sentiment



For instance, Vu (2021) conducted a study highlighting the critical relationship between service quality, customer satisfaction, and purchase intentions. The findings emphasize the importance of high service quality and customer satisfaction in shaping customers' intention to make purchases, thereby providing companies with valuable opportunities to gain long-term competitive advantages and enhance customer retention

strategies. Similarly, Supriyanto et al. (2021) reinforce the substantial impact of service quality on customer satisfaction and loyalty, emphasizing the need for businesses to prioritize service quality in the airline industry.

Customer loyalty is another vital outcome influenced by service quality, customer satisfaction, and other factors such as trust, perceived value, and switching costs (Hal et al., 2023). Rasheed and Abadi (2014) found that service quality, trust, and perceived value significantly influence customer loyalty in the Malaysian services sector. These findings underline the importance of focusing on service quality and building trust to enhance customer loyalty and gain a competitive edge. Suchánek and Králová (2019) examined the relationship between customer satisfaction, loyalty, product knowledge, and business competitiveness in the food industry. The research highlights the interplay between these factors and emphasizes the role of customer satisfaction in fostering customer loyalty and contributing to overall business competitiveness.

The relationship between service quality, customer satisfaction, and loyalty has been explored using various research methodologies. Law et al. (2022) utilized structural equation modeling (SEM) to investigate the influence of service quality on customer satisfaction and repurchase intention in the Laotian airline industry. Their findings demonstrate that service quality directly impacts customer satisfaction and, in turn, indirectly influences customer loyalty through customer satisfaction.

In addition, studies have examined service quality in the context of low-cost airlines. El Haddad (2019) focused on low-cost airlines and identified responsiveness as the most crucial dimension of service quality. This finding emphasizes the importance of promptly addressing customer needs and concerns in the low-cost carrier segment. Waramontri (2021) conducted a comparative study between traditional and low-cost airlines, revealing that passengers of traditional airlines perceive higher levels of service quality and customer satisfaction. These insights provide valuable information for industry practitioners and researchers in understanding customer perceptions and expectations in different types of airlines.

Furthermore, sentiment analysis has gained prominence as a tool to understand customer sentiment in the airline industry. Previous studies have investigated sentiment analysis in the context of airline services, proposed frameworks and methodologies, and established the relationship between service quality, customer satisfaction, loyalty, and sentiment. By incorporating sentiment analysis, airlines can gain insights into customer sentiments expressed through comments and reviews, enabling them to improve services and remain competitive in the industry.

In conclusion, the existing literature highlights the significant relationship between service quality, customer satisfaction, loyalty, and sentiment in the airline industry. The findings underscore the importance of service quality in enhancing customer satisfaction and loyalty, as well as the potential of sentiment analysis in understanding customer sentiments. However, challenges exist in measuring and managing service quality, including service heterogeneity, dynamic market conditions, and cultural disparities. Further research is needed to address these challenges and develop more effective frameworks and methodologies for enhancing service quality in the airline industry.

3. Sentiment Analysis Process

Sentiment analysis is a natural language processing technique that aims to extract subjective opinions and emotions expressed in text data. It helps identify the polarity (positive, negative, or neutral), intensity, and aspects of customer feedback and reviews. Sentiment analysis provides valuable insights for both potential customers and airline companies to understand service quality and customer satisfaction strengths and weaknesses (Patel et al., 2023).

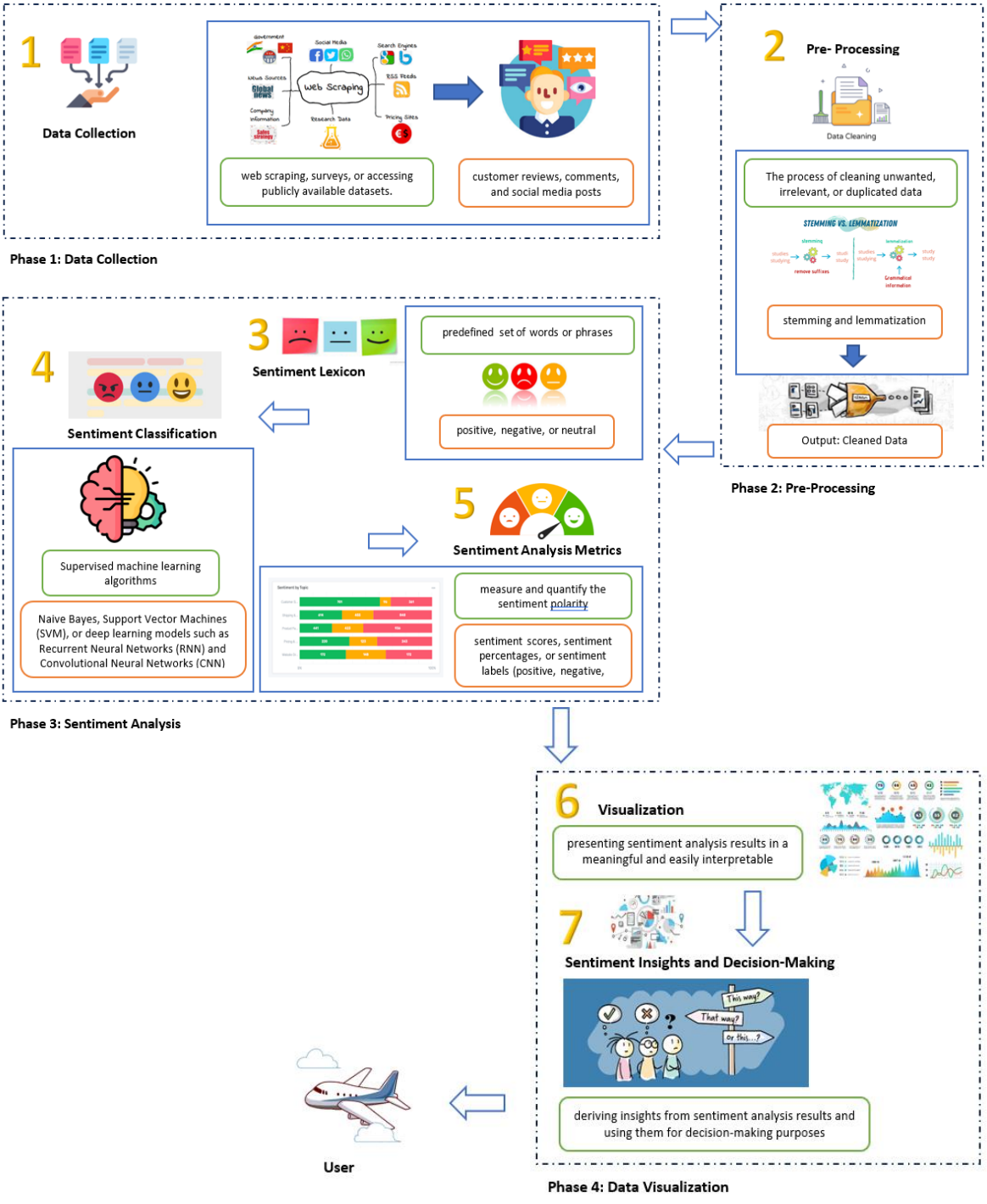
The process for sentiment analysis in airline services consists of key components contributing to understanding and analyzing customer sentiments (Patel et al., 2023). These components are essential for conducting comprehensive sentiment analysis and gaining valuable insights into customer perceptions and experiences. The sentiment analysis process components (Figure 2) include:

Data Collection: This component focuses on gathering relevant data, such as customer reviews, comments, and social media posts (Kumar and Zymbler, 2019; Shayaa et al., 2018), which serve as valuable sources for sentiment analysis. Data collection methods may involve web scraping, surveys, or accessing publicly available datasets.

Pre-processing: In this stage, collected data undergoes pre-processing to clean and prepare it for analysis (Duong & Nguyen-Thi, 2021; Symeonidis et al., 2018). Pre-processing techniques involve removing irrelevant information, handling missing data, and applying text normalization methods like stemming and lemmatization to standardize the text.

Sentiment Lexicon: A sentiment lexicon is a crucial component consisting of a predefined set of words or phrases associated with positive, negative, or neutral sentiments (Han et al., 2018; Seyler et al., 2020). It serves as a reference for sentiment analysis algorithms to classify the sentiment polarity of the text data.

Figure 2: Sentiment Analysis Process in Airline Services



Sentiment Classification: This component applies sentiment classification algorithms to assign sentiment labels to the collected data (Ligthart et al., 2021; Sudhir & Deshakulkarni Suresh, 2021). Supervised machine learning algorithms like Naive Bayes, Support Vector Machines (SVM), or deep learning models such as Recurrent Neural Networks (RNN) and Convolutional Neural Networks (CNN) can be used for sentiment classification.

Sentiment Analysis Metrics: Sentiment analysis metrics measure and quantify the sentiment polarity of the collected data (Ligthart et al., 2021; Puschmann & Powell, 2018). Commonly used metrics include sentiment scores, sentiment percentages, or sentiment labels (positive, negative, neutral). These metrics provide insights into the overall sentiment distribution and can track sentiment trends over time.
Visualization: Visualization techniques play a crucial role in presenting sentiment analysis results in a meaningful and easily interpretable manner (Vizcarra et al., 2021; Wang et al., 2023). Visualizations like word clouds, bar charts, or sentiment heatmaps help stakeholders grasp sentiment patterns and identify areas of improvement or strength in airline services.

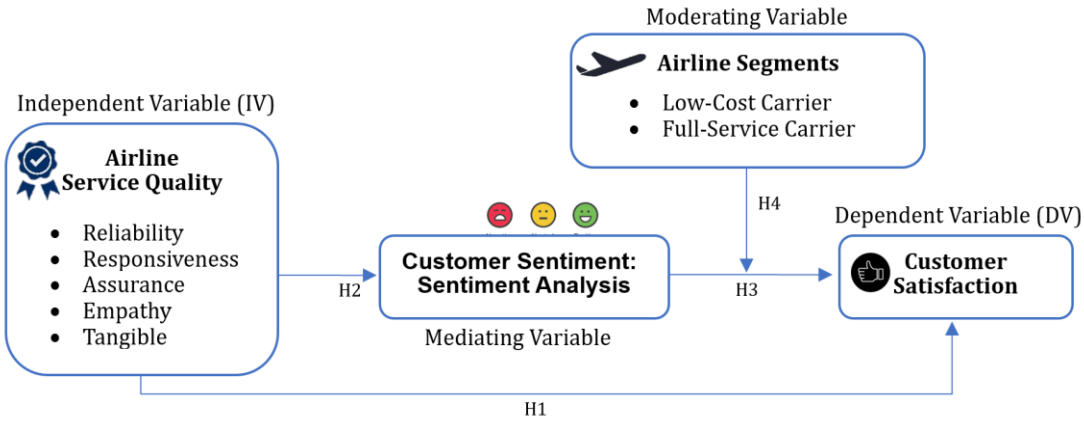
Sentiment Insights and Decision-Making: The final component involves deriving insights from sentiment analysis results and using them for decision-making purposes (Georgiadou et al., 2020). These insights guide airlines in identifying strengths and weaknesses in their services, improving customer experiences, and making informed business decisions to enhance customer satisfaction and loyalty.

The process offers a systematic and comprehensive approach to sentiment analysis in airline services. By utilizing sentiment analysis, airlines can gain valuable insights into customer preferences and needs (Farzadnia and Raeesi Vanani, 2022; Patel et al., 2023). They can also monitor service performance, assess customer satisfaction levels (Farzadnia and Raeesi Vanani, 2022), evaluate competitive positions by identifying strengths and weaknesses (Patel et al., 2023), and formulate effective strategies to enhance service quality and foster customer loyalty.

Incorporating these components into the sentiment analysis process enables airlines to analyze customer sentiments effectively, identify areas for improvement, and take proactive measures to address customer concerns. This enhances overall service quality and maintains a competitive edge in the airline industry.

Components of the Framework: The proposed framework aims to investigate the factors that influence customer satisfaction in airline services. It is grounded in established theories, particularly the theory of service quality, and centers on the relationships among service quality, customer sentiment, and different airline segments, such as Low-Cost Carriers (LCCs) and Full-Service Carriers (FSCs). Figure 3 illustrates the proposed conceptual framework.

Figure 3: Proposed Conceptual Framework for Sentiment Analysis on Airline Services



At its core, the primary aim is to grasp "Customer Satisfaction," reflecting passengers' overall evaluations of their airline experiences. "Airline Service Quality" assumes a central role, being the foremost determinant of

customer satisfaction. This dimension encompasses various facets of airline service, including reliability, responsiveness, assurance, empathy, and tangible elements, as outlined in the theory developed by Parasuraman, Zeithaml, and Berry (1985).

What adds an intriguing dimension to this framework is the essential role played by "Sentiment" as the "Mediating Variable" (Wu, Park & Robertson, 2011). Service quality and customer sentiment interact to influence customer satisfaction within the airline industry. Sentiment captures passengers' emotions and opinions as expressed in their reviews and social media posts. It serves as a critical bridge, enhancing our understanding of how and why service quality shapes customer satisfaction. This is accomplished by scrutinizing the emotional tone, whether positive or negative, conveyed through passenger sentiment. Research has consistently demonstrated that customer sentiment strongly predicts customer satisfaction. For instance, a study by Net Promoter Score (2018) found that customers with positive sentiments are more likely to become repeat customers and recommend the company to others.

Additionally, the framework acknowledges the dynamic nature of the airline industry by introducing "Airline Segments" as the "Moderating Variable." This recognition signifies that the impact of service quality on sentiment and customer satisfaction may vary based on the specific airline segment, such as LCCs or FSCs, each offering distinct services and catering to unique passenger expectations. As highlighted by Ozuem et al. (2023) and Patel (2018) there are variations in the factors influencing customer satisfaction in LCCs and FSCs. Ozuem et al. (2023) for instance found that LCC customers are more forgiving of service quality issues than FSC customers. This is likely because LCC customers expect less from their travel experience in exchange for lower fares. FSC customers, on the other hand, expect a higher level of service quality and are more likely to be dissatisfied if they do not receive it. Patel (2018) also found that LCC customers are more likely to be satisfied with their travel experience if they can save money on their fares. On the other hand, FSC customers are more likely to be satisfied with their travel experience if they have a comfortable and enjoyable flight, even if they have to pay more for it. This conceptual framework incorporates the following hypotheses:
H1: Airline Service quality influences customer satisfaction.
H2: Airline Service quality influences customer sentiment.
H3: Customer sentiment mediates the relationship between airline service quality and customer satisfaction.
H4: Airline Segments moderate the relationship between customer sentiment and customer satisfaction.

In summary, the proposed conceptual framework explores factors impacting airline customer satisfaction, grounded in service quality theory. It examines service quality's influence on satisfaction through passenger sentiment, mediated by emotions expressed in reviews and social media. It recognizes airline segments' dynamic nature as moderators. Formulated hypotheses guide the structured approach to understanding and improving the passenger experience.

4. Application of the Framework in Assessing Airline Service Quality

The application of this conceptual framework within the area of sentiment analysis in airline services yields numerous benefits for airlines. By examining customer sentiments and perceptions, this framework provides valuable insights into the strengths and weaknesses of airline services, enabling airlines to make informed, data-driven decisions and enhance their overall service quality (Patel et al., 2023).

Customer-Centric Insights and Service Quality Evaluation: One significant application of this framework lies in the identification of areas for improvement within airline services. By meticulously collecting and analyzing customer reviews and feedback, airlines can gain a nuanced understanding of the specific aspects of their services that positively or negatively impact customer satisfaction (Kumar and Zymbler, 2019). For instance, sentiment analysis can reveal if customers consistently express dissatisfaction with aspects such as flight delays, baggage handling, or in-flight amenities. Equipped with this information, airlines can prioritize their efforts and allocate resources effectively to address these specific areas, thus elevating service quality and aligning it with customer expectations.

Monitoring Sentiment Trends and Benchmarking: Moreover, the framework facilitates the recognition of patterns and trends in customer sentiments over time. By diligently analyzing sentiment metrics and

visualizations, airlines can monitor changes in customer perceptions, pinpoint emerging issues, and assess the impact of service enhancements (Patel et al., 2023). For example, if sentiment analysis reveals an abrupt surge in negative sentiment concerning customer service, airlines can promptly investigate the underlying causes and take appropriate measures to rectify the situation. This proactive approach ensures that airlines can adapt and improve their services based on real-time customer feedback, thereby enhancing service quality.

The framework additionally supports benchmarking and competitive analysis within the airline industry. By meticulously analyzing customer sentiments across different airlines, carriers can gain valuable insights into their positioning relative to competitors (Kwon et al., 2021). Sentiment analysis metrics such as sentiment scores or sentiment percentages can be employed to compare and evaluate the overall levels of customer satisfaction among different airlines. Armed with this information, airlines can identify best practices, draw inspiration from competitors, and formulate strategies to distinguish themselves by providing superior service quality and surpassing customer expectations.

Evaluating Service Improvement Initiatives: Furthermore, the application of this framework enables airlines to assess the efficacy of their service improvement initiatives. By measuring sentiment metrics both before and after the implementation of changes, airlines can gauge the impact of their actions on customer satisfaction (Aljedaani et al., 2022). For instance, if sentiment analysis indicates a positive shift in customer sentiments following the introduction of a new service feature or enhanced customer service training, it serves as validation for the effectiveness of the initiative, motivating airlines to continue investing in measures that elevate service quality.

In summary, the application of the proposed framework aligns seamlessly with its key components—customer satisfaction (DV), airline service quality (IV), customer sentiment (mediating), and airline segments (moderating). By applying this framework, airlines can gain in-depth insights into their service quality, tailor strategies to distinct segments, adapt to changing customer expectations, benchmark against competitors, and evaluate the impact of service improvements. This structured approach empowers airlines to continuously enhance their services, driving customer satisfaction, loyalty, and long-term success in the competitive airline industry.

Overall, the comprehensive application of the proposed conceptual framework for sentiment analysis in assessing airline service quality empowers airlines to gain invaluable insights into customer sentiments, identify areas necessitating improvement, track customer perceptions over time, benchmark against competitors, and assess the impact of service enhancement initiatives (Patel et al., 2023). By harnessing these insights, airlines can make well-informed decisions, elevate their service quality, and ultimately deliver exceptional customer experiences that drive satisfaction, loyalty, and long-term success in the fiercely competitive airline industry.

Potential Benefits and Challenges of Using the Proposed Framework: The application of the proposed sentiment analysis framework, which centers on customer satisfaction as the dependent variable (DV), airline service quality as the independent variable (IV), sentiment as the mediating variable, and airline segments as the moderating variable, holds several potential benefits and challenges that directly relate to these framework components. Among the benefits are:

Enhanced Service Quality Assessment: One of the primary advantages of this framework is its ability to provide airlines with a comprehensive understanding of service quality's impact on customer satisfaction. By analyzing customer sentiments through sentiment analysis, airlines can assess the effectiveness of their services, including key aspects like reliability, responsiveness, assurance, empathy, and tangible elements (Parasuraman, Zeithaml, & Berry, 1985). This insight empowers airlines to fine-tune their services strategically, addressing specific service quality dimensions that directly influence customer satisfaction.

Segment-Specific Insights: The framework's consideration of airline segments (e.g., Low-Cost Carriers and Full-Service Carriers) as moderating variables acknowledges the nuanced differences in service expectations (Ozuem et al., 2023; Patel, 2018). By examining sentiment analysis results in the context of these segments,

airlines can gain segment-specific insights into service quality's impact on customer satisfaction. This segmentation allows airlines to tailor their strategies and service improvements to cater to the distinct needs and preferences of passengers within each segment.

Longitudinal Sentiment Trends: The framework's emphasis on tracking sentiment trends over time (Vizcarra et al., 2021) enables airlines to adapt to evolving customer expectations. Airlines can detect shifts in passenger sentiment, assess the impact of seasonal variations, and respond proactively to emerging issues. By continuously monitoring sentiment metrics, airlines can maintain their competitiveness in the dynamic airline industry and ensure their services align with changing customer sentiments.

However, certain challenges are also intrinsic to the framework:

Data Collection Complexity: Collecting high-quality, representative data from various sources can be challenging (Wankhade et al., 2022). Ensuring that data accurately reflects passenger sentiments and experiences is crucial for meaningful sentiment analysis. Airlines may need to employ a variety of data collection methods to obtain comprehensive insights, including customer reviews, comments, and social media posts (Kumar & Zymbler, 2019).

Data Preprocessing Overheads: The preprocessing of extensive volumes of unstructured text data (Duong & Nguyen-Thi, 2021) can be resource-intensive. Addressing issues such as missing data, and irrelevant information, and applying text normalization techniques like stemming and lemmatization requires careful handling. Adequate resources and tools are necessary to manage this preprocessing phase effectively.

Sentiment Classification Accuracy: Accurately classifying sentiment within the context of airline services can be challenging (Majumder et al., 2019). Fine-tuning sentiment classification algorithms to account for nuances like sarcasm, context, and linguistic intricacies is essential. Ensuring that sentiment analysis algorithms align with the specific airline context is crucial for obtaining reliable results.

In conclusion, the alignment of potential benefits and challenges with the proposed framework emphasizes the framework's utility in assessing service quality's impact on customer satisfaction within the airline industry. Addressing these challenges while leveraging the framework's benefits empowers airlines to enhance their services strategically, adapt to changing customer expectations, and ultimately drive customer satisfaction and loyalty.

5. Conclusion and Recommendations

This paper presents a comprehensive framework for conducting sentiment analysis on airline services, offering a structured approach to evaluate and enhance service quality within the airline industry. The framework centers on customer satisfaction (DV) as the ultimate measure of success, with airline service quality (IV) being the primary influencer. Customer sentiment (mediating) and airline segments (moderating) play crucial roles in bridging service quality and satisfaction.

The key insights from the proposed framework emphasize the importance of service quality in shaping customer satisfaction. Satisfied customers tend to exhibit loyalty and express positive sentiments, contributing to the overall success and competitiveness of airlines. Customer sentiment reflects customers' overall perception of airline performance and value, making it crucial to understand and analyze sentiment to enhance service quality.

The sentiment analysis process in airline services comprises four fundamental components: data collection, data pre-processing, sentiment analysis techniques and tools, and data visualization. This systematic process evaluates airline service quality by assessing customer sentiment toward different service aspects.

The proposed conceptual framework for sentiment analysis in airline services offers a structured approach to evaluate and enhance service quality within the airline industry. By applying this framework, airlines can gain in-depth insights into their service quality, tailor strategies to distinct segments, adapt to changing customer expectations, benchmark against competitors, and evaluate the impact of service improvements. This

structured approach empowers airlines to continuously enhance their services, driving customer satisfaction, loyalty, and long-term success in the competitive airline industry.

The potential benefits of using the framework include gaining customer-centric insights, evaluating service quality comprehensively, tailoring strategies to airline segments, monitoring sentiment trends, benchmarking, and assessing service improvement initiatives. Challenges in implementing the framework relate to issues like data availability, data quality, and the accuracy of sentiment classification.

In conclusion, the proposed conceptual framework provides a systematic approach for assessing service quality and customer satisfaction in the airline industry. By applying the framework, airlines can gain valuable insights into customer sentiment, identify areas for improvement, and enhance service quality and customer satisfaction levels. This structured approach empowers airlines to adapt to changing customer needs, benchmark against competitors, and continuously improve their services in the highly competitive airline industry, fostering long-term success and customer loyalty.

Recommendations for Future Research: Future research in the airline industry should delve into critical areas that can enhance our understanding of customer satisfaction factors. Firstly, conducting cross-industry comparative analyses would shed light on whether the relationships between service quality, customer sentiment, and satisfaction are unique to airlines or universal across service-oriented sectors like hospitality, healthcare, and retail. This broader perspective could reveal industry-specific nuances and common patterns in customer satisfaction dynamics.

Secondly, a detailed examination of the specific components of service quality, such as reliability, responsiveness, and assurance, is essential. Identifying which aspects have the most significant impact on customer sentiment and satisfaction can guide airlines in prioritizing improvement efforts effectively. This micro-level analysis can uncover hidden strengths or vulnerabilities within airline services.

Moreover, considering the segmentation of airlines, such as Low-Cost Carriers (LCCs) and Full-Service Carriers (FSCs), is crucial. Investigating whether passenger sentiment and the drivers of satisfaction differ between these segments could provide valuable insights for segment-specific strategies and service enhancements. Additionally, the temporal aspect of sentiment analysis is significant. Examining sentiment trends over different periods, especially during peak travel seasons or global events like pandemics, can unveil the influence of external factors on passenger sentiment. Understanding these temporal patterns is essential for adaptive service strategies.

In conclusion, these research directions can refine our comprehension of the complex interplay between service quality, customer sentiment, and satisfaction in the airline industry. They offer practical insights for airlines to optimize their services, tailor strategies to different segments, and adapt to changing customer expectations over time.

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Using McClelland's Theory of Need to Determine the Relationship between the Motivational Factor and Social Entrepreneurship Activity among People with Disabilities

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Abstract: Social entrepreneurship (SE) refers to an activity where a social element is used to create business opportunities. It describes the efforts of certain non-profit organizations or government agencies to improve the social and economic conditions of impoverished communities. This paper proposes a conceptual model to examine the relationship between motivational factors and the engagement of people with disabilities (PWD) in SE activities. Using McClelland's need theory for measuring motivation, examines achievement, affiliation, and power needs. When these needs go unfulfilled, motivation declines, leading to decreased performance and turnover within the organization. This theory holds significant influence in entrepreneurship and has been widely adopted in various research studies. Conducting a quantitative survey among actively engaged PWDs in SE activities under the Social Welfare Department institution will help identify the motivational factors driving PWDs to prioritize social entrepreneurship over other employment options. Recognizing this connection enables government agencies and stakeholders to potentially reshape and create better-suited programs for PWD and guide them toward a renewed path of empowerment.

Keywords: *McClelland theory of need, social entrepreneurship, people with disabilities, motivation*

1. Introduction and Background

People with disabilities (PWD) include those who have long-term physical, mental, intellectual, or sensory impairments whose interaction with various barriers may hinder their full and effective participation in society on an equal basis with others (World Health Organization, 2019). According to Department of Social Welfare (DSW) statistics, up to January 2023, a total of 637, 537 PWDs have been registered with DSW which has increased from the previous year. Given the data on registered PWD, the biggest concern is the unemployment rate will be higher (Mustaffa et al., 2020). Through the growing number of PWDs, the government has taken measures and contributed efforts to offer PWDs job opportunities in the government sector, to answer the social problems they face, however, the success rate remains low (Ravesangar et al., 2023).

Regarding creating jobs, the standard of living, and social inclusion, the new social innovation mechanism and principles seek to enhance the welfare of individuals, communities, and regions (Zulkifle & Aziz, 2023). It becomes imperative for the government to proactively seek out innovative strategies to effectively address and resolve the social and economic challenges faced by PWD by looking at the current economic landscape. The unemployment issues among PWDs lead to social problems or issues that are seen as an opportunity to be explored and solved in the social entrepreneurship (SE) movement and at the same time can create value in the community (Wahid et al., 2018). The emergence of SE has been gaining growing attention as a potential platform for PWDs to be employed or to be entrepreneurs themselves (Ali et al., 2019). Similar to commercial entrepreneurship, SE applies business solutions to address societal challenges and assist disadvantaged individuals while building a financially sustainable venture (Hamizan et al., 2019). Social entrepreneurship stands as a valuable tool capable of fostering both labor integration and social inclusion for PWD's progress simultaneously (Halid et al., 2020; Zamry & Sahid, 2021). The employment opportunities and the willingness of the disabled to venture into SE can assist them in generating income and improving their ability, knowledge, and skills (Hishamuddin et al., 2023). Collectively, SE reflects a shift in contemporary policy towards entrepreneurship and self-employment as a viable employment option for PWD (Caldwell et al., 2020).

The social enterprise employment model offers job opportunities and training to employ PWD while marketing its products or services in the open market (Alter, 2007). The Department of Social Welfare (DSW), particularly its sub-department Productive Welfare, has been committed to enhancing the quality of life for PWD by establishing sheltered workshops and implementing community-based rehabilitation programs, to

promote engagement in social entrepreneurship activities. Several measures have been implemented by the authorities to ensure that PWDs have a better life and are not excluded from society (Department of Social Welfare, 2021). A sheltered workshop program is a protected workshop under the Social Welfare Department designated for PWDs who are not able to find jobs in the open market (Department of Social Welfare, 2021). It is competitive for people with severe disabilities to secure jobs in open employment; sheltered workshops therefore are designed to give them opportunities leading to dignity, self-worth, and socialization amongst their peers (Lee et al., 2011). The sheltered workshop offers facilities and skills that empower PWDs and enable them to achieve financial independence through the SE concept. Also, the business is predicated on the appropriateness of jobs it creates for PWD regarding skill development. This approach also aims to reduce their reliance on welfare assistance and to generate their income. The disabled from community-based rehabilitation (CBR) were also involved in SE projects. The sheltered workshops and CBR often employ PWD in a variety of subcontracting work such as packaging, mailing, sorting services for local companies, tailoring, embroidery, handicrafts, production of food, laundry, retail, and bistro (Bakti Mind, 2023). These workshops and several community-based rehabilitation programs provide encouragement, supervision, and jobs that PWD will find exciting and challenging, the pride of accomplishing meaningful work, compatible peers, and the all-important salary (Kamaruddin, 2007). Thus, SE can change the landscape of people with disabilities.

Previous studies have found that PWDs are motivated to work in sheltered workshops because of employment. acceptance, social needs, guaranteed income, self-esteem needs, being appreciated and given the facilities in the workplace (Baser et al., 2017; Mohsin et al., 2010). According to the statistics from the Department of Social Welfare, the registered number of trainees in the sheltered workshop has decreased throughout the year. In 2019 and 2020, the number of residents in sheltered workshops stood at 84. However, by 2021, this figure had decreased to 62 residents. On a different note, the release of residents from the sheltered workshop indicates that 22 individuals were released in 2020, while in 2021, the recorded number was 20 individuals. This emphasizes that social entrepreneurship ventures are attractive options for certain individuals, whereas others may choose self-employment, positions within the private or public sectors, or other personal factors underscoring the diversity of preferences within this group. Therefore, understanding the motivations that keep PWDs engaged in social entrepreneurship activities is undeniably crucial. To foster the growth of this universally beneficial phenomenon, it's essential to investigate the motivations driving PWDs to choose social entrepreneurship over other employment options. Motivation contributes significantly to the organizational performance and sustainability of an enterprise (Caringal-Go & Hechanova, 2018). Motivation is the contributing factor to sustaining PWDs in business.

Motivation is a phenomenon that helps identify the needs, behaviors, and desires of individuals. It ignites the desires and excitement of individuals to take the required steps toward achieving success, compelling them to engage in action and drive them to achieve their goals. The motivation of an individual is of course often intangible (Teck et al., 2019). Recent evidence suggests that social networks, including family, friends, and religious groups, play a significant role in motivating action (Hsieh et al., 2019). Therefore, by addressing weaknesses and gaps in previous papers, this paper aims to provide a new insight into using McClelland's theory of need in conceptualizing the relationship between motivational factors and social entrepreneurship activity particularly in the setting of PWD. This concept applies broadly across different areas to understand human behavior and holds undeniable importance, particularly in the context of social entrepreneurship. According to David McClelland (1979), to motivate someone, it's critical to comprehend their needs and desires. Corresponding to this research, a deeper understanding of the factors that motivate PWD to become involved in SE activities will be obtained as it is narrowed down to three categories. Needs theories examine individuals with diverse needs and the degree to which these needs are fulfilled or satisfied to which these are met or satisfied to explain work motivation (Caringal-Go & Hechanova, 2018). The study specifically explores whether their motivations stem from the need for achievement, affiliation, or power. The need for achievement includes the desire to do better, to solve problems, and to master complex tasks (Siok et al., 2023). The need for affiliation namely internal strength or potential human desire to establish relationships with others in various forms of relationships, such as friendship, business cooperation, or other contexts (Asari & Rosiana, 2021). The last need is the Need for Power. The need for power is the extent to which an individual desires to control or influence others. In addition, studies related to entrepreneurship are primarily concentrated on using achievement motivation (Tran & Von Korflesch, 2016). Conversely, affiliative and power motivations have received comparatively less attention about their impact on entrepreneurship.

Hence, recognizing the motivations and reasons behind the engagement of PWD in entrepreneurial ventures becomes crucial for relevant authorities to develop strategies that encourage greater participation and involvement of PWD in such endeavors. Moreover, it will be able to reduce dependence on entitlement-based services as well as reduce employment disparities while stimulating business and job creation (Caldwell et al., 2020). By investigating these motivations, the aim is to shed light on the underlying drivers that propel PWD towards SE endeavors. Furthermore, this research has the potential to challenge existing perceptions and stereotypes regarding PWD's capabilities and aspirations. By highlighting the motivations behind their involvement in SE, we can contribute to changing societal attitudes and promoting a more inclusive and equitable environment for PWDs to thrive in entrepreneurial endeavors. Such understanding empowers relevant authorities to formulate strategies that not only enhance the foundation of motivational support for social entrepreneurship but also ensure its sustained viability (Lai et al., 2019). In the view of above, an attempt was made to seek to analyze which McClelland theory of need influences the PWD to engage with social entrepreneurship activity with the following research objective.

- To examine the relationship between motivational factors and social entrepreneurship activity among people with disabilities.
- To investigate the most influencing factor of motivation among people with disabilities in social entrepreneurship activity.

2. Literature Review

Social Entrepreneurship Activity and People with Disabilities: Persons with disabilities (PWDs) are trapped in the issue of unemployment, and it is frequently debated among scholars that this causes them to be socially excluded and less involved in the national economy (Halid et al., 2020). The unemployment issues concerning young PWD influence the individual, family, community, and the nation in general (Ravesangar et al., 2023). However, these difficulties should not hinder their proactive efforts to overcome these challenges and improve their situations. The barriers experienced by PWD make it challenging for them to participate in one or more aspects of life and are commonly stereotyped with disadvantages (Usman et al., 2021).

Researchers regard entrepreneurship as a viable solution for addressing unemployment challenges among PWDs and indicate the maturity of the field of entrepreneurship as a realm of research (Kadir & Sarif, 2016; Zulkifle & Aziz, 2023). Entrepreneurship has been acknowledged to generate innovations, create job opportunities, and the development of engines of economic growth in developing nations to alleviate poverty. The entrepreneurship approach empowers society to create self-confidence and independence in the social and economic aspects of daily life. Besides, PWDs possess the inherent qualities of natural entrepreneurs, as their unique experiences can serve as catalysts for fostering independent problem-solving and innovation (Kefale & Hussein, 2020). As entrepreneurship focuses on creating profitable businesses, the processes of running and managing a business can often be complex and inaccessible to PWDs in crucial ways (Caldwell et al., 2020). People with disabilities may also be linked with major challenges such as start-up capital, lack of entrepreneurial skills, sociocultural problems, mobility issues and personal attitudes (Kefale & Hussein, 2020). These barriers can hinder their participation in entrepreneurial endeavors. Also, their ability to pursue this path relies on factors such as training, money, family support and personal factors including the type and severity of their disability (Salvador & Gaspar, 2019).

Mustaffa et al., (2020) note that SE is more effective than commercial entrepreneurship based on the ability to add value through creative efforts in solving social problems either through a non-profit or profitable approach. Individuals with disabilities often felt they had explored alternative employment avenues, making SE a potential avenue for innovation and productivity, provided sufficient support is given (Harris et al., 2014). Social entrepreneurship refers to the efforts of certain non-profit organizations or government agencies to improve the social and economic conditions of impoverished communities (Adnan et al., 2018). Taken together, participation in SE for PWDs is not merely a source of income, but at the same time, it helps them to satisfy their psychological and social needs (Mustaffa et al., 2020; Norafandi & Diah, 2017). Furthermore, SE is a financial source, but mostly a way to avoid and overcome a typical depression, generated by disability, lack of occupation, monotony, isolation, or fear of various contexts of life that cannot be effectively controlled by own forces (Gimbuta, 2012). Besides, the literature stresses PWD participation in SE

strengthens their self-esteem, and independence and reduces the feeling that disabilities are manifestations of their deficiency and that to are more motivated to contribute to society (Norafandi & Diah, 2017). Also, the involvement of entrepreneurs with disabilities in SE will produce social entrepreneurs who will contribute back to society through a variety of approaches and channels (Rozali et al., 2018). Therefore, the benefit of PWD participation in SE, perspective, and discrimination need to be emphasized. Their impairment is not the problem, but the social barriers are the main cause of their problem.

Motivational Theories: It is important to note that motivation holds particular importance in the context of social entrepreneurship among PWD, considering their unique disability circumstances. The motivation of an entrepreneur often stems from a "mindset," shaped by individual characteristics like creativity, the need for achievement, and even ambition (Teck et al., 2019). The most prominent motivation theories often discussed about workers' needs encompass Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory and McClelland's Theory of Needs.

Maslow's theory, suggests that early in life one should establish a basis for physiological survival and safety and once these are accomplished one should seek friends followed by achievement and self-actualization (Mathes, 1981). Deshmukh, (2019) studied the relevance of Maslow's need hierarchy and personality traits of entrepreneurs and found that the hierarchy of needs propounded by Maslow still holds relevant for business ventures but not entrepreneurs or individuals. Uysal et al., (2017) refer to the work of Maslow tested with the data obtained from 21st-century workers that the upper-level needs would not be satisfied unless the lower-level needs are satisfied are not valid in our day. A recent study by Trivedi & Mehta, (2019) also supports that Maslow's assumption of 'need hierarchy' does not apply in the modern day as each person has plenty of needs to be satisfied, which may not necessarily follow Maslow's need hierarchy. However, Maslow's theory is limited with certain criteria and lacks universal applicability; in conclusion, the hierarchical concept within Maslow's theory is not suitable to the context of this study as PWDs have limited sources and exposure.

Another theory is Herzberg's Two-Factor Theory, Herzberg's two-factor theory outlines that humans are motivated by two things: motivators and hygiene factors. These two factors are both critical to motivation: motivators encourage job satisfaction, and hygiene factors prevent job dissatisfaction (Makerd & Siriwichai, 2022). However, these factors are not the main part of the job and do not affect the performance of employees, but they prevent poor performance due to the work restrictions. Moreover, it is less suitable for the context of a SE study as it predominantly narrows on employee motivation and job satisfaction within an organization (Lai et al., 2022).

McClelland's theory of needs recognized that an individual has the motive to do something, by identifying three specific needs namely the need for achievement, the need for power, and the need for affiliation. The needs are learned and can be developed through events, culture, environment, and life experience (Jumbri et al., 2019; Osemeke & Adegboyega, 2017). Additionally, this theory has been popularly adopted in entrepreneurship and has been applied in many studies (Jumbri et al., 2019; Lai et al., 2022; Lloyd, 2019). This theory has been extended to other fields of study, given that the three needs can be acquired and adapted to suit different study contexts (Lai et al., 2022). According to Osemeke & Adegboyega, (2017), McClelland's theory looks so real that it perfectly fits into real-life situations which he believes that human needs change by life experiences and the opinion of their environment makes it more natural than other motivation theories. When compared to Maslow's theory, McClelland's need theory is better suited for PWD engaging in social entrepreneurship activities, as it can be adapted to both personal and organizational contexts, whereas Maslow's theory focuses on the personal context. Therefore, this theory has been adopted in this study.

McClelland's Theory of Need

Need for Achievement and Social Entrepreneurship Activity: Miron & McClelland, (1979) describe the need for achievement as the motive to strive for success in particular situations in which a person's performance would be compared against some type of standard. Also, individuals who have a strong need to achieve are among those who want to solve problems themselves, set targets and strive for those targets through their efforts (Amin et al., 2018). The need for achievement has been extensively referenced in the

literature and has commonly been demonstrated to be the key to entrepreneurial success (Amin et al., 2018; Fhiri et al., 2018; García & Capitán, 2021; Jumbri et al., 2019). This is because it has been observed that the need for achievement has a high correlation with entrepreneurship engagement. Previous research findings into SE identification have shown that the need for achievement is negatively correlated to the success of social ventures as it was often theorized in commercial entrepreneurship (Lehner & Germak, 2013). Moreover, social entrepreneurs typically prioritize the social or environmental impact of their ventures over personal fame or financial rewards.

H1: There is a positive relationship between the need for achievement and social entrepreneurship activity among people with disabilities.

Need of Affiliation and Social Entrepreneurship Activity: The need for affiliation is the motive to strive for positive, sometimes intimate, personal relationships; affiliation can include concern over establishing, maintaining, or restoring a positive affective relationship with another person or person (Miron & McClelland, 1979). According to Hayton et al., (2002) need for affiliation are important entrepreneurial motive and personal need, and may play a role in the relationship between characteristics of entrepreneurship courses and entrepreneurial self-efficacy, as well as study engagement. In Sarawak Malaysia, women social entrepreneurs were highly motivated by the need for affiliation. Lai et al., (2022) hold the view that by attending courses and training, the locals mingle, interact, and communicate thus strengthening their relationship by understanding each other and being able to discuss the specific issues affecting them. Yee et al. (2019) observe that women social entrepreneurs can interact with others while operating their businesses, including suppliers, clients, colleagues, and other entrepreneurs, as compared to housewives, who may have fewer opportunities to meet people. Having low affiliation motivation, however, does not mean that entrepreneurs are lacking in social skills (Decker et al., 2012). Similar to PWD, these people need support and encouragement in ensuring their survival is assured.

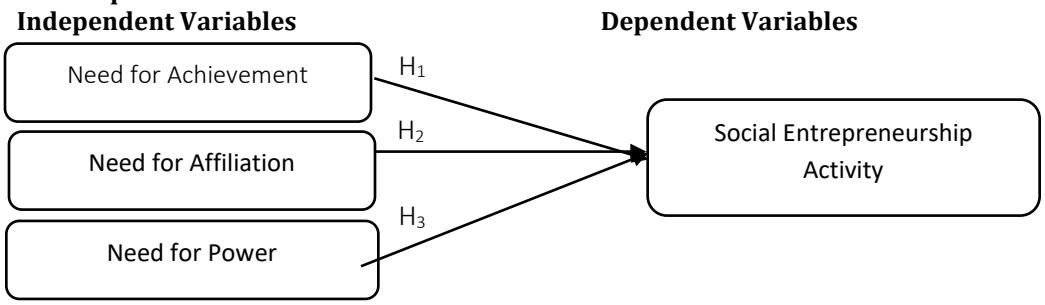
H2: There is a positive relationship between the need for affiliation and social entrepreneurship activity among people with disabilities.

Need for Power and Social Entrepreneurship Activity: The need for power appears in one's motivation to influence their environment, with a strong character to lead and to have ideas to win (Arif et al., 2020). They want to make an impact on others, influence others, change people or events, and make a difference as a personal wish. Jumbri et al., (2019) found that women entrepreneurs scored moderately high for the need of power after the need of achievement. This explains that the need for power is particularly relevant for women entrepreneurs who seek to ensure that their perspectives and ideas take precedence, enabling them to assume leadership positions and exert influence in their entrepreneurial endeavors.

H3: There is a positive relationship between the need for power and social entrepreneurship activity among people with disabilities.

Conceptual Framework: In this study, social entrepreneurship activities are operationally defined as the channel for PWDs to pursue new opportunities that aim to enhance their overall well-being. Therefore, a theoretical model, as illustrated in Figure 1, is proposed to examine the relationship between the independent variables of achievement needs, power needs, and affiliation needs, and the dependent variable of social entrepreneurship activity. Through testing these variables, this research aims to determine the motivational factor that most significantly impacts PWD when engaging in social entrepreneurship activities.

Figure 1: Conceptual Framework



3. Methodology

This study adopts a positive approach and utilizes a quantitative correlational design to examine the link between motivational factors and social entrepreneurship activity among people with disabilities (PWD). The study will be conducted by the Department of Social Welfare Malaysia in sheltered workshops and selected community-based rehabilitation that is equipped with social entrepreneurship. The research will employ purposive sampling to gather data through a paper questionnaire. The unit of analysis for this study is individuals who meet the following criteria: being a PWD aged 18 years and above, registered with the Department of Social Welfare Malaysia, actively involved in social entrepreneurship activities, and proficient in either Malay or English.

Development of Instrument: The research instrument for this study will be developed based on an extensive literature review, combining existing validated measurements. The questionnaire will consist of four sections, namely demographic profile, McClelland's Theory of Need, and social entrepreneurship activity. The instrument's content validity will be further verified by social entrepreneurship experts and officials from the Division of Productive Welfare within the Department of Social Welfare Malaysia. This validation process ensures that the instruments are optimally tailored for PWD.

Demographic Profile: Section A will be focused on the PWD demographic profile. In this section, the researcher uses a nominal scale that consists of gender, age, race, marital status, educational level, monthly income, and disabled category since these are frequently discussed in the literature related to social entrepreneurship and persons with disabilities (Kalargyrou et al., 2020; Makerd & Siriwichai, 2022).

McClelland Theory of Need: The research instrument utilized in this study draws inspiration from the Manifest Needs Questionnaire developed by Steers & Braunstein, (1976) and has been enhanced by incorporating elements from the instrument developed by Ling et al. (2022). Respondents were requested to assess their motivation using a set of five statements about the need for achievement, another set of five statements related to the need for affiliation, and an additional set of five statements associated with the need for power. These statements aimed to gauge the motivational factors that drive their engagement in their present occupation.

Social Entrepreneurship Activity: In Section C, the focus shifts towards the engagement of people with disabilities (PWD) in social entrepreneurship activity. Respondents were requested to assess social entrepreneurship activities in terms of their economic and social contributions. To achieve this, items from the study conducted by Lai et al. (2022) were utilized. It is important to note that the original instrument was developed for female social entrepreneurs in Lundu, Sarawak. However, for this study, the items have been adopted and customized to suit the specific context of the current research, which involves PWD participation in social entrepreneurship.

Data Collection Procedures and Plan for Data Analysis: To ensure a comprehensive representation of PWD, the information for this study will be collected through an administered survey. The quality can be enhanced by aiding PWD in answering the questionnaire with a support person by translating the questions with the situation that can be related to them. To ensure the smooth facilitation of the survey process, the researcher sought the assistance of the facility manager and an instructor who was experienced in working with individuals with disabilities. Their expertise and understanding of the participants' needs helped to create a supportive environment for the respondents. Their involvement contributed to improving the overall quality of the survey data by ensuring accurate understanding and interpretation of the questionnaire items among the participants with disabilities. The collected data will be analyzed using SPSS for data screening and descriptive statistics. The measurement and structural models of the study will be evaluated using Partial Least Squares Structural Equation Modeling (PLS-SEM).

4. Conclusion

The main objective of this conceptual paper is to investigate the relationship between motivational factors and social entrepreneurship activities among PWDs. Additionally, modeling the relationship between the

variables would make a significant contribution to the literature through the application of McClelland's theory of need. The motivation of PWD interested in social entrepreneurship needs to be tested because it is a dynamic process and motivations may change over. While the disabled group may not be the dominant group in society, it is essential to recognize that they can still have a significant impact on a country. By identifying the most influential factors or motivations among PWD, we can foster awareness and understanding, thereby sustaining, and creating a supportive environment for them to thrive in social entrepreneurship activity. It is crucial to recognize that while PWDs may face limitations, removing barriers and providing equal opportunities can empower them to sustain and succeed in the entrepreneurial landscape. Despite the challenges they may encounter, these individuals are making strides forward both socially and economically. To summarize, the unity of disabled people in advocating for their rights, coupled with their active participation in social entrepreneurship, can be a powerful means to have their voices heard, address their needs, and promote socio-economic empowerment within the disabled community. People with disabilities should not easily give up or lose hope; instead, they should continue to strive and demonstrate their abilities.

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Student-Staff Partnerships, Internally Generated Revenue and Financial Inclusion towards Entrepreneurial Venture in Nigerian Universities: Systematic Review of Literature

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Abstract: This systematic review of the literature includes an assessment of student-staff partnership, internally generated revenue (IGR), and financial inclusion in Nigerian universities with an eye toward entrepreneurial ventures. Financial inclusion promotes the development and entrepreneurial ventures. There have been studies on IGR student-staff partnerships and financial inclusion in Nigerian universities. This study synthesizes and evaluates previous research. During the systematic review, academic databases are searched. Fifty eligible studies were examined. We shed light on the student-staff partnership, financial inclusion, and IGR in Nigerian university entrepreneurial ventures. Financial inclusion in the analysis is defined as financial resources, financial literacy, and student and staff entrepreneurial venturing. It emphasizes IGR as a trustworthy source of funding for university entrepreneurial ventures. Student-staff partnerships as joint research, mentoring, and student-led businesses, according to the review, promote financial inclusion. The synthesis recommends a coordinated approach to evaluating financial inclusion from IGR and student-staff partnerships in Nigerian universities. More research on entrepreneurial venture and financial inclusion strategies, best practices, and policy recommendations is required. This systematic review of the literature summarizes financial inclusion, IGR, student-staff partnerships, and entrepreneurial ventures in Nigerian universities. The findings support the creation of targeted initiatives by policymakers, university leaders, and researchers to improve financial inclusion, empower students and members of staff, and foster a thriving entrepreneurial venture ecosystem in Nigerian universities.

Keywords: *Financial Inclusion, Internally Generated Revenue, Student-Staff Partnership, Entrepreneurial Ventures, Nigeria Universities*

1. Introduction and Background

Financial inclusion in universities is defined as the availability and utilization of financial services by the university's stakeholders and businesses alike management staff and is a critical component of long-term economic growth and development (Oluwafemi & Adu, 2022). Financial inclusion is critical in Nigeria, where a sizable portion of the literate and illiterate populace is still unbanked (Adediran, Sanni & Oladipo, 2021). This systematic literature review focuses on assessing the potential of internally generated revenue through student-staff partnerships towards entrepreneurial ventures in Nigerian universities to explore new strategies to promote financial inclusion (Edema & Abosede, 2018).

More people are becoming aware of the importance of universities in fostering innovation and creative entrepreneurial ventures (Etzkowitz, & Leydesdorff, 2017). Onugu (2020) opined that universities in Nigeria serve as both educational institutions and potential economic growth catalysts. The emphasis of student-staff partnership is on how they help each other solve real-world problems and benefit their respective institutions and the community as a whole (Mercer-Mapstone & Bovill, 2020). Nigerian universities can promote financial inclusion by leveraging the potential of these partnerships to establish successful entrepreneurial ventures that can synergistically lead to surplus internally generated revenue within the universities (Adeleye, Sani & Abdullahi, 2021).

The goal of this systematic literature review, according to Dutta (2018) is to conduct a thorough and serious analysis of the existing literature on assessing financial inclusion via internally generated revenue through student-staff partnerships toward entrepreneurial ventures in Nigerian universities. By analyzing and synthesizing the existing literature, we hope to categorize significant findings, trends, and research gaps in this area of study (Boyd & Hakenes, 2014). Additionally, this review will offer insights into the factors that influence entrepreneurial venture success and the effects of financial inclusion from internally generated revenue on Nigeria's universities' overall socio-economic growth (Ezeoha, Ezejiofor & Asogwa, 2020).

The potential for this review is to inform policymakers, educators, researchers, and other interested parties about the current state of knowledge regarding financial inclusion initiatives from internally generated revenue through students and staff partnerships in Nigerian universities is what makes it so important (Ezeoha, Ezejiofor & Asogwa, 2020). By analyzing the efficiency of student-staff partnerships in generating internal revenue and supporting entrepreneurial ventures, this review can assist in the development of evidence-based decisions and policies in the area of university education and entrepreneurship practices with the system (Hlalefang & Mpabanga, 2018). To guarantee the accuracy and validity of this systematic literature review, a thorough search strategy will be used to locate pertinent studies from academic databases, journals, conference proceedings, and other trustworthy sources (Grant & Booth, 2009). The identified studies will be subjected to a systematic process of screening, selection, and analysis with clearly defined inclusion and exclusion criteria (Tricco et al, 2018).

As a result, this comprehensive review of the literature will offer an important mixture of the prior work on evaluating financial inclusion through student-staff partnerships for entrepreneurial ventures in Nigerian universities (Okpara & Wynn, 2019). This review will clarify the opportunities and difficulties associated with such initiatives by critically analyzing the evidence currently available, ultimately advancing knowledge and comprehension in this significant field (Akinlo & Akinlo, 2020). Financial inclusion has the power to transform people, communities, and entire countries, and this recognition has been growing in recent years, which can improve underserved populations, lessen poverty, and spur economic growth by increasing access to financial services and encouraging entrepreneurship (Kabakova & Kalmankharaeva, 2020). Nigeria is well-positioned to capitalize on the advantages of financial inclusion through creative approaches within its university system, thanks to its young population and growing entrepreneurial venture spirit (Adegoke & Ukpere, 2017).

In Nigerian universities, the idea of student-staff partnerships offers a special chance to close the gap between academic study and actual entrepreneurial venture practices to allow Universities to foster an environment that supports entrepreneurial ventures by encouraging partnership between students, who bring new perspectives and innovative ideas, and staff members (Academic & Non-Academic), who are subject matter and management experts. Through these partnerships, staff members offer guidance, mentoring, and institutional support while students gain real-world experience, develop necessary skills, and have the chance to put their entrepreneurial venture ideas into action (Adeyemo, Okolie-Osemene & Otekunrin, 2020). The findings can be used by policymakers to develop focused interventions and laws that support aggressive internally generated revenue and prudent management, sustainable economic growth, financial inclusion, and entrepreneurial ventures (Afolabi & Amaihian, 2020).

By better understanding, the potential advantages and drawbacks of student-staff partnerships, educators and university administrators can improve curricula, design specialized programs, and improve the overall learning environment for students (Olokundun, et al, 2017). Additionally, academics and researchers interested in the nexus between financial inclusion, university education, and entrepreneurship/entrepreneurial venture will find this systematic review to be of great value. This study will open the door for additional research projects in this area by critically analyzing the current literature, identifying research gaps, and highlighting emerging trends (Oriade et al, 2021). This review's knowledge synthesis and dissemination of evidence-based insights can support a vibrant academic discourse, encourage teamwork, and stimulate further research into efficient methods for promoting financial inclusion from internally generated revenue through staff-student partnerships.

In the end, the effective integration of financial inclusion initiatives and student-staff partnerships in Nigerian universities has the potential to spark a wave of entrepreneurial venture activity, equip people with financial knowledge and skills, and spur economic development at both the micro and macro levels (Ayoola & Omowunmi, 2018). Nigerian universities can significantly contribute to creating a better and more inclusive future for their students, staff members, communities, and the entire country by putting a priority on financial inclusion and developing entrepreneurial venture talent hunting within the academic sphere (Onwuzuligbo, Okoh & Nweke, 2021). It is crucial to review the previous notable scholars' published journals that have addressed pertinent aspects of financial inclusion, internally generated revenue, student-staff partnerships, and entrepreneurial ventures in Nigerian universities to establish a common ground for further

exploration (Uzoma, Olushola & Chikamnele, 2022). These foundational studies offer a strong framework for comprehending the current state of knowledge and identifying research questions that demand further examination (Suleiman, Saidu & Abdullahi, 2021). We can build on the insights and contributions of renowned researchers in this area by reviewing their work while filling in research gaps.

Consequently, investigating the state of initiatives for financial inclusion in Nigerian universities is the first area of interest. Renowned academics like Gupta, (2018) have studied the opportunities and challenges related to financial inclusion initiatives within the context of universities. Hammer & Siegfried, (2023), work emphasizes the need for all-encompassing approaches to improve financial literacy, increase access to financial services, and promote an environment that is conducive to entrepreneurial ventures. Learning from the research's key findings about what makes financial inclusion programs effective, and how they relate to student-staff partnerships in Nigerian universities, therein, understanding the dynamics of student-staff partnerships and their influence on entrepreneurial ventures is a crucial research question (Osakwe, S. 2020).

Felten et al.'s (2019) role in staff-student partnerships in promoting innovation and entrepreneurial ventures in Nigerian universities and other higher education systems has been examined, revealing the benefits and drawbacks of these partnerships, taking into account issues like resource distribution, mentoring, and information sharing. By critically analyzing their work, we can gain more insight into the techniques for creating and encouraging staff-student partnerships in the context of financial inclusion and entrepreneurial ventures (Owen & Wasiuk, 2021). Insightful information on the effects and outcomes of financial inclusion on Nigeria's overall socioeconomic development is also provided by the literature (Maku et al, 2022). The relationship between financial inclusion, poverty alleviation, and economic growth has been examined (Ratnawati, 2020). Shedding light on the potential long-term benefits of inclusive financial practices (Ahamed et al, 2021). Reviewing their research enables a deeper comprehension of the wide-ranging effects of Nigeria's higher education system's financial inclusion initiatives and how they support more general societal goals (Akinwale, & Egbetokun, 2020).

Therefore, detecting research gaps and advancing relevant research questions by reviewing the previous notable scholars' published journals on these topics to help in understanding how to assess financial inclusion from internally generated revenue through student-staff partnerships toward entrepreneurial ventures in Nigerian universities This study procedure will guarantee adding to the body of knowledge, enhances the scholarly discussion, and propositions sensitivities that can assist policymakers, educators, and other stakeholders in fostering financial inclusion and creative entrepreneurial ventures in the Nigeria University system (Abdullahi & Abdu, 2019). It is therefore necessary to identify some potential gaps that frequently exist in the literature. These identified gaps are:

Limited Emphasis on Nigerian Context: The majority of current research on student-staff partnerships and financial inclusion is based on international literature, with little attention paid to the Nigerian context (Oduwale & Oluwole, 2018; Oyewole & Bolarinwa, 2021). This research gap emphasizes the demand for studies that focus on the particular difficulties, possibilities, and dynamics of financial inclusion initiatives and student-staff partnerships in Nigerian universities (Adekunle & Adeyemo, 2019; Bello & Olufemi, 2020).

Lack of Comprehensive Assessment Frameworks: The absence of standardized assessment frameworks makes it difficult to assess the outcomes of student-staff partnerships and financial inclusion initiatives, as well as their impact on entrepreneurial ventures (Olugbenga & Olaleke, 2019; Adeyemi & Olugbenga, 2020). Future research could significantly contribute by developing thorough evaluation frameworks that take into account a variety of elements, including financial literacy, access to financial services, skill development, and the long-term viability of entrepreneurial ventures (Winarno et al, 2019; Alao & Ogunnaike, 2020).

A cursory examination of internal revenue generation strategies: Even though the potential of internally generated revenue is acknowledged, there is a gap in the literature regarding the precise strategies and mechanisms through which student-staff partnerships contribute to financial inclusion and internal revenue generation of the Universities (Adeyemi & Akinade, 2017; Ibrahim & Garba, 2020). Future research should examine the various revenue-generating techniques employed by universities, such as entrepreneurial

venture hubs, incubators, and partnerships with external stakeholders, and assess how well these techniques advance financial inclusion from a carefully managed internally generated revenue (Olayinka & Oladele, 2019).

Insufficient Examination of Stakeholder Perspectives: For designing and putting into action successful financial inclusion programs, it is essential to comprehend the viewpoints of various stakeholders, including students, academic staff, university administrators, and policymakers (Adekunle & Oluwafemi, 2018; Okunade & Ogunnaike, 2021). But more research is required to delve deeper into these viewpoints, examining their hopes, disappointments, and opinions about student-staff partnerships and their function in an entrepreneurial venture, prudent management of internally generated revenue, and financial inclusion (Olojede, Adeniji & Adegboye, 2021).

Limited Longitudinal Studies: The majority of the currently available studies concentrate on the quick results of financial inclusion initiatives and student-staff partnerships (Adegboyega & Fagbohun, 2018). The assessment of the long-term effects of these initiatives on prudent management of internally generated revenue, entrepreneurial venture success, job creation, and socioeconomic development is lacking in longitudinal studies (Okafor & Eneh, 2020). However, to fully comprehend the long-term effects of financial inclusion initiatives, future research should monitor the development of entrepreneurial ventures over time (Ajayi & Alabi, 2019; Ibrahim, Anifowose & Ogunnaike, 2022).

Above all, future research can contribute to a more thorough understanding of evaluating financial inclusion from internally generated revenue through student-staff partnerships towards entrepreneurial ventures in Nigerian universities by identifying and filling in these chronological gaps. These gaps show how evidence-based policies and practices that support financial inclusion and entrepreneurial ventures in Nigerian Universities must be informed by context-specific studies, strong assessment frameworks, stakeholder perspectives, and longitudinal analyses. In pursuance of this, the aforementioned questions have been formulated to form the basis of the systematic literature review for this study.

2. Methodology

This article carried out a systematic review of the past literature on the identified variables like student-staff partnership, internally generated revenue, Financial Inclusion, entrepreneurial venture and government funding based on four raised research questions that are meant to address the four above-named potential gaps.

3. The Systematic Literature Review and Discussion

Question One: How Student-Staff Partnership (SSP) influence entrepreneurial Venture (EV) creation in universities?

The question of whether student-staff partnerships (SSP) can have an impact on the emergence of entrepreneurial ventures (EV) in universities was brought up. Kaklauskas et al, (2018) describe a partnership approach to scaling up partnership practices at a sizable Australian university with a focus on research, which may aid in the development of an entrepreneurial venture and culture. This study examines the connection between financial inclusion and the growth of entrepreneurial ventures, paying particular attention to MSMEs in Nigeria. It looks at how initiatives to promote inclusion and access to financial services affect the expansion and development of MSMEs (Oluwafemi & Adu, 2022). The conclusions of the article highlighted the significance of financial inclusion in fostering economic growth and entrepreneurial ventures. By highlighting the role of financial inclusion in fostering entrepreneurial ventures in Nigeria's universities,

The relationship between financial inclusion and economic growth in Nigerian universities is examined in this literature. It discusses the beneficial effects of financial inclusion on various aspects of economic development, including poverty reduction and job creation, and provides empirical evidence to support this claim (Adediran, Sanni & Oladipo, 2021). The research presented in this article confirms the idea that promoting financial inclusion is essential for fostering Nigeria's Universities' economic development. It will be useful for highlighting the connection between financial inclusion and more general economic outcomes in this systematic literature review.

The relationship between financial inclusion and economic growth in Nigeria Universities is supported by empirical studies and it emphasizes how crucial financial inclusion is to achieving sustainable economic growth. It discusses the difficulties and opportunities of financial inclusion in Nigerian universities, including the sizeable portion of the unbanked citizens, and does so with a specific focus on Nigeria, which is consistent with the context mentioned in the statements. It affirms the need for the nation to give financial inclusion initiatives top priority (Said et al, 2019). The article's conclusions and insights, which provide pertinent information on the significance of financial inclusion in Nigeria and its effects on economic growth, can add to the systematic literature review.

The customized social entrepreneurial intention (SEI) model that proposed based on a systematic literature review that modifies and extends earlier models (Se, 2021). This model could assist universities in creating interventions to persuade more students to think about social entrepreneurship as a viable career option after graduation. Etzkowitz et al, (2021) stated that the transition through university colleges/faculties does not adequately foster students' entrepreneurial potential, but integrating entrepreneurship training and motivation into the university agenda could help to convert human capital into economic and social utility. In terms of student ambition and motivation, Garba & Abubakar (2019) look at the student profile and outcomes of entrepreneurship electives. This study may aid universities in understanding the potential and actual outcomes of entrepreneurship electives.

Haddad et al.'s (2021) research affirmed that students' perceptions of the university environment have a big impact on their attitude and intent to start their own business. Matsheke (2017) research revealed that there are significant predictive relationships between students' intentions to launch new businesses and the entrepreneurial content of the curriculum, their attitudes toward entrepreneurship, and their levels of self-efficacy. Ahsan (2018) discovered that effective mentoring and a positive founder's effect help students make the transition from being students to becoming entrepreneurs, allowing them to gather resources and advance their entrepreneurial venturing skills. Longva (2021) discovered that social network ties within the student's immediate entrepreneurial ecosystems allow student entrepreneurs access to ideas, resources, and identity processes. These papers collectively suggest that SSP can help universities promote Entrepreneurial venture (EV) creation by influencing students' entrepreneurial attitudes, intentions, and access to resources.

Tung et al, (2020) discovered that among students in Vietnam and the Philippines, entrepreneurial education was a significant predictor of entrepreneurial intention. Kör et al, (2020) confirmed that self-efficacy had the biggest impact on students' entrepreneurial intent, and male students were more likely than female students to have such intent. Morris et al, (2017) discovered a positive relationship between students' start-up activities and their participation in entrepreneurship-related academic programs and extra-curricular activities at their university. Shirokova (2018) posited that co-curricular and curricular programming had a positive influence on student start-up activities, with certain cultural factors moderating these effects. The above study makes the case that SSP can give students the knowledge and tools they need to build EVs, but that there are issues with entrepreneurial education that call for more government support to encourage business growth.

Marzocchi et al, (2019) discovered that entrepreneurial ventures like academic spin-offs and graduate start-ups are impacted by teaching and research activities. Beyhan et al, (2018) discovered that universities with organizational capabilities that support the discovery and application of new knowledge can aid students in fostering their entrepreneurial skills and in the development of tech start-up ventures. According to Abbas & Andras (2017) research, entrepreneurship instruction can boost students' perceived entrepreneurial self-efficacy and perceived desirability for launching new businesses, which in turn can boost their entrepreneurial intentions for starting new businesses. Oliveira & Melo, (2020) experiential learning techniques like serious business games can raise students' awareness of their need for further education as well as the challenges of entrepreneurship and business management. Overall, the papers suggest that SSP can have an impact on EV creation in universities by giving students the skills and resources they need to launch their businesses.

To get more students to think about social entrepreneurship as a viable career option after graduation, Bazan et al, (2020) suggest that universities use a customized social entrepreneurial intention (SEI) model. A case study of a university-wide SSP program that used staff and student innovation and creativity to change

institutional partnerships is provided by Nahar & Cross, (2020). For intentional student-staff partnerships that have the potential to transform institutional practices, Hoekstra, (2020) suggests a framework called Partnership Outcome Spaces. In his analysis of the expanding body of research on student-staff collaborations, Ollis & Gravett, (2020) highlights the advantages of partnership strategies, including improved student engagement and employability. Together, the papers suggest that SSP can offer a nurturing environment and a system of support for students to develop their entrepreneurial skills and intentions, which will result in the founding of businesses within universities.

Boldureanu et al, (2020) expressed that students' entrepreneurial attitudes and intentions were positively impacted by exposure to successful entrepreneurs in entrepreneurship education classes. Secundo's (2017) opined that university students can activate entrepreneurial learning processes that could help them turn their ideas into entrepreneurial practices. Zhang & Yang (2021) spoke about the potential growth of college students' employment and entrepreneurship under the new circumstances of school-business collaboration. Carey (2019) stated that SSP challenges the metrics-based, neoliberal agenda that rules higher education and reclaims the principles that guide instruction. Overall, the papers point out that SSP can be very helpful in encouraging EV development in academic settings.

Tehseen & Haider (2021), revealed also that universities that collaborate with foreign universities offer top-notch entrepreneurship courses that can increase students' entrepreneurial passion and attitudes as well as their willingness and capacity to launch their businesses. Alfianti et al, (2021) discovered that the influence of entrepreneurial literacy on students' intention to become entrepreneurs can be increased by perceived university support. Cervantes-Guzmán (2021), affirmed that combining training, education, and soft skills can give students the resources they need to pursue an entrepreneurial goal. To foster students' entrepreneurial intentions. Bi & Collins, (2021) found that universities should incorporate the development of entrepreneurship-related skills and a positive shift in mindset into academic instruction. Therein, the papers pointed to the possibility that SSP, by offering top-notch entrepreneurship modules, perceived university support, and combining training, education, and soft skills, can have a positive impact on EV creation in universities (Nahar & Cross, 2020). However, Costin et al, (2021) postulated that university-offered entrepreneurship education (EE) programs can help students develop their entrepreneurial skills.

Universities are also regarded as important institutions that offer society essential resources for learning about, aspiring to, and developing an entrepreneurial spirit that can foster entrepreneurship (Gamede & Uleanya, 2020). Additionally, the public has become more interested in entrepreneurship and enterprising as a result of changes in the global economy, pressure from the job market for graduates to acquire skills that will help them succeed, and government support for the promotion of enterprising culture to spur economic growth (Khuram, Ahmed & Ali, 2022). Finally, demographic variables, particularly age, current academic level, parent's business experience, and parent's business succession factor, have positive and significant relationships with the student's entrepreneurial interest (Akinwale et al, 2019). Nabi et al, (2018) contend that student entrepreneurial intentions and capacities can be influenced by university-level entrepreneurship education and support systems.

Ilonen & Heinonen (2018) discovered that while entrepreneurship education can affect students' analytical abilities, it may not help them develop their sense of social responsibility. Wibowo, (2019) affirmed support networks that serve as a mediating factor in the relationship between university roles and students' entrepreneurial intentions. Lee (2018) discovered that students' networking skills, proactivity, and self-confidence—all crucial entrepreneurial traits—can be influenced by university-based education. Nabi et al, (2018) asserted that through entrepreneurship-based instruction and hands-on experience, universities can play a significant part in developing students' entrepreneurial mindset and spirit. Overall, the above studies indicate that universities can play a role in encouraging entrepreneurial ventures among students, but the effectiveness of their efforts is mixed. Student-staff partnership (SSP) can influence entrepreneurial venture (EV) creation in universities by giving students entrepreneurship education, support systems, and practical experience.

In comparison to another university without any specific activities serving that purpose, Wegner (2019) found that the entrepreneurial venture push strategy of one university had no direct impact on students'

entrepreneurial intentions. Salhi & Jemmali, (2018) stated there is no correlation between the university's function and students' willingness to embrace entrepreneurship, but there is a mildly positive relationship between management course content and students' entrepreneurial intentions. Singh (2022) proposes that public policies should prioritize the development of institutions that foster a positive business environment, facilitate the creation of new ventures, and reinforce the advantages of becoming an entrepreneur and that universities should assess the effectiveness of their efforts in promoting entrepreneurship through training, education, and support for new ventures.

Question Two: Does internally generated revenue (IGR) management have a significant effect on the creation of more entrepreneurial ventures (EV) in the university system?
Aja-Okorie (2017) asserted that the creation of entrepreneurship training centers within the university can raise the state university's IGR. Shamsudin et al, (2019) & Kusa (2020) discovered a moderate to strong correlation between internal resources, such as mentions of entrepreneurship in a university's mission, strategy, policies, and procedures, and the initiatives taken by universities to support entrepreneurship. Langva (2021) affirmed that both academic and extracurricular programming had a positive influence on student start-up activities, with certain cultural factors moderating these effects. Biray (2022) discovered that a state university in the Philippines was "Going Entrepreneurial" in terms of its leadership and governance, organizational capacity, personnel, and incentives, as well as the development of entrepreneurship in teaching and learning and pathways for entrepreneurs. These results lead to the conclusion that IGR management can significantly influence the development of more entrepreneurial ventures within the university system.

Nzelibe (2019) argued that integrating entrepreneurial and entrepreneurship education in Nigerian universities could result in economic development. Passoni & Glavam, (2018) found that institutional settings in Brazilian universities did not significantly impact academic entrepreneurship. The main sources of internally generated revenue (IGR) for state governments in Nigeria, Fasoye (2020), stated that the connection between IGR management and the development of entrepreneurial ventures in universities is not specifically addressed, unlike other revenue like PAYE and road taxes.

Pashynska, (2021) reiterated that Public-private partnerships (PPPs) could be a way to restructure the educational sector and generate revenue to maintain infrastructure and academic standards. Wegner (2019) discovered that student entrepreneurial intention might not be directly impacted by the university's support for entrepreneurship education, business plan competitions, and incubation. Academic entrepreneurship initiatives are characterized by conflicting objectives and inadequate reward systems for academics and universities (Sandström, 2018). Pellegrini & Johnson-Sheehan, (2020) echoed that university-based business incubators can support startups until they are ready to operate independently, and start-ups that start in incubators have a higher survival rate than non-incubator companies. IGR management and PPP may be able to help the university system produce more EVs, The overall conclusion is that there are obstacles to overcome. These essays don't address the research question, however, the research question of whether internally generated revenue (IGR) management significantly affects the development of more entrepreneurial ventures (EV) in the university system is unfortunately not directly addressed. Kwasi (2021) talks about the difficulties with funding public universities in Ghana, but she doesn't specifically discuss how IGR management and EV creation are related. IGR management and EV creation in the university system are not specifically addressed but focus on academic entrepreneurial engagement (AEE) for frugal innovation (FI) in private higher education institutions (PHEI) (Ojo, 2021). As a result, based on these papers, there are no findings to report regarding the research question.

Question Three: How does financial inclusion (IF) influence entrepreneurial venture (EV) as palliatives to inadequate Government funding through student-staff partnerships in Universities?
Financial inclusion can help entrepreneurship, especially in developing nations (Zogning, 2022). Ajide (2020), financial inclusion significantly and favorably affects entrepreneurship in some African nations. Additionally, financial inclusion and the emergence of entrepreneurs in China are positively correlated, particularly in industries with lower entry barriers (Pan, 2019). Kornivska, V. (2020) emphasized the significance of comprehending the intricate causal processes that lead to financial inclusion among micro-entrepreneurs as well as the instrumental freedoms connected to institutional arrangements. University entrepreneurship

programs can have a positive effect on student start-up activities, Krajcsák, (2018) opined that relationship is tempered by cultural factors. Financial inclusion and entrepreneurship are related to one another, and policies that support financial inclusion can benefit entrepreneurial ventures, especially in developing nations (Zogning, 2022).

Financial inclusion can have a positive impact on entrepreneurial ventures, especially in industries with lower entry barriers (Pan, 2019). But multiple marginalization, including those related to gender, income, and race, have an impact on access to finance, which can exacerbate financial exclusion (Simatele, 2022). Age, technology use, financial literacy, access to unregulated markets, and access to the informal economy are all factors that have an impact on young people's financial inclusion (Chu, 2019). Additionally, the ability of lecturers to fulfill psychological contracts can affect undergraduate students' intentions to become entrepreneurs (Ismail, 2022). Overall, financial inclusion can be a useful tool for encouraging entrepreneurial ventures, but when doing so, it's critical to take into account the intersectionality of marginalities and the unique needs of children and students.

Eggers, (2021), revealed that the lack of financial resources is a hindrance to SMEs' growth, and FI may be a useful remedy. Othman et al, (2022) discovered a negative relationship between university funding and the start-up activities that students engage in. Huynh (2019) discovered that an entrepreneurial team can shape its capabilities by utilizing social networks, which enhances its capacity to access various forms of external seed capital sources. According to Ismail (2022), in the Tanzanian context, lecturers' competencies are important predictors of psychological contract fulfillment, and psychological contract fulfillment is crucial for entrepreneurial intention (EI). To create a mutually beneficial relationship between HEIs and students, universities should recognize and foster lecturers' competencies as well as enhance their methods for meeting students' expectations (Loureiro et al, 2022).

The listed papers below shed light on how financial inclusion, university funding, and university entrepreneurship are related. According to Eton et al, (2020), financial inclusion can help SME growth, but only when combined with investments in learning, training, and innovation. Silva et al, (2018) asserted that funding from both the public and private sectors can promote university-industry collaboration, which in turn can affect how well universities perform in terms of innovation. Key individuals, institutional frameworks, and external interactions, Koe et al, (2019) revealed significant influences on the development and implementation of university support systems for sustainable entrepreneurship. Last but not least, Olumuyiwa, et al, (2023) make the case that foreign academics can be a key component in the development of entrepreneurial universities in South Africa by bringing a variety of expertise and fostering the entrepreneurial mindset among staff and students. The above papers' findings collectively imply that financial inclusion can play a significant role in encouraging entrepreneurship in universities, but that it must be combined with other elements like education, career preparation, innovation, and internationalization.

Rusu & Roman (2020) stated that access to capital significantly influences Romanian university students to choose or launch their businesses. Eton (2020) also discovered that while financial inclusion can make it simpler for Ugandan students to deposit tuition fees and access funds, low-income students still have trouble gaining access to a wider variety of financial products, which limits their ability to pursue higher education. Ojiaku et al (2018) pointed out that policymakers should support measures that give young entrepreneurs easier access to capital to foster their entrepreneurial aspirations and the growth of the economy.

Question Four: How does government funding influence the relationship between Student Staff Partnership (SSP), Internally Generated Revenue (IGR), Financial Inclusion (FI), and Entrepreneurial Venture (EV)?

Kinchin et al, (2020) suggested that student and staff partnerships in the Universities should attract positive outcomes for students and staff, even though there are challenges to scaling up these partnerships. Mercer-Mapstone et al, (2019) found that small-scale initiatives limit opportunities for equitable engagement, while Soicher et al, (2019) found that students want to be more involved in the implementation process and have clear role descriptions. Ollis (2020) notes that funding and time constraints can be challenges to student-staff partnerships. Ollis, (2020) also suggested that student-staff partnerships can enhance student employability and improve student-staff relations. Therefore, there is no direct mention of government funding in these papers, but the findings suggest that funding could be a factor in scaling up student-staff partnerships and making them more inclusive.

Again, these aforementioned papers address different aspects of the research question, but none of them directly answer it. Sullivan & Heron, (2020) discuss the challenges and considerations of student-staff partnerships in higher education, while Rapini et al, (2013) investigate the influence of funding sources on university-firm interactions in Brazil. Khan & Shan (2020) look at how government support affects the creation of an entrepreneurial culture in Pakistan, with the support of educational institutions playing a moderating role. Kapadia, S. (2020) provides insights into the factors that may influence the relationship between student-staff partnership, internally generated revenue, financial inclusion, and entrepreneurial venture, but they do not directly address the research question.

Khuram & Ali, (2022) hypothesized that government funding may have an impact on how internally generated revenue, financial inclusion, and entrepreneurial ventures are related to student-staff partnerships. Khan & Shan (2020) earned support from the government significantly improves Pakistan's entrepreneurial venture/culture, and support from educational institutions to significantly moderate the relationship between the two. Hunady et al, (2018) discovered a negative relationship between university funding and the start-up activities that students engage in. The Small Business Innovation Research Program was examined by Bonini et al, (2019) who discovered that the best entrepreneurial ventures might not always receive government funding. Miller et al, (2018) revealed that foreign academics have the necessary abilities and can contribute the variety of expertise required for the establishment of entrepreneurial universities. Dzomonda & Fatoki, (2019) also affirmed the role of young ones in the development of entrepreneurship learning in an entrepreneurial university.

Anwar (2020) found that government funding may not always support the best entrepreneurial ventures, Shirokova et al, (2018) found that financial support from universities is negatively related to student start-up activities. Kamar et al, (2019) discovered that government fund-of-fund programs can increase employment growth in portfolio companies, Jami & Gökdeniz, (2020) suggest that international academic professionals can play a role in the development of entrepreneurial universities. This study generally implies that the relationship between government funding, student staff partnerships, internally generated income, financial inclusion, and entrepreneurial venture is complex and may depend on various factors like the type of funding and the context in which it is offered.

Fan et al, (2019), revealed that both governmental and commercial funding made it easier to implement regulations and manage university-industry collaboration, which in turn affected how well universities performed in terms of innovation. Additionally, only industrial funding had a favorable impact on a university's environment for innovation. To achieve a culture shift toward student-staff partnership, Mercer-Mapstone (2020) discussed the significance of collaborative efforts among academic developers, faculty/staff, and students. The difficulties of student-staff partnerships in higher education were highlighted (Ollis & Gravett, 2020), including the diversity of partnership definitions, the co-construction of identities, the enactment of power structures, and inclusivity. Mercer-Mapstone & Bovil, (2019) opined that successful partnerships must have role descriptions that are explicit and well-communicated if students are to be treated as equal partners in efforts to improve education which will ironically scale up student-staff partnerships in higher education institutions and enhance equity in access to partnership programs. The research question of how government funding affects the relationships between student-staff partnerships, internally generated revenue, financial inclusion, and entrepreneurial ventures is not directly addressed in the Literature, although, they do however offer some perceptions of student-staff partnerships that might be pertinent to the research question.

4. Conclusion

The systematic literature review on the impactful assessment of student-staff partnerships (SSP) on the emergence of entrepreneurial ventures (EV) in universities highlights some significant findings, which are summarized below.

- First, by influencing students' entrepreneurial attitudes, intent, and access to resources, SSP can help promote EV creation. Second, university programs that promote entrepreneurship play a significant role in developing students' capacity for and interest in entrepreneurship. Third, universities can encourage the development of EVs by providing their students with excellent entrepreneurship

courses, a sense of support, and hands-on learning opportunities. (Okpara& Wynn 2018). However, some issues need to be resolved and the success of university initiatives to encourage entrepreneurship is mixed.

- The need for tailored interventions, like social entrepreneurial intention models, is emphasized in some papers as a way to get students to think about entrepreneurship as a possible career path (Fayolle, Liñáng & Moriano, 2014). Others stress the value of institutional practices, such as partnership strategies, in fostering transformative change and improving students' employability. Additionally, providing top-notch entrepreneurship modules and support systems, along with training, education, and soft skills integration, can positively affect students' capacity to launch their businesses (Kantis, Federico & Angelelli, 2015).
- To comprehend the mechanisms by which SSP affects EV creation in universities, more research is required. Future research could examine the specific tactics and methods used by universities to encourage entrepreneurship, assess the success of entrepreneurship education initiatives, and look into the significance of collaborations with foreign universities (Adu-Gyamfi, Kuada & Asongu, 2018). Insights could also be gained by looking at how demographic variables and university roles affect students' entrepreneurial interests and intentions. The ramifications of this study emphasize how crucial it is for colleges to encourage an entrepreneurial spirit and provide students with the knowledge and tools they need to launch their businesses. Universities can play a critical role in fostering EV creation and supporting economic growth and development by developing supportive ecosystems, enhancing entrepreneurship education programs, and addressing the difficulties and constraints noted in the literature.
- There aren't many papers that specifically address the research question of whether IGR management has a significant impact on the growth of more entrepreneurial ventures within the university system (Ogunsiji & Adeoti, 2021). IGR management and EV creation are not specifically addressed in some papers, even though they touch on related topics like entrepreneurship education, institutional settings, public-private partnerships, and funding issues. The results of this review's implications highlight the need for additional study that will specifically examine how IGR management affects the development of entrepreneurial ventures in the Nigerian university system. Future research should concentrate on examining the tactics and mechanisms by which IGR management can promote EV development, investigating the function of PPPs and incubation programs, and addressing the difficulties and constraints associated with fostering entrepreneurship within the university system. For policymakers, educators, and stakeholders to develop successful strategies to support financial inclusion, an entrepreneurial venture, and sustainable revenue generation in Nigerian universities, it is essential to understand the relationship between IGR management and EV creation. By conducting more research in this area, we can expand our knowledge and develop evidence-based strategies that support the expansion and development of entrepreneurial ventures within the Nigerian university system.
- Some important conclusions are drawn from the systematic review of the literature on assessing the influence of student-staff partnerships on the emergence of entrepreneurial ventures (EV) in Nigerian universities. First, by giving entrepreneurs access to financial resources, financial inclusion can positively affect entrepreneurial ventures, especially in developing nations. Second, the expansion of entrepreneurial ventures in universities can be facilitated by the availability of financial resources, along with investments in education, vocational training, innovation, and university-industry partnerships (Adeyemo & Ayodele, 2021). Third, to promote entrepreneurial intention and create positive relationships between universities and students, lecturers' abilities and students' expectations must be met. There are, however, difficulties and things to take into account. Financial exclusion can be exacerbated and efforts to promote financial inclusion are hampered by marginalities like gender, income, and race. To effectively promote financial inclusion, it is important to take into consideration the particular needs of children and students as well as the intersectionality of marginalized groups. The provision of financial aid by universities may also have a complicated relationship with students' early entrepreneurial ventures, so it's important to remember the significance of lecturers' abilities and the fulfillment of their psychological contracts.
- The effectiveness of financial inclusion initiatives in universities, the success of university-industry partnerships, and the contribution of internationalization to the promotion of entrepreneurship are all potential topics for future studies (Hoog & Skoumpopoulou, 2019). Further research into the

intersections of marginalities and the unique requirements of young entrepreneurs may yield insightful information for developing strategies for inclusive financial inclusion. Additionally, policymakers ought to think about supporting measures that improve young entrepreneurs' access to capital, encourage their intentions to start businesses and support economic growth. Overall, the review shows that financial inclusion can significantly influence the emergence of entrepreneurial ventures in Nigerian universities through student-staff partnerships. Financial inclusion is supported by education, vocational training, innovation, and university-industry collaborations. Universities and policymakers can support an entrepreneurial ecosystem that empowers young entrepreneurs and contributes to economic growth and development by addressing challenges and putting in place effective policies and initiatives.

- The systematic review of the literature on assessing the effect of government funding on the relationship between student-staff partnerships, in-house revenue, financial inclusion, and entrepreneurial ventures in Nigerian universities highlights some key findings. First, despite the challenges associated with scaling up these partnerships and ensuring equitable engagement, they have the potential to enhance student-staff relations and boost students' employability (Aina, Agwu & Adeyemo, 2021). Government support for startups and the quality of entrepreneurial ventures can have a variety of effects, but it can have a very positive effect on entrepreneurial culture. Third, international academic professionals can bring a variety of expertise to the development of entrepreneurial universities. On the precise relationship between government funding and the aforementioned factors, there is, however, little direct evidence. Future research, according to the papers, should concentrate on analyzing the complex impacts of government funding on student-staff collaborations, internal revenue, financial inclusion, and entrepreneurial ventures. It is crucial to take into account the nature and context of government funding, as well as how it interacts with other elements like support for educational institutions and corporate funding.
- More research is needed to fully understand how government funding can promote an inclusive and sustainable entrepreneurial ecosystem and successfully support entrepreneurial initiatives in universities (Laveren et al, 2020). Additionally, research might examine how to improve student-staff collaborations and ensure equitable participation, as well as how academic developers, faculty/staff, and students can collaborate to affect cultural shifts in favor of partnership models. Even though the papers provide insightful information into the complexities of student-staff partnerships, internally generated revenue, financial inclusion, and entrepreneurial ventures, more research is generally necessary to fully understand the impact of government funding on these factors. By filling in these research gaps, policymakers and universities can put into practice effective strategies to promote entrepreneurship, financial inclusion, and sustainable development in Nigerian universities.

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The Relationships between Social Media Adoption and Homestay Performance in Malaysia

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Abstract: Social media has become the most popular marketing tool in the tourism industry. It has been determined that the advent of social media has allowed tourists from all around the world to directly get in touch and communicate with tourism organizations despite their location. However, there is limited research on the adoption of social media as a marketing tool in the Homestay program. Therefore, Kampungstay and Homestay Association Malaysia (MKHA) in collaboration with Tourism Malaysia has developed a platform known as www.jomhomestay.my to promote the program. Despite this effort, the findings stated that the homestay program has limited resources for social media and a limited ability to recognize it. Thus, this paper is to examine the relationships between social media adoption and homestay performance. The originality of the study will act as a roadmap for future research, assisting in the creation of the most productive homestay business plan and providing empirical data for this research.

Keywords: *Social media, Homestay, Marketing tool, tourism.*

1. Introduction

Tourism has been an essential sector in both developed and developing economies (Sharpley, 2020). Aside from contributing significantly to government revenues, national income and foreign exchange gains, the tourism industry also provides job and business opportunities for local populations (Saner, Yiu and Filadoro, 2019). In addition, Hussin and Buchmann, (2019) stated in their study that the Malaysian government has made a significant contribution to the growth of the tourism industry with the establishment of the Sixth Malaysia Plan (1991–1955) and the first National Tourism Policy (NTP) to provide interested parties with guidelines for planning and expanding the Malaysian tourism industry. Thus, it demonstrates that Malaysia's government has adopted several proactive measures to improve its capabilities and commitment to fostering the development and sustained expansion of Malaysia's homestay (Abas et al, 2022). Moreover, the community-based tourism (CBT) approach has been applied in the context of the 2030 Sustainable Development Goals (SDGs) to make progress towards SDG1—No Poverty—and SDG11—Sustainable Cities and Communities (Zulkefli et al., 2021). Homestay is a typical CBT program that enables participants to stay with local families or tour nearby villages and neighborhoods (Phunnarong, 2021).

Homestay programs can experience internal and external issues and challenges, as well as off-peak seasonal and managerial issues (Bhuiyan, 2019). Thus, this Homestay program can benefit from the emergence of the technologies (Kumar, 2020) and derive competitive advantages (Balasingam and Bojei, (2019). Moreover, Lama, (2018), stated that the potential benefits of adopting and using technologies particularly more by the hotel industry rather than the Homestay program. Affiliated-chain group hotels have already adopted technologies in their business. Many studies on technology adoption and innovation in small and medium-sized enterprises (SMEs) have been undertaken (Murphy, 2004; Rousaki, 2010). However, there is very limited research when it comes to the integrated model for the adoption of social media especially in the Homestay program (Yong and Hassan, 2019; Dawayan et al., 2021). According to Dawayan and Annuar, (2021), homestay operator must improve their current strategy to prevent being left behind. This will be in terms of how information systems and technology are used to support business processes, make decisions and achieve a competitive edge (Osman and Zakaria, 2020). It is also expected that Internet technologies would enable a fundamental shift in company strategy toward price convergence, as well as reorganization of business networks in the tourism industry (Pencarelli, 2020).

The advancement of the internet which comprises the usage of social media has opened doors for marketing communication to level up their game by using it as a tool and platform to boost their profits (Akram and Kumar, 2017; Canovi and Pucciarelli, 2019). The usage of social media has become a critical mode of

communication within the current trends (Stieglitz, Mirbabaie, Ross and Neuberger, 2018). The importance of this platform has grown throughout the years as the brands rely heavily on social media changing the landscape of marketing communications and making the brands progressively more dependent on social media and mobile channels (Alalwan, Rana, Dwivedi and Algharabat, 2017; Nisar, Prabhakar and Strakova, 2019).

Despite these efforts, the findings stated that the homestay program has limited resources for social media and a limited ability to recognize it (Prabawa, 2018). In addition, there is less evidence on how social media is utilized in practice, reflecting the context of use in a homestay program, which is confined and susceptible to situational constraints (Agyeiwaah, 2019; Siti Nabiha, Nordin, and Poh, 2021). Thus, to enrich the literature, this study seeks to investigate the influence of social media adoption on the performance of homestays in Malaysia.

Objective of the Study: To investigate the relationship between social media adoption towards homestay performance.

2. Literature Review

Homestay Program: The official homestay program is known as a cluster homestay, and is controlled by the Ministry of Tourism and Culture (MOTAC) (Bachok, Hasbullah, Ab Rahman, 2018). MOTAC began to promote homestay programs in 1995 (Bachok et al., 2018; Ramele et al., 2020). This cluster homestays are required to adhere to a series of procedures and rules established by MOTAC (Ramele et al., 2020). Hence, only property owners who meet the requirements and regulations for hosting guests will be given recognition awards and licenses to run the program (Noor and Awang, 2018). These requirements include accessibility to the major road and suitable tourist amenities like a separate bedroom and bathroom (Azhar et al., 2021).

Moreover, this homestay program is not only considered as lodging services (Muslim et al., 2017). It is a tourism product that provides guests with a refreshing rural atmosphere and a taste of local community life (Wang et al., 2020). In addition, the Homestay program also aims to produce revenue for rural communities as well as provide an alternative tourism experience for tourists (Mutalib et al., 2019). This is accomplished by their involvement as operators of homestays within their residences, as well as participation in other activities included in the packages provided to the guests (Mapjabil 2017). Concurrently, the homestay program helps to preserve local culture while also protecting the environment (Nair and Hamzah, 2015). Furthermore, some experts consider the homestay program to be an economic booster because it contributes significantly to the development of local communities, particularly in rural areas. (Mapjabil 2017). Tavakoli, Mura and Rajaratnam, (2017), mentioned that the key motivation for community members to participate in the homestay program is the chance for income and development of their residences.

According to Pasanchay and Schott, (2021), the Malaysian homestay program is a specific kind of tourism approach that includes most of the necessary elements of community-based tourism (CBT). This program is growing as a result of the government's major efforts to promote rural tourism. The main difference between the Malaysian Homestay Program and those in other countries is the addition of lodging with host families or foster families (Abas, Abd Halim and Hanafiah, 2022). This aspect enables two groups from different cultural backgrounds to work together, learn from one another and benefit from each other by having the guests dine, cook, and engage in a variety of activities with their foster families (Tavakoli et al., 2017; Yong and Hassan, 2019).

Homestay Performance: Kori, Muathe and Maina (2020), claimed that performance includes both financial and non-financial measurements, and is an indication of the capacity to meet the firm objectives. In addition, financial performance includes economic factors while non-financial performance includes success indicators like the market, quality of life, and customer satisfaction (Al-Mamary et al., 2020). Furthermore, non-financial performance indicators are a group of variables that are not monitored by financial systems, as opposed to financial performance indicators, which are a set of variables that normally can indicate the firm's ability to produce profits (Rashid, Ismail, Rahman, and Afthanorhan, 2018). Yet, the performance of homestay could be affected by many areas; however, this study only focuses on the financial performance of the homestay. Based

on Golovkova, Eklof, Malova, and Podkorytova (2019), stated that financial performance typically indicates the level of attainment of financial goals. It involves assessing how a company's activities and policies affect its financial results (Golovkova et al., 2019). Moreover, a company's financial performance is also evaluated to determine its financial health over a given time frame (Al-Mamary et al., 2020).

Rapid technological advancement has created numerous chances for Malaysian homestay to increase their performance (Osman and Zakaria, 2020). Furthermore, Yong and Hassan, (2019), mentioned that social media is a critical factor in the success of homestay performance that helps in increasing their productivity. Osman and Zakaria, (2020) on the other hand, discovered to have a favorable and considerable impact on the homestay operators' intentions to use social media platforms in their homestay business to improve their financial performance. Several empirical studies indicate a positive correlation between technology and homestay performance (Tang, Chau, Ip and Ji, 2022; Yong and Hassan, 2019). Moreover, social media also affects homestay performance when organizations strategically acquire, develop, and deploy resources for opportunity utilization to achieve a competitive edge (Krishnapillai and Rehman, 2022). Tang et al. (2022) found that technology significantly improves financial performance for homestays. Thus, Homestay operators must keep focusing on creating unique business strategies to increase the performance of the homestay program (Devadas and Jayasooriya, 2021). This is essential so that they can effectively market their homestays on social media and bring in more tourists from all over the world to enjoy their warm hospitality.

Social Media: In the era of globalization, the majority of firms operate in a rapidly changing technological environment (Acciaro, Renken, and El Khadiri, 2020), which makes it challenging to stay competitive in the marketplace. As a result, they need to use technologies to assist their commercial activities, as technology is considered an important instrument for improving economies (Tidd and Bessant, 2018) and a significant source of competitive advantage (Sivarajah et al., 2020). Social media is one of the various types of technology that can be used by organizations. It can affect the way firms operate and lead to corporate transformation (Baptista, Wilson, Galleries, and Bynghall, 2017). In the context of the tourism industry, the use of technology has produced tremendous results and revenue (Khan et al., 2020). The use of this technology by the Homestay program, on the other hand, has been inconsistent, varying in different countries and among different businesses (Ing, Osman and Arin, 2020). According to Rafi and Roostika (2020) stated that technology can improve competitiveness and provide better market access, expand business prospects and contribute to economic growth. Furthermore, the ever-increasing competitive pressure and the growing need for more effective operation and control tools are particularly acute in the homestay industry (Ateljevic, 2017). Investing in ICT innovation, which will eventually lead to social media adoption, is one approach to achieving a good Homestay performance. The use of social media in the tourism industry provides destination management organizations with the ability to directly reach tourists and prospects (Agegnehu, Lemi and Mulatu, 2019).

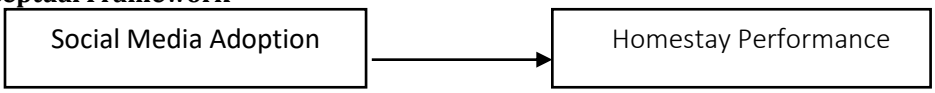
Technologies can help the Homestay program by providing new prospects for business development (Ramli et al., 2019). To prosper in the program, the homestay operator should become efficient and have access to the latest smart technology services (Noor, Mahmud, Nga and Mail, 2017). The majority of Homestay operators believe that using existing structures, processes and methods allows them to stay in their comfort zone while avoiding many obstacles (Hayat, 2019). Nevertheless, technology can offer more distinct alternatives and its use provides modern firms with additional benefits and worldwide competitiveness (Rizal et al., 2018). Meanwhile, social media platforms have risen to prominence as a key digital communication medium via which customers learn about, exchange information about and connect with the companies they are considering, purchasing and evaluating (Baptista et al, 2017). The Homestay operator can engage in two-way conversations with current and potential consumers through social media and get unmediated consumer feedback faster than ever before. They also understand the significance of social media networking, brand recommendations and information sharing (Yong and Hassan, 2019). According to Facebook, the average Facebook user has 130 friends and people who learn about a product or service via a friend are 15 % more likely to become customers than those who learn about it through other methods (Luo et al., 2018). Additionally, through viral or quick dissemination of product and service experiences and opinions, social media has the potential to generate awareness and interest for a customer to buy and try the product (Muninger, Hammedi and Mahr, 2019).

Relationship between Social Media and Homestay Performance: Social media is important in many sides of tourism, particularly in the Homestay program (Leiner et al., 2018). In addition, the government is taking action to encourage rural homestay operators to become computer savvy and use it to manage and run their businesses (Kunjuraman, 2021). This is in line with Osman and Zakaria (2021), who mentioned that the usage of social media platforms is anticipated to help homestay operators market their programs to a wider audience. According to Boon (2018), rural tourism has grown to be one of Malaysia's most developed sectors of the industry and has given various economic benefits to the countryside. Furthermore, as the homestay industry moves to digitalization, the operators will be able to market their homestay and execute transactions more efficiently (Osman and Zakaria, 2021). Besides that, Kunjuraman, (2021), found that the internet helped the homestay program raise revenue from foreign guests and shift business strategy from offline to online. Moreover, Osman and Zakaria, (2021) argued that although the technology could increase the performance of the homestay, however, there is some operators are still hesitant to integrate social media into their everyday operations. Hence, this study aims to assess the performance of homestay programs to adopt social media platforms in their business.

3. Research Methodology

This paper proposes a quantitative approach to analyze the study using primary data. The population of this study is the Cluster Homestay and the sample of the respondents consists of Homestay operators who act as the representative to represent the Cluster Homestay. Survey questionnaires will be used and distributed to the respondents. The selection process for the selection of respondents is based on purposive sampling. After data collection, the data will be analyzed using Statistical Package for Social Sciences (SPSS) software and Smart Partial Least Square (PLS). The theoretical framework for this study is based on Technology, Organization, Environment, (TOE) theory. This theory explains the variables impacting social media adoption and performance. Omar, Kasuma, Asit, Achan, and Mojolou (2015), thought that TOE is a well-known theory that examines how particular actions are performed to identify elements that influence homestay performance. His point of view was further supported by the fact that the adoption of e-business and the homestay industry has a substantial impact on all three TOE components and can significantly improve their performance. Thus, this paper proposes to investigate the relationship between social media adoption and homestay performance.

Figure 1: Conceptual Framework



4. Implication of the Study

The findings of this study have significant implications for a variety of participants, including researchers, MOTAC, homestay operators and the tourism industry. In addition, this study also will aid the homestay operators in understanding the factors influencing the performance of the homestay program. Social media has become among the most effective Internet networking platform that allows homestay operators and customers to communicate with each other indefinitely. However, the lack of adoption on social media platforms to promote homestay has been the main criticism leveled at the underperformance of the Homestay Program. Even though, Pasanchay and Schott, (2021); and Murniati et al. (2023) claimed that most of the homestay operators already have some basic knowledge of social media. Yet, the majority of their abilities are limited. Therefore, there is an immediate demand for comprehensive training for homestay operators to improve their social media skills, particularly in terms of social media marketing. This is critical so that they can use social media to promote their homestays to tourists systematically and effectively. Thus, Homestay operators should apply social media as a platform to improve their business performance.

5. Limitations and Recommendations

The primary objective of the study was the adoption of social media on homestay performance. Several limitations need to be identified and explored in the directions for future research. Firstly, the study has

focused on Facebook as one of the social media platforms. Thus, the results cannot automatically be extended to another platform. Therefore, future research should explore and compare other social media platforms that have different features such as TikTok and Instagram, since these two platforms have more creative and lively connections in consumer communications that can reach a larger audience. Next, the present study just concentrated on the performance of the homestay. As a result, this research recommended that future empirical studies investigate another perspective, such as safety, leadership and management of the homestay.

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The Factors That Affect Employee Creativity among Staff in a Malaysian Energy Corporation

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Abstract: This article aims to analyze the factors that affect employee creativity among staff in a Malaysian operating in the energy industry that faced the crucial situation impact of the COVID-19 pandemic. The total number of respondents involved in this study is 108 using a questionnaire as an instrument in this study. As a result of correlation analysis, it shows that there are significant relationships between personality and work environment with employee creativity. For reward, there is no relationship with employee creativity. According to the result of multiple regression, R^2 was 37.6% which means all the independent variables influence the dependent variable on that amount. The rest of the amount 62.4% is influenced by other factors. The regression result also shows that only the hypothesis on personality and work environment is supported. And other factors that affect employee creativity should be considered in future research. The significance of this study is to highlight the importance of understanding the factors affecting employees' creativity during Movement Control Order (MCO). From the perspective of the organization, this study helps to better understand its operation and to maximize employee creativity during MCO. On the other hand, the employees may benefit from this study by giving awareness, to educate and support employees during MCO as some need to Work-From-Home (WFH) with problems with internet connection.

Keywords: *Employee Creativity, Personality, Work Environment, Reward.*

1. Introduction and Background

The creativity of employees is an important aspect of solving employee problems because it encourages the solution to current problems (Sourchi & Jianqiao, 2015). One of the basic human needs is creativity, which is the need for self-realization (self-actualization) and is the greatest human need (Munandar & Fuady, 2017). In the current competitive world, these studies will investigate the views of individuals in organizations or manufacturing companies about the variables that help promote the imagination of the representative of organizations in their work environment. Recent studies have attempted to determine what factors in the business environment affect creative output. Gu, Strauss, Bond, & Cavanagh, (2015), for instance, discovered found that the moral position of the leader has a positive effect on a team's creative output.

Regarding the issues of creative individual (self) and creative concept, arises the question of who or what can be called creative. Kaufman and Beghetto (2009) addressed this question by designating the various levels of creativity. The 'Little C Level' innovation is illustrated in unique organizational creativity literature within this categorization. According to this, in all individuals, imagination is present and it occurs with sufficient environmental conditions and encouragement. Creative people are versatile, they like playing and laughing, according to Feist (2010). Characteristics of social personality include actions and attitudes that concern one's interaction with others. Creative individuals like problems and also disregard social norms and customs. Feist (2010) also offers an overview of the relationship between personality and imagination. He indicated that personality affects creativity by minimizing behavior, stressing that genetic and brain characteristics contribute to differences in personality, influencing creative thoughts and behavior.

We are living in rapidly changing times. Considering that organizations have had to adjust to completely new marketing platforms (web and social) in a single generation, the company must think develop invest in and use new technologies. To succeed on the global level, the company must concentrate on strategies and accomplish its dream and mission. There are now so many challenges that the organization can face, particularly in finding the right individual for the right role. It would take a longer time for workers to expertly build skills and competencies. The secret to a prosperous future is the right talents, competencies, and a great personality. Thus, this study is to investigate factors that affect employee creativity among the

staff of a Malaysian energy corporation. The aim of this study will be analyzed based on the variable stated which is personality, work environment and reward.

2. Literature Review

Employee Creativity: Creativity is important to the company because it makes workers more appealing with creativity and helps the organization move forward with a generous idea from the employee himself. It also enables the company to adjust to the current trends that could impact the company or employee itself to survive in the global market. In the workplace, creativity is something that needs to be polished. In the studied energy corporation, when the organization wants to encourage their staff to give creative ideas on slogans, the management will organize an event and all the staff will be given an opportunity participate to in that event. Those who give the most creative slogan will receive rewards and appreciation from the top management.

Creativity is extracted from the cumulative creative thinking skills and knowledge of a person based on their formal education and previous experience (Gong, Yaping, Huang, Jia-Chi, Farh & Jiing-Lih. 2009). Creativity is considered a personal trait in some research, with characteristics that include large areas of interest and high levels of energy (King & Gurland, 2007). An understanding of organizational creativity would require an understanding of the creative process, the creative object, the creative individual, the creative situation, and how each of these components interacts with each other (Harrington, 1990).

Creativity is something imaginative individuals have or do, according to popular wisdom (Amabile, 1997). Creative people have many characteristics that differentiate them from their less creative peers, i.e. they have a rich body of domain-relevant information and well-developed skills, they find their job intrinsically inspiring, and they appear to be autonomous, and greater. Unconventional and higher risk-takers have diverse preferences and greater tolerance to new experiences (Simonton, 2000). Many studies have identified creativity as an outcome that focuses on new and useful ideas (Shalley & Gilson, 2004). Creativity is an essential indicator of the success of a company in modern business, and a creative work atmosphere can encourage employee well-being in terms of job satisfaction and decreased intentions to leave (Shalley, Gilson & Blum, 2000).

Most research shows that employees with certain dispositional differences such as a creative personality, a big-five personality, and divergent cognitions may produce more creativity. A theoretical explanation is that these personalities encompass the general tendency to seek challenges and produce creative ideas. Research by Cohen-Meitar, Carmeli and Waldman (2009) has shown that in creative work, workers can find significance and that meaningful creative work can improve job satisfaction and participation, as well as employee performance and retention by extension. This is particularly true if workers feel they can and will be imaginative at work (Jaussi, Randel & Dionne, 2007). Organizations can do all they can to equip workers to persist creatively, given that all employees can add value creatively. Taking full advantage of the natural flow of employee creativity to reap the rewards of higher performance in creativity, the right performance in creativity and self-sustaining performance in creativity.

Personality and Employee Creativity: It is possible to recognize constructive action as a personal effort to change the status quo and strengthen the current situation. 'People with a proactive personality recognize and take action on opportunities, demonstrate initiative, show an effort and maintain before substantial change occurs.' (2000, p.436, Crant). The researcher has demonstrated a consistent positive correlation between proactive personality and the Three Big Five Factors which are Extraversion, Conscientiousness and Openness to experience. Amabile (1998) and Barron and Harrington (1981) show that personality characteristics such as intellectual curiosity, intellectual integrity, elf trust, the firm sense of self of being imaginative, resilience and openness that distinguish personality are relatively stable in different fields. Managers can inspire and influence employee creativity by modeling how to do creative work, presenting social cues and signals about how they perceive organizational standards for creativity, and responding to other people's creativity (Tierney & Farmer, 2004). Managers may promote or discourage the imaginative persistence of employees even though they have higher levels of creative self-identity and self-efficacy (Carmeli, Reiter-Palmon & Ziv, 2010). Based on these analyses, it is hypothesized that:
H1: Personality is associated with Employee Creativity.

Work Environment and Employee Creativity: Employees who find different ways to be innovative, whether by demonstrating their work's originality, testing out new concepts and solutions to problem-solving, finding possibilities for new products/processes or creating new, yet realistic, work-related ideas, are far more likely to remain creatively engaged regardless of the difficulties they face (Carmeli, Reiter-Palmon, Ziv, 2010).

A better work environment is important for the employee to do their job every day. The routine they had been doing would make them feel less attractive. The management must think about how to increase the motivation of the employee so that they can do their job in a good mood and also encourage their mind to think better and more creatively.

By developing a favorable working atmosphere in which creativity, valued insisted on being discouraged, leaders can also exert direct or indirect impacts on employee creativity. Supervisory and leadership practices have been shown to have a major effect on workplace innovation in previous research (Mumford et al., 2002, Oldham & Cummings, 1996; Scott & Bruce, 1994; Tierney et al., 1999; Zhou, 2003). Based on these analyses, it is hypothesized that:
H2: Work Environment is associated with Employee Creativity.

Reward and Employee Creativity: The researchers, Amabile, 1998; and Woodman et al. 1993, show a positive correlation between perceived organizational support (POS) and the creativity of the person. The degree to which an employee believes that the company promotes, supports, rewards, and honors employees who demonstrate creativity has been described as POS for creativity (Zhou & George, 2011).

According to Dr Baskar (2018), mentioned the fact that workers appeared to be less driven with no awards. Since the company and therefore the business unit are in a state of transition, workers in this group may choose to leave the organization. This brings the company unit under pressure to retain these personnel. The business unit could benefit from a retention plan being introduced, which has a heavy emphasis on recognition in and of itself.

As previously reported, if increased, incentives and appreciation may have a beneficial impact on motivation and satisfaction. According to the results, acknowledgment requires both appreciation and performance reviews. To provide daily recognition and input, managers in the business unit could thus use the performance management system. Based on these analyses, it is hypothesized that:
H3: Rewards is associated with Employee Creativity.

3. Research Methodology

This study aims to investigate and identify the cause-and-effect relationship between the Independent variable (IV) and Dependent Variable (DV) the population of 150 total staff at a Malaysian energy corporation is chosen as a sample for this research. A complete questionnaire will be distributed among staff and 108 respondents have been selected randomly. The sampling technique that will be used for this study is convenience sampling which means that the respondents will easily understand and answer the questionnaire provided to them. This technique can be considered quick and efficient without causing any disturbance to the normal working environment at this energy company. The questionnaire is designed with Google Forms and distributed to the respondent by sending the link through WhatsApp, Telegram or Email. Validation of the questionnaire is made by the research advisor for this study that expert in this field.

4. Results and Discussion

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

Table 1: Demographic Information about Respondents (n=108)

Sample Profile	Sub Profile	Frequency	Percentage (%)	Cumulative Percent %
Gender	Male	60	55.6	55.6
	Female	48	44.4	100.0
Age	Less than 20 years old	3	2.8	2.8
	21 - 30 years old	61	56.5	59.3
	31 – 40 years old	36	33.3	92.6
	41 – 50 years old	6	5.6	98.1
	51 and above	2	1.9	100.0
Race	Malay	103	95.4	95.4
	Chinese	2	1.9	97.2
	Indian	2	1.9	99.1
	Others	1	0.9	100.0
Position	Permanent	88	81.5	81.5
	Contract	20	18.5	100.0
Length of service	Less than 2 years	19	17.6	17.6
	2-5 years	50	46.3	63.9
	5 years and above	39	36.1	100.0
Total		**108**	**100.0**	**100.0**

Descriptive Statistics: To ensure the questionnaire was distributed normally to the respondents. The normality test was done in Skewness and Kurtosis. Table 2 below shows the information.

Table 2: Descriptive Statistics

Items		Personality	Work Environment	Reward	Employee Creativity
N	Valid	108	108	108	108
	Missing	0	0	0	0
Mean		4.1694	3.8438	3.9806	3.9479
Median		4.1500	3.8750	4.0000	4.0000
Mode		4.00	3.88	4.00	4.00
Std. Deviation		0.40843	0.46272	0.46973	0.49681
Variance		0.167	0.214	0.221	0.247
Skewness		-0.341	-0.208	0.139	-0.034
Kurtosis		0.494	0.674	-0.270	0.186

The distribution of the questionnaire is normal, the value of Skewness and Kurtosis must be less than 1.9. Based on Table 2 above, the values of Skewness and Kurtosis are normal for all variables.

Correlation Analysis: According to correlation strength based on Guilford Law there is a positive relationship between personality, work environment, reward and employee creativity. Table 3 below shows the summary of the correlation analysis between the variables.

Table 3: Correlation Analysis

Items		Employee Creativity	Personality	Work Environment	Reward
Employee Creativity	Pearson Correlation	1	.529**	.568**	.451**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	108	108	108	108
Personality	Pearson Correlation	.529**	1	.642**	.522**
	Sig. (2-tailed)	0.000		0.000	0.000
	N	108	108	108	108
Work	Pearson	.568**	.642**	1	.614**

Environment	Correlation				
	Sig. (2-tailed)	0.000	0.000		0.000
	N	108	108	108	108
Reward	Pearson Correlation	.451**	.522**	.614**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	108	108	108	108
	**. Correlation is significant at the 0.01 level (2-tailed)				

Based on table 3 above concludes that all variables have moderate positive and low positive correlations between personality and employee creativity (r = .529). Work environment and employee creativity (r = .568) and reward is low positive correlation which is (r = .451).

Regression Analysis: Based on Table 4 R_2 is 37.6% which means all the independent variables influence the dependent variable on that amount. The rest of the amount 62.4% is influenced by other factors. F-stat, 20.889 is significant (p-value <0.05) showing that there is a relationship between personality and work environment. The relationship between reward and employee creativity (DV), is not significant with a value of 0.270 (p-value>0.05) however, the degree of each IV and DV will be explained in hypothesis testing. The regression function of employee creativity is equal to a constant (0.800), personality (0.309), work environment (0.362) and reward (0.118).

Table 4: Regression Analysis

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	0.800	0.421		1.902	0.060
Personality	0.309	0.126	0.254	2.460	0.016
Work Environment	0.362	0.120	0.337	3.016	0.003
Reward	0.118	0.106	0.111	1.108	0.270
R_2	0.376				
F	20.889				
Sig.	.000[b]				
Dependent Variable: Employee Creativity					

Based on the above table, it shows that: **H1:** The value of t-stat is 2.460 (p-value <0.05), p = 0.016 which means there is a significant and there is relationship between personality and employee creativity. Therefore, the H1 is supported. H2: The value of t-stat is 3.016 (p-value <0.05), p = 0.003 which means there is a significant and there is relationship between work environment and employee creativity. Therefore, the H2 is supported. H3: The value of the t-stat is 1.108 (p-value <0.05), p = 0.270 which means there is no significant relationship between reward and employee creativity. Therefore, the H3 is not supported. The conclusion is, between the 3-hypothesis provided above, the most value that significant and dominant is the Work Environment with the largest beta coefficient which is 0.337 and a significant value is 0.003.

Discussion: Based on the data analysis, it shows that there is a positive correlation when r =.529, p = 0.000 (p < 0.01) and the relationship is significant at the 0.01 level (2-tailed). According to Guilford Law, there is a moderate positive correlation between personality and employee creativity. The finding of this study is different from the study by Kamlesh Singh (2010). By referring to her journal, mentioned that her study may be used to develop and test theories by using its factor to understand different target populations and by examining its relationship with other relevant psychological factors and outcomes such as positive relationships. It can also be applied to test the efficacy of treatments used to promote well-being and represent the positive aspects of personality. It can also be used to promote mental health by identifying and assessing these positive personality traits. In conclusion, the personality of an individual might be influenced by many factors that can lead to her or his creativity and how they think to solve the problem in the organization. It also can help them to create something that can be beneficial to another employee.

Personality also may refer to the big five model personality. By referring to the data analysis collected, it shows that there is a positive significant correlation when r =.568, p =0.000 (p<0.01) and the relationship is significant at the level 0.01 level (2-tailed).

According to correlation strength based on Guilford Law, there is a positive relationship between work environment and employee creativity. Based on the findings in the journal Kolnhofer Derecskei (2017), stated that the creative individual will choose a workplace where the space is ensured for their creativity and the creative environment facilitates employees' creativity. Based on the finding by Leslie E Barrett (2016), her findings mentioned that the creativity componential model proposes that psychosocial elements in the work environment can foster creativity through contextual influences, and the interactionist model proposes that creativity comprises the interactions between individual and their work situation based on situational and behavioral factors at the individual, team and organizational levels (Cokpekin & Knudsen, 2012; Woodman et al., 1993). The conclusion of the survey that conducted in the studied Malaysian energy company is the staff is more comfortable working in a good environment because they can do their job in a comfortable situation and the same time can help an employee to create an idea creatively.

Based on the data collected, it shows that there is no positive correlation when r = .451, p =0.000 (p<0.01) and the relationship is significant at the 0.01 level (2-tailed). According to correlation strength based on Guilford Law, there is a low positive correlation between reward and employee creativity. According to Baskar (2018), mentioned that the fact that workers appeared to be less driven with no awards. Since the company and therefore the business unit are in a state of transition, workers in this group may choose to leave the organization. This brings the company unit under pressure to retain these personnel. The business unit could benefit from a retention plan being introduced, which has a heavy emphasis on recognition in and of itself. Compared to the finding in this study, the relationship between reward and employee creativity is in low positive correlation meaning that the staff in the studied organization feels lower in appreciation. They need more attention and reward; the management of the organization must make an effort to re-assess and rectify the situation to encourage employees to become motivated and creative. If the organization take these things not in seriously way, in the future it will have a bad impact on the performance of the employees and also on the performance of the company. In conclusion, reward is one of the most important factors that can help the company retain its employees. A lot of things can motivate people and that which motivates one person may not necessarily motivate another. Thus, companies should take into account the interests of all employees.

5. Managerial Implications and Recommendations

The researcher would like to suggest that to persuade the respondent about the goal of the outcome for further analysis in the future so that they can get the exact outcome and information from them. Also, to confirm that the respondent can understand the purpose and meaning of the analysis to provide the standard finding. The respondent may provide the right information and cooperation in the collection process. Other than that, the researchers suggest that this research is not limited to employees at a Malaysian energy corporation only but also can be done by other employees from different industries. With different respondents from different industries might help gain more information and will enrich more knowledge. For this study, there are three independent variables (IV) that are involved which are personality, work environment and rewards while the dependent variable (DV) is employee creativity. However, based on the findings several questions remain to be answered and all three IVs indicate a moderate positive correlation and a low positive correlation for rewards. To find a strong relationship between these three IVs and DV, another variable should be evaluated for future analysis as a new independent variable (IV).

Conclusion: The result of this study confirmed that personality and work environment have a positive relationship with employee creativity. However, the strongest relationship is between work environment and employee creativity. And there is no relationship between reward and employee creativity. The researcher also finds, that there is another factor that most influences employee creativity but not being mentioned in this study. Hopefully, in the future, more studies can be done to find another factor that influences employee creativity. Researchers believe everyone is unique everyone has a lot of creative ideas to show to others and Researchers also believe everyone has an intention to make their creativity and their creative ideas well

known around the world. Creativity is something that can make the future better than before and it can help others to explore more and do a lot of research and development (R&D) to ensure their idea is realistic.

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Factors That Influence Job Stress among Foreign Construction Site Workers in Malaysia

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Abstract: This study's goal is to address factors that cause major stress scenarios and identify the factors that cause such a dilemma among foreign workers. These issues stem from three different variables that contribute to stress, which include job characteristics (job demand, job control and job support) workload and reward. To affirm and verify the said variables, a quantitative research approach is implemented based on participants from the construction site. The data obtained was interpreted to a more meaningful graphical representation that highlights the amount of impact that the said variables have on the worker's stress level. The sampling frame was for foreign workers from different levels and positions in a selected construction site in Klang Valley. This study was based on 100 samples of foreign workers selected using the snowballing method. The data collected was analyzed using Statistical Package for the Social Sciences 26 (SPSS 26). Results indicate a significant relationship between job factors (job demand, job control and job support) on the job stress of foreign workers at the construction site. Results also show a significant relationship between workload and job stress and no relationship was found between reward and job stress. This study discussed the results from the psychological, and human resource perspectives, as well as their implications for human resource management. The findings can be used to guide the progress of policies and programs that can navigate the negative effects of employees' stress. The present study was done to further combine and explore whether the main initial factors influencing stress in Malaysia are still applicable in the context of foreign workers in the construction industry. Up until now, there has been only scarce research on the combination of the discussed factors on stress.

Keywords: *Construction Site, Foreign Workers, Job Factors (Job Demand, Job Control and Job Support), Job Stress.*

1. Introduction and Background

One of Malaysia's sectors with the quickest growth is the construction sector. People in the general public will be able to see numerous infrastructure works, such as the construction of the SUKE highway and the expansion of MRT and LRT lines, almost daily. The Construction Industry Development Board (CIDB) estimates that in 2017 and 2018, respectively, this industry contributed projects of RM170 billion and RM180 billion (Taofeeq et al., 2020). In addition, it was acknowledged that Malaysia's economy, like the economies of all other nations, is significantly influenced by the construction industry. To the overall strength of the national economy, the sector has been crucial. In terms of profit, capital formation, and employment creation, this industry has also made significant contributions to Malaysia's economy and Gross Domestic Product (Hasmori et al., 2018).

The construction industry is distinct from other industries because of its complexity, which results in projects with various work types, locations, parties involved who produce various types of products, and current changes in the trend of digitization and automation (Leung et al., 2010; Alaloul et al., 2020). The construction sector has long been acknowledged as a stressful one due to the difficulty of the tasks, the short turnaround times, the difficult workgroup interactions between many stakeholders, and the unfavorable working conditions (Jebelli et al., 2020). In this view, another study also has shown that for construction work, stress has become a general phenomenon in which nearly 70% suffer from stress, anxiety or depression due to the work nature (Leung et al., 2010).

According to many researchers, stress is increasingly being blamed for absenteeism, low employee morale, high accident and turnover rates, lower productivity, and rising business medical costs, among other problems. As was noted in the research background, numerous papers have presented a wide range of

potential stressor scenarios that could have had an impact on Malaysia's building industry. Occupational stress accumulated in a setting like construction could lead to psychological, sociological, and even physiological strain. As a result, the coping strategy that can be used depends on the circumstances that are stress-producing at the time (Bowen, Govender, & Edwards, 2014).

According to the current study by Joshi, Paramasivan, Wahid, and Somu (2020), which was based on the theory of Job Demand, Control, and Support (JDCS) and looked at construction workers in Malaysia, job factors (job demand, job control, and job support) were what influenced work stress. Additionally, it is proposed that among all, workload and reward system is also highly associated with job stress based on the underlying theory of the "Biopsychosocial Model of Stress" (Bernard & Krupat, 1994) and other pertinent research. According to research by Omar et al. (2020), who also examine elements that contribute to stress based on the "Biopsychosocial Model of Stress" (Bernard & Krupat, 1994) as its guiding theory, workload and reward systems have little bearing on employees' levels of stress. In the context of foreign employees in the construction industry, the current study aims to further combine and investigate if the primary initial elements impacting stress in Malaysia are still relevant. The impact of the aforementioned elements together on stress has received little attention in the past (Clauss et al., 2021).

Several researchers have recently offered some insights into the issues that stress construction workers around the world (Vidhya & Jayakumar, 2020; Jung et al., 2020). According to a study by Joshi et al. (2020), Malaysia has an industry that studies stress among construction workers, but there is still potential for improvement given the differences in the contextual aspects. This study filled this gap by examining the effects of job factors, workload, and reward on the stress levels of foreign workers (Joshi et al., 2020; Omar et al., 2020). Grounded on the theory of Job Demand, Control and Support (JDCS) (Johnson, and Hall, 1988), the theory of the “Biopsychosocial Model of Stress” (Bernard & Krupat, 1994) and other relevant literature, this proposal used data from a group of foreign workers at a selected construction site in Klang Valley, Malaysia to address one key question: Does job factors (job demand, job control and job support), workload, and reward influence employees’ stress?

This study puts forward the argument that the studied variables can be taken as a starting point in designing studies relating to central issues relevant to understanding factors affecting employees’ stress. The findings can be used to guide the development of policies and programs that can enhance the employees’ psychological experience and eventually organizations’ performance. Based on this outcome, it will be clear the amount of relevance of the said factors, especially in controlling the amount of stress of workers from the construction companies that are situated within the country.

2. Literature Review

Job Demand and Job Stress: The first will be the ‘job demand’, which includes scenarios like working under a tight schedule, an overload of current tasks, and the requirement to conduct different tasks at the same time. One of the clear factors that make construction work very demanding is the environment in which the work must be conducted as it delves further into a worker’s resilience to a construction environment and the site’s safety performance which all leads to the build-up of psychological stresses (Chen, McCabe, & Hyatt, 2017). In another study done based on a construction work site in Hong Kong, it has been written that there is a need for several ‘stress-adjusters’ to ensure that job-demand stress and brought down to a controllable level (Zin & Nazri, 2021). Finally, the demand for construction-related jobs can be seen in a study done in a Chinese construction company (Wu et al., 2018). In their study, the authors relate the demand for the job to both ‘job stress’ and safety behavior, where demanding working hours, excessive responsibility, unsafe working conditions and even family issues majorly add more stress on the worker.

Job Control and Job Stress: The second element will be ‘job control’, which covers the need to creatively come up with ways to conduct a given task, make a proper decision on the spot while conducting the task, and require much more knowledge on completing a certain work. One clear area that shows the lack of control or in this case poor control is the lack of transparency in work – an ethical issue. Surprisingly, the lack of control over a job or even cutting corners within the work process could also contribute to stress (Aronsson, 2020). Although ‘shortcuts’ are often used to bypass certain tasks that seem non-critical at that point, deep down the

person will still feel a sense of insecurity or lack of peace of mind which could build up over time if he or she keeps persisting with the same style of work. Such a scenario often happens within the construction sectors, as many foreign superiors lack the ethical perception of dealing with the task on-hand which contributes to stress (Poon, 2004).

Job Support and Job Stress: The third element will be 'job support' which deals with situations like getting help or assistance from the superior, able or not able to rely on co-workers and the continuous feeling of uncertainty of losing the job as the project comes near to end. In this case, the biggest issue that comes with the lack of support is the lack of communication of the worker itself among the workers. A study was conducted that tied poor performance in the construction sector with poor communication among workers (Olanrewaju, Tan, & Kwan, 2017).

In another paper that studies stress issues in construction sites, poor communication can also be seen among professionals in many Nigerian construction sites (Ibem, Anosike, Azuh, & Mosaku, 2011). Based on this paper, a few issues are related to the communication problem which includes lack of guidance and lack of clear instruction from the top management, which all boils down to a problem in organization function and culture. This will affect the overall morale of workers, thus piling up stress on everyone (Ibem, Anosike, Azuh, & Mosaku, 2011; Wu, Wu, Li, & Dan, 2018).

Workload and Job Stress: It is important to understand if that particular worker is suitable for such a job environment (Chan, Nwaogu, & Naslund, 2020). This is because situations such as technology, long working hours and unfavorable work culture might further implode the already built-up stress from work (Holden & Sunindijo, 2018).

The research further concluded by appalling the idea of using simple machines to conduct much of the manual labor tasks, reducing the workload, therefore reducing stress and fatigue on the workers at the construction site (Kaminskas & Kazlauskaite, 2002; Shobe, 2018).

Reward and Job Stress: A study was conducted on the employees of a construction company in the United States to determine the type of occupational reward that the employees prefer to receive (Azeez, Gambatese, & Hernandez, 2019; Jahan, 2021). Results indicate that many workers feel that they did not receive financial rewards fairly and many workers would want to focus more on work-life balance and a better work environment. In addition, it also reduces stress (Azeez, Gambatese, & Hernandez, 2019; Jahan, 2021). A mobile network operator (MNO) is also known as a cellular organization (business), wireless service provider, mobile network carrier, or wireless carrier (Chepkemoi, 2017). Mobile network operators are those bigger cellular phone carriers that mostly own equipment and offer mobile phone services to the public or customers (Nasir et al., 2019). Based on the discussed literature above, various dimensions contribute to job stress, which includes job factors, workload and reward. Regardless, below are the hypotheses that are set as the basis to test these dimensions in terms of their significance to the study based on the discussed literature.

H1: There is a significant relationship between job factors (job demand, job control and job support) on the job stress of foreign workers at the construction site.
H2: There is a significant relationship between workload and job stress of foreign workers at the construction site.
H3: There is a significant relationship between reward and job stress of foreign workers at the construction site.

3. Research Methodology

The participants of the survey consist of the foreign workers of the construction workforce who go to site work and are made up of all different levels and positions, from an operator right up to a site supervisor. The survey questions are for the construction workers from Green Preserve Sdn. Bhd that are working in the building's areas, skyscrapers, highways, MRT and even bridges. All the participants are working within the Klang Valley area, to ensure all of these workers are living in a similar environment and have access to similar amnesties and facilities (Ibem, Anosike, Azuh, & Mosaku, 2011).

To determine the sample size required, this study was based on Krejci and Morgan (1970), with an approximate total population of 700, the sample size needed is 155. The sample size chosen is also similar to one of the literature or studies conducted on a similar topic (Ibem, Anosike, Azuh, & Mosaku, 2011). For this study, the unit of analysis that has been used is individual foreign workers who work at a construction company at a site work are both unskilled and skilled workers, within the Klang Valley area. One of the reasons for this selection is that many construction projects are being carried out very often within this region. For the survey, each participant was given a hard copy set of questionnaires, in which the outcome of the said data was tabulated for further interpretation. In terms of graphical representation, the SPSS software was used, as this software's function is to provide a statistical analysis of the data that has been tabulated.

4. Results

Table 1: Demographic

Criteria	Category	Frequency	Percentage (%)
Gender	Male	150	100.0
	Female	0	0.0
Age	20 years old and below	37	24.7
	21 to 30 years old	72	48.0
	31 to 40 years old	29	19.3
	41 to 50 years old	10	6.7
	Above 50 years old	2	1.3
Origin	Indonesia	144	96.0
	Bangladesh/Pakistan	0	0.0
	Nepal/India	0	0.0
	Myanmar/Vietnam/Thailand	6	4.0
	Others	0	0.0
Experience	Below 2 years	37	24.7
	2 to below 5 years	51	34.0
	5 to below 7 years	55	36.7
	7 to below 10 years	5	3.3
	Above 10 years	2	1.3
Income	RM1200 to below RM2000	82	54.7
	RM2000 to below RM2500	61	40.7
	RM2500 to below RM3000	5	3.3
	RM3000 to below RM3500	2	1.3
	RM3500 and above	0	0

Based on the frequencies shown in Table 1, the gender section is dominated by male employees at 100%, with no female employees on the construction site referring to the sample size of N = 150. Based on age group, the second category consisting of ages between 21 to 30 years has the largest percentage of employees at 48% or 72 respondents. This is followed by workers below the age of 20 years at 24.7% or 37 respondents, workers from ages between 31 to 40 years at 19.3% or 29 respondents, workers from ages between 41 to 50 years at 6.7% or 10 respondents and finally workers above the age of 50 years at 1.3% or 2 respondents; all these percentages are based on the sample size of N = 150.

Based on country of origin, about 96% of the entire workforce is made up of Indonesians, at 144 people out of the 150 respondents. The remaining 4% or 6 respondents come from the fourth group whose nationalities are either Thai people from Thailand, Vietnamese from Vietnam or Burmese from Myanmar, who are all from the northern region of the South-East Asia region. The reason for such grouping or breakdown is due to the similarities in culture, geographical location, ease of communication and even religious belief.

Based on experience, the largest group is made of employees who have been working between 5 to below 7 years in the company at 36.7% or 55 respondents followed closely by employees who have been working between 2 to below 5 years in the company at 34.0% or 51 respondents. The newer workers or those below 2 years of experience fall in third place in terms of the number of employees, at 24.7% or 37 respondents. In the lower end, there are only 5 people or 3.3% who are working between 7 to below 10 years and 2 people or 1.3% who have been working for more than 10 years in the company.

Based on the income of the workers, despite the minimum wage of RM1200 mandated by the government of Malaysia, the company also provides several allowances and mandatory overtime to compensate for the work time of shift change between morning and night. Hence, for this research, the total earnings of the workers are taken into consideration, where the biggest bracket of income group is the employees earning between RM1200 and below RM2000 at 54.7% or 82 respondents. The second bracket of income group is the employees earning between RM2000 and below RM2500 at 40.7% or 61 respondents. The minority groups are both brackets of earnings between RM2500 to below RM3000 and RM3000 to below RM3500, with 3.3% or 5 respondents and 1.3% or 2 respondents respectively. There is not one person who falls under the category of earning above RM3500.

Based on the demographic analysis of 150 respondents from Green Preserve Sdn. Bhd., all of them are males who are majority Indonesians with the remaining 4% being either Thai, Vietnamese or Burmese. Almost 48% of the workers are at the prime age of 21 to 30 years with 70.7% of them having between 2 to below 7 years of experience of work. As for the income or even having workers with long years of experience, the government forbids foreign laborers to remain in the country for more than 10 years as they are meant for blue-collar jobs that are labor intensive. Hence, to continue in the company, the worker will need to return after 10 years and then re-apply here as a fresh worker with their salaries reset to the minimum wage. If they want to remain here, each individual will need to pay at least RM6000 annually beginning from the 11th year of their tenure. This is why many workers will not continue after 10 years or even earn a higher salary.

Descriptive Analysis: In terms of descriptive analysis, there are two variables namely the mean and standard deviation are used to analyze both the independent variables and also the dependent variables. Results in Table 2 show that the dependent variable which is job stress shows a mean value of 3.208 and a standard deviation of 0.583.

As for the independent variables, the workload variable which is denoted at (WL) has the highest mean value at 3.382, followed by job factors (JF) with a mean value of 3.116 and the reward (ERI) variable with a mean value of 2.920. In terms of standard deviation, WL has the highest value of dispersion at 0.767, followed by JF at 0.536 and ERI at 0.438. The mean indicated that the average value is more on the positive side for this study and the value of standard deviation indicates that the average scatter of values is, around the mean. Taken together, especially along with the range, these statistics give us a good indicator of the sample.

Table 2: Descriptive Analysis – Summary (N=150)
Descriptive Analysis – Summary (N=150)

Variables	Mean	Standard Deviation
Dependent Variables		
Job stress - Stress Analysis	3.2081	.58303
Independent Variables		
Job Factors	3.1164	.53641
Workload	3.3815	.76693
Reward	2.9200	.43750

Besides that, in this research, the second level of analysis is done since the job factors (JF) can be broken into 3 more categories, which consist of job demand (JD), job control (JC) and job support (JS), as shown in Table 3. Among the three variables, JD has the highest mean value at 3.472 followed by JC at 3.123 and JS at 2.755.

As for standard deviation, JD has the highest disparity at 0.859, followed by JC at 0.623 and JS at 0.428. These statistics indicate a good indicator of the sample.

Table 3: Job Factors – Summary (N=150)
Job Factors - Summary

Variables	Mean	Standard Deviation
Job Factors	**3.1164**	**.53641**
Job Demand	**3.4720**	**.85868**
Job Control	**3.1227**	**.62252**
Job Support	**2.7547**	**.42798**

Reliability Test: Based on the research conducted by Sekaran & Bougie (2010), the minimum required reliability to conduct the test will be 0.6 and above, as 0.6 is considered moderate, whereas data that is considered at least well begins at a coefficient of 0.7 (Sekaran & Bougie, 2010). Based on the reliability data that has been generated, it is clear that all the attained data from the survey conducted are considered as 'reliable' using Cronbach's Alpha coefficient as the guide.

To further illustrate, data from Table 4 shows that the 'workload' section of the survey is considered a 'strong' level of reliability whereas both 'job factors' are considered as 'very good' levels of reliability. Both the data collected for the 'reward' and the 'stress analyses are considered 'good' levels of reliability. Since the reliability of the attained is proven, therefore, further analysis can be conducted using the very same data to meet the project objectives.

Table 4: Cronbach Alpha

Variables	No. Items	Cronbach's Alpha
Dependent Variables		
Job Stress - Stress Analysis	9	0.778
Independent Variables		
Job Factors	15	0.865
Workload	9	0.912
Reward	10	0.747

Pearson's Correlation: Pearson's Correlation analysis is conducted to determine the level of covariance between two different continuous variables, which includes both independent and dependent variables. This correlation analysis focuses on two different elements, where the positive or the negative symbol denotes the direction of the relationship of these two variables and the value shown represents the amplitude of the correlation.

Results in Table 5 show that the correlation between job factors (job demand, job control and job support) on the job stress of foreign workers at the construction site, the correlation value is 0.676 with $p < 0.01$, this correlation is considered as positively 'moderate'. Further, the correlation between workload on job stress of foreign workers at the construction site. In this case, the correlation value is 0.583 with $p < 0.01$, this correlation is considered as positively 'moderate'. Finally, the correlation between rewards on job stress of foreign workers at the construction site. In this case, the correlation value is -0.123 with $p > 0.01$, this correlation is considered as negatively 'very weak'.

Table 5: Pearson's Correlation Analysis (N=150), Pearson's Correlation Analysis

	Job Factors	Workload	Reward	Job Performance (Stress Analysis)
Job Factors	1			
Workload	.746**	1		
Reward	-.109	.004	1	
Job stress (Stress Analysis)	.676**	.583**	-.123	1

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

Multiple Regression: Based on the multiple regression analysis, a value of 0.483 which is 48.3% determines that all the independent variables such as job factors, workload and reward have a 48.3% influence on job stress. In terms of significance value, the 'p' which is supposed to be below 0.05 has shown a 0.01 significance, therefore this relationship is statistically accepted.

As for the analysis of variance, also known as ANOVA, the F value shows 33.9% with a significance value of 0.01, still below the 0.05 error margin. This result shows that there is at least one of the independent variables which have a significant result with the dependent variable.

The next step is to assess each of the independent variables based on its beta value, whereby the higher the amplitude of the value the more significant it is to the dependent variable. Based on the results in Table 6, the job factor has the highest significant influence on job stress with beta value at β= 0.510, p=.000, followed by workload at β= 0.207, p<.05. Reward is not significant with β= -0.111, p=.878. In other words, the job factors which consist of job demand, job control and job support have the most influence on job stress, be it positive or negative followed by workload. The reward, on the other hand, shows a lack of significance in influencing the job stress of employees.

Table 6: Coefficients - Multiple Regression Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.763	.437		1.748	.083
	Job Factors	.555	.100	.510	5.564	.000
	Workload	.157	.069	.207	2.268	.025
	Reward	-.015	.095	-.011	-.153	.878

a. Dependent Variable: Job Stress

Hypotheses Testing Results: Hypothesis H1 is confirmed as 'acceptable' that there is a significant relationship between job factors (job demand, job control and job support) on the job stress of foreign workers at the construction site.
Hypothesis H2 is confirmed as 'acceptable' that there is a significant relationship between workload and job stress of foreign workers at the construction site. In other words, the relationship is statistically significant.

Hypothesis H3 is confirmed as 'not acceptable' and that there is no significant relationship between reward and job stress of foreign workers at the construction site. In other words, the relationship is statistically not significant.

Discussion:
Significance of Job Factors on Job Stress: Based on the first research objective, this study is required to determine the relationship between job factors and job stress. Overall, results from the regression analysis

also indicate a significant influence of job factors on job stress (ß=.510, p<.000). This is supported by the study by Chen, McCabe, & Hyatt, (2017); Wu et al. (2018); Aronsson, (2020); Olanrewaju, Tan, & Kwan, (2017) and Wu, Wu, Li, & Dan, (2018).

It can be concluded that job functions have a very critical influence on job stress and employers have to look into this as due to 'job stress,' the person's job performance and the person's compliance with job safety might be compromised as their goal of finishing the required job is higher than participating in job safety initiatives. In short, if a person has low morale and his or her surroundings are very unfavorable, the job will turn out to be less bearable, ergo very demanding (Wu et al., 2018).

Employers also have to look into job functions as lack of guidance and lack of clear instruction from the top management, which all boils down to a problem in organizational function and culture. When clear guidance is not given to the downlines, this might majorly affect the day-to-day tasks, leading to poor planning, inadequate resource allocation and staffing and bad crisis management mechanisms. When top-bottom communication fails, the bottom-top feedback of information will also collapse into dissatisfactions and grumblings by the on-site workers.

Regardless of the type of job functions that can be provided, the goal of this study is to facilitate employers and employees to reduce the number of workers 'exiting' the company and increase job performance by their respective workers which indirectly boosts the company's performance while maintaining a healthy relationship among team members.

Significance of Workload on Job Stress: Based on the second research objective, this study is required to determine the significance of the relationship between workload and job stress. Overall, results from the regression analysis also indicate a significant influence of workload on job stress (ß=.027, p<.025). This is supported by the study by Chan, Nwaogu, & Naslund, (2020); Holden & Sunindijo, (2018), and Shobe, (2018). In this case, the harsh working conditions can be further improved by the organization but cannot be eradicated, hence, a certain amount of resilience is required to accept such a job. This is because a healthy mind and body are required as the majority of the tasks at the construction site are taxing to both the mind and the body. Otherwise, the worker eventually falls sick often and this will lead to more than just stress issues but also physical exhaustion that might affect work performance and the quality of output.

Significance of Reward on Job Stress: Based on the third research objective, this study is required to determine the significance of the relationship between reward and job stress. According to the findings, since the significant p-value is not below 0.05, this proves that the reward does not have a significant influence on job stress. Overall, results from the regression analysis indicate a non-significant influence of workload on job stress (ß=-.011, p=.878).

This is contradicted by the findings by Azeez, Gambatese, & Hernandez, (2019) and Jahan, (2021). However, it is too early to dismiss the relationship. Further study needs to be done to better understand the results., as for rewards, normally many workers would want to focus more on work-life balance and a better work environment. In addition, it also reduces stress (Azeez, Gambatese, & Hernandez, 2019; Jahan, 2021).

5. Managerial Implications and Recommendations

One of the research's shortcomings is that it was designed with the construction industry in mind; as a result, it may not be appropriate for application in other sectors like manufacturing, food, or healthcare. This is because various industries call for a variety of workers, abilities, and even races and religions, as well as several issues that might not be prevalent elsewhere.

Conclusion: The purpose of this research was to examine the significance of job factors, workload, and reward in influencing job stress. Results show that workload and job factors are major sources of job stress. While foreign superiors must find ways to impose numerous restrictions to improve a person's life, it is crucial to execute any type of improvement healthily so that foreign employees can improve their work style and attitude to doing their tasks. The main factor is for all parties to tackle this matter holistically to fulfill

employee expectations while guaranteeing that the company requirements are addressed in this difficult business environment.

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