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UNDERSTANDING THE DETERMINANTS OF PURCHASE INTENTION FOR HALAL COSMETICS AMONG GEN Z

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ABSTRACT

This article aims to determine the factors influencing the purchase intention of halal cosmetics among Gen Z. The author applied the Theory of Reasoned Action (TRA) to ascertain the determinants influencing Gen Z's intention to purchase halal cosmetics. The predictors are subjective norms, attitudes, and religiosity. The study used a sample of 215 respondents from UiTM Cawangan Johor Kampus Segamat, and statistical analysis with SPSS was used to determine the significance of the impact of the independent factors. The results of the experiments show that attitudes, subjective norms, and religion positively and significantly influenced the intention to buy halal-certified cosmetics.

Keywords: Gen Z, halal cosmetic, purchase intention

1.0 INTRODUCTION

Malaysia is progressively focusing on domestic halal product development, intending to become a regional hub for halal goods. The effort is driven not only by Muslim tastes but also by an emerging global trend toward halal products. Given Malaysia's primarily Muslim population, the government is especially concerned with matching the country's economic development with Islamic principles, particularly in the production and provision of halal products and services. With the increasing demand for halal products around the world, talks on current practices, production methods, and consumption patterns for halal items, including cosmetics, have received a lot of attention from various groups (Meng, 2014).

The Malaysian Halal Industry Development Corporation (2023) reported the cosmetics and personal care industry holds its position as the third-largest halal contributor, witnessing a total halal export value of RM3.49 billion. This marks a notable increase of 43.5% compared to the figures reported in 2021. Furthermore, Muslims have started to search for halal personal care and cosmetics. Research done by Meng (2014) stated that there has been an increase in the number of Muslim individuals who are aware of the nature of beauty products that align with their religious and cultural requirements. At the same time, non-Muslims are also attracted to cosmetics that emphasize principles of purity, cleanliness, and contamination-free. This has driven market advancement (Meng, 2014). The researcher added that the majority of the Muslim community consists of young individuals who possess the information and therefore, they actively adopt the Islamic lifestyle and prioritise the preservation of Halal practices in their daily lives.

In one observation by Tjiptono et al. (2020), currently, young individuals that are Gen Z who is born between 1996 and 2012 holds the position of the most substantial age demographic, constituting 29% of the total population in Malaysia. Analysts predicted they have a stronger preference for cosmetics. These items are frequently used to boost performance and attain the desired look (Ishak et al., 2020). In another analysis done by Ma et al. (2017), Gen Z is characterised by scepticism and concern regarding their appearance. This group, often referred to as the selfie generation, actively strives to portray an idealized version of themselves. The discovery indicates that a significant proportion of individuals who take selfies also use makeup, demonstrating a connection between their behaviour and grooming rituals. Wilson (2019) reported that research on halal branding has been expanding quickly, but little focus has been placed on the opinions of young Muslim consumers. According to BELI et al. (2020), one of the gaps for further research on halal products' purchase intention there is a lack of research in the halal pharmaceutical, halal fashion, halal tourism, halal supply chain, and halal finance fields. Therefore, to foster the growth of halal cosmetics in Malaysia, it is essential to prioritise the preferences of consumers, particularly focusing on the key factors that influence their decision to purchase halal cosmetic products.

To address this gap, this study aims to identify the factors influencing Gen Z's purchase intention of halal-certified cosmetics. Under the Theory of Reasoned Action (TRA), this research will mainly focus on subjective norms, attitudes, and religiosity to measure Gen Z's intention to purchase halal cosmetics. This study was conducted at UiTM Cawangan Johor Kampus Segamat because these students are young individuals who also belong in the Gen Z group based on their age and year of birth. The findings of this study can be used as a basis for decision-making not only by the producers but also by the government, and future researchers.

2.0 LITERATURE REVIEW

2.1 Intention to Purchase

Tsiotsou (2006) in his study, indicates that the purchase intention functions as one of the main marketing strategies, including promotional initiatives, dynamic demand, and tactics segmentation. As mentioned by Chang & Liu (2009) and supported by Shah et al. (2011), purchase intention refers to the cognitive process in which customers evaluate their tendency and readiness to purchase and engage with a brand. This analysis enables the market to predict customer buying behaviour and gain a deeper understanding of market dynamics (Ahmad, 2011).

In another research conducted by Saifudin et al. (2020), the Theory of Plan Behaviour (TPB) and the Theory of Reasoned Action (TRA) are the most favourable frameworks applied in examining customers' intentions. In TPB, attitude, subjective norm, and perceived behaviour control were identified as predictors of purchase intention (Lee et al., 2009; Liu et al., 2020; Xie et al., 2017). Meanwhile, TRA was developed by two independent variables, the attitude and the subjective norms (An et al., 2021). On the other hand, another study by Khan et al. (2021); Lestari et al. (2020); Suleman et al. (2021), revealed religiosity as another significant factor influencing the intention to purchase.

2.2 Subjective Norm

Ajzen (as cited in An et al., 2021) defined subjective norm as an individual's evaluation of the viewpoints held by influential others in their life regarding whether they ought to or ought not to participate in a particular action. Thus, in TRA, subjective norm describes how individuals form their attitudes and intentions towards a specific action. Individuals are more

likely to consider whether to adopt a behaviour if they believe that others expect or approve of it.

Saifudin et al. (2020) reveals the significant effect of subjective norm on Muslim consumers' decision-making process in choosing halal products. These findings are supported by other research conducted by Ali et al. (2019); Ibeabuchi et al. (2024); Ngah et al. (2021), which indicates that constructive behaviour is influenced by consumers' attitudes towards Halal cosmetics and the family and peers' expectations. Azizan et al. (2022) also suggest that subjective norm encourage consumers' halal product trust and purchase. In conclusion, it is undeniable that social influence significantly affects customers' decision-making in choosing Halal cosmetics, even without positive personal.

2.3 Attitude

Consumer attitudes encompass a range of emotions, behavioural intentions, and beliefs that an individual holds towards a behaviour or product. These attitudes can be altered by influencing any of their three components: behavioural, affective, or cognitive. This study focusses on cognitive competence where this component is concerned with thoughts and beliefs regarding the halal product.

According to Hashim and Musa (2014), attitude constitutes a thorough evaluation of a particular action that indicates how much a person likes or dislikes doing so. However, Shah et al. (2011), define the attitude of Muslim consumers reflects the overall evaluation of their likes or dislikes in carrying out Islamic "aqidah".

Bui et al. (2021) found that attitude has a significant relationship with product involvement and knowledge. On the other hand, Hashim and Musa (2014) found from non-users or users of halal cosmetics that product involvement has a positive relationship with the attitude towards halal cosmetics. Knowledge is shape by the depth of understanding acquired from information that provides more detailed insight into halal products (Abd Rahman et al., 2015). Another previous research has found that the more positive the customers' attitude, the more positive their purchase intention of halal cosmetics (Bahjam et al., 2022; Balques et al., 2017; Cullen et al., 2021; Handriana et al., 2020).

Consumers with high attitudes were more likely to have a purchase intention of halal products. This finding suggested consumer attitudes can increase trust and purchase intention for halal products (Azizan et al., 2022).

2.4 Religiosity

Religiosity refers to the degree of commitment an individual has to their religion, which is reflected in their attitudes and behaviour. In this context, the level of religiosity can be reflected in one's attitude towards purchasing cosmetics with a halal label. Previous studies have shown a significant relationship between religiosity and the attitude of consumers in their consumption of halal cosmetics (Abd Rahman et al., 2015; Suki and Suki, 2018; Tuhin et al., 2020).

According to Putri et al. (2019), the level of one's religiosity can be said to be reflected in one's attitude towards buying cosmetics that have a halal label. The level of religiosity of one's shows their understanding of the importance of halal in everyday life. Religion itself is the most important social factors that affect the lives of those who believe in it. Ezzo and Dibb (2004); Suparno (2020) religion acts as the foundation on which people build their attitudes and behaviour.

The aspect of religiosity in this research has a positive effect on purchasing decisions for halal products on the Shopee and Tokopedia e-commerce platforms. This means that consumers who use the platform already believe that the products that should be purchased are halal products. After that, it is developed in the behaviour of being alert to non-halal products and raw materials, conducting transactions using methods that are in accordance with sharia principles, and feeling more secure and calm when transacting with methods that are in accordance with Islamic principles (Widyarma et al., 2023).

3.0 METHODOLOGY

The methodology used to determine the factors affecting Gen Z's adoption of halal cosmetics involves the collection and analysis of quantitative primary data. This study collects data through a survey conducted by disseminating questionnaires. The population under investigation consists of students from various programs residing in UiTM Segamat aged between 17-22 years. The convenient sampling method was used and a total of 215 usable questionnaires were analysed. The data was analysed using the SPSS method.

Figure 3.1 illustrates the theoretical framework, with the intention to buy Halal cosmetics among Gen Z as the dependent variable. Additionally, the outlined theoretical framework encompasses three independent variables: subjective norm, attitude, and religiosity. This research examines the relationship between the identified independent and specified dependent variables. Cronbach's alpha is used to estimate the reliability of the internal consistency of items. The range of 0.6 to 0.7 was deemed the lower limit of acceptability (Hair et al., 2018).

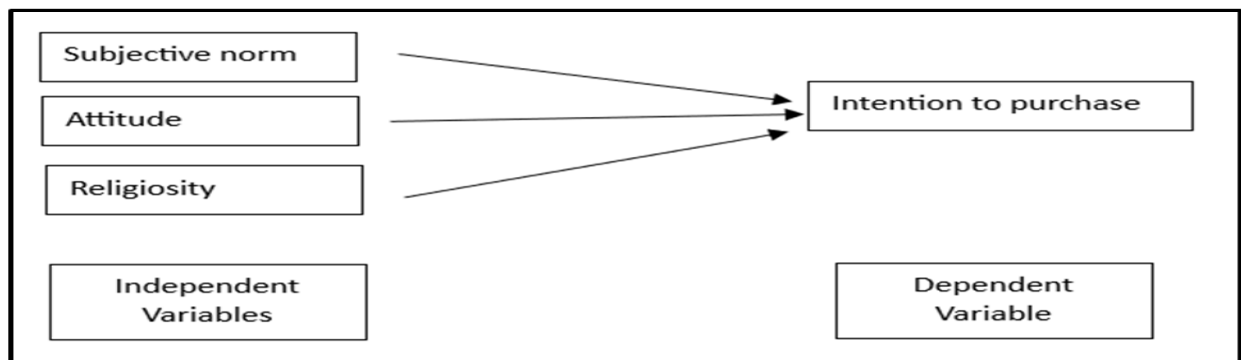


Fig. 1 Conceptual framework of the study

The variables considered in this research encompass subjective norms, attitudes, and religiosity. Variables are measured using indicators derived from prior research, employing a five-point Likert scale for evaluation. The scale spans from 1, representing strong disagreement, to 5, representing strong agreement.

Based on table 1, part 1 of the questionnaire consists of demographic questions, while part 2 has three items defining subjective norms. Section 3 contains three items explaining attitude. Section 4 comprises three items assessing religiosity, while Section 5 consists of four items measuring purchase intention.

Table 1. Distribution of Items in Survey

Section	Variable	No. of Items
2	subjective norms	3
3	attitude	3
4	religiosity	4
5	purchase intention	4

4.0 EMPIRICAL RESULT AND DISCUSSION

4.1 Findings for Descriptive Analysis

The descriptive analysis is used to analyse the demographics section. Meanwhile, to determine the factors that influence saving behaviour, multiple linear regressions are conducted. The F-test is used to establish the overall significance of the model. The F-test is a statistical test used to test the null hypothesis that there is no independent variable significantly related to saving behaviour, while the alternative hypothesis is at least one independent variable significantly related to saving behaviour. Also, the F-test, R-value, and R-squared value are employed to explain the model fits of the data. Meanwhile, the t-test is used to determine the significant factors for the saving behaviour variable.

Table 2. Descriptive Analysis of Demographic

Item		Frequency	Percentage
Gender	Male	51	16.2
	Female	164	52.1
Age	17-22	147	68.3
	23-27	68	31.7
Education	Diploma	125	39.7
	Bachelor Degree	90	28.6

The descriptive analysis is summarised in Table 2. There are 16.2 percent male respondents and 52.1 percent female respondents among the 215 total respondents. The majority of respondents (68.3 percent) are between the ages of 17-22 years old, followed by those between the ages of 23-27 years old (31.7 percent). In terms of academic level, 39.7 percent are at the diploma level, 28.6 percent are at the bachelor's degree level.

Table 3. Reliability Test Analysis

Variable	Cronbach Alpha
Subjective Norms	0.881
Attitude	0.749
Religiosity	0.872
Purchase Intention	0.839

4.2 Findings for Reliability Analysis and Multiple Linear Regression

Table 3 indicates the value of Cronbach's alpha for each of the variables. The value of Cronbach's alpha lies from 0.749 to 0.881 meet the minimum range of acceptability 0.6 (Hair et al., 2018). It shows that the items are internally consistent for each of the variables.

Table 4. The goodness fit of multiple regression model

Statistical Measure	Value
R	0.790
R- Squared	0.625
F-test	(<0.001)

Table 4 shows the model's goodness of fit is considered good when R can be categorised as a strong relationship between dependent variable and independent variables. While R-squared describes that 62.5 percent variation in purchase intention can be explained by the variation in subjective norm, attitude and religiosity. Moreover, the value of F statistic (p-value < 0.001) explaining that the null hypothesis is rejected. It can be concluded that there is sufficient evidence to conclude that at least one of the independent variables is related to purchase intention.

Table 5. Fitted model

Variable	t	significance	Status
(constant)	0.683	0.495	
Subjective Norms	4.379	<0.001	Significant
Attitude	5.273	<0.001	Significant
Religiosity	5.664	<0.001	Significant

The multiple linear regression coefficients for independent variables shows in table 5. The independent variables of subjective norm, attitude and religiosity are statistically significant because p-value is less than significance level of 0.05. They have a positive coefficient value, hence as the value of independent variables increases, the mean of purchase intention also tends to increase.

The above result explains the significance of norms within the Muslim community, as they play a central role in shaping consumer behaviour, particularly in the context of purchasing halal products. This study's outcomes align with prior research by Handriana et al. (2020); Lestari et al. (2020); Suleman et al. (2021), highlighting the tendency of Muslim consumers to actively seek information regarding halal cosmetics, including scrutinizing ingredients and production processes. The findings by Nurcahyono (2023) which involve Muslim students in Semarang, indicate that respondents had a strong presence of subjective norms, and that their social circle had a significant impact on their intention to purchase halal-certified cosmetics.

Attitude is known as one of the important factors in psychological and modern society. It helps the producer to have a better knowledge of how consumers make their purchase decisions. The above result indicates that attitude has a significant influence on the purchase intention of halal cosmetics, with a p-value below 0.05. This result is consistent with previous studies conducted by Bahjam et al. (2022); Balques et al. (2017); Cullen et al. (2021); Handriana et al. (2020) revealed that attitude strongly influences purchase intention. On the other hand, Kotler et al. (2018); Suryadi et al., 2020 highlighted that preferences and

beliefs heavily influence one's attitude. Purchasing choices are strongly influenced by consumer attitudes toward a product.

The findings of this study revealed that religiosity has a significant impact on attitudes toward halal cosmetics among respondents. Mufrodah and Adinugraha (2021) state that people who have better knowledge about Islam and strong religious beliefs are more likely to prefer halal-cosmetic products. Their strong religious beliefs have made them tend to be more selective in their purchasing decision-making.

5.0 CONCLUSION

Nowadays, Malaysia is placing a growing emphasis on the advancement of local halal products, with the goal of positioning itself as a central hub for halal goods in the area. The growing global trend and the demand of the Muslim population towards halal products lead this project. The government specifically dedicates itself to ensuring that Malaysia's economic growth aligns with Islamic values, particularly in the manufacturing and distribution of halal products and services, given the country's predominantly Muslim population. The increasing global demand for halal products has led to major disputes among stakeholders over present practices, production methods, and consumption patterns, particularly in the context of halal cosmetics. Gen Z is an emerging group that influences the current marketplace. Most of the studies focus on halal food. However, there is concern that halal is not restricted to food but also to other products and services used by Muslim community. Therefore, this study explores cosmetics purchasing behaviour among students as young consumers in UiTM Segamat. Based on the findings and analysis, it can be inferred that the attitude influences consumers' purchasing decisions. When individuals develop a positive sentiment towards a product, they are more likely to make a purchase. Subjective norms suggest that devoted Muslims will take Islamic examples into account while making decisions or taking acts. Meanwhile, religiosity refers to the extent to which a person has internalised religious values, leading them to consistently prioritise compliance in their actions.

REFERENCES

- Abd Rahman, A., Asrarhaghighi, E., & Ab Rahman, S. (2015). Consumers and Halal cosmetic products: knowledge, religiosity, attitude and intention. *Journal of Islamic Marketing*, 6(1), 148-163.
- Adinugraha, H. H. (2021). Millenial Generation's Awareness of Halal-Labeled Cosmetics. *AL MA'ARIEF: Jurnal Pendidikan Sosial dan Budaya*, 3(2), 92-100.
- Ahmad, N. H. L. (2011). *Intention to Purchase Halal Products Among Comsumers* (Doctoral dissertation, Universiti Utara Malaysia).
- Ali, Q., Salman, A., Yaacob, H., & Parveen, S. (2019). Financial cost and social influence: Factors affecting the adoption of Halal cosmetics in Malaysia. *Academy of Entrepreneurship Journal*, 25(2), 1-17.
- An, D., Ji, S., & Jan, I. U. (2021). Investigating the determinants and barriers of purchase intention of innovative new products. *Sustainability*, 13(2), 740.
- Azizan, F. L., Ahmad, Z., & Afendi, N. A. (2022). Consumers' halal products purchase: An integration of TPB. *Insight Journal*.
- Bahjam, Z., Ariffin, S., & Wahid, N. (2022). Consuming Halal products: The dynamics of trustworthiness, self-efficacy and purchase intention. *Global Journal Al Thaqafah*. <https://doi.org/10.7187/gjatsi022022-13>.
- Balques, A., Noer, B. A., & Nuzulfah, V. (2017). Analisis sikap, norma subjektif, dan niat beli produk kosmetik halal pada konsumen muslimah di Surabaya. *Jurnal Sains dan Seni ITS*, 6(2), D237-D241.

- BELI, F. F. Y. M. M. *Determinants Affecting Purchase Intention of Halal Products: An Article Review*.
- Bui, T., Nguyen, N., Nguyen, K., & Tran, T. (2021). Antecedents affecting purchase intention of green skincare products: A case study in Vietnam. *Journal of Asian Finance, Economics and Business*, 8, 1295-1302. <https://doi.org/10.13106/JAFEB.2021.VOL8.NO3.1295>.
- Chang, H. H., & Liu, Y. M. (2009). The impact of brand equity on brand preference and purchase intentions in the service industries. *The Service Industries Journal*, 29(12), 1687-1706.
- Cullen, J. B., Turner, N., & Washington, E. (2021). Political alignment, attitudes toward government, and tax evasion. *American Economic Journal: Economic Policy*, 13(3), 135-166.
- Essoo, N., & Dibb, S. (2004). Religious influences on shopping behaviour: An exploratory study. *Journal of marketing management*, 20(7-8), 683-712.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis* 7th Edition Pearson Prentice Hall.
- Halal Development Corporation. (2023, March 23). *Malaysian halal industry to reach US\$113 by 2030: Tengku Zafrul*. <https://hdcglobal.com/new/2023/03/23malaysian-halal-industry-to-reach-us113b-by-2030-tengku-zafrul/>
- Handriana, T., Yulianti, P., Kurniawati, M., Arina, N. A., Aisyah, R. A., Ayu Aryani, M. G., & Wandira, R. K. (2021). Purchase behavior of the millennial female generation on Halal cosmetic products. *Journal of Islamic Marketing*, 12(7), 1295-1315.
- Hashim, J. C. M., & Rosidah Musa, A. (2014). Importance of spiritual intelligence (SQ) and spiritual congruence (sc): factors that may contribute to individuals' attitude towards purchasing decision in Halal cosmetic. *Global Journal of Human-Social Science Research*, 14(1), 2014.
- Ibeabuchi, C., Ehido, A., Fawehinmi, O., & Aigbogun, O. (2024). Determinants of purchase intention towards halal certified cosmetic products among non-Muslims. *Journal of Islamic Marketing*.
- Ishak, S., Che Omar, A. R., Khalid, K., Ab. Ghafar, I. S., & Hussain, M. Y. (2020). Cosmetics purchase behavior of educated millennial Muslim females. *Journal of Islamic Marketing*, 11(5), 1055-1071.
- Khan, N., Sarwar, A., & Tan, B. C. (2021). Determinants of purchase intention of halal cosmetic products among Generation Y consumers. *Journal of Islamic Marketing*, 12(8), 1461-1476.
- Kotler, P., Keller, K. L., Ang, S. H., Tan, C. T., & Leong, S. M. (2018). *Marketing management: an Asian perspective*. Pearson.
- Lee, R., Murphy, J., & Neale, L. (2009). The interactions of consumption characteristics on social norms. *Journal of Consumer Marketing*, 26(4), 277-285.
- Lestari, A., Praktiko, H., & Hermawan, A. (2020). The effect of religiosity on the purchase intention halal cosmetics through attitude (Studies on Muslim at Several Universities in Malang, Indonesia). *Journal of Chemical Information and Modeling*, 22(1), 204.
- Liu, M., Liu, Y., & Mo, Z. (2020). Moral norm is the key. *Asia Pacific Journal of Marketing and Logistics*, 32, 1823-1841. <https://doi.org/10.1108/apjml-05-2019-0285>.
- Ma, J. W., Yang, Y., & Wilson, J. A. (2017). A window to the ideal self: a study of UK Twitter and Chinese Sina Weibo selfie-takers and the implications for marketers. *Journal of Business Research*, 74, 139-142.
- Meng, X. (2014). *Customer intention to purchase halal cosmetics in Malaysia* [Doctoral dissertation, Universiti Utara Malaysia].
- Mufrodah, A., & Adinugraha, H. H. (2021). Millennial generation's awareness of halal-labeled cosmetics. *AL MA'ARIEF. Journal Pendidikan Sosial Dan Budaya*, 3(2), 92-100.
- Ngah, A. H., Gabarre, S., Han, H., Rahi, S., Al-Gasawneh, J. A., & Park, S. H. (2021). Intention to purchase halal cosmetics: do males and females differ? A multigroup analysis. *Cosmetics*, 8(1), 19.

- Nurchayono, N. (2023). Determinant of intention to purchase halal cosmetics: A millennial and Z Generation perspective. *IJIBE (International Journal of Islamic Business Ethics)*, 8(1), 12-25.
- Putri, I. S., Daryanti, S., & Ningtias, A. R. (2019, March). The influence of knowledge and religiosity with mediation of attitude toward the intention of repurchasing halal cosmetics. In *12th International Conference on Business and Management Research (ICBMR 2018)* (pp. 172-177). Atlantis Press.
- Saifudin, S., Puspita, R., Zuhri, A., Muhlisin, M., & Mochlasin, M. (2020, October). Intention to purchase halal cosmetics on Indonesian women. In *Proceedings of the 2nd International Conference of Business, Accounting and Economics, ICBAE 2020, 5-6 August 2020, Purwokerto, Indonesia*.
- Shaari, J. A. N., & Mohd Arifin, N. S. (2009). *Dimension of halal purchase intention: A preliminary study*.
- Shah Alam, S., & Mohamed Sayuti, N. (2011). Applying the Theory of Planned Behavior (TPB) in halal food purchasing. *International Journal of Commerce and Management*, 21(1), 8-20.
- Suki, N. M., & Suki, N. M. (2018). Halal cosmetic products: Do knowledge and religiosity affect consumers' attitude and intention to use. *International Journal of Engineering & Technology*, 7(4.38), 764-767.
- Suleman, S., Sibghatullah, A. and Azam, M. (2021). Religiosity, halal food consumption, and physical well-being: an extension of the TPB. *Cogent Business and Management*, 8(1). doi:10.1080/23311975.2020.1860385.
- Suparno, C. (2020). Online purchase intention of halal cosmetics: S-O-R framework application. *Journal of Islamic Marketing*. <https://doi.org/10.1108/jima-09-2019-0192>.
- Suryadi, B., Jahar, A., Z., Fetrina, E., Utami, M., & Arrahmani, S. (2020). An analysis of attitude on intention to purchase online halal cosmetics. *2020 8th International Conference on Cyber and IT Service Management (CITSM)*, 1-4.
- Teng, P. K., Jamaliah, W. W., & Jusoh, W. J. W. (2013, March). Investigating students' awareness and usage intention towards halal labelled cosmetics and personal care products in Malaysia. In *4th International Conference on Business and Economic Research (4th ICBER 2013)*, Indonesia: Bandung.
- Tjiptono, F., Khan, G., Yeong, E. S., & Kunchambo, V. (2020). *Generation Z in Malaysia: The Five 'E' Generation (Electronically Engaged, Educated, Entrepreneurial, Empowered, and Environmentally Conscious)*.
- Tsiotsou, R. (2006). The role of perceived product quality and overall satisfaction on purchase intentions. *International Journal Of Consumer Studies*, 30(2), 207-217.
- Tuhin, M., Miraz, M., Habib, M., & Alam, M. (2020). Strengthening consumers' halal buying behaviour: role of attitude, religiosity and personal norm. *Journal of Islamic Marketing*. <https://doi.org/10.1108/jima-07-2020-0220>.
- Widyarma, A., Iqbal, M., & Samofa-Nadya, P. (2023). The Influence of halal awareness, religiosity, price and halal channels on the decision to purchase halal products in e-Commerce. *INSIGHT Journal*.
- Wilson, J.A.J. (2019). A look at halal branding with the man who made it cool. <https://halalfocus.net/a-look-at-halal-branding-with-the-man-who-made-it-cool/>.
- Xie, Q., Song, W., Peng, X., & Shabbir, M. (2017). Predictors for e-government adoption: integrating TAM, TPB, trust and perceived risk. *The Electronic Library*, 35(1), 2-20.
- Zaidun, N. A., & Hashim, N. H. (2018). Halal cosmetics: current issues and future opportunities. *Jurnal Pengguna Malaysia*, 30(1), 74-80.
- Zakaria, Z., Musa, M. Z. E., & Gani, S. S. A. (2019). The compelling trend of Halal cosmetic industry in Malaysia. *Halal Journal*, 3(3), 1-10.

THE EFFECT OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) DISCLOSURE AND SHARIAH-COMPLIANCE ON FIRM PERFORMANCE AMONG LISTED FIRMS IN MALAYSIA

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ABSTRACT

This study aims to examine the effect of environmental, social, and governance (ESG) disclosure and Shariah-compliance status on firm performance and if the relationship between ESG disclosure and firm performance is moderated by Shariah-compliance status. Data on ESG disclosure and firm performance from 2020-2023 were sourced from Eikon DataStream. Shariah compliance status was hand-collected from the Securities Commission Malaysia's website. This study employs a regression model to test the hypotheses. We identify a significant positive relationship between ESG disclosure and Shariah-compliance status on firm performance. Additionally, the results also found that Shariah-compliance status strengthens the positive relationship between ESG disclosure and firm performance. Our study contributes to the understanding of stakeholders, authorities, decision-makers, and academics regarding how ESG disclosure affects a firm's performance. These results also gave investors more insight into the importance of ESG considerations when making investment decisions for Sharia-compliance firms. The results, which corroborate the link between ESG disclosure and improved firm performance, ought to motivate managers to invest in ESG practices.

Keywords: Environmental, Social, and Governance (ESG), firm performance, Shariah-compliance

1.0 INTRODUCTION

Recently, there has been rising public disapproval regarding the adverse impacts of firms on both the environment and society at large (Whetman, 2017). Criticism from the public would result in the firm's bad reputation or brand boycott, ultimately affecting third parties like markets and shareholders. Historically, investors have shown predominant concern with the amount of returns generated from an investment, and they often have concerns about how those returns have been produced. However, investor interest has increased towards the risks related to various non-financial variables, including environment, social responsibility, effective governance, and the environment in particular (Aydognmus et al., 2022). Thus, other than making a profit, firms are under pressure to intensify their efforts and concentrate on non-financial components of their business. These issues have increased the urgency of Environmental, Social, and Governance (ESG) disclosure to be prepared by the firms.

Firms are now prioritising sustainable development goals (SDG) and ESG issues. The United Nations has set forth the SDG as a global goal, while ESG is a rating system that firms use to assess their ESG credentials, which is essential to their stakeholders, especially investors. ESG disclosure is one of the ways for firms to demonstrate their commitment and responsiveness towards environmental stewardship, social responsibility, and ethical governance practices (Cho & Patten, 2007; Tilba, 2022). This supports the legitimacy theory, suggesting a positive effect between firm performance and ESG quality. Firms can improve their access to capital by attracting socially responsible investors, indirectly enhancing their reputation and brand value. With these, firm performance will be improved over the long term.

The relationship between ESG and firm performance has been widely discussed in academic literature (Tarmuji et al., 2016; Minutolo et al., 2019). In addition to perspectives on ESG disclosure, ethical ideals are also drawn from religion. According to Longenecker et al. (2004), religion has typically been shown to be a possible source of moral behaviour for corporate firms. Shariah-compliance basis and ESG disclosure are complementary investment strategies with several shared principles, including being accountable to society and the environment, even though both principles were established in different historical and cultural settings (Muhammad et al., 2022).

This study aims to achieve three objectives. Firstly, examine the effect of ESG disclosure on publicly listed firm performance in Malaysia. Secondly, to identify the effect of Shariah-compliance status and publicly listed firm performance in Malaysia, and lastly, to examine the moderating effect of Shariah-compliance status on ESG disclosure and publicly listed firm performance in Malaysia. Our main contribution is to provide new evidence concerning the combined effect of ESG and Shariah compliance status on firms' performance among publicly listed firms in Malaysia. One advantage of researching a single market in Malaysia is that it is a regulated environment where all the firms operate under the same rules and regulations and have similar market conditions.

2.0 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Underpinning Theories

The Stakeholder theory built by Freeman (1984) suggests that a firm's real success lies in satisfying all its stakeholders, not just shareholders. Firms must accommodate the demands and desires of their stakeholders to maintain positive relationships with all of them. According to Freeman (1984), stakeholders include individuals or groups with an interest or are affected by the firm's activities. Making the ESG disclosure available to stakeholders effectively keeps relationships strong and will cultivate sustainable business models (Narula et al., 2024). It is anticipated that satisfying these information needs will enable the firms to build positive relationships with stakeholders (Adhima, 2013). As a result of this disclosure, stakeholders will have more faith in the business, which will help it perform better financially (Agustina et al., 2020).

Legitimacy theory is predicated on the idea that firms always work to ensure that their operations comply with the laws and societal norms that are in place (Deegan, 2000). According to Dowling and Pfeffer (1975), firms strive to achieve congruence between their values or behaviours and societal norms. They wish to ensure that the firm they own and operate is a genuine and lawful organisation. The legitimacy theory implies that society has performance standards for businesses. If businesses can live up to the community's expectations, they will be deemed to have conducted their activities by societal rules and norms (Sahida et al., 2020). As a kind of corporate responsibility towards society, firms are obligated to consider the rights of the community as a whole, including social, environmental

and governance rights. This indicates that the firms will provide reports voluntarily to demonstrate that their business activities align with the expectations of the community at large. Thus, the firm with ESG disclosure would attract a broad range of investors who prioritise sustainability and social responsibility. Hence, this can increase capital flow and enhance firm performance (Fu & Li, 2023).

2.2 ESG Disclosure and Firm Performance

ESG framework has been integrated into business development strategies and operational management procedures. The relationship between ESG and firm performance has been widely discussed in academic literature (Tarmuji et al., 2016; Minutolo et al., 2019). ESG disclosure by firms can improve information transparency and lower financing costs by addressing agency issues and information asymmetry (Fatemi et al., 2015). This is consistent with stakeholder theory, where sustainable stakeholder relationships can be built to achieve sustainability and enhance a firm's performance through ESG practices.

Stakeholder theory is a conceptual framework that assists in understanding the connections between an organisation and all the individuals or groups interested in its activities (Alsayegh et al., 2020). Stakeholder theory suggests that organisations should prioritise the interests and welfare of all stakeholders, such as shareholders, employees, customers, suppliers, communities, and the environment, rather than solely focusing on maximising shareholder value as traditional business models do.

According to a previous study by Cho and Patten (2007), ESG disclosure is one way for firms to demonstrate their commitment and responsiveness towards environmental stewardship, social responsibility, and ethical governance practices. Based on a recent study by Fu and Li (2023), firms that include ESG concepts in their plans typically draw in a larger pool of investors that place a high value on social responsibility and sustainability, which would improve firm performance over the long term. In addition, ESG practices can mitigate legal, regulatory, and reputational expenses that could negatively impact a firm's financial performance by helping it manage environmental and social risks more effectively and efficiently (Chang & Lee, 2022). ESG standards can also help with cost control, staff retention, and innovation, resulting in longer-term growth possibilities that are more sustainable. This study is consistent with the study done by Pulino et al. (2022), where their findings reported that customers do value and recognise the importance of the environmental and social initiatives that the company promotes, which directly leads to increased revenue.

A recent study by Zhou et al. (2023) discovered that firms with higher ESG performance typically execute more sustainably and innovatively. Due to innovation performance, products are created and built to allow for recycling, reuse, and decomposition. Furthermore, green technology innovation makes businesses more able to satisfy consumers with recently developed items, boosting their ability to compete in the global market. This would contribute to lowering energy usage and production costs while improving firm productivity and performance. This is also consistent with the study done by Chang and Lee (2022), where they found that performance will improve when firms increase their investment in sustainable development.

Conversely, some studies found that ESG disclosure is unimportant for the financial performance metric. Oprean-Stan et al. (2020) explained that a firm that discloses information on sustainability aspects can decrease its market performance. King and Lenox (2002) also provided a possible reason for this, arguing that information about sustainability can take two years to influence financial performance. Besides, the majority of businesses today deal with problems, including low capacity and expensive ESG procedures, which significantly reduce their intrinsic incentive to fulfil ESG commitments (Cong et al., 2023).

However, more firms are incorporating ESG practices in their business policies to reinforce their relationship with society and employees (Lee & Isa, 2022). According to the stakeholder theory, ESG practices should benefit all parties involved, including customers and employees, as demonstrated by better stakeholder behaviour (Fauver et al., 2018). Stakeholder theory-based research provides evidence that socially and environmentally conscious firms can strengthen their bonds with diverse stakeholders and enhance their overall performance (Alareeni & Hamdan, 2020; Wan-Hussin et al., 2021; Wong et al., 2021). According to Wong et al. (2021), ESG practices boost firms' value, as determined by Tobin's Q and reduce the cost of capital.

Based on the above discussion, we feel that the argument for the positive impact of ESG practices on performance is more compelling than its competing view. Following the stakeholder and legitimacy theory, we expect ESG disclosure to improve financial performance. Hence, we test the following hypothesis:

H1. ESG disclosure positively affects firm performance among listed firms in Malaysia.

2.3 Shariah-Compliance and Firm Performance

Shariah is the core religious concept of Islam. It is a form of Islamic law that establishes rules that Muslims must abide by relating to their spiritual, mental, and bodily conduct. Shariah law includes moral and ethical guidelines in addition to legal ones. It classifies all human behaviour into five categories: required, advised, allowed, discouraged, and prohibited. It is forbidden to engage in high-risk investments, prostitution, gambling, or the giving and receiving of interest (riba) (Hanafi & Hanafi, 2022). Muslims must abide by Shariah law in all aspects of their lives, including business dealings.

Within the context of a Shariah-compliance status, the process incorporates religious principles and laws enforced by outside organisations. Islamic beliefs expressly forbid businesses from engaging in contentious or uncertain business ventures, such as manufacturing or selling alcoholic beverages, running casinos, engaging in operations related to pork or other illegal ventures, or taking undue risks. Additionally, firms are screened based on qualitative factors such as how the general public views their adherence to Islamic principles, firm practices that comply with Shariah, and financial ratio benchmarks. The prohibitions encourage moral behaviour that improves human welfare (Alsaadi, 2021).

In Malaysia, firms requiring verification for a Shariah certificate must provide the Shariah Advisory Council (SAC) with a report by a specific date. The stock list of firms that comply with and do not comply with Shariah is subject to periodic review and update by SAC. According to the Securities Commission of Malaysia (2023), to ascertain the Shariah status of the listed securities, the SAC uses a two-tier quantitative technique that employs financial ratio standards and business activity benchmarks. Under the financial ratio benchmarks, the technique will assess riba and riba-related components included in a firm's financial situation statements. SAC will consider two financial ratios: cash over total assets and debt over total assets. While under the business activity benchmark technique, the SAC of the Securities Commission of Malaysia (SC) assesses the degree to which mixed contributions from permissible and non-permissible activities towards turnover and profit before tax are made by businesses whose operations include both permitted and non-permissible activities. The SC uses benchmarks based on Ijtihad-Shariah-based reasoning. Subsequently, if the security's financial ratios and business activities fall below these benchmarks, they will be categorised as Shariah-compliance (Securities Commission Malaysia, 2023).

Legitimacy theory posits that firms maintain their legitimacy by conforming to societal norms, values, and expectations. The Shariah-compliance status of firms is crucial for maintaining legitimacy among stakeholders, including investors, customers, suppliers,

employees, and regulatory bodies. By adhering to Shariah principles, Shariah-compliance firms uphold their legitimacy within Muslim communities and the broader society (Deegan & Blomquist, 2006). In addition, to perspectives on ESG disclosure, ethical ideals are also drawn from religion. Research has demonstrated that religion significantly impacts firm governance and behaviour (Du et al., 2015; Gupta et al., 2022; Kim & Daniel, 2016; Murphy & Smolarski, 2020; Nakpodia et al., 2020).

Anwer et al. (2021) discovered that Shariah-compliance firms typically have reduced development prospects, but bigger stock repurchases and dividends to shareholders as a result of their internal funding and higher profitability, as demonstrated by retained earnings. According to Alnori and Bugshan (2023), shariah-compliance firms depend less on outside capital to avoid expensive and restricted financing. Thus, they maintain ample cash reserves to avoid transaction fees, which enhances their performance (Alnori & Bugshan, 2023; Guizani & Abdalkrim, 2021).

According to a study conducted in the Gulf, firms that adhere to Shariah pay more dividends than their non-compliant counterparts (Farooq & Tbeur, 2013). Shariah-compliance firms yield higher returns than shares that are not compliant (Foo & Weng, 2014). According to Habib and Islam (2014), the Malaysian Islamic index outperforms the conventional index. At the same time, Shariah and regular indexes perform similarly in the Indian stock market (Dharani & Natarajan, 2011). However, due to a lack of evidence from the Malaysia perspective and inconclusive findings on the effect of shariah compliance status on firm performance, this study proposed the following hypothesis:

H2: Shariah-compliance status has a positive relationship with firm performance among listed firms in Malaysia.

2.4 ESG Disclosure, Shariah-Compliance and Firm Performance

Shariah-compliance basis and ESG disclosure are complementary investment strategies that have several shared principles, including being accountable to society and the environment, even though both principles were established in different historical and cultural settings (Muhammad et al., 2022). The existence of Shariah-compliance status will strengthen the positive relationship between ESG disclosure and firm performance. This aligns with the Shariah-compliance status of firms that integrate sustainability principles into their operations, reflecting the broader Islamic ethical framework that emphasises social responsibility and accountability.

Firms that fulfil both screens are, therefore, extensively ethical as they fulfilled both the inclusion of the ethical initiatives criteria and the exclusion of the non-ethical stocks criteria. However, despite the great interest in the Islamic market, there has not been much research on combination screening (Lee & Isa, 2022). Thus, with the current interest in Islamic market research and firms' ESG practices, it would be exciting and beneficial to conduct ESG studies towards firms' performance and whether Shariah-compliance firm status would interfere with the relationship.

A study by Khattak et al. 2020 demonstrates that ESG disclosure improves financial performance for shariah-compliance firms. They argued that consumers like businesses that follow Shariah and have sustainable operations. A plausible explanation for the disparity in the impact could be that firms adhering to shariah adhere to stringent screening standards and meet specific activity levels, hence reaping higher advantages (Azmi et al., 2019). Conversely, Agustin (2023) discovers the benefits of integrating ESG and Shariah screening processes to build proficient risk-adjusted portfolio returns, especially during exogenous shocks, such as the Global Financial Crisis. He added that Shariah compliance screening can improve ESG performance as they have much in common. Besides, Ariff et al. (2023) also

found that the positive association between ESG performance and cash holdings was more significant for Shariah-compliance firms compared to non-Shariah compliance firms.

According to Lee (2019), investors can confidently choose to invest in firms that participate in ESG initiatives and are not just morally upright but also excellent corporate citizens. With this information at hand, firms' managers would be well advised to actively participate in ESG initiatives while simultaneously deliberately striving for Shariah compliance. Accordingly, the following hypothesis was developed:

H3: Shariah-compliance status moderates the relationship between ESG disclosure and firm performance.

2.5 Conceptual Framework

The main objectives of the study are threefold; first, to examine the effect of ESG disclosure and publicly listed firm performance in Malaysia; second, to identify the effect of Shariah-compliance status and publicly listed firm performance in Malaysia, and third, to examine the moderating effect of Shariah-compliance status on ESG disclosure and public listed firm performance in Malaysia. To meet these objectives, below is the proposed concept for this study.

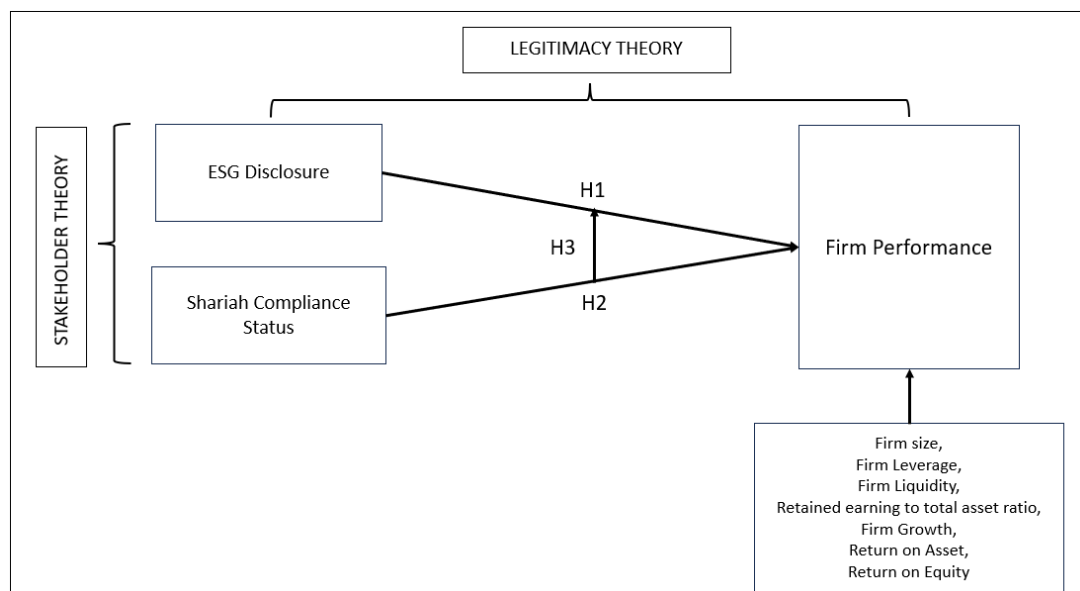


Fig.1 Conceptual Framework (source by author)

Figure 1 visualises the conceptual framework of this study. The independent variables are ESG Disclosure and Shariah-compliance status. The dependent variable is firm performance (Tobin's Q). The control variables are firm size, firm leverage, firm liquidity, retained earnings to total assets ratio, firm growth, return on asset and return on equity.

3.0 DATA AND METHODOLOGY

3.1 Data

The population in this study are publicly listed firms from Main Market Bursa Malaysia. This study excluded the firms under the Banking and Financial Institution Act (BAFIA) due to high volatility and different regulations. Besides that, firms under Initial Public Offering (IPO), firms with insufficient data and extreme outliers were also excluded. The final sample of this study consists of 331 firms (812 firm-year observations) from 2020 to 2023.

The financial data and ESG scores were collected from Eikon DataStream. Meanwhile, data on the Shariah compliance status was hand-collected from the Securities Commission Malaysia.

3.2 Measurement of Variables

Firm performance was measured based on market valuation, which is proxied using Tobin's Q. Tobin's Q is an indicator that has been used the most in prior research to measure firm performance (Lee & Isa, 2022; Soa & Tran, 2019). This study measured Tobin's Q by the ratio of market capitalization plus total liabilities over total assets. The primary data on the ESG scores were extracted from the Eikon DataStream. The ESG scores were the cumulative scores from ESG divided by 100. The ESG scores cover the following categories and their respective components:

- Environmental pillar, measures a firm's impact on living and non-living natural systems, as well as complete ecosystems;
- Social pillar, measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices; and
- Governance pillar, measures a firm's systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders.

In addition, Shariah-compliance status was measured by a dummy variable of 1 if the firm had Shariah-compliance status, a value of 0 otherwise.

This study controls financial characteristics that may influence the main findings. The control variable includes firm size, calculated by the natural logarithm of total assets; firm leverage, calculated using the ratio of total debts to total assets; firm liquidity, which is measured using the ratio of current assets to current liabilities; RE/TA, which is computed as retained profit scaled by total asset; firm growth, calculated using ratio of current revenue minus last year revenue over last year revenue; Return on Asset (ROA), measured using ratio of net income over total assets; and Return on Equity (ROE), which calculated by dividing net income over total equity. All variables and definitions used in this study are listed in Table 1.

Table 1. Variable description

Variable	Definition
<i>Dependent variable</i>	
TOBINSQ	Market value plus total debt to total assets
<i>Independent/Moderating variables</i>	
ESG	The environmental, social and governance scores from the Eikon database divided by 100
SCS	A dummy variable that takes value 1 for a Shariah-compliance firm identified based on Shariah-Compliance Status, 0 otherwise
<i>Control Variables</i>	
FSIZE	Natural logarithm of total assets
FLEX	The ratio of total debts to total assets
FLIQ	The ratio of current assets to current liabilities
RE/TA	The ratio of retained earnings to total assets
FGROWTH	Change of annual net sales over the past year sales
ROA	The ratio of net income to total assets
ROE	The ratio of net income to total shareholder equity
	Return on equity

The regression model used for testing the developed hypotheses is as follows:

$$TOBINSQ_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SCS_{it} + \beta_3 ESG * SCS_{it} + \beta_k FIRMSVARS_{it} + \varepsilon \quad (1)$$

Where TOBINSQ represents firm performance, ESG is the ESG score, SCS represents Shariah-compliance status, ESG*SCS represents the moderating effect between ESG and Shariah-compliance status, FIRMVARS are control variables, i and t denoting firm i at the end of year t.

3.3 Data Analysis Procedures

This study analysed the data using STATA software. The data of this study comprises panel data analysis as it is composed of cross-sectional and time series data. Then, the final sample of this study examined 812 listed firms in the Main Market from 2020-2023 using unbalanced panel data. Unbalance panel data was used due to the insufficient data on the ESG. The descriptive analysis was conducted to observe the characteristics of the variables. Then, the Pearson correlation analysis was conducted to observe the early relationship between all the variables and to identify any multicollinearity issues in the analysis. Finally, the multiple regression analysis was conducted to answer the research questions and to test the hypothesis.

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Analysis

Table 2 reports the descriptive statistics for all the variables. The results in Panel A of Table 2 show the proxy of the dependent variable. The results show that the average market-based performance proxied by Tobin's Q was 1.631, ranging from 0.28 to 15.481. The independent variables were reported in Panel B of Table 2. The mean value of the ESG score for the publicly listed Malaysian firms is 0.417, with a total score ranging from 0.049 to 0.914. The findings revealed that the average score of the ESG among publicly listed firms is still below 50%. The mean value for SCS was 0.840, indicating that 84% of the samples were Shariah-compliance firms.

The control variables are reported in Panel C of Table 2. The average firm size (FSIZE) was 9.313, with a range size ranging from 7.744 to 11.314. The average value for firm leverage (FLEV) was 0.448, and the average firm liquidity (FLIQ), measured by current ratios, was 2.667. The mean for the ratio of retained earnings and total assets was 0.204, with values ranging from -2.132 to 0.839, and the average firm growth was 0.130, with a range from -1.00 to 5.551. The negative value was due to the drop in the reported revenue for the current year compared to the last year. ROA and ROE have mean values of 0.058 and -0.057.

Table 2: Descriptive Statistics

	Min	Max	Mean	Median	SD
PANEL A					
TOBINSQ	0.28	15.481	1.631	1.102	1.556
PANEL B					
ESG	0.049	0.914	0.417	0.395	0.18
SCS	0.00	1.00	0.840	1.00	0.367
PANEL C					
FSIZE	7.744	11.314	9.313	9.195	0.691
FLEV	0.009	1.308	0.448	0.441	0.219
FLIQ	0.078	46.513	2.667	1.883	3.109
RE/TA	-2.132	0.839	0.204	0.22	0.305
FGROWTH	-1.00	5.551	0.130	0.075	0.502
ROA	-0.612	13.574	0.058	0.036	0.486
ROE	-116.698	4.849	-0.057	0.069	4.112

Note: Tobin's Q is the ratio of market capitalisation plus total liability over the total assets; ESG is the total score of environment, social, and governance divided by 100; SCS is a dummy variable that takes a value of 1 if the firms under the Shariah-compliance status, and a value of 0 otherwise; FSIZE is the natural algorithm of total assets; FLIQ is the ratio of current assets over current liabilities; FLEV is a ratio of total debts to total assets; RE/TA is a ratio of retained earnings to total assets; FGROWTH is the ratio of current revenue minus last year revenue over last year revenue; ROA is the ratio of net income over total assets; ROE is the ratio of net income over total equity.

4.2 Correlation Analysis

Table 3 reports the correlation analysis of the variables. The results showed that independent variables of ESG and SCS were positively correlated with the TOBINSQ at 1% and 10%, respectively. The results provided an early signal that the ESG score and Shariah-compliance status of firms increased the firm performance. The control variables of firm size (FSIZE) negatively correlated with the TOBINSQ at 1%. However, the firm growth (FGROWTH) and return on assets (ROA) positively correlate with TOBINSQ at 5%. The findings provide an early signal that firm growth and profitability improved the firm's performance. Other variables show that the correlation value is below 0.6 and indicates that no multicollinearity was suspected in this study as it is below the threshold value of 0.8.

Table 3: Pearson Correlation Analysis

Variables	1	2	3	4	5	6	7	8	9	10
(1) TOBINSQ	1.000									
(2) ESG	.140***	1.000								
(3) SCS	.064*	-.062*	1.000							
(4) FSIZE	-.168***	.528***	-.170***	1.000						
(5) FLEV	-.004	.189***	-.226***	.418***	1.000					
(6) FLIQ	.033	-.158***	.110***	-.307***	-.554***	1.000				
(7) RETA	.062*	.014	.173***	-.008	-.568***	.309***	1.000			
(8) FGROWTH	.071**	-.055*	.005	-.006	.082**	-.093***	-.031	1.000		
(9) ROA	.071**	-.010	.009	-.008	.047	.001	.053*	.012	1.000	
(10) ROE	.031	.049	-.019	.001	-.100***	.021	.046	.038	-.966***	1.000

Note: Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) levels, respectively. TOBINSQ is the ratio of market capitalisation plus total liability over the total assets; ESG is the total score of environment, social, and governance divided by 100; SCS is a dummy variable that takes a value of 1 if the firm is under Shariah-compliance status, and a value of 0 otherwise; FSIZE is the natural algorithm of total assets; FLIQ is the ratio of current assets over current liabilities; FLEV is a ratio of

total debts to total assets; RE/TA is a ratio of retained earnings to total assets; FGROWTH is the ratio of current revenue minus last year revenue over last year revenue; ROA is the ratio of net income over total assets; ROE is the ratio of net income over total equity.

4.3 Empirical Regression Results

Table 4 presents the regression results on the effects of ESG disclosure and Shariah-compliance status on firm performance and moderating effects of Shariah-compliance status on ESG disclosure and firm performance. Column (1) shows the results for individual ESG scores and Shariah-compliance status on firm performance, while Column (2) shows the results for Shariah-compliance status as a moderating variable. Significant coefficients of independent and moderating variables were found in both regressions.

The results demonstrated that ESG showed a positive and significant relationship with Tobin's Q at the significant level of 1%. The results reveal that firms that invest and disclose on the ESG can improve their firm performance. Furthermore, Malaysian firms that disclose their ESG efforts can produce long-term performance throughout the investigation. Our results corroborate prior studies by Siegrist et al. (2020), who found that a firm's disclosure of its sustainability initiatives can facilitate the effective management of its resources and raise its market value. ESG offers solutions to societal problems and enables businesses to operate successfully (Porter et al., 2019). This finding is consistent with stakeholder theory, where sustainable stakeholder relationships can be built to achieve sustainability and enhance a firm's performance through ESG practices. Therefore, this finding supports our hypothesis (H1) that ESG disclosure positively affects firm performance among listed firms in Malaysia.

The coefficient for Shariah-compliance status and firm performance was also significantly positive. This finding implies that Shariah-compliance firms show better market-based performance. This study aligns with the prior study by Jaballah et al. (2018), which found that as Shariah stocks adhere to Islamic teachings, investors have favourable perceptions of them. In a similar tone, Hati et al. (2023) also found that Shariah-compliance firms have much higher firm value in terms of brand equity than firms that are not Shariah-compliance. They also look at brand equity in sectors of the economy that are more conscious of halal and non-halal issues. Consumers and the general public place greater importance on the halal status of the consumer goods industry (which includes food and beverage products, pharmaceuticals, medications, and cosmetics) than they do on other industries. The study demonstrates that the market reacts favourably to Shariah-compliance firms, particularly when those firms have strong financial and operational results. Thus, the more valuable the brand equity, the better the firm's price, market share, and profitability. Our findings align with legitimacy theory, which posits that firms maintain legitimacy by conforming to societal norms, values, and expectations. The Shariah-compliance status of firms is crucial for maintaining legitimacy among stakeholders. Therefore, the results conclude that these findings support hypothesis 2 (H2), which proposes that Shariah-compliance status has a positive relationship with firm performance among listed firms in Malaysia.

Table 4 in column 2 shows the results of the joint effect of ESG and Shariah-compliance status (ESG*SCS). The result showed that the coefficient for ESG*SCS was positive and significant at 10%. This finding reveals that Shariah-compliance status (SCS) strengthens the positive relationship between ESG disclosure (ESG) and firm performance. This showed that Shariah compliance basis and ESG disclosure are complementary investment strategies with several shared principles, including being accountable to society and the environment (Muhammad et al., 2022). Our findings support hypothesis 3 (H3), which proposes that Shariah compliance status moderates the relationship between ESG disclosure and firm performance.

For control variables, both results showed that FLEV, ROA and ROE were positively associated with TOBINSQ. Meanwhile, FSIZE and FGROWTH were negatively associated with TOBINSQ. The result is consistent with Demiraj et al. (2023), who found a negative relationship between firm size and firm performance. No relationship was found between FLIQ and RETA with TOBINSQ.

Table 4: Regression Result

TOBINSQ	(1)	(2)
Intercept	6.797 8.54***	7.277 8.48***
ESG	2.033 6.33***	1.243 2.01**
SCS	0.328 2.41**	-0.114 -0.35
ESG*SCS	-	1.012 1.49*
FSIZE	-0.783 -8.38***	-0.799 -8.50***
FLEV	1.568 4.64***	1.596 4.72***
FLIQ	0.02 1.08	0.021 1.15
RETA	0.05 0.23	0.042 0.19
FGROWTH	-0.021 -0.21	-0.028 -0.028
ROA	4.696 10.88***	4.729 10.95***
ROE	0.552 10.79***	0.555 10.85***
Adj.R2	0.248	0.248
N	812	812
F-stat	26.391	26.391

*Notes: The numbers in parenthesis are t-statistic values. *, ** and *** denote significance at the 10, 5 and 1% levels, respectively (one-tailed test). TOBINSQ is the ratio of market capitalisation plus total liability over the total assets; ESG is the total score of environment, social, and governance divided by 100; SCS is a dummy variable that takes a value of 1 if the firm is under Shariah-compliance status, and a value of 0 otherwise; FSIZE is the natural logarithm of total assets; FLIQ is the ratio of current assets over current liabilities; FLEV is a ratio of total debts to total assets; RE/TA is a ratio of retained earnings to total assets; FGROWTH is the ratio of current revenue minus last year revenue over last year revenue; ROA is the ratio of net income over total assets; ROE is the ratio of net income over total equity.*

5.0 CONCLUSION

Environmental, Social, and Governance (ESG) are crucial to sustainable corporate development. The ESG investment and disclosure are essential indicators of a firm's social responsibility towards its stakeholders, including people and the planet. We utilised unbalanced panel data of 812 publicly listed firms from 2020 to 2023 to examine the effects of ESG disclosure, and shariah compliance status on firm performance. Our findings demonstrate that the ESG disclosure and the shariah compliance status positively affect firm performance. This reveals that ESG disclosure by firms and shariah compliance status can improve market-based performance (Tobin's Q).

Furthermore, we examine the moderating effect of Shariah compliance status on ESG disclosure and firm performance. We found that Shariah-compliance status strengthens the positive effect of ESG and firm performance. The findings provide that firms with Shariah compliance status further improve the positive effect of ESG and firm performance.

This study supports stakeholder and legitimacy theories on a firm's ESG disclosure. Given that ESG investment would increase performance, this research is positive and suggests firms should take their involvement in activities that meet the demands of all stakeholders seriously. Second, there are advantages to having Shariah compliance status and ESG screens; Shariah-compliance firms perform better than conventional ones, especially regarding increased ESG engagement levels. Therefore, Shariah-compliance firms may commit more to ESG to draw in funds from ethical and Muslim investors. As for the practical implications for authorities, they should strengthen the guidance and supervision of ESG practices and information disclosure to promote sustainable economic development.

Our findings should be interpreted cautiously, which could benefit future research. Firstly, this study only considers a sample size from Malaysian publicly listed firms that disclose ESG; hence, the findings cannot be generalised to reflect all types and sizes of firms in Malaysia. The effects of ESG disclosure on firm performance should also extend to non-listed firms. Secondly, the data are captured by Eikon DataStream. Further studies may consider other databases with ESG scores that can capture firms' ESG activities. According to Lee and Isa (2023), Eikon DataStream exclusively considers firms that are part of the FTSE4Good index, which is comprised of major Bursa Malaysian firms that engage in ESG activities. Future research on ESG issues should aim to improve the reliability of the results by increasing the sample size. Notwithstanding the limitations mentioned above, this study will serve as an impulsion for other research that aims to collect more diverse data through the use of a range of research methods and firm kinds.

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REFERENCES

- Adhima, M. F. (2013), Pengaruh pengungkapan sustainability report terhadap profitabilitas perusahaan studi kasus pada perusahaan manufaktur yang terdaftar dalam bursa efek Indonesia. *Jurnal Ilmiah Mahasiswa Feb*, 1(1), 1–22.
- Agustina, L., Jati, K. W., & Suryandari, D. (2020). *The effect of sustainability report disclosure on financial performance*. 1050–1055. <https://doi.org/10.5220/0009502610501055>.
- Alareeni, B.A. & Hamdan, A. (2020). ESG impact on performance of US S&P 500-listed firms. *Corporate Governance: The International Journal of Business in Society*, 20(7), 1409–1428.
- Alnori, F. & Bugshan, A. (2023). Cash holdings and firm performance: empirical analysis from Shariah-compliant and conventional corporations. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(3), 498–515.
- Alsaadi, A. (2021). Can inclusion in religious index membership mitigate earnings management? *J Bus Ethics* 169, 333–354. <https://doi.org/10.1007/s10551-019-04280-y>.
- Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2020). Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability*, 12(9), 3910.

- Anwer, Z., Mohamad, S., Paltrinieri, A. & Hassan, M.K. (2021). Dividend payout policy of Shariah compliant firms: Evidence from United States. *Pacific-Basin Finance Journal*, 69, 101422.
- Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22, S119–S127. Borsa Istanbul Anonim Sirketi. <https://doi.org/10.1016/j.bir.2022.11.006>.
- Azmi, W., Anwer, Z., Mohamad, S., & Shah, M. E. (2019). The Substitution hypothesis of agency conflicts: Evidence on shariah compliant equities. *Global Finance Journal*, 41, 90–103. <https://doi.org/10.1016/j.gfj.2019.02.004>.
- Chang, Y. J., & Lee, B. H. (2022). The impact of ESG activities on firm value: Multi-level analysis of industrial characteristics. *Sustainability* 14 (21), 14444. doi:10.3390/su142114444.
- Cho, C. H., & Patten, D. M. (2007). The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society*, 32(7–8), 639–647. <https://doi.org/10.1016/j.aos.2006.09.009>.
- Deegan, C. (2000). *Financial accounting theory*. McGraw Hill Book Company.
- Deegan, C. & Blomquist, C. (2006). *Stakeholder influence on corporate reporting: an exploration of the interaction between WWF-Australia and the Austra*.
- Demiraj, R., Dsouza, S., & Demiraj, E. (2023). ESG scores relationship with firm performance: Panel data evidence from the european tourism industry. *PressAcademia Procedia*, 16(1), 116-120.
- Dharani, M. & Natarajan, P. (2011). Equanimity of risk and return relationship between shariah index and general index in India. *Journal of Economics and Behavioral Studies*, 2(5), 213-222.
- Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific sociological review*, 18(1), 122-136.
- Du, X., Jian, W., Lai, S., Du, Y. & Pei, H. (2015). Does religion mitigate earnings management? Evidence from China. *Journal of Business Ethics*, 131(3), 699-749.
- Farooq, O. & Tbeur, O. (2013). Dividend policies of shariah-compliant and non-Shariah-compliant firms: evidence from the MENA region. *International Journal Economics and Business Research*, 6(2), 158-172.
- Fatemi, A., Fooladi, I., & Tehranian, H. (2015). Valuation effects of corporate social responsibility. *J. Bank. Financ.* 59, 182–192. doi:10.1016/j.jbankfin.2015.04.028.
- Fauver, L., McDonald, M.B. & Taboadac, A.G. (2018). Does it pay to treat employees well? *International evidence on the value of employee-friendly culture. Journal of Corporate Finance*, 50, 84-108.
- Fu, T., & Li, J. (2023). An empirical analysis of the impact of ESG on financial performance: the moderating role of digital transformation. *Frontiers in Environmental Science*, 11. <https://doi.org/10.3389/fenvs.2023.1256052>.
- Foo, S.T. & Weng, L.K. (2014). Predictability of Shariah-Compliant stock and real estate investments. *International Real Estate Review*, 17, 1-24.
- Freeman, R. E. 1984. *Strategic management: A stakeholder approach*. Pitman.
- Guizani, M. & Abdalkrim, G. (2021). Does Shariah compliance affect corporate cash holdings and cash adjustment dynamics? Evidence from Malaysia. *Pacific Accounting Review*, 33(4), 459-473.
- Gupta, P.P., Lam, K.C., Sami, H. & Zhou, H. (2022). Do religion and politics impact corporate governance diversity policy?. *Asian Review of Accounting*, 30(1), 1-30.
- Habib, M. & Islam, K.U. (2014). Performance of shariah compliant index: a comparative study of India and Malaysia. *International Journal of Interdisciplinary and Multidisciplinary Studies*, 1(6), 231-241.
- Hanafi, S. M., & Hanafi, M. M. (2022). Shariah vs non-shariah IPO underpricing: evidence from Indonesia Stock Exchange. *Journal of Islamic Accounting and Business Research*, 13(7), 1073–1094. <https://doi.org/10.1108/JIABR-02-2021-0060>.
- Hati, S.R.H., Prasetyo, M.B. & Hendranastiti, N.D. (2023). Sharia vs non-sharia compliant: which gives much higher financial-based brand equity to the companies listed in the

- Indonesian stock market. *Journal of Islamic Marketing*, 14(9), 2167-2187. <https://doi-org.uitm.idm.oclc.org/10.1108/JIMA-08-2021-0251>.
- Jaballah, J., Peillex, J. and Weill, L. (2018). Is being sharia compliant worth it. *Economic Modelling*, 72, 353-362. doi: 10.1016/j.econmod.2018.02.011.
- Khattak, M., Ali, M., & Burki, A. (2020). Sustainability-disclosures and financial performance: shariah compliant vs non-shariah- compliant Indonesian firms. *Journal of Islamic Monetary Economics and Finance*, 6(4), 789 - 810. <https://doi.org/10.21098/jimf.v6i4.1087>.
- Kim, J. & Daniel, S.J. (2016). Religion and corporate governance: evidence from 32 countries. *Asia Pacific Journal of Financial Studies*, 45(2), 281-308.
- King, A. & Lenox, M. (2002). Exploring the locus of profitable pollution reduction. *Manag. Sci.* 2002, 48, 289–299.
- Longenecker, J.G., McKinney, J.A. & Moore, C.W. (2004). Religious intensity, evangelical Christianity, and business ethics: an empirical study. *Journal of Business Ethics*, 55 (4), 373-386.
- Lee, S. P., & Isa, M. (2023). Environmental, social and governance (ESG) practices and financial performance of Shariah-compliant companies in Malaysia. *Journal of Islamic Accounting and Business Research*, 14(2), 295–314. <https://doi.org/10.1108/JIABR-06-2020-0183>.
- Minutolo, M. C., Kristjanpoller, W. D., & Stakeley, J. (2019). Exploring environmental, social, and governance disclosure effects on the S&P 500 financial performance. *Bus. Strategy Environ*, 28 (6), 1083–1095. doi:10.1002/bse.2303.
- Muhammad, R., Azlan Annuar, H., Taufik, M., & Nugraheni, P. (2021). The influence of the SSB's characteristics toward Sharia compliance of Islamic banks. *Cogent Business and Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1929033>.
- Murphy, M.J. & Smolarski, J.M. (2020). Religion and CSR: an Islamic “political” model of corporate governance. *Business and Society*, 59(5), 823-854.
- Nakpodia, F., Shrivies, P.J. & Sorour, M.K. (2020). Examining the link between religion and corporate governance: insights from Nigeria. *Business and Society*, 59(5), 956-994.
- Narula, R., Rao, P., Kumar, S., & Matta, R. (2024). ESG scores and firm performance-evidence from emerging market. *International Review of Economics and Finance*, 89, 1170–1184. <https://doi.org/10.1016/j.iref.2023.08.024>.
- Oprean-Stan, C., Oncioiu, I., Iuga, I. C., & Stan, S. (2020). Impact of sustainability reporting and inadequate management of esg factors on corporate performance and sustainable growth. *Sustainability (Switzerland)*, 12(20), 1–31. <https://doi.org/10.3390/su12208536>.
- Porter, M., Serafeim, G., & Kramer, M. (2019). Where ESG fails. *Institutional investor*. <https://www.institutionalinvestor.com/article/b1hm5ghqtxj9s7/Where-ESG-Fails>.
- Pulino, S. C., Ciaburri, M., Magnanelli, B. S., & Nasta, L. (2022). Does ESG disclosure influence firm Performance? *Sustainability (Switzerland)*, 14(13). <https://doi.org/10.3390/su14137595>.
- Sahida, S. N., Lestari, P., & Warsidi, W. (2020). The effect of profitability, liquidity, and company size on corporate social responsibility disclosure. *Journal of Accounting, Finance, Taxation, and Auditing (JAFTA)*, 2(2), 187-204.
- Securities Commission Malaysia. (2023). *List of shariah-compliant securities by the shariah advisory*. Council of the Securities Commission Malaysia.
- Siegrist, M., Bowman, G., Mervine, E., & Southam, C. (2020). Embedding environment and sustainability into corporate financial decision-making. *Account. Finance* 60 (1), 129–147.
- Tarmuji, I., Maelah, R., & Tarmuji, N. H. (2016). The impact of environmental, social and governance practices (ESG) on economic performance: Evidence from ESG score. *Int. J. Financ. Econ*, 7 (3), 67–74. doi:10.18178/ijtef.2016.7.3.501.
- Tilba, A. (2022). Appearance or substance of stewardship and ESG reporting? The challenges of

- translating 'commitment' into tangible outcomes. *Sustainability Accounting, Management and Policy Journal*, 13(5), 1015-1032.
- Wan-Hussin, W.N., Qasem, A., Aripin, N. & Ariffin, M.S.M. (2021). Corporate responsibility disclosure, information environment and analysts' recommendations: Evidence from Malaysia. *Sustainability*, 13(6), 35-68.
- Whetman, L. L. (2017). The impact of sustainability reporting on firm profitability. *Undergraduate Economic Review*, 14.
- Wong, W. C., Batten, J. A., Ahmad, A. H., Mohamed-Arshad, S. B., Nordin, S., & Adzis, A. A. (2021). Does ESG certification add firm value? *Financ. Res. Lett*, 39. doi:10.1016/j.frl.2020.101593.
- Zhou, S., Rashid, M.H.U., Mohd. Zobair, S.A., Sobhani, F.A., & Siddik, A.B (2023). Does ESG impact firms' sustainability performance? The mediating effect of innovation performance. *Sustainability*, (15), 5586. <https://doi.org/10.3390/su15065586>.

RELATIONSHIP BETWEEN SUSTAINABILITY REPORTING AND FIRM VALUE

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ABSTRACT

Firm value, commonly known as enterprise value or market value, is a vital indicator used to gauge a company's financial health and potential for long-term growth. The study examines the impact of sustainability reporting on the market value of firms. Utilising Stata for data analysis, this research focuses on firms listed on the Main Market of Bursa Malaysia. The population for the study includes 66 firms over a period of five years, resulting in a total of 330 firm-year observations. The findings reveal that firm value is significantly and positively related to sustainability reporting. Additionally, the study identifies a significant and positive relationship between firm value and the control variables, namely earnings, leverage and size of firm. These results suggest that sustainability reporting, alongside traditional financial metrics, provides essential information for investors and the market, contributing to the formation of market price and, consequently, firm value. Accordingly, the study highlights the importance of sustainability reports in financial decision-making processes and their role in enhancing transparency and providing a comprehensive view of a firm's performance. It offers valuable insights for investors, regulators, and corporate managers.

Keywords: Firm value, Sustainability report, Transparency

1.0 INTRODUCTION

The integration of sustainability into business practices has gained significant momentum in recent years, driven by increasing awareness of environmental, social, and governance (ESG) issues (Bachoo et al., 2013; Friske et al., 2023). Presently, companies face increased pressure to openly communicate their sustainability initiatives to a range of stakeholders, such as investors, regulators, and the general public (Stocker et al., 2020). Sustainability reporting, which encompasses the disclosure of a company's environmental and social impacts, has become a crucial aspect of corporate transparency and accountability (Higgins et al., 2020). The change towards sustainability is not just a reaction to governmental mandates, but also signifies a purposeful decision to improve the worth and long-term sustainability of the firm.

Firm value captures information about a company's situation as well as its performance. Firm activities and performance encompass both financial and non-financial information. Previous studies have indicated that financial information such as book value of equity, earnings and dividends provided significant explanations for firm value (Ohlson, 1995). Other researchers found non-financial information like balanced scorecard provided significant explanation for firm value. Some other recent studies found sustainability reporting also provided significant explanations towards firm value (Friske et al., 2023; Machmuddah et al., 2020).

The relationship between sustainability reporting and firm value has garnered significant attention from both scholars and practitioners. (Hamad et al., 2020). While traditional financial metrics such as earnings, leverage, and return on assets have long been used to assess a firm's performance, the inclusion of non-financial information related to sustainability is relatively recent (Raucci & Tarquinio, 2020). This study aims to bridge this gap by examining how sustainability reporting influences the market value of firms listed on the Main Market of Bursa Malaysia.

Sustainable business involves a company's strategic efforts to mitigate adverse environmental and social impacts resulting from its operations (Soltani et al., 2021). These practices are analysed against sustainability metrics. As climate change risks escalate, businesses face both pressure and opportunities to establish sustainability goals (Abubakar et al., 2022). Even during the COVID-19 pandemic, companies align with the United Nations Sustainable Development Goals (SDGs) to address poverty, inequality, environmental degradation, and climate change. Examples of sustainable business practices include energy efficiency, circular supply chains, and risk assessment for sustainable development (Painter, 2018). In Malaysia, local investors increasingly demand sustainability information for investment decisions. Sustainability reporting positively impacts firm value and long-term financial performance (Machmuddah et al., 2020). ASEAN countries prioritise sustainability due to regulations and competitive advantages, driven by global expectations for corporate sustainability reporting.

Sustainability reporting is now mandatory for all listed companies in Malaysia, as per Practice Note 9 of the Bursa Malaysia Listing Requirements (Jamil et al., 2021). These reports include narratives on economic, social, and environmental risks and opportunities. Bursa Malaysia mandated sustainability disclosures in annual reports, emphasizing material management from economic, environmental, and social perspectives (Peng, 2018).

The primary objective of this research is to investigate the relationship between sustainability reporting and firm value. The findings of this research are expected to contribute to the growing body of literature on the significance of sustainability reporting. By demonstrating that sustainability disclosures can positively influence firm value, this study provides empirical evidence to support the strategic importance of sustainability practices. Furthermore, the study highlights the role of sustainability reporting in enhancing market transparency and informing investment decisions.

In the context of Malaysia, where the regulatory environment is evolving to promote greater corporate transparency, this research offers timely insights. It highlights the importance of sustainability reporting not only as a regulatory compliance tool but also as a strategic asset that can enhance a firm's market valuation. The study's results are anticipated to have significant implications for corporate managers, investors, and policymakers, advocating for the integration of sustainability considerations into corporate reporting and decision-making processes.

The remainder of this paper is organised as follows: The next section reviews the literature on firm value and how sustainability influences firm value. It also reviews the

theoretical framework used in this study. Following this, the methodology is described. The subsequent section presents the findings, conclusions, and recommendations for future research.

2.0 LITERATURE REVIEW

2.1 Firm Value

Firm value, commonly known as enterprise value or market value, is a vital indicator used to gauge a company's financial health and potential for long-term growth. It includes the market capitalization, debt, minority interest, and preferred shares, while subtracting total cash and cash equivalents. As discussed by Bardos et al. (2020), firm value reflects the market's perception of a company's future earning potential and overall viability. It is influenced by a variety of factors such as financial performance, strategic decisions, and broader economic conditions.

The significance of firm value is evident in its influence on shareholder wealth and investment decisions (Fligstein & Goldstein, 2022). Studies have shown that companies with higher firm values are more likely to attract investment, access capital markets, and pursue strategic mergers and acquisitions (Jihadi et al., 2021). This creates a positive feedback loop where increased investment facilitates further growth and enhances firm value. In the Malaysian context, the emphasis on firm value has grown, as companies seek to compete globally and maintain investor confidence (Karim et al., 2023).

The connection between sustainability reporting and firm value has also attracted significant interest. In European healthcare industry for a period from 2015 to 2019, sustainability reporting has a connection with firm value (Constantinescu, 2021). Sustainability reporting is positively related to firm's market value of government-linked companies and family businesses in Singapore (Loh, et al., 2017). Evidence suggests that transparent sustainability practices can boost a company's reputation and, consequently, its firm value (Zimon et al., 2022). This is especially relevant in Malaysia, where regulatory frameworks and investor expectations are increasingly aligned with global sustainability standards. Tan (2023) found that Malaysian companies engaged in sustainability reporting tend to have higher firm values, indicating a positive link between ethical practices and financial performance.

In recent years, sustainability reporting has become essential in evaluating a company's value, particularly with the increasing focus on environmental, social, and governance (ESG) issues. Integrating sustainability practices into a company's operations improves its public image and enhances its financial performance. Research indicates that companies with thorough sustainability reporting often see a positive impact on their market valuation. This trend is driven by investors' growing preference for companies committed to sustainable practices, which contributes to long-term stability and profitability (Clark, 2014). Additionally, sustainability reporting enhances transparency, reducing risks associated with environmental regulations and societal expectations and strengthening investor confidence and the company's overall value (Almashhdani & Almashhdani, 2023).

Tobin's Q is a crucial metric for assessing firm value, as it measures the market value of a company relative to its replacement cost (Jonnius & Marsudi, 2021). This metric is particularly effective in evaluating the impact of sustainability initiatives on firm value. Studies show that companies with higher sustainability scores generally have higher Tobin's Q ratios, reflecting a more favourable market valuation. The positive relationship between sustainability reporting and Tobin's Q highlights the significance of sustainability factors in investment decisions and company valuation. By integrating sustainability into their core

strategies, companies can improve their competitive position, attract long-term investors, and achieve higher market valuations.

2.2 Sustainability Reporting

Sustainability reporting, commonly referred to as Corporate Social Responsibility (CSR) reporting, has become a prevalent and customary practice among global corporations. Numerous companies employ the Global Reporting Initiative (GRI) criteria to organise their reports, occasionally incorporating assurance (audits) and supplementary information on their websites or business reports. This technique enables the sharing of information with shareholders and other stakeholders, including regulators, about many topics like as environmental concerns, social justice, climate-related difficulties, supply chain challenges, and resource shortages (Stocker et al., 2020).

Sustainability reporting encompasses an organisation's economic, environmental, and social performance, with companies required to maintain performance across these three key dimensions (Hamad et al., 2020). These reports provide a balanced and accurate representation of a company's sustainability performance, highlighting both positive and negative contributions (Henderson, 2012). Traditionally, companies have been perceived as prioritising profit maximization, viewing non-financial disclosures as costly. However, sustainability reporting involves disclosing non-financial information related to a company's environmental, social, and governance (ESG) performance, giving stakeholders insights into the company's sustainability efforts and alignment with global goals (Meiden & Silaban, 2023).

In Malaysia, sustainability reporting has become regulatory as of 2023. Bursa Malaysia enhanced its sustainability reporting requirements for Main Market listed issuers in September 2022, with implementation phased until 2025. The enhanced requirements begin with the disclosure of common sustainability matters for financial years ending on or after 31 December 2023 and culminate in Task Force on Climate-related Financial Disclosures (TCFD)-aligned reports for financial years ending on or after 31 December 2025 (Malaysia, 2022). In recent years, sustainability reporting has gained significant attention as companies increasingly integrate sustainability factors into their business practices (Baumüller & Sopp, 2021).

This shift is driven by growing evidence that sustainable practices positively impact firm value and long-term financial performance (Jadoon et al., 2021). As socially conscious corporations worldwide adopt these practices, scholars have explored the relationship between sustainability reporting and firm value (Machmuddah et al., 2020). A study by Friske et al., (2023) found that while sustainability reporting may initially be costly, it eventually enhances firm value as companies improve their communication of sustainability initiatives and investors learn to evaluate these reports. A recent report by PwC (2023) indicated that high-quality sustainability reporting standards are becoming key drivers of business growth and innovation in the Asia Pacific, with companies that adopt these standards outperforming their peers in financial performance, market valuation, and stakeholder trust.

2.3 HYPOTHESIS DEVELOPMENT

2.3.1 Relationship Between Sustainability Reporting and Firm Value

Stakeholder theory asserts that businesses must prioritise creating value for shareholders and all stakeholders involved. In the context of sustainability reporting, this theory suggests that transparent disclosure of environmental, social, and governance practices can enhance a firm's reputation and trust among stakeholders. By effectively communicating their sustainability efforts, firms can attract investors, improve customer

loyalty, and foster stronger relationships with employees and regulators, ultimately boosting their market value (Berthelot et al., 2012). This approach emphasises the broader responsibilities of businesses towards their communities, employees, and the environment beyond just financial returns (Dmytriiev, 2021).

Firm value, a critical metric in this context, reflects the overall prosperity that stakeholders can derive from a company's operations (Allen et al., 2015). From an investor's perspective, various factors influence firm value. These include governance practices, ownership structures, profitability levels, and the transparency of risk management and disclosure (Gharaibeh & Qader, 2017). Conversely, factors such as firm size and specific interactions between growth strategies and capital structures can negatively impact firm value (Sudrajat & Setiyawati, 2021).

Furthermore, sustainability reporting significantly enhances firm value by positively impacting perceptions of economic, environmental, social, and governance practices. Studies indicate that robust sustainability practices can bolster a company's reputation and stakeholder engagement, ultimately supporting its long-term value (Chen, 2021). Thus, the following hypothesis was developed:

H1: Higher Sustainability Reporting positively influences firm value among listed firms in Malaysia.

3.0 RESEARCH METHODOLOGY

The population for this research consists of companies listed on the Main Market of Bursa Malaysia as at 30 April 2022. However, firms listed in the ACE and LEAP markets are excluded from the population for this research because these companies have different sizes and industries compared to those in the main market (Securities Commission Quarterly Report, 2023). Specifically, the ACE Market caters to industry-specific companies, while the LEAP Market is a new platform for SMEs. The final sample consists of 66 firms over a period of 5 years (2018 – 2022) giving a total of 330 firm-year observations.

The dependent variable is the firm value proxied by Tobin's Q. Tobin's Q is measured by the market value of a firm to the replacement cost of its assets (Constantinescu, 2021). The data on Tobin's Q was gathered from the Eikon Datastream. The independent variable is the total sustainability score, which is measured by the total sustainability score over a total of 42 items (GRI Standard, 2013; Kasbun et al., 2016). The sustainability score is hand-collected from the annual report based on GRI guidelines. The independent variable in this study is the total sustainability score, which is meticulously measured by evaluating a firm's sustainability disclosures across 42 distinct items. These items are derived from the Global Reporting Initiative (GRI) guidelines, which provide a comprehensive framework for sustainability reporting. The GRI guidelines are widely recognised and used to ensure that companies report on their sustainability performance in a standardised and transparent manner.

To obtain the total sustainability score, each firm's annual report is carefully analysed, and the relevant sustainability information is hand-collected. This meticulous process involves reviewing the annual reports and sustainability reports to identify and score each of the 42 GRI based items (GRI Standard, 2013; Kasbun et al., 2016), ensuring a detailed and accurate assessment of the firm's sustainability practices. The total score reflects the extent and quality of a firm's sustainability reporting, capturing how well the firm discloses its sustainability activities and impacts.

This study controls the financial characteristics of Earnings Per Share (EPS), firm leverage (LEV), and firm size (SIZE). The EPS is measured by net income divided by the

number of outstanding shares. LEV is measured by a ratio of total liabilities over total assets. Then, SIZE is measured by the natural logarithm of total assets. All the financial data was retrieved from the Eikon Datastream. Below is the operational definition and measures of all variables:

Table 1: Operational Definition and Measurement of Variables

Variables	Measurement
Firm value (TBQ)	Tobin's Q (MVE/BVE)
Total sustainability (TSR)	Total sustainability reports
Profitability (EPS)	Net income divided by the number of shares
Leverage (LEV)	Total liability divided by total assets
Size (SIZE)	Natural logarithm of total assets

To address the hypothesis, the regression models for this study are as follows:

$$TBQ = \beta_0 + \beta_1TSR + \beta_2EPS + \beta_3LEV + \beta_4SIZE + \varepsilon$$

(1)

Where, TBQ is the ratio of the market value of a firm to the replacement cost of its assets; TSR is the total sustainability reporting for the year; EPS is the net income divided by the number of outstanding shares; LEV is measured by total liabilities over total assets; SIZE is measured by the natural logarithm of total assets; ε is the error term in the regression model.

4.0 RESULTS AND DISCUSSION

4.1 Descriptive statistics

Table 2 presents the descriptive statistics for all variables. The dependent variables proxied by Tobin's Q (TBQ) show that the average is 3.9097 with a minimum of 0.0052 to a maximum of 92.18 from the sample size. This indicate that the value of ratio between market capitalisation and replacement of asset of Malaysian companies are between 0.0052 up to 92.18. The independent variable of total sustainability reporting (TSR) shows a mean of 0.6261, with the minimum reporting on sustainability being 0.3333 to a maximum of 0.8571. This indicates a good sign as at minimum level companies reported 33.33% of their sustainability activities. At maximum level, companies reported up to 85.71% of their sustainability activities.

The control variables of EPS show a mean of -0.0268 sen, ranging from a minimum of -6.1076 sen to a maximum of 0.8571 sen. The EPS shows negative earnings among the sample size. Meanwhile, the firm's leverage (LEV) shows an average of 0.3680, with a range of 0.0321 to a maximum of 0.9672. This shows that few firms rely more on debt to finance their assets, which puts them at financial risk. The size proxied by log total asset shows an average of 8.6355 with a minimum value of 7.6205 to 10.7437.

Table 2: Descriptive Statistics

	Min	Max	Mean	Standard deviation
TBQ	0.0052	92.1818	3.9097	10.6.30
TSR	0.3333	0.8571	0.6261	0.0939
EPS	-6.1076	1.8947	-0.0268	0.6496
LEV	0.0321	0.9672	0.3680	0.2014
SIZE	7.6205	10.7437	8.6355	0.5840

4.2 Correlation analysis

Table 3 presents the Pearson correlation between all variables. The results show that the TSR, EPS, LEV, and SIZE positively correlate with the TBQ. This provides an early signal that the sustainability score positively correlates with the firm performance (TBQ). Meanwhile, the LEV positively correlates with TSR and indicates that firms with high solvency have better sustainability disclosure. Then, SIZE shows a positive correlation with EPS. All the variables show a correlation below 0.6, and there is no multicollinearity issues were suspected in this study because according to Krehbiel (2004) an $r \geq 0.7$ indicates a high correlation.

Table 3: Pearson Correlation Analysis

	TBQ	TSR	EPS	LEV
TSR	0.1409**	1.0000		
EPS	0.1476**	0.0079	1.0000	
LEV	0.3508***	0.1204*	-0.1050	1.0000
SIZE	0.2461**	0.0526	0.0655	0.3464***

Note: The reported t-statistics are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) levels, respectively.

4.3 Multiple Regression Analysis

Table 4 shows the adjusted R^2 in this study is 17.74%, indicating the variables' fitness to explain the dependent variable. The results show that TSR is positively significant at 5% ($\beta=10.7749$, $t=2.0801$, $p=0.038$) on the TBQ. Our findings suggest that firms that disclose sustainability have better firm value (TBQ). This study's findings align with stakeholder theory, demonstrating that sustainability reporting positively influences firm value by meeting the expectations of various stakeholders. According to stakeholder theory, this can be attributed to the fact that transparent sustainability reporting addresses the interests and concerns of various stakeholders, including investors, customers, employees, and regulators (Herremans et al., 2016). By engaging in sustainability disclosures, firms build trust and credibility with their stakeholders, which in turn enhances their reputation and market value (Herremans et al., 2016). Consequently, these improved stakeholder relationships contribute to better firm performance, as reflected in the positive impact on TBQ (Herremans et al., 2016). The results support hypothesis 1 (H1) that higher sustainability reporting positively influences firm value among listed firms in Malaysia.

These findings are consistent with prior studies that have highlighted the positive impact of sustainability reporting on firm value (Berthelot et al., 2012; Nguyen, 2020; Yondrichs et al., 2021; Friske et al., 2023). Previous research has shown that sustainability practices can lead to improved financial performance, reduced risk, and enhanced investor confidence (Kasbun et al., 2016).

The control variables show that EPS ($\beta=2.8095$, $t=3.9411$, $p=.000$) is positively

significant at 1% on the TBQ. While LEV ($\beta=16.6254$, $t=4.9606$, $p=.000$) and Size ($\beta=.9495$, $t=2.8201$, $p=.005$) are also show a positive and significant relationship with TBQ at 1%.

Table 4: Multiple Regression Analysis

	Coefficient	t-value	P value
constant	-27.7394	-3.2170***	0.000
TSR	10.7749	2.0801**	0.038
EPS	2.8095	3.9411***	0.000
LEV	16.6254	4.9606***	0.000
SIZE	.94947	2.8201***	0.005
Adj R ²	16.912		
F-statistic	17.7417***		
n	330		
Note: The reported t-statistics are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) levels, respectively.			

5.0 CONCLUSIONS

This study investigated the relationship between sustainability reporting and firm value among firms listed on the Main Market of Bursa Malaysia. Utilizing a sample of 66 firms over a five-year period, the research findings highlight that sustainability reporting is significantly and positively related to firm value. Additionally, the study found that earnings per share, leverage and firm size also have a significant positive relationship with firm value. These results suggest that sustainability disclosures are critical determinants of a firm's market value.

The theoretical implications of this study are profound, as they expand the understanding of how non-financial information, specifically sustainability reporting, integrates with traditional financial metrics to influence firm value. This finding supports the broader application of stakeholder theory, which posits that companies must address the interests of all stakeholders, not just shareholders, to achieve long-term success (Herremans et al., 2016). By demonstrating the positive impact of sustainability reporting on firm value, this study corroborates the argument that companies can enhance their market valuation by being transparent about their sustainability practices. By providing comprehensive sustainability reports, companies can address the concerns of various stakeholders, including investors, customers, employees, and regulators, thereby fostering trust and long-term sustainability.

Practically, the findings have significant implications for corporate managers, investors and policymakers. For corporate managers, the results demonstrate the importance of incorporating sustainability into their reporting practices. Sustainability reports should not be viewed merely as regulatory compliance documents but as strategic tools that can enhance a firm's reputation and market value. For investors and policymakers, the findings provide evidence that sustainability disclosures are valuable indicators of a firm's overall performance and long-term viability, thus influencing investment decisions. This study reinforces these conclusions and adds to the growing body of evidence supporting the importance of sustainability disclosures.

Despite its contributions, this study has certain limitations that present opportunities for future research. Firstly, the study is limited to firms listed on the Main Market of Bursa Malaysia, and the findings may not be generalizable to firms in other countries or markets.

Future research could expand the sample to include firms from different regions and sectors to validate the findings. Secondly, the study focuses on a five-year period, and future research could examine longer timeframes to capture the long-term impact of sustainability reporting on firm value. Lastly, future studies could explore other dimensions of sustainability reporting, such as the quality and depth of disclosures, to understand their specific impact on firm value.

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7.0 CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest in this article. Author 1 carried out the fieldwork, prepared the literature review and overlooked the whole article's writeup. Author 2 wrote the research methodology analysed the data and did the statistical analysis. Author 3 carried out a write-up for the introduction and conclusion and overlooked the write-up of the whole article.

REFERENCES

- Almashhadani, M. & Almashhadani, H. A. (2023). The Impact of Sustainability Reports to Enhance Company Performance and its Sustainability, *International Journal of Scientific and Management Research*, 6(9), 149-163.
- Abubakar, I. R., Maniruzzaman, K. M., Dano, U. L., AlShihri, F. S., AlShammari, M. S., Ahmed, S. M. S., ... & Alrawaf, T. I. (2022). Environmental sustainability impacts of solid waste management practices in the global South. *International Journal of Environmental Research and Public Health*, 19(19), 12717.
- Ahmad, R. (2023). The Impact of Corporate Governance on Firm Value: Evidence from Malaysia. *Journal of Financial Studies*, 120-135.
- Allen, F., Carletti, E., & Marquez, R. (2015). Stakeholder governance, competition, and firm value. *Review of Finance*, 19(3), 1315-1346.
- Bachoo, K., Tan, R., & Wilson, M. (2013). Firm value and the quality of sustainability reporting in Australia. *Australian Accounting Review*, 23(1), 67-87.
- Bardos, K. S., Ertugrul, M., & Gao, L. S. (2020). Corporate social responsibility, product market perception, and firm value. *Journal of Corporate Finance*, 62, 101588.
- Baumüller, J., & Sopp, K. (2021). Double materiality and the shift from non-financial to European sustainability reporting: review, outlook and implications. *Journal of Applied Accounting Research*, 23(1), 8-28.
- Berthelot, S., Coulmont, M., & Serret, V. (2012). Do investors value sustainability reports? A Canadian study. *Corporate social responsibility and environmental management*, 19(6), 355-363.
- Chen, C. C., Khan, A., Hongsuchon, T., Ruangkanjanases, A., Chen, Y. T., Sivarak, O., & Chen, S. C. (2021). The role of corporate social responsibility and corporate image in times of crisis: The mediating role of customer trust. *International journal of environmental research and public health*, 18(16), 8275.
- Clark, G. L., Feiner, A., & Viehs, M. (2014). From the stockholder to the stakeholder: How sustainability can Drive financial Outperformance. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2508281>.
- Constantinescu, D. (2021). Sustainability disclosure and its impact on firm's value for Energy and Healthcare industry. *Central European Economic Journal*, 8(55), 313-329.
- Dmytriiev, S. D., Freeman, R. E., & Hörisch, J. (2021). The relationship between stakeholder theory and corporate social responsibility: Differences, similarities, and

- implications for social issues in management. *Journal of Management Studies*, 58(6), 1441-1470.
- Fligstein, N., & Goldstein, A. (2022). The legacy of shareholder value capitalism. *Annual Review of Sociology*, 48(1), 193-211.
- Friske, W., Hoelscher, S. A., & Nikolov, A. N. (2023). The impact of voluntary sustainability reporting on firm value: Insights from signaling theory. *Journal of the Academy of Marketing Science*, 51(2), 372-392.
- Gharaibeh, A. M. O., & Qader, A. A. A. (2017). Factors influencing firm value as measured by the Tobin's Q: Empirical evidence from the Saudi Stock Exchange (TADAWUL). *International Journal of Applied Business and Economic Research*, 15(6), 333-358.
- GRI. (2013). Sustainability Reporting Guidelines, version 3.1, Standard Disclosures: Performance Indicators. Retrieved from <https://www.globalreporting.org/Pages/default.aspx>
- Hamad, S., Draz, M. U., & Lai, F. W. (2020). The impact of corporate governance and sustainability reporting on integrated reporting: A conceptual framework. *Sage Open*, 10(2), 2158244020927431.
- Herremans, I. M., Nazari, J. A., & Mahmoudian, F. (2016). Stakeholder relationships, engagement, and sustainability reporting. *Journal of business ethics*, 138, 417-435.
- Higgins, C., Tang, S., & Stubbs, W. (2020). On managing hypocrisy: The transparency of sustainability reports. *Journal of Business Research*, 114, 395-407.
- Jadoon, I. A., Ali, A., Ayub, U., Tahir, M., & Mumtaz, R. (2021). The impact of sustainability reporting quality on the value relevance of corporate sustainability performance. *Sustainable Development*, 29(1), 155-175.
- Jamil, A., Mohd Ghazali, N. A., & Puat Nelson, S. (2021). The influence of corporate governance structure on sustainability reporting in Malaysia. *Social Responsibility Journal*, 17(8), 1251-1278.
- Jihadi, M., Vilantika, E., Hashemi, S. M., Arifin, Z., Bachtiar, Y., & Sholichah, F. (2021). The effect of liquidity, leverage, and profitability on firm value: Empirical evidence from Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(3), 423-431.
- Jones, P. &. (2023). Market Reactions to Corporate Financial Strategies. *International Review of Financial Analysis*, 60(1), 98-112.
- Jonnius, J., & Marsudi, A. S. (2021). Profitability and the firm's value. *Dinasti International Journal of Management Science*, 3(1), 23-47.
- Karim, S., Naeem, M. A., & Ismail, R. B. (2023). Re-configuring ownership structure, board characteristics and firm value nexus in Malaysia: the role of board gender and ethnic diversity. *International Journal of Emerging Markets*, 18(12), 5727-5754.
- Kasbun, N. F., Teh, B. H., & San Ong, T. (2016). Sustainability reporting and financial performance of Malaysian public listed companies. *Institutions and Economies*, 78-93.
- Loh L, Thomas T, Wang Y. (2017). Sustainability Reporting and firm value: Evidence from Singapore-listed companies. *Sustainability*. 9(11), 2112.
- Machmuddah, Z., Sari, D. W., & Utomo, S. D. (2020). Corporate social responsibility, profitability and firm value: Evidence from Indonesia. *The Journal of Asian Finance, Economics and Business*, 7(9), 631-638.
- Meiden, C., & Silaban, A. (2023). Exploring the measurement of environmental performance in alignment with Environmental, Social, and Governance (ESG): A qualitative study exploring the measurement of environmental performance in alignment with Environmental, Social, and Governance (ESG): A Qualitative Study. *Information Sciences Letters*, 12(9), 2287-2297.
- Nguyen, D. T. T. (2020). An empirical study on the impact of sustainability reporting on firm value. *Journal of Competitiveness*.
- Nisrin. (2023). The impact of inflation on firm value moderated by earnings quality in Indonesia. *International Journal of Research in Business and Social Science*, 12(5):, 217-222.

- Ohlson, J. A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary accounting research*, 11(2), 661-687.
- Painter, M. (2018). The Development of responsible and sustainable business practice: Value, mind-sets, business-models. *Journal of Business Ethics*, 157(6), 885-891.
- Peng, Y. (2018). The impact of CSR and sustainability reporting requirements on public-listed companies in ASEAN: Evidence from Malaysia. *Journal of Sustainable Finance & Investment*, 5(2), 87-105.
- Phua, K. (2019). Sustainability and the board: What do directors need to know in 2018? *Sustainability reporting in the annual reports of listed companies in Malaysia: A narrative analysis.*, 123-145.
- PwC (2023), *Sustainability counts II, state of sustainability reporting in Asia Pacific*. <https://www.pwc.com/sg/en/publications/assets/page/sustainability-counts-2023.pdf>
- Raucci, D., & Tarquinio, L. (2020). Sustainability performance indicators and non-financial information reporting. Evidence from the Italian case. *Administrative Sciences*, 10(1), 13-30.
- Securities Commission Quarterly Report. (2023).
- Smith, J. (2023). Evaluating Firm Value: Key Metrics and Market Implications. *Financial Management Journal*, 38(3), 250-270.
- Soltani, M., Kashkooli, F. M., Souri, M., Rafiei, B., Jabarifar, M., Gharali, K., & Nathwani, J. S. (2021). Environmental, economic, and social impacts of geothermal energy systems. *Renewable and Sustainable Energy Reviews*, 140, 110750.
- Stocker, F., de Arruda, M. P., de Mascena, K. M., & Boaventura, J. M. (2020). Stakeholder engagement in sustainability reporting: A classification model. *Corporate Social Responsibility and Environmental Management*, 27(5), 2071-2080.
- Stocker, F., de Arruda, M. P., de Mascena, K. M., & Boaventura, J. M. (2020). Stakeholder engagement in sustainability reporting: A classification model. *Corporate Social Responsibility and Environmental Management*, 27(5), 2071-2080.
- Sudrajat, J., & Setiyawati, H. (2021). Role of firm size and profitability on capital structures and its impact over firm value. *Dinasti International Journal of Economics, Finance & Accounting*, 2(1), 13-27.
- Tan, C. &. (2023). Sustainability Reporting and Its Impact on Firm Value: Malaysian Evidence. *Asian Journal of Business and Accounting*, 14(1), 89-107.
- Yondrichs, M., Laupe, S., Mayapada, A. G., & Jurana, R. (2021). The effect of fundamental factors, sustainability reporting, and corporate governance on firm value. *Universal Journal of Accounting and Finance*, 9(6), 1503-1509.
- Zimon, G., Arianpoor, A., & Salehi, M. (2022). Sustainability reporting and corporate reputation: the moderating effect of CEO opportunistic behavior. *Sustainability*, 14(3), 1257.

MACROECONOMIC DETERMINANTS OF NON-PERFORMING LOANS IN MALAYSIA

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ABSTRACT

This study examines the interplay between macroeconomic factors and Non-Performing Loans (NPLs) within the residential property sector, particularly focusing on commercial and Islamic banks in Malaysia from 2007 to 2021. NPLs, defined as loans overdue for more than 90 days, serve as an indicator of financial health and stability within the banking sector, which, in turn, impacts economic sustainability and environmental investment capacities. Utilizing the autoregressive distributed lag co-integration approach, this research identifies a significant co-integrating relationship between NPLs for residential property and various macroeconomic determinants. The findings underscore that robust economic growth, coupled with reduced lending and unemployment rates, plays a pivotal role in mitigating the risks associated with NPLs, thereby fostering a more resilient and sustainable economic framework. The study contribute an insights that highlight the critical need for stable macroeconomic environments not only to curb NPLs in Malaysia's banking systems but also to enhance the overall sustainability of the financial sector. For long-term financial stability, banks are better positioned to finance sustainable development projects, thereby contributing to a more sustainable and resilient economic future.

Keywords: Non-performing loans, residential property, macroeconomic determinants, Malaysia

1.0 INTRODUCTION

Governments and regulatory bodies often monitor and take measures to address the issue of non-performing loans. They could enact policies to help borrowers who are having trouble making their payments, stimulate the economy, or encourage financial institutions to collaborate with borrowers to find solutions to their problems. To maintain the stability of the nation's financial sector and the economy, the Bank Negara Malaysia (BNM) and other pertinent authorities play a role in monitoring and managing non-performing loans (NPLs).

The issue of non-performing loans is frequently cited as one of the potential risks that may cause economic and financial instability in Malaysia. During the crises that occurred in Asia in the 1990s, non-performing loans caused some banks to fail and go bankrupt (Murthy et al., 2017).

Businesses and individuals may find it difficult to generate sufficient income to meet their debt obligations and end up defaulting on their loans when the economy is in a difficult period. During this time, many analysts and economists have asserted that the choices and policies that banks have implemented to eliminate the issue of non-performing loans have,

paradoxically, significantly contributed to the significant burden that banks are under (The Star, 2020).

Non-performing loans are defined as “the outstanding amount of loans (principal and interest) classified as non-performing when principal or interest is six months or more in arrears. Interest on these loans is subsequently suspended” (Bank Negara Malaysia, 2023, p.9).

Macroeconomic conditions and bank-specific factors, such as, rapid credit growth and excessive bank lending are the primary causes of NPLs (Lee & Rosenkranz, 2020). More importantly, higher NPL ratios are frequently connected to weaker economic growth, sharp currency depreciation, and increased volatility in the world financial market, while lower NPL ratios are associated with faster growth and lower global financial market volatility (Park et al., 2021).

Numerous studies have demonstrated that economic growth or output is conducive to rising revenues and declining financial distress. Consequently, economic indicators such as real GDP or GNI growth demonstrate an inverse correlation with non-performing loans (NPLs) (Tham & Mohd Adnan, 2021). Interest rates, which are a type of macroeconomic factor, also have an impact on the level of non-performing loans, particularly in the case of fluctuating interest rates. Therefore, the impact of interest rates is expected to be favourable, meaning that an increase in debt resulting from higher interest payments will lead to a rise in non-performing loans (Erdogdu, 2019; Mehmood, 2023; Dash, 2021).

There is a positive correlation between unemployment and non-performing loans (Tham & Mohd Adnan, 2021). Prior research has demonstrated that a rise in the unemployment rate restricts the current and future ability of households to purchase goods and services and is typically linked to a decline in the production of goods and services (Mazreku et al, 2018; Wan et al., 2023). Elevated levels of unemployment would result in the incapacity of borrowers to reimburse their loans or debts. Unemployment is a major factor contributing to non-performing loans. When individuals receiving job seekers allowance become unemployed, their disposable income decreases, making it difficult for them to manage mortgage repayments (Wan et al., 2023).

Non-performing loans for residential properties are influenced by a complex interplay of economic factors. Research studies have consistently shown that there is a relationship between economic growth, interest rates, and unemployment rates with non-performing loans. Economic growth, as indicated by the gross domestic product (GDP) growth rate, has been found to have a significant negative relationship with non-performing loans. Higher economic growth tends to lead to a reduction in non-performing loans, reflecting a healthier economy (Rathnayake & Dissanayake, 2022). Conversely, lower economic growth is associated with higher non-performing loans. The performance of a country's GDP will directly influence the purchasing power of the public to buy and pay for the property.

Interest rates also play a crucial role in affecting non-performing loans. Studies have shown that there is a positive relationship between interest rates and non-performing loans. Higher interest rates can lead to an increase in non-performing loans for residential properties (Tomi et al., 2020). Additionally, growth in interest rates on residential mortgage loans has been inversely related to the demand for such loans (Dajčman, 2020).

Unemployment rates have been identified as another significant factor influencing non-performing loans. Research indicates that unemployment has a positive impact on the rise of non-performing loans (Kjosevski et al., 2019). Higher unemployment rates are associated with an increase in non-performing loans for residential properties (Qwader, 2019).

Thus, the relationship between economic growth, interest rates, and unemployment rates is crucial in understanding the dynamics of non-performing loans for residential properties. Higher economic growth and lower interest rates tend to lead to a decrease in non-performing loans, while higher unemployment rates are associated with an increase in non-performing loans. Policymakers and financial institutions need to consider these factors carefully to manage and mitigate the risks associated with non-performing loans in the residential property sector.

Non-performing loans have a significant impact on financial sustainability. Research has shown that non-performing loans negatively affect the financial performance of banks (Maharjan, 2023). When the level of non-performing loans increases, it can lead to a decrease in profitability and financial stability (Ntoiti&Jagongo, 2021). This negative relationship between non-performing loans and financial sustainability is crucial for banks and financial institutions to manage effectively.

Furthermore, non-performing loans can also impact the financial sustainability ratio of institutions. Studies have indicated that non-performing loans have a significant negative effect on the financial sustainability ratio (Saputra & Mayangsari, 2022). This highlights the importance of minimizing non-performing loans to maintain a healthy financial position.

In addition, the relationship between non-performing loans and financial sustainability is influenced by factors such as financial inclusion and economic conditions. Countries with high levels of financial inclusion tend to experience lower levels of non-performing loans, contributing to better financial sustainability (Ozili & Adamu, 2021). Moreover, during economic downturns or crises, the level of non-performing loans tends to increase, posing challenges to financial sustainability (Kaya, 2022).

Overall, non-performing loans play a critical role in determining the financial health and sustainability of banks and financial institutions. Managing and reducing non-performing loans is essential for ensuring long-term financial stability and performance. Overall, non-performing loans play a critical role in determining the financial health and sustainability of banks and financial institutions. Managing and reducing non-performing loans is essential for ensuring long-term financial stability and performance.

As of 2021, the average non-performing loans to total bank loans of 113 countries of the world was 6.05%, according to recent statistics (TheGlobalEconomy.com, 2023). Looking at individual countries, South Korea and Micronesia have the lowest NPL ratios of 0.3 or lower in the world as of 2021, while San Marino, Equatorial Guinea, and Ukraine have the highest NPL ratios at 58.96%, 55.08%, and 31.72%, respectively. The statistics also reveal that the NPL ratio in Malaysia stood at 1.68% during the same period. On average, Malaysia's NPL ratio is lower than the world's NPL ratio; however, the level of NPLs has unfortunately been increasing over the years. Using monthly average data as shown in Figure 1(a), Malaysian banks' total NPLs have hit a nine-year high of RM29.7 billion in 2021. A closer look into the breakdown of NPLs shows that working capital and residential property purchases make up a larger share of the total NPLs in Malaysia's banking system.

Figure 1(b) presents the NPLs for purchases of residential property in Malaysia from 2013 to 2021. Residential property-related NPLs have been on the rise over the last few years. For instance, the NPLs for purchases of residential property involving both commercial and Islamic banks reached RM6.2 billion and RM2.5 billion, respectively, in September 2021. This indicates a significant rise from the preceding figure of RM4.0 billion (commercial banks) and RM1.8 billion (Islamic banks) for the same period in 2020. Nevertheless, the current high levels of non-performing property loans for purchases of residential property are partially the result of a sluggish global economy, along with weak

economic growth, rising inflation and interest rates, war, and pandemic aftershocks. Given the above background, the primary objective of this study is to examine the macroeconomic determinants affecting the NPLs for purchases of residential property of commercial and Islamic banks in Malaysia between 2007 and 2021.

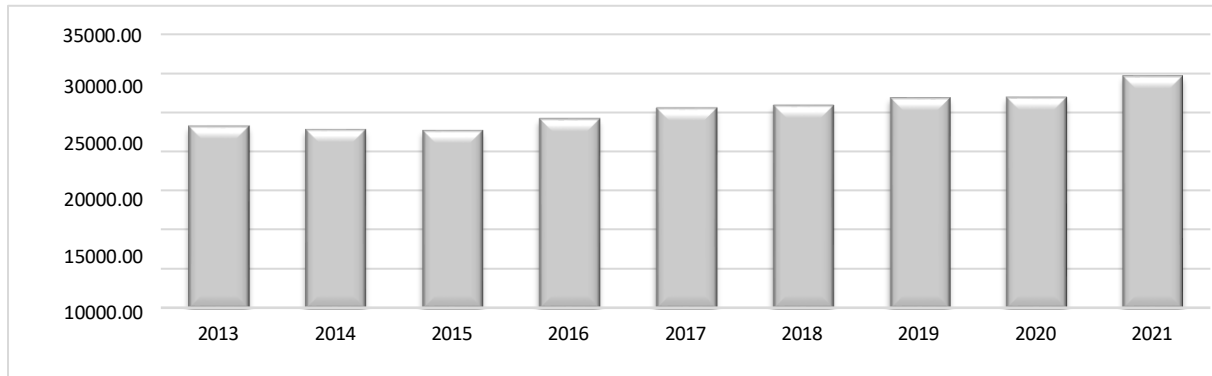


Fig. 1: Total Non-Performing Loans in Malaysia's Banking System (Monthly average)

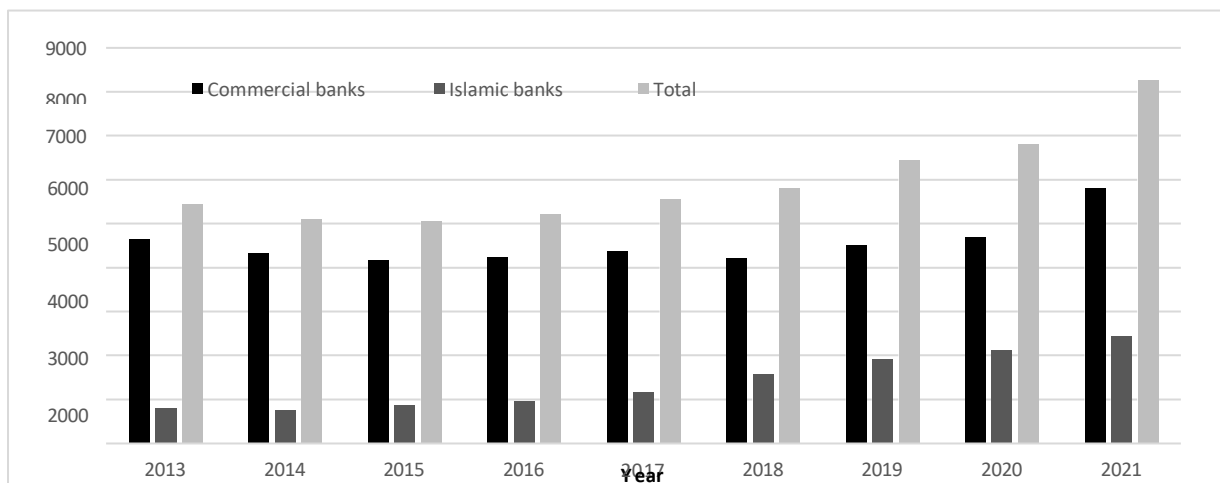


Fig. 2: Non-Performing Loans for Purchases of Residential Property in Malaysia (Monthly average)

2.0 LITERATURE REVIEW

The study by Ahiase et al. (2023) encompassed 53 African nations, exploring the relationship between non-performing loans (NPLs) and macroeconomic factors, including GDP, gross external debt, unemployment, inflation, interest rates, and government effectiveness. While the research highlighted the influence of macroeconomic factors and governance on NPLs, it did not consider macroeconomic shocks. This perspective finds resonance in Osunkoya et al. (2023) work, focusing on Nigeria's data from 1981 to 2019, where a positive relationship between macroeconomic indicators and NPLs was established.

Similar trends are evident across diverse regions. Gashi et al. (2022) studied Western Balkan countries, finding comparable results. Golitsis et al. (2022) examined North Macedonia, Foglia (2022) analyzed Italy, and Tham et al. (2021) along with Kepli et al. (2021) delved into Malaysia. Kiosevski and Petkovski (2020) expanded their analysis to the Baltic States. Staehr and Uusküla (2019) scrutinized EU countries, yielding valuable insights

into the connection between macroeconomic indicators and NPLs. Moreover, inflation's interplay with NPLs, Osunkoya et al. (2023) emphasized minor short-term effects within Nigeria. This stance aligns with Küçük (2022) and Özen et al. (2022) studying Turkey, while Tham et al. (2021) and Kepli et al. (2021) explored Malaysia. In contrast, Kjosevski and Petkovski (2020) offered divergent insights. Inflation's implications on NPLs span positive and negative dimensions. Tham et al. (2021) introduced the housing price index, suggesting a positive correlation between rising property values, exhibiting a substantial short-term connection. Despite its significance, the impact of housing prices on real estate non-performing loans (NPLs) is relatively limited within the ECM model. This parallels Ahiase et al. (2023) findings, indicating higher inflation rates correlate with increased NPLs. Conversely, Gashi et al. (2022) proposed an inverse relationship, where heightened inflation might reduce NPLs.

In the context of GDP, Staehr and Uusküla (2019) highlighted GDP as a key determinant of NPLs. Osunkoya et al. (2023) confirmed short-term GDP effects on Nigerian NPLs, with stronger long-term impact. This aligns with Tham et al. (2021) perspective, contrasting Foglia's (2022) finding of a negative GDP-NPL relationship. For the case of unemployment, its short-term impact on Nigerian NPLs is acknowledged by Osunkoya et al. (2023), though insignificance emerges in the long term. Conversely, Golitsis et al. (2022) emphasized unemployment's substantial role in North Macedonia's NPL dynamics, complementing Ahiase et al. (2023)'s focus on NPLs and credit risk dynamics. Foglia (2022) uncovered a positive correlation between unemployment rates and impaired loans.

In other cases, interest rates and NPLs are positively linked, as identified by Ahiase et al. (2023). Osunkoya et al. (2023) supported this notion, observing a favourable impact of lending rates on NPLs. Golitsis et al. (2022) highlighted interest rates' robust long-term influence on NPLs. Tham et al. (2021) concurred, reporting extended causal effects and elasticity between interest rates and NPLs.

Conversely, Ahmed et al. (2021) revealed that exchange rates constitute an external determinant alongside GDP, inflation, and government regulation. Osunkoya et al. (2023) noted exchange rates' short-term effect on Nigerian NPLs, evolving into a positive, significant influence over the long term. In a study on Romanian banks, Hada et al. (2020) highlighted exchange rates and unemployment as key determinants of non-performing loans (NPLs). Kepli et al. (2021) emphasized economic growth, money supply, and exchange rates for managing NPLs amidst volatile capital flows, stressing exchange rate flexibility and sufficient money supply's role in withstanding external shocks.

This research aims to address the existing research gap by examining the associations among GDP, interest rates, lending rates, unemployment rates, property prices/inflation, central bank policy rates, and exchange rates pertaining to residential properties in Malaysia from 2007 to 2021. The investigation encompasses most of the macroeconomic factors that could potentially impact property NPLs among individuals in Malaysia. Given the limited body of literature concerning Malaysia (as highlighted by Kepli et al., 2021), this study bridges this gap by exploring various determinants, particularly concentrating on property loans, an area that has received relatively less attention. Furthermore, the significant role of property NPLs in numerous countries, as emphasized by Tham et al. (2021), motivated the exploration of this subject.

3.0 DATA AND METHODOLOGY

3.1 Data

The data used in this study are the quarterly data covering the period 2007Q1-2020Q2. The dependent variable included is the NPL for purchases of residential property to

total NPLs of commercial and Islamic banks. The non-performing residential property loans data are obtained from the Bank Negara Malaysia's Monthly Highlights and Statistics in June 2013. On the other hand, the chosen macroeconomic variables are GDP growth rate (GDPG), lending rate (LEND), unemployment rate (U), and the growth rate of real residential property prices (PP). Data on these variables are retrieved from the International Financial Statistics (IFS), the Bank Negara Malaysia's Monthly Highlights and Statistics, and the Bank for International Settlements.

3.2 Methodology

This study applies the Autoregressive Distributed Lag (ARDL) approach (Pesaran et al., 2001) to examine the long-run relationship between NPLs and their determinants. The ARDL approach is particularly useful when it is uncertain whether the underlying regressors are trend- or first-difference stationary. It involves testing the existence of a level relationship between a dependent variable and a set of regressors. The standard F-test is used to test the significance of the lagged levels of the variables in a univariate equilibrium correction mechanism. The asymptotic distributions of these statistics are non-standard under the null hypothesis that there is no level relationship, regardless of whether the regressors are I (0) or I (1).

One advantage of the ARDL approach is that it provides bound testing procedures. Two sets of asymptotic critical values are provided: one when all regressors are purely I (1) and the other when they are all purely I (0). These critical values cover all classifications of the regressors into purely I (0), purely I (1), or a combination of both (Ali et al., 2017). The ARDL approach is a suitable method for analysing the impact of macroeconomic factors on non-performing property loans. Following previous empirical studies (Foglia, 2022; Golitsis et al., 2022; Park et al., 2021), the long-run model can be written in the following form:

$$LOAN_t = \beta_0 + \beta_1 YG_t + \beta_2 LEND_t + \beta_3 UNEM_t + \beta_4 PRICE_t + e_t \quad (\text{Eq. 1})$$

where LOAN is the NPLs for purchases of residential property to total NPLs ratio. YG is the GDP growth, LEND is the lending rate, UNEM is the unemployment rate, and PRICE is the real residential property price growth. $\beta_1, \dots, \beta_4$ represent the coefficients of the independent variables and e is the error term.

Specifically, GDP growth is expected to have a negative impact on NPLs. As GDP increases, per capita income will also increase, thus consumers may have no problem paying the monthly instalment. The lending rate may positively affect NPLs. As the cost of borrowing increases, consumers may find it difficult to pay their loan instalments. For residential property prices, the study believes that as the price is higher, there will be a higher tendency for NPLs. The expected signs are shown in Table 1.

There are several steps that need to be taken before conducting the ARDL test. The first step involves lag length selection using information criteria. The lag lengths can be guided by using Akaike's information criterion (AIC), Schwarz's Bayesian information criterion (SBIC), and Hannan and Quinn information criterion (HQIC). This study uses AIC for the optimal lag orders. As ARDL allows the selection of appropriate lag, the endogeneity problem will be eliminated, thus it is free from residual correlation (Ali et al., 2017).

The second step is the unit root test. ARDL allows the variables to be stationary at level I (0) or at first difference I (1), but not at second difference I (2). The existence of I (2) variables in the model will cause the computed F-statistics to be invalid. Subsequently, the Augmented Dickey-Fuller (ADF) test is used to check whether variables in the model are free from I (2).

The third step involves the ARDL estimation after all variables are stationary at I (0) or I (1). In this study, the following equations can be formed:

$$\Delta LOAN_t = \alpha_0 + \alpha_1 YG_{t-1} + \alpha_2 LEND_{t-1} + \alpha_3 UNEM_{t-1} + \alpha_4 PRICE_{t-1} + \sum_{i=1}^p \tau_i \Delta LOAN_{t-i} + \sum_{i=0}^p \delta_{1i} YG_{t-i} + \sum_{i=0}^p \delta_{2i} \Delta LEND_{t-i} + \sum_{i=0}^p \delta_{3i} \Delta UNEM_{t-i} + \sum_{i=0}^p \delta_{4i} \Delta PRICE_{t-i} + \varepsilon_t \quad (\text{Eq. 2})$$

where Δ is the first difference operator, α_0 is the drift component, and ε is the white noise residuals.

The first part of Equation (2) (without the summation sign) signifies the long-run relation, while the second part of the equation explains the short-run dynamics. The existence of a long-run relationship can be tested by using F-statistics with a null hypothesis of no cointegration. The F-statistic value can be compared to the critical values consisting of I (0) for a variable assumed to be stationary at level and I (1) for a non-stationary variable. Critical values tabulated by Narayan (2005) are applicable to small sample sizes. The null hypothesis is rejected if the calculated F-statistic value is greater than the upper bound of the critical values. This implies that there exists a long-run relationship between NPLs and its determinants.

4.0 RESULTS AND DISCUSSIONS

Table 1 depicts the summary statistics and correlation coefficients for the key variables. In Panel (a) of this table, the non-performing loans for purchases of residential property as a percentage of the total non-performing loans stood at Malaysia Commercial and Islamic banks at 25.6%. The quarterly GDP growth averaged 4.2%, ranging from the lowest growth rate of -17.2% to the highest growth rate of 16.1%. Lending rates in Malaysia were recorded at 4.9% between 2007 and 2021. The lending rate reached an all-time high of 6.6% and the lowest recorded lending rate was 3.4% over the study period. Malaysia's unemployment rate and real residential property price index growth for 2007-2021 were at approximately 3.4% and 4.1%, respectively. While Panel (b) in this table lists the correlation coefficients among the regressors during the sample period. The correlations between two independent variables are low, suggesting that there is no serious multicollinearity in this study.

Table 2 presents the results from augmented Dickey–Fuller (ADF) test for the stationarity of the variables. The null hypothesis of a unit root can be rejected at first differences, showing that all the variables can be characterized as I (1). Subsequently, the ARDL bound test is used to examine the cointegrating relationships between the variables.

Table 1: Summary Statistics

a) Summary Statistics					
	Mean	Maximum	Minimum	Std.	Obs
LOAN	25.606	33.1747	21.5611	3.1793	58
YG	4.2445	16.1375	-17.2195	4.3906	58
LEND	4.8754	6.55	3.4492	0.6739	58
UNEM	3.3904	5.1	2.7	0.504	58
PRICE	4.0674	12.8291	-3.2588	3.6288	58
b) Correlation Matrix					

	LOAN	YG	LEND	UNEM	PRICE
LOAN	1.0000				
YG	-0.1986	1.0000			
LEND	0.5395	0.1873	1.0000		
UNEM	0.2262	-0.4813	-0.4258	1.0000	
PRICE	-0.4114	0.1344	-0.2070	-0.4540	1.0000

Table2: Augmented Dickey-Fuller Test Results

	Level		First Differences	
	Constant	Constant, Trend	Constant	Constant, Trend
	t-Stat	t-Stat	t-Stat	t-Stat
LOAN	-1.5378	-0.9517	-7.5617 ***	-3.5889 **
YG	-2.4791	-2.5254	-6.3064 ***	-6.1438 ***
LEND	-1.777	-2.4654	-4.4082 ***	-4.3754 ***
UNEM	-1.307	-1.9177	-8.2917 ***	-8.366 ***
PRICE	-1.3763	-1.4555	-7.2617 ***	-4.5511 ***

Notes: ***, and ** denote statistical significance at the 1% and 5% levels, respectively. The optimal lag length is selected using the Akaike Information Criteria

The result for the ARDL cointegration bound test is presented in Table 3. The calculated F-statistic (8.1382) exceeds the upper bound critical values at the 1% level of significance, concluding that there exists a cointegrating relationship between the variables examined in this study.

Furthermore, the long-run relationship between NPLs and its macroeconomic factors can be viewed in Panel (a) of Table 4. The study finds that three out of four explanatory variables are statistically significant at the 1% level. All the long-run parameter estimates have the expected signs. For GDP growth rate, a one percentage point increase in GDP growth leads non-performing residential property loans to drop by about 0.57 percentage point of total NPLs. Conversely, the estimated coefficients for lending rate and unemployment rate are positive. This suggests that lower unemployment and lending rates are associated with a decrease in the NPL for purchases of residential property of commercial and Islamic banks in Malaysia. Overall, favourable macroeconomic conditions can cause the business and household sectors to benefit from higher income, which could reduce the risk of loan default, reduce credit risk, and result in a lower size of NPLs.

Panel (b) of Table 4 presents the results for error correction regression. Interestingly, the error correction terms (ECT) are negative and statistically significant at the 1 percent level. This indicates that about 42% of the discrepancy between the long-run and short-run is corrected within a quarter. Thus, the adjustment is faster for the NPLs in residential property. This scenario could be reasonable where the investment in residential property usually takes a shorter time as the value of the properties is higher. Lastly, for diagnostic tests, the model passes the assumptions of normality, serial correlation, heteroskedasticity, and specification bias, thus the models are overall fit.

Table 3: ARDL Bounds Cointegration Test Results

	K	F-statistic
LOAN=f (YG, LEND, UNEM, PRICE)	4	8.1382***
Significance	I (0)	I (1)
10%	2.3450	3.2800
5%	2.7630	3.8130
1%	3.7380	4.9470

Notes: *** denotes statistical significance at the 1% level. Critical value bounds are based on Narayan (2005). The lag selection is selected using Akaike Information Criterion.

Table 4: Long-Run Estimates and Error Correction Regression

a) Long-run Estimates: ARDL (1, 2, 1, 3, 0)			
Variable	Coefficient	t-Statistic	
constant	-6.2617	-0.9731	
YG	-0.5694	-3.9902	***
LEND	4.6228	7.2772	***
UNEM	3.3533	2.7353	***
PRICE	0.0616	0.5947	
Error Correction Regression			
Variable	Coefficient	t-Statistic	
D(YG)	-0.0742	-2.4999	**
D (YG (-1))	0.2086	4.4531	***
D(LEND)	-2.8951	-3.2589	***
D(UNEM)	-1.0360	-2.2043	**
D (UNEM (-1))	-2.2664	-4.1930	***
D (UNEM (-2))	-2.1109	-4.4653	***
ECM (-1)	-0.4165	-7.3829	***
Adjusted R2	0.5665		
SER	0.7142		
AIC	2.2832		
SC	2.5387		
Diagnostic tests	Statistic	Prob.	
BGLM	0.7361	0.6921	
ARCH	1.2204	0.5432	
RESET	0.0253	0.9750	
JARQUE-BERA	2.0772	0.3539	

Notes: *** and ** denote statistical significance at the 1% and 5% levels, respectively. BGLM-Breusch-Godfrey serial correlation LM test, ARCH-Autoregressive conditional heteroskedasticity test, RESET-Ramsey RESET test, SER-S.E. of regression. AIC-Akaike info criterion, and SC-Schwarz criterion.

5.0 CONCLUSION

Among the key factors in determining credit risk are non-performing loans, where the greater the credit risk, the higher the probability of default (Foglia, 2022). Frequently, bank disruption is caused by a high amount of NPLs (Jolevski, 2017). Malaysia's economy continued to maintain positive performance, with GDP growing at a pace of 3.3% in 2021 and 8.7% in 2022 (Bank Negara Malaysia, 2023). Nevertheless, the Malaysian banking system has recorded a significant rise in NPLs over the years. More importantly, the NPLs for purchases of residential property remained high for commercial banks and Islamic banks. A sluggish global economy, weak economic growth, rising interest rates, war, and pandemic aftershocks are frequently cited as the most significant determinants of NPLs. Accordingly, the objective of this study is to explore macroeconomic determinants that may influence the non-performing property loans in Malaysia. Specifically, this study focuses on commercial and Islamic banks in Malaysia from 2007 to 2021.

Using the ARDL approach, the results confirm that there exists a cointegrating relationship between non-performing residential property loans and its determinants. The macroeconomic factors considered in this study are GDP growth, lending rate,

unemployment rate, and real residential property price index growth. First, the results show that the behaviour of NPLs in Malaysia's commercial and Islamic banks is affected by different macroeconomic factors over the study period. Second, it is evident that the decrease in NPLs for residential property is affected by robust economic growth, coupled with reduced lending and unemployment rates. Lastly, these findings highlight the critical need for a stable macroeconomic environment not only to curb NPLs in Malaysia's banking systems but also to enhance the overall sustainability of the financial sector.

An effective macroeconomic surveillance system can closely monitor economic developments, identify the interconnections between different economic variables, and prioritize the stability of housing prices to prevent speculation and minimize the impact of housing prices on non-performing loans.

6.0 POLICY IMPLICATION AND RECOMMENDATION

In sum, if macroeconomic stability is to contribute to reducing NPLs, then the banks can take steps to lessen and mitigate the impact of property financing risks through NPL management. This is associated with appropriate lending criteria and credit risk management of property investment. Banks also need to acknowledge and deal with the difficulties associated with long-term financial sustainability while assessing the overall market environment, which encompasses macroeconomic indicators, market mechanisms, and changes in property prices. For long-term financial stability, banks are better positioned to finance sustainable development projects, thereby contributing to a more sustainable and resilient economic future.

For future research, it is advisable to anticipate the non-residential property sector effect towards NPLs. Non-residential property such as small businesses, mercantile buildings, industrial buildings can also become potential factors that cause NPLs. A comparison can also be made between the effect of residential and non-residential property, thus a better policy or regulations can be implemented by Central Bank or commercial banks to reduce NPLs in the future.

REFERENCES

- Ahiase, G., Andriana, D., Agbemava, E., & Adonai, B. (2023). Macroeconomic cyclical indicators and bank non-performing loans: does country governance matter in African countries?. *International Journal of Social Economics*.
- Ahmed, S., Majeed, M. E., Thalassinou, E., & Thalassinou, Y. (2021). The impact of bank specific and macroeconomic factors on non-performing loans in the banking sector: evidence from an emerging economy. *Journal of Risk and Financial Management*, 14(5), 217.
- Ali, W., Abdullah, A., & Azam, M. (2017). Re-visiting the environmental Kuznets curve hypothesis for Malaysia: Fresh evidence from ARDL bounds testing approach. *Renewable and Sustainable Energy Reviews*, 77, 990–1000. <https://doi.org/https://doi.org/10.1016/j.rser.2016.11.236>.
- Bank Negara Malaysia. (2023). *Monthly Highlights & Statistics in June 2023*. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.bnm.gov.my/documents/20124/11457190/x_en.pdf
- Barra, C., & Ruggiero, N. (2023). Bank-specific factors and credit risk: evidence from Italian banks in different local markets. *Journal of Financial Regulation and Compliance*, 31(3), 316-350.
- Dajčman, S. (2020). Demand for residential mortgage loans and house prices in the Euro area. *Economics & Sociology*, 13(1), 40-51. <https://doi.org/10.14254/2071-789x.2020/13-1/3>.

- Dash, M. K. (2021). The determinants of non- performing assets in Indian commercial. *Middle Eastern Finance and Economics Journal*.
- Erdogdu, A. (2019). Assessing the impact of non-performing loans on economic growth in Turkey. *American Research Journal*.
- Foglia, M. (2022). Non-performing loans and macroeconomics factors: *The Italian case*. *In Risks*, 10,(1). <https://doi.org/10.3390/risks10010021>.
- Gashi, A., Tafa, S., & Bajrami, R. (2022). The Impact of macroeconomic factors on non-performing loans in the Western Balkans. *Emerging Science Journal*, 6(5), 1032-1045.
- Golitsis, P., Khudoykulov, K., & Palanov, S. (2022). Determinants of non-performing loans in North Macedonia. *Cogent Business & Management*, 9(1)]. <https://doi.org/10.1080/23311975.2022.2140488>.
- Hada, T., Bărbuță-Mișu, N., Iuga, I. C., & Wainberg, D. (2020). Macroeconomic determinants of nonperforming loans of Romanian banks. *Sustainability*, 12(18), 7533.
- Jolevski, L. (2017). Non-performing loans and profitability indicators: The case of the Republic of Macedonia. *Journal of Contemporary Economic and Business Issues*, 4(2), 5–20.
- Kaya, H. (2022). The impact of the 2008-2009 global crisis on manufacturing firms' bank accounts, overdraft facilities, and loans. *Financial Markets Institutions and Risks*, 6(3), 64-70. [https://doi.org/10.21272/fmir.6\(3\).64-70.2022](https://doi.org/10.21272/fmir.6(3).64-70.2022).
- Kepli, S., Bani, Y., Rosland, A., & Laila, N. (2021). Non-performing loans and macroeconomic variables in Malaysia: Recent evidence. *International Journal of Economics and Management*, 15(1), 19-31.
- Kjosevski, J., Petkovski, M., & Naumovska, E. (2019). Bank-specific and macroeconomic determinants of non-performing loans in the Republic of Macedonia: Comparative analysis of enterprise and household NPLs. *Economic Research-Ekonomska Istraživanja*, 32(1), 1185-1203. <https://doi.org/10.1080/1331677x.2019.1627894>.
- Kjosevski, J., & Petkovski, M. (2021). Macroeconomic and bank-specific determinants of non-performing loans: The case of Baltic States. *Empirica*, 48(4), 1009-1028.
- Küçük, Ş. Y. (2022). Determinants of non-performing consumer loans for Turkey: ARDL bounds testing approach. *Business, Management and Economics Engineering*, 20(2), 312-328.
- Lee, J., & Rosenkranz, P. (2020). Nonperforming loans in Asia: Determinants and macrofinancial linkages. In *Emerging market finance: new challenges and opportunities* (pp. 33-53). Emerald Publishing Limited.
- Maharjan, S. (2023). Effect of working capital management and credit management policy on financial performance of commercial banks in Nepal. *The Lumbini Journal of Business and Economics*, 11(1), 266-284. <https://doi.org/10.3126/ljbe.v11i1.54333>.
- Mehmood, B., Younas, I. Z., & Ahmed, N. (2023). Macroeconomic and bank specific covariates of non-performing loans in Paskitani Commercial Banks. *Journal of Emerging Economies and Islamic Research*, 1(30).
- Murthy, U., Mohammed Kamil, N., Anthony Mariadas, P., & Devi, D. (2017). Factors Influencing non-performing loans in commercial Banks: The case of banks in Selangor. *International Journal of Business and Management*, 12(2), 246. <https://doi.org/10.5539/ijbm.v12n2p246>
- Narayan, P. K. (2005). The saving and investment nexus for China: Evidence from cointegration tests. *Applied Economics*, 37(17), 1979–1990. <https://doi.org/10.1080/00036840500278103>
- Ntoiti, R. & Jagongo, A. (2021). Non-performing loans and financial stability of deposit taking saccos regulated by SASRA. *International Journal of Finance and Accounting*, 6(2). <https://doi.org/10.47604/ijfa.1408>.
- Osunkoya, M., Ikpefan, O., & Olokoyo, F. (2023). Macroeconomic and Bank-specific determinants of non-performing loans in nigeria. *WSEAS Transactions on Business and Economics*, 20, 1153-1166.

- Ozili, P. and Adamu, A. (2021). Does financial inclusion reduce non-performing loans and loan loss provisions? *Journal of Corporate Governance Insurance and Risk Management*, 8(2), 10-24. <https://doi.org/10.51410/jcgirm.8.2.2>.
- Fell, J., Grodzicki, M., Lee, J., Martin, R., Park, C. Y., & Rosenkranz, P. (2021). *Nonperforming Loans in Asia and Europe—causes, impacts, and resolution strategies*. Asian Development Bank..
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289–326. <https://doi.org/10.1002/jae.616>
- Qwader, A. (2019). Relationship between macroeconomic variables and their impact on non-performing loans in Jordanian Banks. *Asian Economic and Financial Review*, 9(2), 166-175. <https://doi.org/10.18488/journal.aefr.2019.92.166.175>.
- Rathnayake, R. & Dissanayake, D. (2022). Determinants of non-performing loans: evidence from Sri Lanka. *South Asian Journal of Finance*, 2(1), 14-27. <https://doi.org/10.4038/sajf.v2i1.39>.
- Saputra, I. & Mayangsari, S. (2022). *The analysis of financial sustainability ratio on rural banks in Indonesia*. <https://doi.org/10.4108/eai.3-8-2021.2315153>.
- Staehr, K., & Uusküla, L. (2020). Macroeconomic and macro-financial factors as leading indicators of non-performing loans: Evidence from the EU countries. *Journal of Economic Studies*, 48(3), 720-740.
- Tham, K-W., Said, R., & Mohd Adnan, Y. (2022). Dynamic implications of GDP, interest rates, taxes, income, foreign direct investments, housing prices on property NPLs. *International Journal of Housing Markets and Analysis*, 15(5), 1122-1144.
- Tham, K.-W., & Mohd Adnan, Y. (2021). Implication of Macroeconomics factors on non-property loans: Case of Malaysia. *International Surveying Research Journal*, 2, Session 20/21
- TheGlobalEconomy.com. (2023). *Non-performing loans - Country rankings*. TheGlobalEconomy.Com. https://www.theglobaleconomy.com/rankings/nonperforming_loans/#:~:text=Non-
- Tomi, S., Emmanuel, I., & Adeyinka, A. (2020). Implications of non-performing loans on the Nigerian deposit money banks. *Asian Finance & Banking Review*, 4(1), 17-23. <https://doi.org/10.46281/asfbr.v4i1.556>.
- Wan, C., Che, N., Amil, M., Haris, B., Akila, N., & Kassim, M. (2023). Determinants of non-performing loans: evidence from Malaysia. *Information Management and Business Review*, 15(4).

LECTURERS' CHALLENGES AND CONFIDENCE IN IMPLEMENTING PROBLEM-BASED LEARNING (PBL) IN MATHEMATIC SUBJECT

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ABSTRACT

Mathematics is categorized as one of the most poorly taught, widely hated, and very hardly understood subjects in elementary schools. Previously, students taught in traditional mathematics education environments were preoccupied with exercises, rules, and equations that need to be learned but are of limited use in unfamiliar situations such as solving real-life mathematics projects. In contrast to conventional mathematics learning environments, a Problem-Based Learning (PBL) environment provides students with opportunities to develop their abilities to adapt and change methods to fit new situations. Therefore, the qualitative part is chosen to get explanations from lecturers who are teaching mathematics at Malaysian Public University. One-to-one interview sessions using semi-structured interviews were chosen. The findings of the interview were arranged as follows: (1) lecturers' knowledge and experience of teaching maths to students; (2) students' capability to master the basic skills and knowledge of mathematics; (3) applying the PBL method to teach Math, its challenges and confidence level throughout the PBL session; and (4) lecturers' view towards the PBL challenges and usefulness applying in university level. The findings have revealed that teaching students using PBL positively affected student content knowledge and the development of skills such as collaboration, critical thinking, and problem-solving.

Keywords: Mathematics, Problem-Based Learning (PBL), Qualitative Method, Semi-structured Interview, Teaching Mathematics

1.0 INTRODUCTION

In today's interconnected world of globalization, students are required to develop problem-solving and communication skills. They should also be creative, innovative, competitive, possess a variety of skills, enterprising, confident, and adept at mastering and utilizing the latest digital technology. Additionally, they should strive to be lifelong learners (Abdullah et al., 2010; Alt, 2023). In line with this, having a strong understanding of mathematics (Rahman et al., 2021) both procedurally and conceptually, can greatly increase one's chances of success in a competitive globalized society. Mathematics plays a crucial role in enabling students to develop the necessary skills, as the mathematics curriculum within the education system aids individuals in enhancing their problem-solving abilities. This enables individuals to effectively tackle a wide range of problems, including those that are routine, non-routine, applied, non-applied, and non-routine non-applied routine problems (Syabila et.al., 2021).

Students in traditional maths classes focus on exercises, rules, and equations, which may not be useful in real-life situations. Problem-based learning (PBL) gives opportunities to develop their abilities to adapt and change methods for new situations, unlike conventional maths learning. The PBL approach is effective as it uses problems to drive learning (Mulyanto et.al., 2018).

Students acquire knowledge by tackling open-ended problems that require both subject-specific content and critical thinking skills. Problem-Based Learning (PBL) is an educational approach where students engage in facilitated problem-solving to enhance their learning. The process begins with presenting a problem that students must solve, prompting them to utilize their subject-specific reasoning abilities, identify their learning gaps, engage in self-study, apply new knowledge to the issue at hand, and summarise their learning outcomes (Ghani et.al., 2021).

It is undeniable that the Mathematics Education curriculum and system in Malaysia has undergone major reforms and has been planned to meet the demands and challenges of globalisation (Abdullah et al., 2010). However, according to (Aliyu, 2020; Ibrahim & Othman, 2010), secondary school graduates entering universities lack basic maths skills in trigonometry, algebra, and even arithmetic, and high dependence on calculators. The majority of Sijil Pelajaran Malaysia (SPM), Sijil Tinggi Persekolahan Malaysia (STPM) and Matriculation students lack mastery in basic maths skills, reasoning and proof, and are not able to make connections in other disciplines.

Therefore, the qualitative part is chosen to gain answers for the following research objectives: (1) Identify lecturers' knowledge and experience in teaching mathematics & students' ability to master maths skills; (2) Identify challenges and confidence levels of lecturers when applying the PBL method; and (3) Gather lecturers' views on the challenges and usefulness of PBL in university-level mathematics education. One-to-one interview sessions using semi-structured interviews were chosen. To accomplish this interview, the lecturers who are teaching mathematics at one of the Malaysian Public Universities were approached.

2.0 LITERATURE REVIEW

Mathematics is commonly classified as one of the subjects that is poorly taught, largely disliked, and often challenging to comprehend in elementary educational settings. Furthermore, the author has indicated that students' inadequate academic outcomes can be linked to various factors, including the prevailing perception within society that mathematics is inherently challenging, a shortage of proficient instructors, insufficiency of mathematics laboratory facilities, and a deficiency in engaging and innovative pedagogical approaches (Ali et al., 2010; Geteregechi, 2023; Doz et al., 2024). Teachers and other professionals have applied various pedagogical rules of teaching and learning to ensure the best results in students' math learning. It is undeniable that previously the most famous way of teaching math in the schooling system was the passive way which is also known as the lecturer-centered way.

Passive learning is characterized by students engaging in educational components focused solely on receiving information. Instances of this type of learning involve activities such as reading, attending lectures, viewing videos, and examining visuals like pictures or PowerPoints. Students acquire knowledge at this level through the reception of presented information. Passive individuals are inclined to passively acquire information and understanding without actively interacting with the received content or the educational process. This type of teaching is only able to produce a student who is also passive and less enthusiastic in engaging in the mathematics learning process.

However, in the problem-based learning model, students transition from being passive recipients of information to becoming active, autonomous self-learners and problem-solvers. The central focus of contemporary educational systems is student-centred learning, where the role of the teacher is primarily that of a facilitator or guide. Within all active learning processes, individuals acquire knowledge based on their specific requirements and learning speed (Tandogan&Orhan, 2007; Eqbes&Ajaja, 2023 & Zetriuslita et al., 2023). Students are afforded the opportunities to exercise agency in making decisions about various aspects of the educational process and engaging in self-regulation. When engaging in active learning, the educational experience is individualized rather than following a standardized format. Within classrooms that employ a problem-based learning approach to instruction, students assume a significantly greater level of accountability for their learning. Consequently, they develop into autonomous and lifelong learners, capable of pursuing knowledge throughout their lifespan.

Advocates of mathematical problem-solving argue that the development of students as proficient problem solvers is achieved through the heuristic acquisition of mathematical knowledge. Additionally, students' effective management of their knowledge contributes significantly to their ability to solve mathematical problems proficiently (Major & Thalia, 2018; Major & Mulvihill, 2023). Problem-based learning is an educational approach within the classroom setting that structures the teaching of mathematics around problem-solving tasks. This method provides students with increased chances to engage in critical thinking, express their original ideas, and interact with classmates through mathematical communication.

According to Padmavathy (2013), figure 1 elucidates the process of problem-based learning. By presenting students with a problem, they are allowed to engage in risk-taking, acquire new insights, apply their knowledge, operate within a specific context, and relish the excitement of exploration. The steps of PBL offer a platform for learners to engage in critical thinking, active participation, brainstorming, and learning, all of which have become prominent topics in discussions regarding classroom instruction or transferable learning, while also serving as a source of motivation. (Padmayathy&Mareesh, 2013; Dorimana et al., 2022; ALMuharragi&Toworfe, 2020; Herlambang et al. 2021).

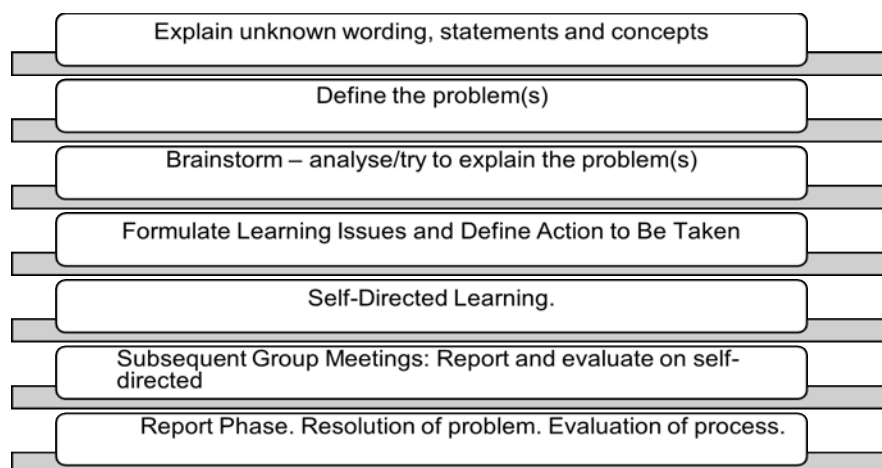


Fig. 1 Steps of problem-based learning (Padmayathy&Mareesh, 2013)

In problem-based learning, the primary responsibility of educators in PBL environments is to possess a profound comprehension of mathematics, which empowers them to effectively steer students in the utilization of knowledge across diverse problem scenarios. Educators lacking sufficient mathematical expertise could potentially lead to student struggles within mathematical PBL settings.

The teacher will assume the responsibility of facilitating student engagement in problem-solving and the application of knowledge to unfamiliar scenarios. The teacher's objective is to facilitate students' transition to autonomous learning. During the PBL session, the teacher facilitated the formation of groups and established a deliberate and collaborative environment. The teacher guaranteed that the students maintained authority over the discourse. In instances where direction was necessary, the teacher posed broad, open-ended questions and provided extensive room for students to concentrate on the objective. The teacher promoted the cultivation of critical thinking skills.

3.0 METHOD

This study employed a qualitative descriptive design (Creswell & Poth, 2018). This qualitative study has a description design to provide an authentic insight into one of the public university lecturers' experiences, challenges, and confidence in implementing PBL for the mathematics subject. Moreover, the descriptive design was chosen to discover and understand the phenomenon by getting information directly from the lecturers involved in implementing PBL in the mathematics subject.

In the qualitative phase, the purposive sampling technique in which the interviewees were chosen based on three characteristics: 1) lecturers who teach mathematics, 2) experience in teaching mathematics for more than 1 year, and 3) have exposure using PBL in teaching is found. Eight lecturers who taught mathematics were identified, and the researcher contacted them to seek permission to conduct the interviews. The researcher explained clearly and briefly the purpose of interviewing them. The related documents were then sent to the lecturers who agreed to participate in the interview session. However, out of the eight lecturers, only five agreed to participate by providing an appointment date. Table 1 summarises the lecturer's background.

Table 1. Lecturer's Background

ID	Qualification Degree	Teaching Math Subject	Experience applying PBL	Year of Experience
Lecturer A	Sarjana Muda Sains (Sains Komputer)	Statistic, Structure discrete	Have and still learning	2 years
Lecturer B	Sarjana Muda Teknologi Maklumat	Algebra	Have and still learning	2 years
Lecturer C	Sarjana Muda Kejuruteraan (Bioperubatan)	Statistic, Structure discrete	Have and still learning	2 years
Lecturer D	Sarjana Muda Sains Komputer	Statistic, Structure discrete	Have and still learning	8 years
Lecturer E	Sarjana Muda Teknologi Maklumat	Algebra	Have and still learning	8 years

A semi-structured interview guide (Creswell & Poth, 2018) was used to guide the interviews. Open-ended questions were used to encourage participants to share their experiences in their own words, providing rich, qualitative data. The researcher conducted one-on-one interview sessions. Semi-structured interviews afford researchers flexibility while adhering to an interview framework. Semi-structured interviews offer a considerable amount of leeway to the researcher to probe the respondents along with maintaining a basic interview structure.

The following protocol was adhered to during the semi-structured interview process:

1. The interview guide was prepared to explore lecturers' experiences with problem-based learning. Their perceptions of its challenges, confidence and effectiveness in enhancing student engagement learning PBL for the mathematics subject.
2. A pilot test was conducted with two lecturers who provided feedback on the clarity and relevance of the interview questions. They too provided feedback on whether the questions were appropriate for capturing lecturers' experiences with problem-based learning. Minor adjustments were made based on their responses.
3. Each participant received an informed consent form detailing the study's purpose, their rights, and data confidentiality. Before the interviews, all participants signed a consent form.
4. This research was carried out at one of the public universities in Malaysia in January 2024. The interviews took from 90 to 100 minutes and they were audio-recorded with the consent of participants.
5. A content summary approach was applied, where the responses were reported directly to reflect the participants' experiences without further categorization. The data were reviewed and summarised to provide a clear description of the participants' responses.
6. After the interviews were conducted, participants were requested to review the summarized data to ensure their perspectives were accurately captured.

4.0 RESULT AND DISCUSSION

This section presents the findings concerning the three research objectives, without comparison to external studies. Minimal analysis was applied, whereby interview responses were summarized to provide a clear description of lecturers' views.

4.1 Lecturers' Knowledge and Experience In Teaching Math To Students

All the lecturers who teach mathematics, have not graduated from a mathematical background. All of them are from computer engineering bases. However, all of them have good qualification achievement in their maths subject during their Malaysian Certificate of Education and also Malaysian Higher School Certificate. Based on their passion and also qualifications, the faculty gave them the responsibility to teach maths to students. Initially, all of them struggled to understand how to deliver the teaching and learning process of maths. Studying maths as a student is different from teaching it to others. Only lecturers B and D agreed that they still do more homework to master mathematics in terms of presenting to students.

Lecturer A: "I am good at maths. Maths is not my first degree. I was given the responsibility to teach maths because of my score during secondary. Since I love maths, I pushed myself to improve even further. I still enrol in training sessions and positively accept feedback from students."

Lecturer B: "I know how to do the maths, but I struggle when I need to break the steps into simpler ones to teach them."

Lecturer C: "I have the skills in doing maths. My passion always drives me to learn more. I always want to adapt and find ways to teach."

Lecturer D: "I can solve complex mathematical problems easily. However, I have difficulty explaining those concepts in a way that students can grasp easily. Most of the time I find myself lost in the earlier stage, but now I'm improving."

Lecturer E: "Training programs and peer collaborations constantly pushed me to expand my teaching techniques in PBL."

Lecturers improved their teaching practices significantly through ongoing learning and professional development. This progress was achieved regardless of their original field of study. Generally, all of them have higher confidence in teaching students maths. Muhammad Aiman et al. (2017) and Ealangov&Jamaludin (2024) affirm that the educators' competence to implement a teaching and learning approach is influenced by their preparedness in terms of knowledge, skills, attitudes, interests, and objectives of execution. All lecturers are highly prepared to implement PBL and their knowledge, passion, and attitude toward learning have an impact on PBL implementation skills.

4.2 Students' Capability to Master The Basic Skills And Knowledge Of Mathematics

All the lecturers discussed that a higher proportion of students in Malaysia are inspired to get good scores on tests of performance. Lecturer A said that teachers at primary and secondary are very concerned with finishing the syllabus and drilling students on exam questions and answers. They are reluctant therefore to involve other approaches to the teaching and learning of mathematics as it would take up too much time and are irrelevant to passing examinations. Lecturer B mentioned that in schooling education, the chalk-and-talk method is dominant in explaining rules, and definitions and solving problems. These teaching and learning methods applied in primary and secondary schooling caused tertiary students to have difficulty manipulating information and forming mathematical statements. Students lack in information processing skill (Son & Fatimah,2020;Tambychik& Meerah, 2010)

Lecturers were facing problems in teaching maths because all of them applied a student-centred learning approach in teaching maths. Students from different levels are allocated to the class. Thus, it causes some students to have difficulty in mastering the maths skills and low capabilities to interrelate the problems and solutions. However, lecturers A, B, C and D confidently said that students' performance will surely increase if the lecturers' teaching approach is effective and tallys with the level of understanding of the students. This is supported by Thumvichit (2024), teachers with good mathematical understanding will enhance the quality of their teaching and directly or indirectly, contribute to their students' self-confidence as maths learners.

Lecturers B, C, D and E mentioned that lecturers' motivation and belief in students' success directly enhance students' mastery of mathematics. Hidayatullah&Csikos (2024) said mathematics educators should consider how to shape students' beliefs, because these beliefs would control students' attitudes as well as motivation, in that way, their achievements will increase. Thus, concluding that lecturers play a crucial role in fostering students' interest and willingness to master maths skills.

4.3 Applying the PBL Method to Teach Math, Its Challenges, and Confidence Level Throughout the PBL Session

All the interviewed lecturers, without any doubt mentioned that they are applying problem-based learning in teaching mathematics. The syllabus for mathematical subjects that they are teaching is also requested to conduct PBL in the teaching process.

Lecturer A: *"In PBL, students must take more responsibility for their learning, teachers need to relinquish the role of imparting knowledge."*

Lecturer C: *"There's no single correct answer in PBL implementation. The lecturer's role is to guide students through the learning process by asking open-ended questions that help them express their thought process."*

Lecturer D: *"PBL isn't always easy to put into practice since it needs a lot of preparation and hard work from us. But when it's done right, it can turn students into active learners, problem solvers, and solid team players."*

Essentially, all lecturers are aware of the benefit of implementing PBL but they also agree that they encounter difficulties when conducting classes using PBL. They all acknowledge facing challenges, including feelings of insecurity, lack of confidence, difficulties in promoting student collaboration, and structural constraints. Additionally, they encounter issues such as increased workload and lack of support from their peers. Problem-based learning demands significant resources and extensive coordination, making it time-consuming. The time needed for teacher supervision and advice to individuals or groups is much greater than that required in conventional teaching (Mansor et al.2015; Suwastiniet al. 2021). Chen et al.(2021) mentioned that lecturers faced a heavier workload in PBL courses in providing professional guidance, practical experiences, and teamwork facilitation throughout the entire project.

Lecturer B: *"Honestly, PBL can take up a lot of time. I am not just teaching the material, I need to constantly check in on students and guide them to solve issues. Most importantly, I need to ensure everyone's on track. It's way more involved than traditional teaching."*

Lecturers A, B, and D mentioned that they only apply the PBL lesson plan and rubric created by previous lecturers. They strictly adhere to the steps outlined in the lesson plan. They are still in the learning process and have confidence that they will master the skills in applying PBL in their teaching process. However, all three strongly agreed that the PBL teaching approach gives more benefits than traditional methods. PBL has the potential to impact students' performance and attitude towards the subject. The student's academic progress demonstrated that PBL positively influenced the teaching of mathematics and enhanced students' comprehension and ability to apply concepts in real-life scenarios.

The rest of the lecturers also concurred that implementing PBL can be quite challenging for them. They argued that PBL necessitates extensive preparation and effort on the part of the lecturers. Initially, it might be tough for the lecturers to relinquish control and transition into a facilitator role, guiding the students to pose appropriate questions instead of providing them with answers. This shift in approach requires a fundamental change in mindset and teaching style, which can be quite demanding for educators who are accustomed to more traditional methods of instruction.

Lecturer C mentioned facing challenges when applying PBL in teaching maths. Only lecturers who see PBL practices as beneficial for their professional development are positive in managing classroom instruction for PBL. Math lecturers can better handle PBL when they grasp the changed teacher role and view preparing for PBL as an opportunity for professional growth.

4.4 Lecturers' View Towards the PBL Challenges And Usefulness Applying In The University Level

Lecturers recommend strategies to overcome challenges in implementing PBL. They posit that the incorporation of PBL in mathematics classrooms necessitates lecturers' expertise in identifying and analyzing students' needs to establish a conducive learning environment that promotes peer interaction, the application of mathematical principles to real-world scenarios, and the construction of new knowledge through the utilization of existing knowledge. Lack of readiness or motivation among teachers can hinder the successful implementation of PBL. Therefore, all of them suggested that regular training, workshops, and seminars be instituted to equip lecturers with the requisite knowledge and comprehension of problem-based learning. Lecturers must partake in more extensive training opportunities, including hands-on training sessions.

Although the majority of individuals are still in the process of learning how to apply Problem-Based Learning (PBL), they highly recommend that all mathematics lecturers utilize this method to enhance students' academic achievements. Lecturer A suggests that the government should convert mathematics textbooks into a problem-based learning format, as traditional textbooks do not align with the problem-solving approach. Furthermore, teachers in primary and secondary schools should undergo training programs, seminars, and workshops to effectively implement the problem-solving method in their classrooms. To make PBL more effective, include real-world case studies or scenarios to tackle. Students can approach local communities or organizations to work on real-world problems. This approach can create a more engaging and collaborative learning experience.

University should continuously apply PBL in teaching math because PBL helps students be better problem solvers, demonstrating effective verbal and written communication skills and being able to work collaboratively. Encourages higher-order critical thinking and deemphasizes memorization. Increases motivation to learn to arrive at a solution.

5.0 CONCLUSION

The paper aims to shed light on lecturers' challenges and confidence related to PBL implementations. Teaching students using PBL has a positive effect on student content knowledge and the development of skills such as collaboration, critical thinking, problem-solving, and providing valuable insights into enhancing learning outcomes. Students in PBL classes reported the acquisition of skills such as interaction, problem-solving, self-confidence, self-direction, critical thinking, and teamwork. In addition to skill development, PBL promotes a deeper understanding, enhances theoretical knowledge, and encourages a profound approach to learning. It is because the PBL model required students to solve the problem by themselves, so students used their creativity and gained more confidence in solving mathematics problems. It is undeniable that applying PBL in teaching is challenging for lecturers. In this context, teachers are advised to establish a conducive learning atmosphere that fosters students' active participation in PBL endeavours and augments their educational progress. On the other hand, students need support including help setting up and directing initial inquiry, organizing their time to complete tasks, and integrating technology into projects in meaningful ways. Thus, PBL requires collaboration, reflection, and discussion of concepts between teachers and students, emphasizing the importance of both parties in the learning process. Strong support from staff and faculty, and students' and teachers' readiness appear to be the very important key ingredients for successful implementation of PBL in Malaysia. As a suggestion, further research could be undertaken to extensively assess learners' before (conventional methods) and during PBL model implementation in the teaching of mathematics.

REFERENCES

- Abdullah, N. I., Tarmizi, R. A., & Abu, R. (2010). The effects of problem-based learning on mathematics performance and affective attributes in learning statistics at form four secondary level. *Procedia-Social and Behavioral Sciences*, 8, 370-376.
- Alt, D. (2023). Assessing the benefits of gamification in mathematics for student gameful experience and gaming motivation. *Computers & Education*, 200, 104806.
- Aliyu, F. (2020). The TIMSS Grade 8 student's science achievement: A comparative study between Malaysia, Singapore, and Japan. *Learning Science and Mathematics*, 15(December), 149-158.
- Albanese, M. A., & Mitchell, S. (1993). Problem-based learning: A review of literature on its outcomes and implementation issues. *Academic Medicine-Philadelphia*, 68, 52-52.
- Ali, R., Akhter, A., & Khan, A. (2010). Effect of using problem solving method in teaching mathematics on the achievement of mathematics students. *Asian Social Science*, 6(2), 67.

- AlMuharraqi, M., & Toworfe, G. K. (2020). Problem-Based Learning and the Development of Key Skills in Foundation Mathematics. *Journal of Teaching and Teacher Education*, 8(2).
- Chen, J., Kolmos, A., & Du, X. (2021). Forms of implementation and challenges of PBL in engineering education: a review of literature. *European Journal of Engineering Education*, 46(1), 90-115.
- Doz, D., Cotič, M., & Cotič, N. (2024). Development of mathematical concepts through a problem-based approach in grade 3 primary school pupils. *International Journal of Instruction*, 17(3), 1-18.
- Dorimana, A., Uworwabayeho, A., & Nizeyimana, G. (2022). Enhancing upper secondary learners' problem-solving abilities using problem-based learning in mathematics. *International Journal of Learning, Teaching and Educational Research*, 21(8), 235-252.
- Egbes, N. L., & Ajaja, O. P. (2023). Effects of guided discovery and Problem-Solving Instructional Strategies on achievement and retention of biology students in Delta Central Senatorial District, Nigeria. *European Journal of Education Studies*, 10(4).
- Ealangov, S., & Jamaludin, K. A. (2024). Readiness to implement project-based learning: The influence of knowledge and attitude among community college lecturers. *Journal of Technical Education and Training*, 16(1), 84-98.
- Geteregechi, J. M. (2023). Investigating undergraduate students' mathematical reasoning via problem posing. *International Journal of Mathematical Education in Science and Technology*, 1-20.
- Ghani, A. S. A., Rahim, A. F. A., Yusoff, M. S. B., & Hadie, S. N. H. (2021). Effective learning behavior in problem-based learning: a scoping review. *Medical science educator*, 31(3), 1199-1211.
- Herlambang, S., Kartono, K., & Isnarto, I. (2021). The effectiveness of problem-based learning on mathematical connections in terms of the student's learning style. *Educational Management*, 10(3), 403-409.
- Hidayatullah, A., & Csíkos, C. (2024). The role of students' beliefs, parents' educational level, and the mediating role of attitude and motivation in students' mathematics achievement. *The Asia-Pacific Education Researcher*, 33(2), 253-262.
- Ibrahim, Z. B., & Othman, K. I. (2010). Comparative study of secondary mathematics curriculum between Malaysia and Singapore. *Procedia-Social and Behavioral Sciences*, 8, 351-355.
- K. E. Lestari, & M. R. Yudhanegara. (2015). *Penelitian Pendidikan Matematika*. PT Refika Aditama.
- Mulyanto, H., Gunarhadi, G., & Indriayu, M. (2018). The effect of problem based learning model on student mathematics learning outcomes viewed from critical thinking skills. *International Journal of Educational Research Review*, 3(2), 37-45.
- Malaysia. Ministry of Education. (2006). *National Education Blueprint 2006-2010*. Ministry of Education, Malaysia.
- Major, T., & Thalia, M. (2018). Problem-based learning pedagogies in teacher education: The case of Botswana. *Interdisciplinary Journal of Problem-Based Learning*, 12(1), 1.
- Major, T., & Mulvihill, T. (2023). The Kagisano Indigenous philosophy of education in Botswana. In *Practices and perspectives of teaching and teacher education in Africa* (pp. 98-113). IGI Global.
- Mansor, A. N., Abdullah, N. O., Abd Wahab, J., Rasul, M. S., Nor, M. Y. M., Nor, N. M., & Raof, R. A. (2015). Managing problem-based learning: Challenges and solutions for educational practice. *Asian Social Science*, 11(4), 259.
- Muhammad Aiman, A., Roziah Mohd, R., Mohd Ashraff Mohd, A. & MuhdKhaizer, O. (2017). Addressing Competency Gaps for Vocational Instructor through Competency Modelling. *International Journal of Academic Research in Business and Social Sciences*, 7(4).
- Padmavathy, R. D., & Mareesh, K. (2013). Effectiveness of problem based learning in mathematics. *International Multidisciplinary e-Journal*, 2(1), 45-51.
- Rahman, K. A., Hasan, M. K., Namaziandost, E., & IbnaSeraj, P. M. (2021). Implementing a formative assessment model at the secondary schools: attitudes and challenges. *Language Testing in Asia*, 11(1), 18.

- Syabila, E., Prayitno, A. and Riyadi, M., 2021. Analysis of mathematical problem solving ability in stem–problem based learning viewed by students' self-confidence.
- Syabila, E., Prayitno, A. and Riyadi, M., 2021. *Analysis of mathematical problem solving ability in STEM–problem based learning viewed by students' self-confidence.*
- Son, A. L., & Fatimah, S. (2020). Students' mathematical problem-solving ability based on teaching models intervention and cognitive style. *Journal on Mathematics Education*, 11(2), 209-222.
- Suwastini, N. K. A., Puspawati, N. W. N., Adnyani, N. L. P. S., Dantes, G. R., & Rusnalasari, Z. D. (2021). Problem-based learning and 21st-century skills: Are they compatible?. *EduLite: Journal of English Education, Literature and Culture*, 6(2), 326-340.
- Tambychik, T., & Meerah, T. S. M. (2010). Students' difficulties in mathematics problem-solving: What do they say?. *Procedia-Social and Behavioral Sciences*, 8, 142-151.
- Thumvichit, A. (2024). Enjoyment in language teaching: A study into EFL teachers' subjectivities. *International Review of Applied Linguistics in Language Teaching*, 62(2), 623-649.
- Tandogan, R. O., & Orhan, A. (2007). The effects of problem-based active learning in science education on students' academic achievement, attitude and concept learning. *Online Submission*, 3(1), 71-81.
- Zetriuslita, Z., Suripah, S., Ariawan, R., & Hidayat, R. (2023). Using problem-based learning to promote students' critical thinking and mathematical problem-solving skills. *Jurnal Pendidikan Progresif*, 13(2), 281-295.

LANGUAGE VITALITY OF MALAYSIAN HAKKA DIALECT

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ABSTRACT

The rise of globalization and the interconnections of information have both facilitated the integration of human life but posed a threat to the survival of languages, particularly minority languages and dialects. In the multilingual context of Malaysia, minority languages and dialects encounter obstacles due to the prevalence of dominant languages. This research focuses specifically on the Hakka dialect spoken by Malaysian Chinese and aims to investigate its current status across different age groups. To achieve this objective, primary and secondary research materials were gathered through literature review, questionnaire surveys, interviews, and observations. Subsequently, the collected data was assessed and analysed using the nine criteria outlined in UNESCO's Language Vitality and Endangerment document from 2003. These analyses serve to demonstrate the vitality of the Hakka dialect within Malaysia. Research has revealed that the Hakka dialect continues to exhibit a high degree of dynamism. However, with the gradual disappearance of the younger generation's involvement in its development, the endangerment of the dialect is becoming increasingly severe. Therefore, prompt implementation of human intervention measures is imperative.

Keywords: Malaysian Chinese, Hakka dialect, Language vitality, UNESCO scale

1.0 INTRODUCTION

1.1 Background of study

Malaysia, being a multi-ethnic country, boasts a significant number of major ethnic groups, with over 30 in total. Among these groups, the Malays, Chinese, and Indians collectively form the majority, commonly referred to as the "Big Three". Based on recent census data from the first quarter of 2024, Malaysia's population comprises both citizens and non-citizens, totaling approximately 34 million people. Specifically, the citizen population consists of 17.7 million Malays, accounting for 57.9 percent, 6.9 million Chinese, representing 22.6 percent, 2 million Indians, contributing to 6.6 percent, and 4 million individuals from other minority groups, making up 12.9 percent (Department of Statistics Malaysia, n.d.).

The linguistic landscape of Malaysia is characterized by its diverse language use, which is a direct consequence of its rich ethnic composition. Currently, the most prevalent languages spoken in Malaysia are the indigenous Austronesian languages, which form the most complex language family worldwide. Within the Austronesian family, the languages spoken by the Malay population and the majority of ethnic minorities are classified as Malayo-Polynesian. Additionally, the Malay Peninsula, which has evolved into a significant

international trade and commercial center, has seen the introduction of other major language families, including Sino-Tibetan, Indo-European, Dravidian, and Aryan, due to migration. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2010) and Joshua Project (n.d.), Malaysia is home to approximately 152 languages and dialects spoken by over 30 ethnic groups. However, it is worth noting that some of these languages have become extinct since the 1950s, such as Orang Kanaq, Seru, and Kenaboi, due to multilingual competition.

The Malay language consists of Standard Malay, which is taught in the education system, and the Malay dialects of each state, such as Kedah Malay, Sabah Malay, Baba Malay, and Malaccan Creole Malay. The Chinese who migrated to Malaya during the British colonial period mainly came from Guangdong and Fujian provinces in southern China and therefore spoke mainly southern dialects, such as Hokkien, Cantonese, Hakka, Teochew, Hainanese, Fuzhou, Puxian, Guangxi Cantonese, Xinghua, and so on (Chen, 2003). Hokkien, Hakka, and Cantonese are among the strongest dialects. During the colonial period, Indian laborers who migrated to Malaysia were mainly Tamils (South India) and Sikhs (North India) as the largest population (Sandhu, 1969). The languages spoken by them can be categorized into the Dravidian languages, which include Tamil, Malayalam, Telugu, and Kannada, and the Aryan languages, which include Punjabi, Gujarati, Marathi, Sindhi, Mangala, and Hindustani (include Hindi and Urdu).

Currently, in Malaysia, Malay mostly use Malay language and English. Chinese and Indians community use Malay, English, Mandarin, and Tamil as the languages of instruction in the formal education system, in addition to their mother tongue and dialects.

1.2 Statement of problem

With the advent of globalization and the proliferation of the internet, individuals have gained easy access to all corners of the world, and language learning resources have become readily available. As a result, the dominant languages of major economies have become the preferred choice for foreign language learning, driven primarily by economic interests. Consequently, the global language landscape is gradually shifting towards a state of unipolarity, with lesser-spoken languages facing the threat of endangerment. Bernard (1996) highlighted in the mid-1990s that a mere 4% of the world's languages were spoken by a staggering 97% of the global population. Conversely, 3% of the population spoke the remaining 96% of languages. Wang (2016) further examined the number and distribution of languages, the size of their respective speaker populations, and the prevalence of endangered languages. By utilizing these reference coefficients, Wang aimed to analyse the linguistic continuum within the natural ecological framework. His findings revealed a dual polarization phenomenon occurring at both ends of the spectrum. On one hand, larger languages are gravitating towards a position of power and dominance. On the other hand, endangered languages are steadily deteriorating and inching closer to extinction. According to the UNESCO report on Language Vitality and Endangerment, over 50% of the world's 6,000+ languages are currently witnessing a decline in the number of speakers. Moreover, it is estimated that around 90% of these endangered languages are at risk of being replaced by more mainstream languages within the twenty-first century (Brenzinger et al., 2003).

From a macroscopic standpoint, the language landscape in Malaysia has exhibited a parallel trajectory, wherein Malay and English have emerged as the most predominant languages while the survival of other languages has been curtailed by factors such as constitutional provisions, the influence of national policies, and practical economic considerations. On a micro level, language usage among Chinese Malaysians has also become increasingly polarized, manifesting at two opposing ends of the spectrum. Mandarin, as a lingua franca, coexists as a unipolar language, competing against dialects. In other words, the Chinese dialects persist within the context of Malay and English on one hand,

and Mandarin on the other, although some dialect speakers still maintain a significant population base.

1.3 Objective of the study

A substantial body of research has been conducted on the utilization of Chinese dialects by both local and foreign scholars. The studies have explored various topics, such as history, politics, economics, education, language ontology, language contact, linguistic phenomena, and language comparison. However, only a limited number of studies have examined the extent of language vitality from this perspective. Furthermore, there are even fewer studies that evaluate the Hakka dialect vitality using specific indicators or criteria. While the number of speakers is often used as a crucial indicator, it is not a comprehensive measure. Thus, this study aims to comprehensively examine the Malaysian Hakka dialect, employing the criteria for evaluating language vitality published by the UNESCO Endangered Languages Expert Group.

2.0 LITERATURE REVIEW

2.1 Language vitality

The term “language vitality” refers to the degree to which a language is used and spoken within a society. This concept is closely associated with the examination of minority languages and has evolved into the field of “ethnolinguistic vitality”. Originally, the idea of ethnolinguistic vitality was developed as a conceptual tool for analysing the social changes that impact the strength of ethnolinguistic communities in intergroup settings (Harwood et al., 1994). Initial studies focused on three indicators collectively known as “objective vitality”: status, population, and institutional support. The underlying assumption was that “higher status, institutional support/control, and/or positive demographic trends indicate greater vitality of ethnolinguistic communities”(Smith et al., 2017).

However, the vitality of a language is also influenced by the subjective perceptions of individuals within the community. If the majority of individuals hold similar perceptions, these perceptions become dominant within the community and directly impact the level of language vitality. Bourhis et al. (1981) introduced the Subjective Vitality Questionnaire (SVQ) as a tool for measuring the subjective assessment of in-group/out-group vitality for each aspect of the objective vitality framework, including demographic factors, institutional support, and status. The SVQ has played a significant role as a pioneering template for subsequent studies on subjective vitality, with Smith et al. (2017) suggesting that approximately 45% of all studies have employed some versions of this questionnaire.

A significant portion of the research conducted regarding language vitality in Malaysia has primarily focused on the language development of ethnic minorities, specifically the Orang Asli of the Malay Peninsula and the Aborigines of Sabah and Sarawak. Generally, minority languages with larger population bases tend to exhibit higher levels of language vitality. In a study conducted by Coluzzi (2017), the ethnolinguistic vitality of minority languages in Malaysia was examined, with a particular emphasis on the Bidayuh and Mah Meri languages. The results of the study revealed that both of these minority languages demonstrate a high degree of ethnolinguistic vitality in Malaysia. These findings were similarly observed among the Bidayuh and Mah Meri ethnic groups in Peninsular Malaysia. However, it is important to note that a language shift has been observed among the Mah Meri youth, although the Mah Meri language still maintains a significant level of vitality (Coluzzi et al., 2017). In another study focused on the vitality of the Kadazandusun language in Sabah, Malaysia, Ting and Tham (2014) argue that the vitality of the Kadazandusun language can be categorized as Level 4 (educational), 5 (written), and 6b (threatened) on the Expanded Graded Intergenerational Disruption Scale (EGIDS), depending on the language use situation within the family, which is considered “safe”. Nonetheless, there has

been a decrease in intergenerational usage of the Kadazandusun language, while the Sabah Malay dialect is gaining prominence.

In contrast to the aforementioned groups, minority populations with smaller population bases tend to have less robust languages, and in some cases, these languages have even reached endangered levels. Mohamed and Hashim (2012) conducted a primary data collection through fieldwork, observation, and interviews. The data were analysed to demonstrate that the Sihan language does not meet the nine criteria for language vitality set forth by UNESCO. The functional load of the Sihan language is diminishing in various domains. In a related study, Hidayati et al. (2018) also noted that the Vaie language in Malaysia is potentially “unsafe” according to UNESCO’s assessment.

2.2 Malaysia Hakka dialect studies

In terms of objective vitality indicators, the language vitality of Malaysian Hakka is undeniably high, considering its population of 1,092,854 speakers (Tan, 2021). Nonetheless, the actual situation is not promising. Studies have shown that Hakka families are experiencing a language shift due to the influence of dominant languages like Mandarin and English. Lin (2010) and Li (2012) conducted surveys on the language situation in Chinese new villages in Malaysia and arrived at the same conclusions. The language situation in Hakka families is transforming. Across generations, from grandparents to parents to grandchildren, there is a shift from the exclusive use of the Hakka dialect to a mixture of Mandarin and Hakka dialect, and ultimately to the exclusive use of Mandarin. Additionally, Fan and Choo’s (2023) study of Chinese new villages revealed a similar pattern of language development, with particular concern regarding dialect inheritance. The situation of Hakka culture inheritance is arguably even more critical, as it faces the risk of complete loss.

In all studies on family language policy and language transmission, it has been observed that the language identity of the younger generation tends to lean towards Mandarinisation (Ding, 2022; Ong, 2021). The causes for this phenomenon are varied, encompassing mixed marriages and urbanization, as well as the influence of the lingua franca and strong dialects (Ting, 2018). Additionally, Wang & Benjamin (2006) have suggested that the linguistic similarity between the Hakka dialect and Mandarin also plays a part. The shift in linguistic tendencies among the younger generation can be attributed to the decline in language vitality (Ralf & Tek, 2020). Ong (2020) posits that the language vitality of the Hakka dialect is currently at a critical level among the younger generation. Ting and Hoo (2022) employed the EGIDS to analyse the vitality of the Hakka dialect within this demographic. The findings indicated that the vitality level was at EGIDS level 6B (threatened). Despite the subjects’ ability to speak Hakka, the percentage of usage amounted to only 5.17%. This suggests that the language vitality of the Hakka dialect in Malaysia is currently facing a significant challenge.

According to a review of the aforementioned study, the language usage of Malaysian ethnic groups, both within the family and in society, is undergoing a transition towards the adoption of the lingua franca and dominant language. Dialects are progressively being supplanted as the primary mother tongue within families.

3.0 METHODOLOGY

This study used a range of research methods, such as questionnaires, interviews, observations, and a review of institutional literature, to collect both primary and secondary data on the indicators of objective and subjective vitality. The collected data were analysed using SPSS 22.0 and Microsoft Excel of Window 11, followed by an assessment of language vitality.

3.1 Sample

The questionnaire design was adapted from the studies conducted by Wang (2012) and Fan and Choo (2023) on the language situation and language vitality of Chinese Malaysians. The questionnaire encompassed inquiries regarding respondents' background information, language usage, and language attitudes. The items were intentionally formulated to be answered using a multiple-choice or Likert 5-point scale.

Sun (2006) argues that the distribution of languages, specifically whether they are concentrated, mixed, or scattered, will have a significant impact on language vitality. The Chinese Malaysians established a unique form of village settlement during the Emergency period (1948 - 1960), which continues to be preserved to the present day. This type of settlement in clustered villages promotes ethnic cohesion and can have a positive influence on the preservation and safeguarding of culture, traditions, and language (Carstens, 2007; Li, 2012; Ma, 2020). Over time, many areas have undergone development, leading to the migration of some Chinese individuals to live in mixed settlements outside of the new villages. Taking into account these aforementioned considerations, this study examines the usage of the Hakka dialect among Chinese individuals residing in Chinese new villages and mixed settlements, focusing specifically on four age groups of Hakka Chinese.

The respondents were predominantly residents of the Chinese new villages, specifically those residing in Serdang Hakka New Villages located in Selangor. A total of 218 valid questionnaires were collected from this group. As for the mixed settlements, respondents were selected from various areas in Selangor, namely Semenyih, Petaling Jaya, Klang, Sepang, Kajang, and Shah Alam. A total of 216 valid questionnaires were collected. The background of the respondents was required to have a minimum understanding of the Hakka dialect. The following table shows the distribution of respondents according to their age.

Table 1. Respondents' distribution according to their age

Age	Hakka new village		Mixed settlement	
	Male	Female	Male	Female
15-20	24 (11.0%)	26 (11.9%)	19 (8.8%)	33 (15.9%)
21-40	25 (11.5%)	28 (12.8%)	28 (13.0%)	32 (14.8%)
41-60	33 (15.1%)	31 (14.2%)	22 (10.2%)	31 (14.4%)
61 and above	25 (11.5%)	26 (11.9%)	28 (13.0%)	23 (10.6%)
Total	107 (49.1%)	111 (50.9%)	97 (44.9%)	119 (55.1%)
	218 (100%)		216 (100%)	

3.2 Language vitality evaluation

The statistical data, interviews, and observations in this study were evaluated and analysed based on nine criteria (referred to as the UNESCO scale) outlined in the 2003 UNESCO document "Language Vitality and Endangerment" (Brenzinger et al., 2003). The nine criteria are as below:

- Factor 1: Intergenerational language transmission
- Factor 2: Absolute number of speakers
- Factor 3: Proportion of speakers within the total population
- Factor 4: Trends in existing language domains
- Factor 5: Response to new domains and media
- Factor 6: Materials for language education and literacy
- Factor 7: Language attitudes and policies
- Factor 8: Community members' attitudes toward their own language
- Factor 9: Amount and quality of documentation

4.0 LANGUAGE VITALITY OF THE HAKKA DIALECT IN MALAYSIA

4.1 Intergenerational language transmission

Table 2 illustrates the distribution of the Hakka dialect and other language usage (dialect: other language) among the four age groups of respondents residing in the new villages and mixed settlements. The language patterns within families in both types of residences display comparable intergenerational shifts, characterized by a decrease in the proportion of Hakka dialect usage across each age group, alongside a concurrent rise in the utilization of Mandarin-based lingua franca.

Table 2. Respondents' family language use (in percentage)

Age	Hakka new village	Mixed settlements
61 and above	96.7 : 3.3	87.3 : 12.7
41-60	83.6 : 16.4	68.3 : 31.7
21-40	64.9 : 35.1	61.5 : 38.5
15-20	29.7 : 70.3	40.1 : 59.9

Further interviews and observations indicate that the increasing popularity of Chinese language education and the language competition in contemporary societies have led parents to prioritize the language that can benefit their children economically. Additionally, when couples come from different dialects or ethnic groups, using a dominant language becomes the preferred choice for effective communication, which has become a significant factor in the shift of family language. Furthermore, the older generation has also embraced the changing times by communicating with their grandchildren in Mandarin. This change in family language is especially noticeable in mixed communities.

The intergenerational transmission of the Hakka dialect, as previously mentioned, is classified as "stable yet threatened" (5-) according to the degree of endangerment (DOE) of Factor 1, i.e., "the language is spoken in most contexts by all generations with unbroken intergenerational transmission, yet multilingualism in the native language and one or more dominant language(s) has usurped certain important communication contexts". The Hakka dialect is mainly at risk due to the influence of the Mandarin. If consider only the usage of the Hakka dialect among the younger generation, it falls under the category of "Definitely Endangered (3)". This means that the language is primarily spoken by fathers and older generations, while children are no longer learning Hakka as their first language at home.

4.2 Absolute number of speakers and proportion of speakers within the total population

It is challenging to provide an exact figure for the number of language speakers due to the official Malaysian census rarely includes Chinese dialects in its survey categories. However, there are three official figures available. According to Tan (2000), in 1991, the population of the Hakka dialect in Malaysia numbered approximately 1,338,233, which accounted for 27.3% of the Chinese population at that time. This figure decreased to 1,093,000, or 21.3%, in the year 2000 (Department of Statistics, 2003, as cited in Voon, 2018: 28). After more than a decade of development, the population of the Hakka dialect experienced a further decline to 1,092,854 in 2016 (Tan, 2021), representing 20.3% of the total population.

Table 3. Hakka Malaysians' population over the years

Year	Peninsular	Sabah	Sarawak	Total
1991	1,081,862	113,628	142,743	1,338,233
2000	783,000	148,000	162,000	1,093,000
2016	No detail	No detail	No detail	1,092,854

With the evident decline in the proportion of the Hakka population and the increasing trend among the younger generation to abandon the language, it is important to consider that the actual number of true Hakka dialect speakers is lower than the reported figures. Consequently, in line with the classification guidelines provided by the DOE for Factor 3, it can be concluded that the Hakka dialect is at level 3 (Definitely endangered), indicating that the majority of the population no longer utilizes the Hakka dialect.

4.3 Trends in existing language domains

It has been observed that the usage of the Hakka dialect is more prevalent among respondents residing in Chinese new villages as compared to respondents living in mixed settlements. Respondents from new villages can fulfil their daily communication needs solely through the use of the Hakka dialect. On the other hand, respondents from mixed settlement face significant challenges in this aspect. The usage of the Hakka dialect is declining outside the home domain. Table 4 presents data indicating that only older respondents from new villages utilized the Hakka dialect in informal settings such as “shop” and “kopitiam” during frequent communication situations. In other words, the usage of the Hakka dialect decreases as the formality of the occasion increases.

Table 4. Respondents’ communicative language in various settings(in percentage)

Age	Setting				
	Hospital / clinic	Government	Educational institutions	Shop	Kopitiam
New village					
15 - 20	English (50.0)	Malay (92.0)	Mandarin (88.0)	Malay (36.0)	Mandarin (46.0)
21 - 40	Malay (62.3)	Malay (75.5)	Mandarin (71.2)	Mandarin (32.1)	Mandarin (28.3)
41 - 60	Malay (90.6)	Malay (96.9)	Mandarin (82.8)	Malay (29.7)	Hakka (54.7)
61 and above	Malay (88.2)	Malay (94.1)	Mandarin (78.4)	Hakka (47.1)	Hakka (66.7)
Mixed settlement					
15 - 20	Malay (53.8)	Malay (82.7)	Mandarin (71.2)	Mandarin (50.0)	Mandarin (46.2)
21 - 40	Malay (56.7)	Malay (83.3)	Mandarin (46.7)	English (43.3)	English (43.3)
41 - 60	Malay (71.7)	Malay (92.5)	Mandarin (56.6)	Malay (37.7)	Mandarin (32.1)
61 and above	Malay (74.5)	Malay (88.2)	Mandarin (92.2)	Cantonese (29.4)	Cantonese (35.3)

Note: The percentage data represent the respondents’ most frequent use of language in the setting.

The employment of the Hakka dialect in various settings aligns with level 3 (dwindling domains) in Factor 4 in the DOE. This indicates that the usage of the Hakka dialect is diminishing. Within the family, parents and children have started employing dominant

languages such as Mandarin and English for their daily interactions, resulting in the children becoming “semi-users” of their mother tongue (receptive bilingual users).

4.4 Community members’ attitudes toward their own language

The language attitudes of members of speech communities, whether positive, indifferent, or negative, can significantly influence language usage across various domains, ultimately impacting the vitality of the language itself. Ten items were administered to examine the respondents’ attitudes towards the Hakka dialect. The majority of respondents from the new village agreed with all ten items. Regarding Item 1 (*I believe that dialects have greater utility than Mandarin in Malaysia*), all age groups, except for the “15-20 years old” group, agreed that the Hakka dialect is more useful than Mandarin. Items 2 (*When all peoples present are Chinese, I prefer dialects for communication*) and 3 (*In my daily life, I prefer to use dialects*) elicited agreement or strong agreement from the three older age groups, indicating their preference for using the Hakka dialect in daily life and prioritizing it in situations where all peoples are Chinese. In contrast, the youngest age group held a negative attitude towards prioritizing the Hakka dialect in situations involving only Chinese people but still preferred to use it in their daily lives. As for Item 4 (*Speaking dialects in public would give the impression of vulgarity*), the youngest age group disagreed, whereas the other age groups agreed. Finally, Items 9 (*I find dialects easier to learn than Mandarin*) and 10 (*Dialects convey information with greater accuracy when conversing with Chinese peoples*) received agreement or strong agreement from respondents across all age groups.

All age groups agreed or strongly agreed with Items 6 (*Speaking dialects with family and friends creates a closer bond*) and 7 (*I am willing to teach my children dialects from an early age*) in mixed residential areas. Regarding Item 8 (*I am concerned that many children today are unable to speak dialects*), all age groups expressed concern about their children’s inability to speak dialects. Additionally, all age groups agreed or strongly agreed with Items 3, 5 (*It is imperative for Chinese individuals to be able to speak the dialect of their own dialect groups*), and 10. Most of the age groups disagreed with the Hakka dialect in Items 1 and 2, indicating a preference for Mandarin and a belief that dialects are not easier to learn than Mandarin (Item 9). However, despite this preference, they did not hold a negative impression of the Hakka dialect and did not consider it to be vulgar (Item 4). The data reveals that the respondents in both types of residential areas held a positive attitude towards the Hakka dialect. However, the degree of agreement among the respondents in the Chinese new village was significantly higher compared to those in the mixed residential area. The cohesion of the dialect group, fostered by the settlement living form, plays a crucial role in this regard (see Table 5).

Table 5. Level of identification with Hakka dialect among respondents

Item	15 - 20		21 - 40		41 - 60		61 and above	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
New village								
1	2.94	0.87	3.49	1.37	3.77	1.34	3.29	1.47
2	2.92	0.99	3.70	1.17	3.59	1.53	3.57	1.42
3	3.14	0.95	3.77	1.10	4.16	1.01	4.08	1.09
4	2.74	1.01	3.40	1.18	3.48	1.43	3.24	1.53
5	3.64	0.98	4.04	0.85	4.41	0.81	4.43	0.76
6	3.80	0.81	4.23	0.80	4.41	0.83	4.37	0.77

7	4.04	0.81	4.34	0.90	4.03	1.18	3.94	1.12
8	3.90	1.02	4.02	0.99	3.67	1.46	3.82	1.37
9	3.44	0.97	3.72	1.18	3.67	1.32	3.92	1.07
10	3.22	1.00	4.13	1.06	4.11	1.14	3.86	1.20
Mixed settlement								
1	2.88	0.94	3.15	0.84	2.94	0.89	2.84	1.17
2	2.98	0.96	3.00	0.82	2.96	0.96	3.27	1.42
3	3.04	0.84	3.18	0.89	3.34	0.85	3.88	1.05
4	2.73	0.87	2.53	0.93	2.43	0.93	3.22	1.42
5	3.46	0.80	3.55	1.00	3.47	0.87	4.20	0.89
6	3.71	0.75	3.77	0.79	3.83	0.83	4.25	0.87
7	3.71	0.75	3.83	0.76	3.83	0.87	3.78	1.01
8	3.54	0.78	3.32	0.89	3.60	0.86	3.80	1.06
9	3.08	0.81	2.95	0.91	3.19	0.92	3.24	1.14
10	3.13	0.77	3.17	0.96	3.21	0.97	3.75	1.09

Note:

The mean value is categorized into four intervals: 1.00-2.00 for strongly disagree, 2.01-3.00 for disagree, 3.01-4.00 for agree, and 4.01-5.00 for strongly agree (Norasmah & Salmah, 2011) .

According to Table 5, the degree of identification with the Hakka dialect varies significantly when comparing the highest age group to the youngest age group. An independent samples t-test was conducted to analyse respondents from the “61 years old and above” group and the “15-20 years old” group in the Chinese new village. The results indicated a significant difference between the higher age group (N=51) and the lower age group (N=50) at the 0.05 level of significance ($t=-3.42$, $p=0.00$). Furthermore, a comparison of their means revealed that the high age group had a higher level of agreement with dialect use (3.85 ± 0.73), compared to the low age group (3.38 ± 0.66). Similar results were observed in the mixed residential area, where the high age group (N=51) and the low age group (N=52) also showed a significant difference at the 0.05 level of significance ($t=-3.34$, $p=0.00$). The mean value indicated that the high age group had a higher level of identification with the use of the Hakka dialect (3.62 ± 0.70) compared to the low age group (3.23 ± 0.48). Through interviews and observations, it was evident that the younger generation’s attitude towards the Hakka dialect, although not entirely negative, was characterized by indifference. This can be attributed to the fact that the Hakka dialect is no longer their mother tongue.

Table 6. Differences in the level of identification with the Hakka dialect among respondents in high and low age groups

Form of residence	Age group	Mean	T value	Significance
New village	High age group	3.85	-3.42	0.00*
	Low age group	3.38		
Mixed settlement	High age group	3.62	-3.34	0.00*
	Low age group	3.23		

Note: *Indicates differences presented at 0.05 level of significance.

The Hakka dialect identification exhibited by respondents from various age groups in the two residences aligns with level 4 in Factor 8 in the DOE, indicating that the majority of the respondents support the preservation of the language.

4.5 Other factors

The Hakka dialect lacks its written language. Therefore, it is unable to be integrated into the official education system that relies on written symbols. Consequently, its acquisition is limited to informal settings such as family education, where it is learned naturally. The Hakka dialect displayed a limited receptiveness to new linguistic variations and media sources (Factor 5), primarily manifesting in the regular Hakka news broadcasts on the government-owned radio station AiFM and the content produced by individual self-media outlets. This level of engagement was assessed as being at Level 1 (minimal) according to the DOE. The Hakka dialect did not meet the criteria for Factor 6 (Materials for language education and literacy) and Factor 9 (Amount and quality of documentation) according to the UNESCO scale, as it scored at the lowest level, 0 (No orthography is available to the community and No material exists).

Regarding Factor 7 (Governmental and institutional language attitudes and policies), the status of the Hakka dialect in the multilingual context of Malaysia aligns with the DOE's Level 1 (Forced assimilation) and Level 4 (Differentiated support). Article 152 of the Malaysian Constitution unequivocally states that Malay is the sole official language, whilst simultaneously safeguarding the rights of other ethnic groups to freely employ and acquire knowledge of their respective mother tongues and dialects (Federal Constitution, 1957). However, regrettably, no official initiative exists to rescue and preserve the Hakka dialect. Despite efforts undertaken by civil society organizations, the outcomes have been marginal at best. The lack of proactive measures from the Malaysian government can be attributed to its longstanding implementation of an implicit language assimilation policy.

5.0 CONCLUSION

In the competitive multilingual environment of Malaysia, the status of the Hakka dialect as a mother tongue faces challenges from dominant external languages such as Malay and English, as well as the internal dominant language of Mandarin. Although the population base of the Hakka dialect meets the criteria for a high-vitality language based on the objective vitality index, the results of subjective vitality surveys are pessimistic. The younger generation has low recognition of the Hakka dialect overall, and there is an increasing inability to speak it or a decline in its usage. When evaluating the nine criteria of the UNESCO scale, the Hakka dialect is generally considered highly dynamic but is also under significant threat. Furthermore, without a written form to serve as a symbol for recording the language, the endangered status of the Hakka dialect will continue to worsen without active human intervention.

REFERENCES

- Bernard, H. R. (1996). Language Preservation and Publishing. In *Indigenous Literacies in the Americas: Language Planning from the Bottom up*, ed. by N. H. Hornberger, 139-156. Mouton de Gruyter.
- Bourhis, R., Giles, H., & Rosenthal, D. (1981). Notes on the construction of a 'Subjective Vitality Questionnaire' for ethnolinguistic groups. *Journal of Multilingual and Multicultural Development*, 2, 145-155. doi: 10.1080/01434632.1981.9994047.
- Brenzinger, M., Yamamoto, A., Aikawa, N., Koundioubu, D., Minasyan, A., Dwyer, A., Grinevald, C., Krauss, M., Miyaoka, O., Sakiyama, O., Smeets, R. & Zepeda, O. (2003). *Language vitality and endangerment: UNESCO expert meeting on safeguarding endangered languages*.
<http://www.unesco.org/culture/ich/doc/src/00120-EN.pdf>

- Carstens, S. A. (2007). The Spiritual world of a Hakka Village. *Taiwan Journal of Southeast Asian Studies*, 29-64.
- Chen, X. J. (2003). 马来西亚的三个汉语方言 (Three Chinese Dialects in Malaysia). *Chinese Social Sciences Press*.
- Coluzzi, P. (2017). The vitality of minority languages in Malaysia. *Oceanic Linguistics*, 56(1), 210-225. doi: 10.1353/OL.2017.0008.
- Coluzzi, P., Riget, P. N., & Wang, X. M. (2017). Language vitality among the Orang Asli of Malaysia: the case of the Mah Meri on Telo' Gunjeng (Carey Island, Selangor). *International Journal of the Sociology of Language*, 2017(244), 137-161. doi: 10.1515/IJSL-2016-0060.
- Department of Statistics Malaysia. (n.d.). <https://www.facebook.com/StatsMalaysia>
- Ding, S. L. (2022). Rethinking marginalization and heritage language vitality in multilingual families. *International Journal of Bilingualism*, 27. doi: 136700692211118. 10.1177/13670069221111861.
- Fan, P. S., & Choo, K. F. (2023). Inheritance or extinction? the study of language and culture in Serdang Hakka New Village. *Malaysia Journal of Humanities and Social Sciences*, 12(2), 59-71.
- Federal Constitution. (1957). *Part XII general and miscellaneous 152: National language. As at 5th March 2008*. Compiled by Legal Research Board. International Law Book Services, 186–188.
- Harwood, J., Giles, H., & Bourhis, R. Y. (1994). The genesis of vitality theory: Historical patterns and discursal dimensions. *International Journal of the Sociology of Language*, 108, 167-206.
- Hidayati, S., Ghani, B. A. A., Giridharan, B., Mohd, Z. H., & Franco, F. M. (2018). Using Ethnotaxonomy to Assess traditional knowledge and language vitality: A case study with the Vaie People of Sarawak, Malaysia. *Ethnobiology Letters*, 9 (2), 33-47. doi: 10.14237/EBL.9.2.2018.740
- Joshua Project. (n.d.). *Malaysia*. <https://joshuaproject.net/countries/my>
- Li, Z. R. (2012). 雪兰莪州沙登新村华人语言使用情况的调查 (A survey of Chinese language usage in Selangor's Serdang New Village). *学问 (Knowledge)*, 2, 118-127.
- Lin, D. M. (2010). 从马来西亚华裔家庭用语看汉语方言的兴衰——以森美兰州文丁新村的实际调查为例 (A Survey on the Use of Mandarin and Dialects by Malaysian Chinese Family: A Case Study in Mantin, Negeri Sembilan) [Master's thesis, Zhejiang University].
- Ma, Y. (2020). *Dialect group identity and relations in multicultural Malaysia: a case study on the Seri Kembangan Hakka new village*. [Doctoral Dissertation, University of Malaya].
- Mohamed, N., & Hashim, H. (2012). Language vitality of the Sihan Community in Sarawak, Malaysia. *Kemanusiaan*, 19 (1), 59-86.
- Norasmah, O. & Salmah, I. (2011). Kecenderungan terhadap Pemilihan kerjaya keusahawanan mengikut persepsi peserta skim usahawan siswa (Tendency towards entrepreneurial career selection according to the perception of student entrepreneur scheme participants). *Jurnal Teknologi*, 56, 47-63.
- Ong, T. (2020). Why bother maintaining languages?: A discussion based on diminishing Chinese dialects in Malaysia. *Apples: journal of applied language studies*, 14(1), 1-5. doi: 10.17011/APPLES/URN.202001171301.
- Ong, T. (2021). Language maintenance in Malaysia: A case study of the Chinese community in Penang. *International Journal of Speech Language and the Law*, 28(10). doi: 1558/ijsl.21606.
- Ralf, V., & Tek, W. S. (2020). Language change and convergence in multilingual Malaysian Chinese. *Global Chinese*, 6(1), 49-67. doi: 10.1515/GLOCHI-2020-0002.
- Sandhu, K. S. (1969). *Indians in Malaya: Some aspects of their immigration and settlement (1786-1957)*. Cambridge University Press.

- Smith, B., Ehala, M., & Giles, H. (2017). Vitality theory. *Oxford Research Encyclopedia of Communication*. <https://oxfordre.com/communication/view/10.1093/acrefore/9780190228613.001.0001/acrefore-9780190228613-e-496>
- Sun, H. K. (2006). 中国少数民族语言活力排序研究 (A study on the vitality sorting of minority languages in China). *Journal of Guangxi University for Nationalities(Philosophy and Social Sciences Edition)*, 05, 6-10.
- Tan, C. B. (2000). Socio-cultural diversities and identities. In K. H. Lee & C. B. Tan (Ed.), *The Chinese in Malaysia* (pp. 37-70). Oxford University Press.
- Tan, Y. Q. (2021, March4). 寻根追远的马来西亚河婆文物馆(Tracing the roots of Malaysia's Hepa Heritage Museum) [TV program episode]. In C. Kang (Executive Producers), *Galeri Nasional Mandarin*. TV2.
- Ting, S. H. (2018). Intergenerational transmission of the ethnic language: Hakka stops at Gen X. *Grazer Linguistische Studien*, 89, 63-88. doi: 10.25364/04.45:2018.89.4.
- Ting, S. H., & Hoo, H. Y. (2022). Vitality of Hakka Chinese In Johor, Malaysia. *Taiwan Journal of Linguistic*, 20(2). doi: 10.6519/TJL.202207_20(2).0001.
- Ting, S. H., & Tham, F. L. (2014). Vitality of Kadazandusun language in Sabah, Malaysia. *Asia-Pacific Studies*, 1(1), 44-57.
- UNESCO. (2010). *Atlas of the world's languages in danger* (C. Moseley, Ed. & A. Nicolas, Cartographer). UNESCO Publishing. <https://unesdoc.unesco.org/ark:/48223/pf0000187026> (Original work published 1996)
- Voon, P. K. (2018). *Calling Malaysia Home: Studies on the Malaysian Chinese community*. Wisma Kebudayaan SGM & New Era University College Press.
- Wang, C. H. (2016). Language order in contemporary world. *Chinese Journal of Language Policy and Planning*, 1(4), 69-82.
- Wang, X. M. 2012. *Mandarin Spread In Malaysia*. University of Malaya Press.
- Wang, X. M., & Benjamin, T. (2006). Language shift among Hakka Group in the State of Johore, Malaysia. *Journal of Chinese Sociolinguistics*, 2, 30-43.

FIELD EXCURSION AS ALTERNATIVE TEACHING APPROACH FOR CIVIL ENGINEERING QUANTITIES AND ESTIMATION COURSE

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ABSTRACT

This study explores the effectiveness of integrating experiential learning, specifically site visit, as part of a teaching method in the Civil Engineering Quantities and Estimation course. The course is crucial for developing the skills necessary for accurate project management and successful implementation of infrastructure projects. The research focuses on a group of year three of Diploma of Civil Engineering students at UiTM Johor Branch Pasir Gudang Campus in semester 20232 year of academic. The aim of this study is to compare students' performance in formative and summative assessments before and after participating in a site visit activity. The findings reveal that, while male students show modest (43.8%) improvement, female students demonstrate a significant (100.0%) improvement in their understanding of the course after the site visit. The results suggest that experiential learning, particularly site visits, can positively impact students' comprehension and performance in the Civil Engineering Quantities and Estimation course. The study recommends the incorporation of experiential learning methods into the curriculum, acknowledging the potential benefits for students' understanding and application of theoretical knowledge in real-world contexts

Keywords: Experienced-based learning, Site visit, Taking off, Quantities and Estimation, Education, Higher learning, Engineering education.

1.0 INTRODUCTION

In completing a project, a comprehensive skill sets are needed in ensuring the success of a project. Besides, learning on the structural and infrastructure's design calculation aspect, a fresh engineering graduate should equip themselves with others technical knowledge. This is because, the nature of civil engineering works may involve multidisciplinary field and technical person including quantity surveyor. Therefore, knowledge on the quantities and estimation in construction plays a pivotal role in the field of Civil Engineering. This is because quantities and estimation serving as the foundation for effective project management and successful implementation of infrastructure projects (Ramabodu, 2014). Accurate quantification of materials, labour, and associated costs is fundamental in developing realistic project budgets, ensuring financial viability, and aiding in

the meticulous allocation of resources (Saka et al., 2024). Generally, building measurement, estimating and cost planning is part of main activities which required to be conducted during the pre-construction phase of a project development (Ernest et al., 2017). The estimation skills are important which may guide civil engineers in predicting project timelines and identifying potential challenges before any construction started (Ernest et al., 2017). A precise understanding of quantities and estimation not only contributes to the financial health of projects but also promotes efficiency in resource allocation, minimizing waste and maximizing productivity (Habibi et al., 2018). Thus, these skills empower civil engineers to make informed decisions, navigate uncertainties, and ultimately deliver projects that meet both functional and economic objectives. Therefore, the estimation knowledge and skills required to be integrated in the civil engineering programme for shaping potential future young proficient professionals for the construction industry. The development of engineering education is shifting from disciplinary to interdisciplinary thinking maintaining competitiveness and producing better engineers (Alabadan Babatope et al., 2020). Previous research conducted in the United Kingdom (UK), Malaysia and Nigeria also pointed out some difficulties involved in and learning processes of building measurement units (Tunji-Olayeni et al., 2016). Therefore, it is essential to explore and introduce the variety of teaching approaches which can help to enhance the understanding of the measurement practices and principles amongst students. The aim of this research is to determine the effectiveness on the experience-based learning approach may be integrated into the process of learning method in Engineering Quantities and Estimation course for Diploma of Civil Engineering Programme (CEEC110) in UiTM Cawangan Johor Branch Campus Pasir Gudang.

1.1 Quantities and Estimation in the Civil Engineering Course

Engineering Quantities and Estimation course constitutes as a fundamental subject mandatory for students enrolled in the Diploma of Civil Engineering Program in UiTM. According to the CEEC110 program curriculum, this course is anticipated to be taken by students in semester five (third year). In general, the course provides students with knowledge of quantity taking off, bill of quantities preparation, work estimation, and comprehensive cost estimations for construction projects.

This course is a 3-credit hours course, necessitating students to engage in weekly lectures for a duration of 3 hours over a 14-week semester. Therefore, students are to dedicate 42 hours in attending lecture classes. The knowledge imparted in this course holds significant importance for students, particularly in developing proficiency in construction measurement and cost estimation. This expertise becomes particularly crucial during the quantification and estimation phases of construction projects in the pre-construction stage. Table 1 delineates the course outcomes and program outcomes specifically designed for this subject.

Table 1. CO-PO Matrix.

Course Outcomes (CO)		Program Outcomes (PO)	
CO1	Evaluate bill of quantity for major elements of building and civil engineering works in accordance with Malaysian Civil Engineering Standard Methods of Measurement (myCESMM).	PO2	Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity.
CO2	Manage cost estimation using appropriate technique and	PO5	Apply appropriate techniques, resources, and modern engineering

Course Outcomes (CO)		Program Outcomes (PO)	
	engineering tools with an awareness of the limitation.		and IT tools to well-defined engineering problems, with an awareness of the limitations.
CO3	Justify knowledge and understanding on cost estimate for a selected set of structure elements and type of contract as a member and leader in a team in multidisciplinary environments.	PO12	Recognize the need for and have the ability to engage in independent updating in the context of specialized technical knowledge.

1.2 Teaching and Learning Method

Compared to traditional teaching and learning methods, 21st-century teaching and learning is more focused on communication between the lecturers and students (Ishkov & Leontiev, 2015). Academia is challenged to think of ways to deliver the knowledge that students need to gain without only focusing on the delivery but also on how to attract their attention to keep them engaged.

Conventional Method

Advancement of technology nowadays known in most area, however for basic understanding Quantity surveying (QS) measurement is still primarily a manual operation (Gurmu, 2023). Reading the construction drawings, estimating, and quantifying the work, and documenting the amount of work were all part of the teaching strategy for this course's quantity-taking-off process. According to Standard Methods of Measurement (SMM) or the New Rules of Measurement (NRM) published by the Royal Institution of Chartered Surveyors (RICS), an essential skill of quantity surveyors involved in the measurement of ability to read and interpret drawings, knowledge of building construction and standard acquaintance (Ilmi et al., 2021). Nevertheless, based on previous research, stated that graduates are unable to perform or comprehend construction components which are to visualize 2D to 3D in the quantification work (Yusop et al., 2018). Supported by (Lee, 2013), the author agreed it is challenging to teach students to understand 2D and 3D in the quantification work. In the education structure program, one of the course learning outcomes is to develop skills in sketching components and building elements were included in this course. However, based on comments by the industry sector, some new approach needs to be used to improve the learning and teaching methods for a more efficient and better understanding of the Quantity surveying (QS) measurement course.

Experienced based Learning Method

Experienced-based learning methods, as illuminated in the educational literature, represent a pedagogical approach that centres on first-hand experiences as a primary tool for knowledge acquisition (Asad et al., 2021). This approach diverges from traditional didactic methods, emphasizing active engagement and application of knowledge in real-world contexts. Scholars underscore the transformative impact of experiential learning in fostering a deeper understanding of concepts and enhancing retention rates among students. Through activities such as internships, fieldwork, simulations, and case studies, experiential learning immerses students in practical situations, encouraging them to develop connections between theoretical comprehension and practical practice (Foo & Foo, 2022). The educational discourse surrounding experiential-based learning underlines its potential to develop a comprehensive grasp of the subject content, problem-solving techniques, and critical thinking skills (Razbani et al., 2023). This method aligns with constructivist principles,

emphasizing that learners construct their own knowledge through active participation. As a result, the literature advocates for the integration of experiential-based learning methods into educational curricula to cultivate well-rounded, adaptable, and resourceful individuals prepared to meet the challenges of a dynamic world.

Quantities and Estimation Courses Site Visit

Students required to attend a technical on-site visit arranged by the Civil Engineering Centre of Studies. The site visit was conducted on week 13 of the academic calendar which was after the formative assessment completed and before the summative assessment took place. This site visit was arranged by the lecturer in charge as an alternative of teaching and learning approach to enhance student's understanding on the topic of Taking Off Quantities for Building Works that has been taught theoretically during in-class lecture.

In this case, the criteria during approaching the key person in charge of potential construction site to be visited were as follows:

1. The area of construction site is in range of Johor Bahru District
2. The construction site had ongoing construction activity which involved the excavation works, installation of formwork, reinforcement works and concrete works.
3. The selected project/ construction site was decided by the project's stakeholder.

The primary motivation for selecting a close-by building location was to reduce commuting expenses and time. Moreover, students were able to spend more time at the building sites as a result. Students were expected to explore the nature of construction activities specifically the excavation work, formwork, reinforcement work, and concrete work of the main structural elements including the pad footing, slab, beam, and column. In this context of study, the parties that were willing to accept this site visit were a project that involved construction works of a residential building.

A briefing was held by the site supervisor on the management and background of project construction. The students were briefed on the safety and health aspects of the respective sites. Personal Protective Equipment (PPE) such as safety helmets and safety were compulsory for the students to wear before entering the construction site. **Fig.1** shows a Safety and Health Officer giving the briefing session to the lecturer and students.



Fig.1 Briefing by the on-site Safety and Health Officer

During the site visit, the contractor gave the students the opportunity to explore every aspect of the ongoing construction area under the supervision and guidance of designated technical personnel. In this approach, students gained a more in-depth understanding of what had been taught theoretically in class. The visiting activity was allocated four hours during the construction site visit. Students had the opportunity to spend their time in exploring, observing, asking, and communicating with the technical person face to face. **Fig. 2** and **Fig. 3** show the experience-based learning approach on site during the visit.



Fig.2 Students observing the process of reinforcement steel on site.



Fig. 3 Students observing the Excavation work.

Teaching and Learning Assessment

Assessing students' progress towards the learning objectives is critical for educators in the context of the teaching and learning process. This is to determine the effectiveness of instructional strategies in facilitating the progressive acquisition of conceptual knowledge by the students. Hence, the utilization of formative and summative assessment is a viable approach.

Formative assessments are used for identifying strengths and weaknesses for better learning by focusing on areas to improve. Meanwhile, summative assessments are used for

evaluating students based on prescribed criteria and are primarily targeted for identifying strengths and weaknesses for better learning (Rawlusyk, 2018). These approaches have been adopted and practiced in this course. The formative assessment has been conducted in the format of the test while the summative assessment is in the format of the final examination. In contrast to summative assessments, which serve to classify students or provide information for certification, formative assessments are intended as feedback to help students monitor, improve, and accelerate their learning (Harlen & James, 1997). **Fig. 4** shows the timeline of assessments that have been conducted throughout the semester which are on 15 May 2023- Week 7 (Test) and on 26 July 2023- After week 14 (Final Exam).



Fig. 4 Timeline of assessment and the site visit activity throughout semester.

2.0 MATERIALS AND METHODS

This study employed a two-stage of methods which are the data collection, while the subsequent phase encompassed the analysis of the collected data. Method on data collection encompassed the organization of a construction visit and the development of specific questions to serve as instruments for assessing the comprehension and knowledge of the students involved. These questions were designed to gauge student's understanding on the material taking off aspects of the common building's structural components including pad footings, beams, columns, and slabs. Subsequently, the students' scoring marks were documented and subjected to analysis through the utilization of appropriate statistical tools. The results were organized in a structured manner and analysed in accordance with the specific statistical methodology that was compatible with the research objective

2.1. Sampling and Data Collection Method

Study participants were year three Diploma of Civil Engineering students at the School of Civil Engineering at UiTM Johor Branch Pasir Gudang Campus for the March-July 2023 semester. Twenty-one (21) students were enrolled in the Civil Engineering Quantities and Estimation course and only one lecturer in charge of this course for the respective semester. The lecturer in charge of this course has more than 5 years of experience in teaching this course.

Assessment Development

In both formative and summative types of assessments, a set of subjective questions was designed to gauge student's understanding of the topic as comprised in the course information. Based on the Examination Specific Table (EST), which was endorsed by the Centre of Studies, questions were developed to test the students experience in this visit. However, for the purpose of this study, only questions which covered under topic of; taking off the quantities of material for a common building's structural elements and construct based on the same level of difficulties according to Bloom's Taxonomy were selected as an instrument to indicate student's understanding and performance. The questions' specifics are displayed in Table 2.

Table 2. Details of instrument's question.

Element	Formative Assessment	Summative Assessment
Form of Assessment	Test	Final Exam
Schedule of Assessment	Week 7	Week 16
Topic	Topic 3: Taking Off Quantities for Building Works	Topic 3: Taking Off Quantities for Building Works
Type of Structural Element asked in the assessment	Beam	Slab
Allocation of Marks	30	15
Demand of Question	• Illustration of structure based on given detailing • Conduct Taking off • Prepare Bill of Quantities	• Explain the suitability use of mild steel bar and high tensile steel bar • Prepare taking off • Prepare Bill of Quantities
Time allocation to answer question	2 hours	30-40 minutes
Contribution to total course marks	10%	6%

Assessment Execution

Every student who took part in the study had to respond in writing to the assigned questions within the allotted time frame. Students use the time allotted to them to respond to the questions according to their comprehension and knowledge. The assessment has been conducted in a class with an examination setting. An invigilator is responsible for invigilating the respective assessment session. Students must turn in their written answer scripts for the questions they were asked during the session for them to be evaluate.

Assessment Evaluation

An evaluator was appointed to assess the student's written answer scripts. The evaluator was in charge of evaluating and marking the answers submitted by the student. It is important to ensure consistency in the evaluation process. In addition, assigned evaluator is required to refer to a standard answer scheme which has been checked and endorsed by the panel during the Examination Question Paper Workshop which has been arranged by the Civil Engineering Centre of Studies.

Scoring Marks Distribution

Each student's score can be used to ascertain how well they grasp the Taking Off Quantities for Building Works. According to (Abushandi, 2021), experience needs to be followed by reflection and internal processing that links the experience with previous learning and transforms an individual's prior understanding. In this study, the scoring marks is adopted from study conducted by (Ismail et al., 2021) which were categorised into four namely (1) good understanding; (2) better understanding; (3) moderate understanding and (4) poor understanding as shown in Table 3. Each student's graded grades were recorded for data analysis.

Table 3. Category of marks

Category	Marks
Good	16-20
Better	11-15
Moderate	6-10
Poor	<5

2.4 Data Analysis Method

A statistical analysis of the data was conducted with the recorded grades that each student received. In this study, descriptive statistics such as mean analysis has been conducted. This is due to the limitation of data which is less than 30 participants. Therefore, a frequency analysis was adopted to compare the difference of student's understanding between attended site visit and after attended site visit.

3.0 RESULTS AND DISCUSSION

3.1 Students' Demographic

The demographic aspect for the group of students who participate in this study is shown in Table 4. All students participated in the site visit activities arranged by the Centre of Civil Engineering Studies.

Table 4: Number of students according to the gender.

Demographic aspect	Items	Freq	(%)
Gender	Female	5	23.8
	Male	16	76.2

Comparison of Scoring Marks Before and After Attended Site Visit

Table 5 shows the number of students, and the mark categories based on the type of assessment.

Table 5. Student's scoring marks based on type of assessment.

Category	Marks	Number of Students	
		Summative Assessment	Formative Assessment
Good	16-20	3	1
Better	11-15	5	8
Moderate	6-10	8	9
Poor	<5	5	3

From the analysis, the mark's frequency score by the student for summative assessment which has been conducted before the student went to a site visit shows that 3 students acquired good understanding, 5 students acquired better understanding, 8 students acquired moderate understanding and 5 students has poor understanding on the topic of Taking Off Quantities for Building Works. However, after students went and participated in

one site visit, the mark's frequency score by the student for formative assessment shows that one student acquired good understanding, eight students acquired better understanding, nine students acquired moderate understanding, and three students had poor understanding on the similar topic.

The results indicate that the comprehension and academic achievement of the students after participating in a site visit activity were enhanced in comparison with before attending with any visit activity, however the number of students who attained better and moderate understanding is increasing. This is in line with study by (Eiris Pereira & Gheisari, 2019), which indicates that students believe the benefits of seeing and interacting with the experts and surroundings of the construction site to be extremely important.

Comparison of Scoring Marks Before and After Attended Site Visit According to Gender

Table 6 shows the student's Scoring marks for summative assessment (with zero site visit). As seen from the frequency analysis, a higher percentage of male students gained a good grasp of the topic compared to female students. More male students also acquired moderate understanding compared to female students. Female students only show moderate and poor understanding of the topic. Female students lack the ability to visualize the structural element with the dimensions on the blueprint thus contributing to the low performance in the formative assessment of the topic. (Razbani et al., 2023) study results showed that male students exhibit higher levels of conceptual understanding than female students in STEM (Science, Technology, Engineering, and Mathematics) learning.

Table 6: Student's scoring marks for formative assessment (with zero site visit).

Category	Marks	Formative Assessment			
		Male	Female	Total	%
Good	16-20	3	0	3	14.3
Better	11-15	5	0	5	23.8
Moderate	6-10	6	2	8	38.1
Poor	<5	2	3	5	23.8

In addition, Table 7 shows the Student's Scoring marks for summative Assessment (with one site visit). As a result of the frequency analysis, a higher number of male students were able to acquire a good and better understanding of the topic. The rate of male students acquiring moderate understanding was also higher than that of female students.

Table 7: Student's scoring marks for summative assessment (with one site visit).

Category	Marks	Summative Assessment			
		Male	Female	Total	%
Good	16-20	1	0	1	4.8
Better	11-15	8	0	8	38.1
Moderate	6-10	4	5	9	42.9
Poor	<5	3	0	3	14.3

Comparison of Scoring Marks Before and After attending site Visit for Each Male and Female Student

To further in depth the findings, a comparison of marks for each student has been conducted by tabulating the histogram as shown in **Fig. 5** and **Fig. 6**. In this case, sixteen male students are participating in this study. **Fig. 5** shows the scoring marks for each student for their formative and summative assessment. It shows that, seven out of sixteen students show an improvement after attending one site visit. M1, M6, M8, M9, M11 and M12 represented 43.8% improvement of scoring marks among male students before and after attending one site visit.

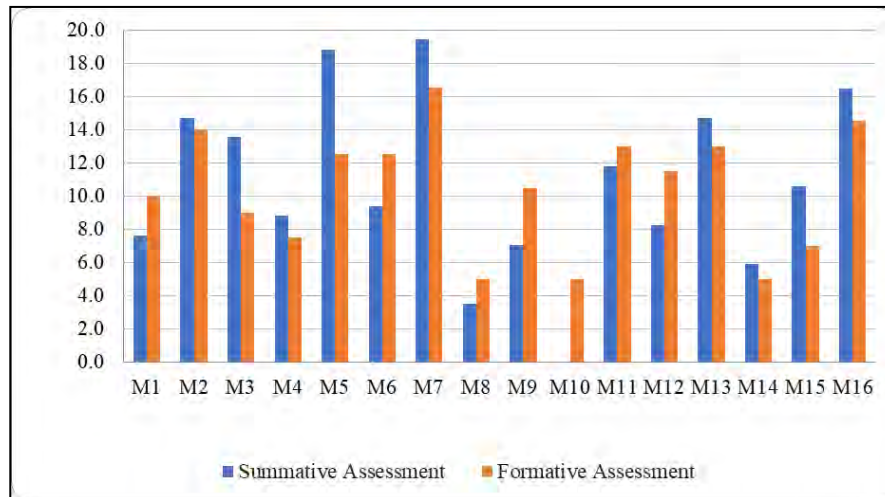


Fig. 5. Scoring marks before and after attended one site visit for male student.

In this case, five female students are participating in this study. **Fig. 6** shows the scoring marks for each student for their formative and summative assessment. Even though the scoring marks is low for all female students which is less than 10 marks, however, the findings show that all five students had increments in the scoring marks after attending one site visit for their summative assessment. This indicates a 100% of improvement among female students. A few male students missed the site visit because of various situations, which could have contributed to this situation. Therefore, the respective student did not have the opportunity to observe the real construction activity and did not acquire any technical experience which may be gained from the site visit session. In addition, this may contribute to the lack of performance in scoring marks for the summative assessment. Meanwhile, all female students attended the site visit and spent more than two hours exploring and observing the construction works which covered the topic of Taking Off Quantities for Building Works. This exposure enhances student's understanding and improves the visualization ability when conducting the taking off building structural main elements such as pad footing, beam, column, and slab. This is because, in doing this task, it will be an advantage for the student with one site visit experience because they can visualize and imagine the shape, placement and condition of the reinforcement work, formwork work and concrete work of each structural element.

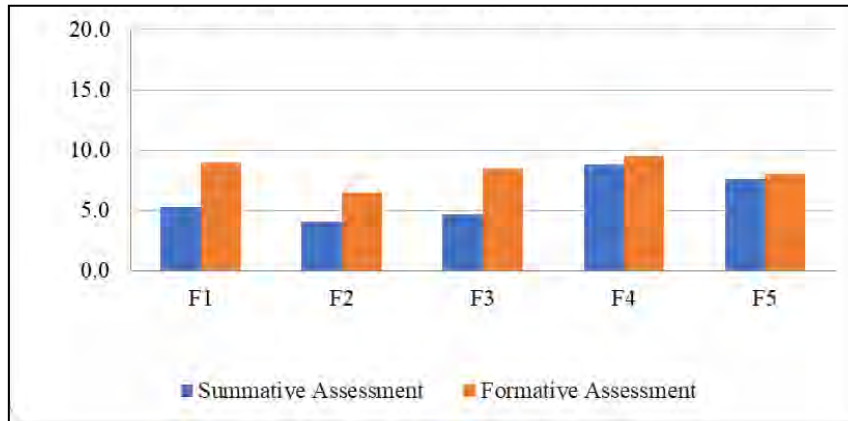


Fig. 6. Scoring marks before and after attended site visit for female student.

Mean Analysis

Mean analysis, in a statistical context, refers to the process of calculating and interpreting the arithmetic mean of a dataset. It is used to quantify the central location of a dataset and facilitate comparisons between different groups or samples. This statistical measure serves as a central indicator of the dataset's average or central tendency. The mean value of a dataset is calculated by adding up all individual values and dividing the result by the number of observations in the dataset. Mean analysis is fundamental in providing a concise and representative summary of the data, offering insights into the typical or average value within the distribution. Moreover, the standard deviation (SD) measures how dispersed the data are compared with the mean. High standard deviations indicate that values are far from the mean, whereas low standard deviations indicate that values are clustered around the mean.

The number of students (n), mean (M) and standard deviation (SD) for the summative and formative assessment of the student for semester 20232 is shown in Table 8.

Table 8. Mean value based on type of assessment.

Type of Assessment	Gender	N	Mean (M)	Std. Deviation (SD)
Formative Assessment	Female	5	6.10	2.02
	Male		10.70	
	Total	16	10.10	5.41
Summative Assessment	Female	21	8.30	1.15
	Male	16	10.40	3.65
	Total	21	10.40	3.33
			10.40	
			0	

In this study, the mean (M) scoring marks for female students for the formative assessment is 6.10 with a SD of 2.02 and 8.30 for summative assessment with a SD of 1.15. It shows the female scoring marks in each assessment was close to the mean value. Therefore, the marks distribution for female students indicates low variability. Meanwhile, for

the male student, the mean scoring marks for formative assessment is 10.7 (SD = 5.41) and 10.4 for the summative assessment (SD = 3.65). It shows the male scoring marks in each assessment was not very close to the mean value. Therefore, the marks distribution for male students indicates higher variability.

The summative assessment results reveal distinctive patterns between female and male students within a total number of twenty-one students. Among the female group comprising five students, the mean summative assessment score is 6.10, with a moderate standard deviation of 2.02, indicating a consistent performance around the mean. In contrast, the male group, consisting of sixteen students, exhibits a higher mean score of 10.70, accompanied by a larger standard deviation of 5.41, suggesting a more varied distribution of scores among male students. When considering the entire cohort, the combined mean summative assessment score for all twenty-one students is 10.00, with a standard deviation of 5.16, providing an overview of the overall average performance and variability in scores across both female and male students. These statistics offer valuable insights into the comparative performance and spread of scores within the assessed groups.

The data pertaining to formative assessments provides a detailed insight into the performance of both female and male students, as well as the overall cohort of twenty-one students. In the female group, consisting of five students, the mean formative assessment score is 8.30, demonstrating a relatively strong performance, as supported by a low standard deviation of 1.15, indicative of minimal variability around the mean. On the male front, comprising sixteen students, the mean formative assessment score is slightly higher at 10.4, accompanied by a standard deviation of 3.65, suggesting a moderate level of variability in scores within this group. For the entire cohort of twenty-one students, the overall mean formative assessment score matches that of the male group at 10.4, with a standard deviation of 3.33, reflecting a reasonable consistency in performance across the collective student body. These statistics not only provide an overview of the average scores but also shed light on the degree of variability, helping to gauge the overall effectiveness of formative assessment strategies of this subject.

4.0 CONCLUSION

The primary objective of this study is to assess the effectiveness of incorporating site visits as a method of instruction for students enrolled in the Civil Engineering Quantities and Estimation course in School of Civil Engineering program at UiTM Johor Branch Pasir Gudang Campus.

The focus on experiential-based learning, particularly through academic site visits, shows promise in improving students' comprehension of Civil Engineering Quantities and Estimation. This study assesses how well a particular course integrates experienced-based learning and offers information on how site visits affect students' performance and comprehension.

The analysis of students' demographic data and assessment results before and after site visits reveals interesting patterns. Although there is no substantial overall enhancement in academic performance, the study highlights variations between male and female students. Male students show higher scoring marks, but the improvement among female students after site visits is notable, indicating the potential benefits of experiential learning for certain groups.

The conclusions drawn from this study provide valuable insights and additional information for stakeholders, potentially influencing the decision-making process regarding the inclusion of site visits as a requisite educational method alongside traditional lectures and e-learning. Moreover, the Academic Affairs Department and administration of the

university may consider earmarking funds for the implementation of this pedagogical approach. This allocation of resources is warranted due to the anticipated positive impact on students, as it is expected to deepen their comprehension of theoretical concepts and bolster their proficiency in tasks such as quantity surveying and project cost estimation.

Amid the dynamic landscape of engineering education, characterized by the increasing relevance of multidisciplinary approaches, this study underscores the imperative for adaptable teaching methodologies. Site visits demonstrate how experiential learning fosters critical thinking and a thorough understanding of the subject matter in accordance with constructivist principles. According to the findings, engineering education must be continuously assessed and improved to meet the changing demands.

5.0 SUGGESTION FOR FUTURE RESEARCH

The study can be replicated to a group of students for different semesters and level of studies like degree level. Future research is advised to adopt a different statistical approach by comparing the numbers of site visit implemented in the academic semester. In addition, by having large numbers of participants, advanced statistical analysis may be conducted to explore more on the different perspectives between male and female students.

This research constituted an initial exploration employing a limited student sample size and was conducted solely at the UiTM Pasir Gudang branch. Thus, future research can be conducted at a larger scale by having engineering students nationwide. Moreover, future research endeavours should consider delving into diverse subjects, disciplines, and domains to achieve a more comprehensive and insightful comprehension of this pedagogical approach.

6.0 CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest in this article. Author¹, wrote the research methodology, did the data entry, and conducted the statistical analysis and interpretation of the results. Author² prepared the literature review. Author³ overlook the write up of the entire article.

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8.0 REFERENCES

- Abushandi, E. (2021). Assessment for student success : Delivering high-quality modules and improving educational methods in Civil Engineering Program Eyad Abushandi. *Journal of Educational and Social Research*, 11(2), 251–266. <https://doi.org/https://doi.org/10.36941/jesr-2021-0044> Abstract.
- Alabadan Babatope, A., Samuel, T. M., Ajewole, P. I., & Anyanwu, O. M. (2020). Competence-driven engineering education: A case for t-shaped engineers and teachers. *International Journal of Evaluation and Research in Education (IJERE)*, 9(1), 32–38. <https://doi.org/10.11591/ijere.v9i1.20274>.
- Asad, M. M., Naz, A., Churi, P., & Tahanzadeh, M. M. (2021). Virtual reality as pedagogical tool to enhance experiential learning: A systematic literature review. *Education*

- Research International*, 2021, 1–17. <https://doi.org/10.1155/2021/7061623>
- Eiris Pereira, R., & Gheisari, M. (2019). Site visit application in construction education: A descriptive study of faculty members. *International Journal of Construction Education and Research*, 15(2), 83–99. <https://doi.org/10.1080/15578771.2017.1375050>.
- Ernest, K., Theophilus, A.-K., & Edward, B. (2017). Exploring Cost planning practices by Ghanaian construction professionals. *International Journal of Project Organisation and Management*, 9(1), 83–93.
- Foo, S. C., & Foo, K. K. (2022). Purposeful field trip: Impact on experiential learning opportunities and critical thinking skills. *Pertanika Journal of Social Sciences and Humanities*, 30(1), 1–30. <https://doi.org/10.47836/pjssh.30.1.01>.
- Gurmu, A. (2023). Blended Pedagogical model for effective teaching of building measurement and estimating. *International Journal of Construction Management*, 23(7), 1138–1147. <https://doi.org/https://doi.org/10.1080/15623599.2021.1957752>.
- Habibi, M., Kermanshachi, S., & Safapour, E. (2018). Engineering, procurement, and construction cost and schedule performance leading indicators: State-of-the-art review. *In Construction Research Congress 2018*, 1, 378–388.
- Harlen, W., & James, M. (1997). Assessment And learning: differences and relationships between formative and summative assessment. *Assessment in Education: Principles, Policy & Practice*, 4(3), 365–379. <https://doi.org/https://doi.org/10.1080/0969594970040304>.
- Ilmi, H. S., Tatt, S. L., Wen, D. T. Q., Kamarazaly, M. A., & Ling, S. C. A. (2021). Exploring The quantity surveying services from the employers ' and graduates. *Malaysian Construction Research Journal (MCRJ)*, 12(1), 246–257.
- Ishkov, A., & Leontiev, M. (2015). Interactive teaching methods in small groups of bachelors and construction specialists. *Procedia Engineering*, 117(1), 142–147. <https://doi.org/10.1016/j.proeng.2015.08.135>.
- Ismail, H. B., Ismail, A., Abu Bakar, A. A., Abu Tali, A. R., & Mohd Noor, N. A. (2021). The effectiveness of site visit approach in teaching and learning of construction site safety: A case study in Civil Engineering Faculty, Universiti Teknologi MARA, Johor Branch, Pasir Gudang Campus. *Asian Journal of University Education*, 17(4), 212–221. <https://doi.org/10.24191/ajue.v17i4.16218>.
- Lee, C. C. (2013). *An interactive approach to teaching quantity surveying an interactive approach to teaching quantity surveying measurement*. <https://www.researchgate.net/publication/262672678>
- Ramabodu, M. S. (2014). *Procurement guidelines for project success in cost planning of construction projects*. <http://scholar.ufs.ac.za:8080/xmlui/bitstream/handle/11660/1514/RamaboduMS.pdf?sequence=1%0Ahttp://scholar.ufs.ac.za:8080/xmlui/handle/11660/1514%0Ahttp://scholar.ufs.ac.za:8080/xmlui/bitstream/handle/11660/1514/RamaboduMS.pdf?sequence=1&isAllowed=y>.
- Rawlusk, P. E. (2018). Assessment in higher education and student learning. *Journal of Instructional Pedagogies*, 21, 1. <http://www.aabri.com/copyright.html>.
- Razbani, O., Muller, G., Kokkula, S., & Falk, K. (2023). Enhancing Competency and industry integration: A case study of collaborative systems engineering education for future success. *Systems*, 11(9), 463. <https://doi.org/10.3390/systems11090463>.
- Saka, A., Taiwo, R., Saka, N., Salami, B. A., Ajayi, S., Akande, K., & Kazemi, H. (2024). *Journal of Built Environment Developments in the Built Environment*. <https://doi.org/10.1016/j.dibe.2023.100300>.
- Tunji-Olayeni, P., Amusan, L., Omuh, I., Afolabi, A., & Ojelabi, R. (2016). Learning difficulties in building measurement. *INTED2016 Proceedings*, 1(March), 6013–6016. <https://doi.org/10.21125/inted.2016.0432>.
- Yusop, N., Derus, M. M., Bakar, N. A., Saberi, M. H., & Abdullah, M. A. (2018). Technical skills in quantity surveying and relevant practices: Discipline standards. *International Journal of Academic Research in Business and Social Sciences*, 8(9). <https://doi.org/10.6007/ijarbss/v8-i9/4867>.

FACTORS AFFECTING FINANCIAL LITERACY OF ACCOUNTING STUDENTS

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ABSTRACT

Over the last few decades, tertiary education students have been adversely affected by the high cost of living. Most students need help keeping up with their living standards due to their limited financial literacy knowledge. This situation has resulted in them being burdened with debt and being on the brink of bankruptcy. This study aimed to examine the impact of age, financial socialisation, and specific motivation on the financial literacy of accounting students. The research scope focused on factors influencing financial literacy, including knowledge, attitude, and behaviour. This study involved accounting students from all levels at UiTM Faculty of Accountancy in the Shah Alam and Puncak Alam campuses. The findings revealed that financial knowledge and behaviour were positively and significantly associated with financial literacy. Moreover, financial motivation had a positive and significant impact on financial literacy among UiTM accounting students. This study contributes to the existing literature on financial literacy and will aid society, academics, and policymakers in focusing on key elements necessary to improve students' financial literacy.

Keywords: financial literacy, financial motivation, financial socialisation

1.0 INTRODUCTION

Financial knowledge is crucial these days. Issues related to financial problems have never been out of date since immemorial and it got worse when the pandemic hit. Financial knowledge or financial literacy refers to the understanding and knowledge of various financial concepts and principles necessary to make people informed and effective decisions about personal finances. This might involve managing money effectively, including spending, saving, investing and planning. Those with financial literacy can make informed decisions about their money, leading to improved financial well-being and stability and thus avoiding common financial pitfalls, reducing debt and building wealth over time. For example, a financially literate person will acquire basic knowledge of critical financial concepts. According to Yap (2017), financially literate people can define basic financial concepts and help make decisions aligned with financial management. Dewi et al. (2020) found in their study that financial literacy, shaped by skills, experience, and awareness, influences positive financial behaviour for goal

achievement. Awareness and experience significantly impact decisions, with higher financial literacy correlating to more rational choices. Those influenced by financial literacy regularly save in institutions and engage in routine saving and charitable donations. The study underscores the importance of financial awareness and experience in fostering positive behaviour for financial goal attainment. Banthia and Dey (2022) mentioned in their study that financial attitudes and knowledge positively impact financial literacy levels. The degree of financial literacy is negatively impacted by financial behaviour. The two main determinants of financial literacy are financial attitude and knowledge.

Knowledge about financial literacy is needed not only by adults but also by young people, especially students. Unfortunately, most young adults in Malaysia have low levels of financial literacy (Carvalho, 2019). Financial literacy is a life skill that can significantly impact their present and future well-being. It helps students develop good financial habits early, which have a lasting positive impact on their financial well-being throughout their lives. Phillips and Kiracofe (2022) mentioned in their study that financial literacy positively impacts young people's saving habits. Furthermore, understanding budgeting, saving, and responsible spending helps them to avoid financial difficulties or unnecessary debt.

The number of student bankruptcies has generally worsened over the past few years. Huzaini (2019) estimated that 60 percent of all bankrupt individuals in Malaysia are young adults due to spending bigger than the income received. This statement has been supported by the World Bank Group (2019), asserting that young adults from low-income groups remain particularly vulnerable to economic shocks related to the increased cost of living. Furthermore, Liew (2021) added that it is due to the habit of spending more than income and accumulated with the impact of COVID-19. According to Insolvency (2021 and 2022), increasing bankruptcy percentages is becoming critical because it involves students. According to Carvalho (2019), the low financial literacy among Malaysian youth contributes to the high bankruptcy rates, as he mentioned that Malaysian young adult EPF savings are far from enough for retirement, exposing the young to the risk of bankruptcy. According to the newspaper report by Credit Counseling and Management Agency (AKPK), customers earning below RM5,000 who are involved in an instalment scheme spend only a total of 32 per cent of personal loans on necessities, whereas up to twice as much is spent on consumptive things (Huzaini, 2019). In 2022, Debt Management Programme' (DMP) household cases stood at 34,670 compared to 2021 (23,837). As at end-December 2022, the top three (3) reasons for unmanageable debts among AKPK's DMP for household cases were high cost of living (38.5%), poor financial planning (36%), and failure/slowdown in business (11.1%) AKPK (2023).

Consequently, they are left with more debt. This is even more challenging for individual to afford buying a house as properties are being overpriced (Sulaiman et al., 2021). Graduates should develop a financial plan that encompasses managing costs and savings, recognising money management behaviours that contribute to wealth accumulation, and understanding how changes in personal financial circumstances can impact their budget (Helen, 2019). Individuals with stronger financial skills are better equipped to make informed financial decisions (Cunha, 2019). This study aimed to examine the impact of age, financial socialisation, and specific motivation on the financial literacy of accounting students. Specifically, it focused on understanding how these factors influence the financial literacy of UiTM accountancy students in the Shah Alam and Puncak Alam campuses. The research explored the role of financial knowledge in shaping financial literacy and evaluated how financial socialisation and motivation contribute to this understanding. By investigating these key factors, the study adds to the existing literature on financial literacy and offers insights for educators and policymakers seeking to enhance the financial literacy of students.

2.0 LITERATURE REVIEW

2.1 Financial Literacy

Financial literacy is the ability to define and effectively use various financial skills, including personal financial management, budgeting, and investing (Yap, 2017). Financial literacy is the foundation of an individual's relationship with education on financial management in their schools or universities and education on risk tolerance and cognitive skills in general (Ben, 2020). Individuals with financial literacy should be able to prepare a budget, manage debt, save, and make investments. Budgeting helps plan expenses, which is essential for financial security and independence (Fernandes et al., 2014). A study by Abdul Jabar et al. (2023) found that financial literacy is statistically significant with positive direction to saving behaviour. Furthermore, financial literacy may avoid mentioning that budgeting helps plan short-, medium-, and long-term expenses. Most students start to get experience in financial responsibilities during their university or college period, as that period exposes them to a crucial time in their lives as they transition from financially dependent to financially independent (Mat Nawi et al., 2020). Students with financial-related courses in their program tend to be equipped to navigate a complex array of financial matters in colleges or universities where basic financial knowledge is covered in their educational program (Nano, 2013). This situation aligns with Kharisma (2014), who believed that financial education is the process where people might acquire and improve their knowledge and understanding of the importance of money management to improve their financial condition. Flore-Anne Messy (2012) affirmed that the core questions about financial literacy were across behavioural factors. People with a lack of financial education might end up with insufficient retirement savings (Today online, 2016). 78% of Malaysians do not have enough funds for retirement., due to spending without thinking about the implications, which is the main indication of a lack of financial literacy (Sarpong-Danquah et al., 2018).

Furthermore, according to Formadi (2018) the attitude towards financial products has also been shown to influence students' financial literacy levels. The findings suggested that age and work experience were positively related to the level of financial literacy. Financial attitudes are established through economic and non-economic beliefs held by a decision-maker on the outcome of a financial decision. In relation to attitude, Herliani et al. (2018) revealed that the difference between values and behaviour since the early stage is that an indication of men and women have non-identical literacy. Flore-Anne Messy (2012) mentioned that young people (aged 18-29) appear to have lower and less cautious financial behaviour. Dewi et al. (2020) found a relationship between financial literacy characteristics and age maturity. The age of the respondents affects the capacity for financial goal setting and decision-making. The findings demonstrated how various factors related to sex, age, specialisation, and consumption spending impact how financial literacy variables relate to one another. Furthermore, Stanley Yap (2017) mentioned that individuals in the 18-29 age range are associated with higher levels of financial literacy at both primary and advanced levels. Many studies have displayed the positive effect on factors affecting financial literacy among UiTM accounting students following the elements of strong collaboration between financial literacy and age as such this study is focusing on age factor (Ben Douissa, 2020). This has been confirmed by Formadi (2018) and Mat Nawi et al. (2020), which explained in detail the elements that showed the factors affecting financial literacy among UiTM accounting students. It allows the conceptualization of the second hypothesis:

H1: There is significant difference in respondent's perceived financial literacy when they are classified to their age.

2.2 Financial Socialisation and Financial Literacy

Financial socialization agents, including family, peers, and media, each contribute independently and differently to financial literacy throughout an individual's life (Mat Nawi et al., 2020). People are often influenced by their parents' money management methods, as they are raised within the same cultural framework that emphasizes similar financial principles. Formadi (2018) highlighted that self-actualizing personal values, financial education at home, and formal financial education at school are crucial for anticipatory socialization, influencing how young adults gain financial knowledge and develop attitudes and behavioral intentions. Establishing sound financial behavior necessitates a solid foundation of financial understanding. Young adults who report being prudent with money and tracking their expenses are more likely to exhibit positive financial behavior. Jusoh (2024) found out in his study that financial literacy and subjective financial well-being are directly and significantly impacted by parental financial socialisation.

Panday (2003) found that financial behavior is positively correlated with one's attitude toward money and both subjective and objective financial literacy. Hierarchical regression analyses from Formadi (2018) study indicated that young adults' financial behaviours were most influenced by financial socialization from romantic partners, followed by financial socialization from parents. However, despite numerous studies showing positive relationships, a person who practices better saving and financial literacy typically faces fewer financial issues, such as debt. Owusu et al. (2023) demonstrated a negative relationship between students' inclination toward debt and their saving behaviours, with financial knowledge mitigating this inverse relationship. Khurshid et al. (2023) assessed various contextual factors affecting financial literacy and found that financial socialization facilitators positively impact students' financial decision-making. Similarly, Fazli Sabri et al. (2012) noted that financial socialization agents improve college students' financial well-being, with significant differences observed between Malay and Chinese students in Malaysia, indicating diverse financial socialization processes.

H2: There is a significant positive relationship between financial socialisation and financial literacy of accounting students.

2.3 Financial Motivation and Financial Literacy

Financial motivation is defined as the drive or incentive derived from the potential for financial gain or reward. It inspires individuals to exert more effort, undertake challenges, and achieve their goals. Financial incentives often influence various aspects of life, particularly work and career, such as earning a salary, receiving bonuses, or accumulating wealth. These incentives motivate people to seek financial success, which in turn can enhance their quality of life, provide security, and help them achieve personal and professional goals. Lone & Bhat (2024) discovered in their study that financial literacy had a highly favourable effect on financial well-being and financial self-efficacy.

Nguyen et al. (2023) explored the relationships between public sector motivation, financial incentives, team support, and employee motivation within agencies under the Binh Dinh People's Committee in Vietnam. Their study revealed the positive effects of financial incentives, team support, and public service motivation on employee motivation in the public sector. Similarly, Benabou and Tirole (2003) highlighted that intrinsic motivation reinforced by managerial support leads to high-level performance and personal satisfaction over the long

term. In contrast, extrinsic motivators have been shown to provide benefits both in the short and long term (Filipović & Popović, 2019). Elrayah and Semlali (2023) also noted that satisfaction among talented employees is closely linked with financial rewards.

H3: There is a significant relationship between financial motivation and financial literacy.

2.4 CONCEPTUAL FRAMEWORK

This study adopted and adapted several previous studies such as Mat Nawi et al., (2020) and referred to Formadi (2018), Ben Douissa (2020) for the demographic-only for age analysis, and others related to the previous article. Thus, this study might identify the factors that might affect financial literacy where the dependent variable is based on Flore-Anne Messy (2012) financial literacy based on knowledge, behaviour, and attitude, while the independent variable consists of demographic information specifically on age as a factor, financial socialisation, and motivation as proxy. This study tested two theories adopted and adapted from Mat Nawi (2015) i.e., life-cycle theory and the theory of planned behaviour (TPB). By integrating TPB into the research, the study aims to provide a comprehensive understanding of the factors that drive financial literacy and how students' perceptions and social environments contribute to their financial knowledge and behaviours.

The life-cycle theory was proposed by Mat Nawi (2015) that focuses on the development of an individual's consumption and savings behaviours. The theory was further discussed in Mat Nawi (2015) who introduced the life-cycle model of asset allocation and accumulation. The model identifies the difference between the propensity to consume and save at various stages of an individual's life. The theory also predicts that consumption and saving behaviours change significantly with objective factors (e.g., income, rates of returns, wealth) and subjective factors (e.g., age, marital status, socioeconomic and demographic conditions) along with various stages of the individual's life.

Similarly, the TPB, as developed by Fishbein and Ajzen (1975) and referenced by Mat Nawi et al. (2020), shows that an individual's behavior is influenced by their intentions. According to TPB, individuals act based on their beliefs about what is most appropriate, which are shaped by three key factors: behavioral beliefs, normative beliefs, and control beliefs. This theory supports the development of both the independent and dependent variables in this study by explaining how these beliefs can impact financial literacy.

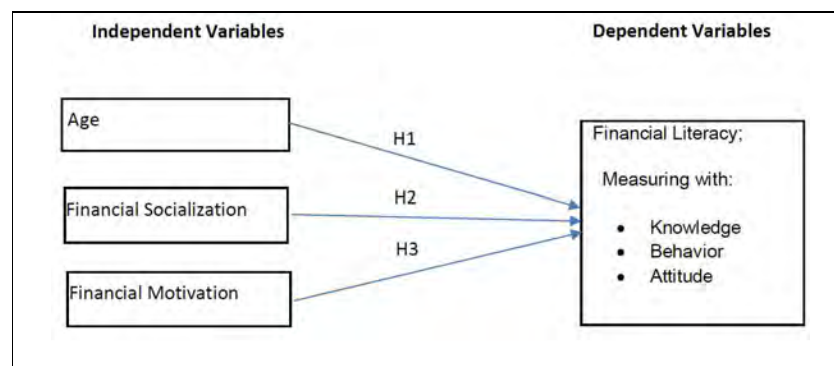


Fig. 1 Conceptual Framework

3.0 RESEARCH METHODOLOGY

3.1 Measurement and Constructs

The research instrument in this survey denoted a questionnaire utilising a close-ended question for Section 1, only for question 1 to fill in the blank and for the rest question in Section 1 including Section A (i,ii, and iii), a 5-point Likert scale (i.e., 1=Highly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Highly Agree) adapted from Ben Douissa (2020), Mandell and Klein (2007), Flore-Anne Messy (2012), Mat Nawi et al. (2020), Stella (2020), and Kharisma (2014) . The adapted material included certain modifications to adapt to the study context.

Table 1. Summary of questionnaire items

Section	Number of Questions
Section 1: Demographic	9
Financial literacy:	
Section A(i): Test on Financial Knowledge	6
Section A(ii): Test on Financial Behaviour	11
Section A(iii): Test on Financial Attitude	4
Section 2 (Part A): Financial Motivation	7
Section 2 (Part B): Financial Socialisation	5

This research focused on identifying factors that could affect financial literacy in the UiTM accountancy students in Shah Alam and Puncak Alam campuses. Independent variables included age variables, financial socialisation, and motivation. These dependent variables of financial literacy in this research were measured using the knowledge, behavior and attitude of the participants.

Table 2. Summary of variable and measurement

	Measurement	Author
Dependent Variable Financial Literacy (Knowledge, Behavior, and Attitude)	5-point Likert Scale with twenty-one (21) questions to measure the factors affecting financial literacy among UiTM account students. The measurement is measured using scales from Ben Douissa (2020), Stella (2020), and new construct.	Ben Douissa (2020), Stella (2020)
Independent Variable Age	5-point Likert Scale and one (1) fill in the blank with additional eight (8) questions to examine in respondent's demographic (age) perceived financial literacy among UiTM account students. The measurement is measured using scales from Ben Douissa (2020) and new modified construct.	Ben Douissa (2020)
Independent Variable Financial Socialisation	5-point Likert Scale with five (5) questions to measure Questions suited with respondent perceptions. The measurement used an established measurement by Mat Nawi et al. (2020), and new modified questions.	Mat Nawi et al. (2020)
Independent Variable Financial Motivation	5-point Likert Scale with seven (7) questions to measure the independence and objectivity held by respondents. Thus, the measurement was adapted from Yemima Kharisma (2014), Mat Nawi et al. (2020), and new modified questions.	Kharisma (2014), Mat Nawi et al. (2020)

3.2 Data Collection and Sampling

This study utilised random sampling method, whereby the sample selection required the process of identifying the right representatives as the population and further filtration of the sample chosen in ascertaining whether the individuals fit the profile needed. A survey was conducted among undergraduate, professional programs and postgraduate accountancy students of UiTM in Shah Alam and Puncak Alam campuses. This study included accountancy students from all educational levels—diploma, degree, master's, PhD, and professional programs—across UiTM's Shah Alam and Puncak Alam campuses. This comprehensive approach ensures a diverse representation of the student population, capturing a wide range of perspectives on financial literacy. The inclusion of students from various levels allows for a more robust analysis of how financial literacy varies across different stages of academic and professional development. This is crucial for understanding how financial knowledge, attitudes, and behaviours evolve as students advance through their academic and professional careers.

The decision to include all levels was based on the need to capture a representative sample of the entire accountancy student population. According to Krejcie (1970), the total sample size required for a population of 4,000 was 351, which was deemed sufficient for ensuring statistical validity. By encompassing all levels, the study enhances the generalizability of the findings and provides a comprehensive overview of financial literacy across different stages of accountancy education. Additionally, the choice of Shah Alam and Puncak Alam campuses was strategic, as these campuses host the full spectrum of accountancy programs, thereby increasing research efficiency and reducing costs. The researchers administered the survey personally to minimize non-response issues and ensure accurate data collection.

Therefore, these two campuses have been the main faculty for accountancy students. There was a total of 3,599 students of Accountancy program as per October 2021, with the following distribution: (i) Diploma (FT): 41, (ii) Degree: 2274, (iii) Master: 313, (iv) PhD.: 76, and (v) Professional: 895. Furthermore, the researchers personally administered the survey questionnaire to avoid non-response issues. All accessible students were chosen as subjects.

4.0 FINDINGS AND DISCUSSION

4.1 Demographic Analysis

The survey revealed that 33.6% of the respondents were of male gender, the 12.9% comprised the female counterparts, while the remaining 53.5% preferred not to answer. It suggested that while both genders were involved in this study, respondents preferring not to answer hit the highest percentage of the population compared to both genders. Under the category of hometown group, approximately 33.1% of the respondents were from East region, followed by the group of North regions at 30.0%. A smaller group of West regions scored at 20.7%, while those from other regions made up to 16.2% of the total respondents. Therefore, most respondents were from the East region.

Meanwhile in the Program and Education group, approximately 26.9% of the respondents were from second semester, followed by the group of other semesters at 24.1%. The next group belonged to the third semester at 20.2%, while smaller group of first semester was at the total of 16.2%, and those preferring not to reveal information made up to 12.6%. Therefore, most respondents were from second semester.

For the marital status group, approximately 38.4% of respondents were not married, followed by the group who preferred not to answer at 34.2%. The smaller group of married respondents were 27.5%. Therefore, unmarried students became the biggest group in this

study. Approximately there were 65.5% working respondents, followed by the group who preferred not to answer at 28.3. %. The unemployed students were the smallest part with only 6.2% total respondents.

As for the years of study group, approximately 59.7% of the respondents were from Master level, followed by the group of PhD level at 24.9%. The next group was the Degree level at 7.8%, whereas smaller group of Diploma level consisted of 4.5% respondents, and those who preferred not to reveal their degrees made up to 3.1%. There were 77.0% respondents whose parents earned less than RM50,000, followed by the group with parents earning around RM10,000 at 13.4. %. The smaller group with parents' earnings were less than these two groups were 9.5% in total.

According to the student's financial status, 79.6% of respondents admitted using money they have earned, followed by 11.5% respondents who used money consisted of their and their parents' money. Then, 9.0% respondents belonged to the students who received full financial supports from their parents.

4.2 Reliability Analysis

This study utilised various statements to gauge the perceptions of respondents on six dimensions: financial knowledge (6 statements); financial behavior (11 statements); attitude (4 statements); financial literacy (21 statements) financial socialisation (5 statements) and motivation (7 statements).

Table 3 Reliability Analysis

Dimension	No of Statements	Cronbach's Alpha
Financial knowledge	6	0.921
Financial literacy	11	0.877
Attitude	4	0.815
Total	21	0.757
Financial socialisation	5	0.899
Motivation	7	0.980

Statements employed to measure respondents' perceptions required that these statements to be reliable or consistent. Consistency in the statements within each dimension depends on the correlation between these statements. If the correlation is high, the statements are consistent (reliable), and vice versa. In the reliability testing technique, this consistency was manifested in Cronbach's Alpha value, which corresponds to a correlation coefficient. Reliability tests were then applied on the statements of each dimension, and the results are summarised in Table The Cronbach's alpha values were high, ranging from 0.757 (financial literacy) to 0.980 (motivation), implying that the various statements reliably measured the perceptions of the respondents on the six dimensions related to financial literacy and factors affecting it. This study analysed the reliability of each variable by using reliability analysis for the main study. The item supported by previous study by Mat Nawi et al. (2020) where items which were above 0.70 indicated as high reliability.

4.3 Normality Test

It was observed that the skewness and kurtosis values were in the range -2 to 2. This means that the mean scores of financial literacies, financial socialisation, motivation, and age were normally distributed.

Table 4. Normality test

Variable	Skewness Value	Kurtosis Value
Financial literacy	0.056	0.373

Financial socialisation	0.449	-1.727
Motivation	-1.248	1.908
Age	0.769	0.187

Following this result, the study uses the parametric statistical tool in the following analysis. The normality test result on all variables was normal. Normality test was conducted on the data set to determine whether sample data has been drawn from a normally distributed population. The result indicated that data obtained from the survey were normally distributed. According to Sekaran and Bougie (2016) through Mat Nawi et al. (2020), normally distributed data generally yield skewness and kurtosis values close to zero.

4.4 Correlation Analysis

Summary Statistics of Correlation Analysis between Financial Literacy, Financial Socialisation, Motivation and Age.

Table 5. Correlation Analysis

Variable	Financial literacy	
	Pearson Coefficient of Correlation (r)	p-value
Financial socialisation	0.258	0.000**
Motivation	0.551	0.000**
Age	-0.541	0.000**

**Significant at 0.01

Table shows that financial socialisation ($r = 0.258$; $p < 0.01$) were positively but lowly correlated with financial literacy. To a low extent, the increases in financial socialisation were associated with the increases in financial literacy, and vice versa. It also shows that motivation ($r = 0.551$; $p < 0.01$) was positively and moderately correlated with financial literacy. To a moderate extent, the increases in motivation were associated with the increases in financial literacy, and vice versa. However, ages ($r = -0.541$; $p < 0.01$) were negatively and moderately correlated with financial literacy. To a moderate extent, the increases on ages were associated with the decreases in financial literacy, and vice versa. Therefore, it could be concluded that when students are more knowledgeable and portray a more positive attitude towards money, their ability to make enhanced decisions enables them to use the resources and improve their situations wisely.

4.5 Multiple Regression Analysis

The regression equation was statistically significant at 0.01 ($p < 0.01$), implying that there was an association between financial literacy with any or all the independent variables. The r-square value being 0.538 means that the three independent variables accounted for 54% of the variation in the dependent variable (financial literacy).

Table 6. Multiple regression analysis

Variable	Coefficient	t-value	p-value
Financial socialisation	0.053	9.704	0.000**
Motivation	0.261	11.055	0.000**
Age	-0.026	-9.118	0.000**
F	137.091		0.000**
R ²	0.538		

**Significant at 0.05

Hence, the effect of financial socialisation, motivation, and age on financial literacy is moderate. Looking at the individual regression coefficient, it was found that the coefficient of financial socialisation, motivation, and age were statistically significant at 0.01 ($p < 0.01$). The coefficient of financial socialisation (0.053) and motivation (0.261) means that an increase in financial socialisation and motivation increases the financial literacy, whilst coefficient of age (-0.026) showed an increase in age decreases financial literacy.

4.6 Discussion

This study provided a detailed information regarding the factors influencing financial literacy among accounting students in UiTM. Accordingly, its primary objective was to examine whether age, financial socialisation and motivation affects the financial literacy of accounting students in UiTM specifically Shah Alam and Puncak Alam campuses. The questionnaire designed for the current study was distributed to the UiTM account students in Shah Alam and Puncak Alam campuses.

The first hypothesis predicted the presence of a significant correlation between financial literacy and age factor, significant correlation between financial socialization and financial literacy factor, and significant correlation between financial literacy and financial motivation. Therefore, the effect of financial socialisation, motivation, and age on financial literacy was moderate. Further elaboration as below.

i. H1: Financial Literacy and Age Factor.

The first aspect of the hypothesis suggests a significant correlation between financial literacy and age. Age is a commonly used demographic variable in financial literacy studies, often refers as a life experience, exposure to financial products, and accumulated knowledge over time. As people age, they tend to have more opportunities to learn about financial matters, either through formal education or personal experience.

In support of this, Douissa (2020) analysed demographic factors and found that age was a significant determinant of financial literacy among college students in the Middle East. This study aligns with the view that as individuals age, their financial knowledge increases, contributing to better financial literacy. Similarly, research by Formadi (2018) also highlights the correlation between age and financial literacy, noting that older students in Ghana demonstrated higher levels of financial understanding compared to their younger counterparts.

ii. H2: Financial Socialization and Financial Literacy; and

The second views of the hypothesis address the relationship between financial socialisation and financial literacy. Financial socialization involves the process by which individuals acquire knowledge, attitudes, and behaviours related to financial matters, often through interactions with family, peers, education, and media.

Previous research by Mat Nawi et al. (2020) identified financial socialisation as a crucial factor in developing financial literacy among Malaysian university students. The study suggested that students who received financial guidance and education from parents and educators displayed a higher understanding of financial concepts. This aligns with the findings of Banthia and Dey (2022), who demonstrated that financial knowledge, shaped by socialization agents, significantly impacts financial literacy.

iii. H3: Financial Motivation and Financial Literacy

The third element of the hypothesis proposes a significant correlation between financial literacy and financial motivation. Financial motivation encompasses the intrinsic and extrinsic factors that drive an individual to engage with financial education, make informed financial decisions, and improve their financial situation.

Benabou and Tirole (2003) explored the role of motivation in financial behaviours, distinguishing between intrinsic motivation (personal satisfaction or interest in financial management) and extrinsic motivation (external rewards or recognition). Their findings suggest that both forms of motivation can positively influence financial literacy, as motivated individuals are more likely to seek out and engage with financial information, thereby enhancing their financial knowledge and capabilities.

Therefore, considering the three factors together (Age, Financial Socialisation, and Motivation on Financial Literacy), the combined effect on financial literacy is found to be moderate. This suggests that while each factor individually contributes to financial literacy, their combined influence is significant but not overwhelmingly strong. The moderate impact might be due to the collaborate between these factors and other variables such as educational background, socioeconomic status, and access to financial resources, as highlighted by Dewi et al. (2020) and Fazli Sabri et al. (2012).

The hypothesis that financial literacy is significantly influenced by age, financial socialization, and financial motivation is supported by previous research. Each factor plays an important role in shaping financial literacy, with socialisation and motivation being particularly influential during formative years. However, the moderate combined effect indicates that additional factors, such as education and economic conditions, also play essential roles in determining an individual's financial literacy level.

Table 7. Hypotheses Result

	Hypotheses	Result
H1	There is significant difference in respondent's perceived financial literacy when they are classified to their age.	Supported
H2	There is a significant relationship between financial socialization and financial literacy of accountancy students	Supported
H3	There is a significant relationship between financial motivation and financial literacy.	Supported

Based on the Pearson correlation coefficient used to analyse the relationships between the independent and dependent variables, the findings are shown in the table above and summarized as follows; Firstly, the results reveal that increased age is positively correlated with higher financial literacy, thereby supporting the hypothesis that age influences financial literacy; Secondly, the data show a positive association between higher levels of financial socialization and improved financial literacy, affirming the hypothesis that financial socialization affects financial literacy; and lastly, the analysis indicates that greater motivation is associated with higher financial literacy among accountancy students, validating the hypothesis that motivation impacts financial literacy.

5.0 CONCLUSION

The study highlights several important implications for financial education. It suggests that educational programs should be tailored to different age groups and designed to enhance financial socialization and motivation, as these factors significantly impact financial literacy. The low perceived effectiveness of school-based financial education underscores the need for more practical and engaging financial education initiatives. Additionally, the study points to the necessity of further research to explore other factors influencing financial literacy and to refine educational strategies accordingly. These findings emphasize the need for targeted, effective financial education to better equip students with essential financial skills.

6.0 SUGGESTION FOR FUTURE RESEARCH

The scope of this research is limited to the UiTM accounting students in Shah Alam and Puncak Alam campuses, limiting the size and variety of the sample. Furthermore, the number of participants was substantially limited, causing a limited result as well. Apparently, a bigger number of participants would inevitably contribute to a more specific study outcome.

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REFERENCES

- Abdul Jabar, S., Roslan, S., Samsudin, A., Yusop, H., Yaakob, A. N., & Jabar, M. A. (2023). Determinants of saving behaviour among business students at UiTM. *Insight Journal*, 10(2), 43–54.
- AKPK (2023). *Annual Report 2022*. Credit Counseling and Debt Management Agency.
- Gian Paolo Stella, U. F. (2020). The effects of financial education on financial literacy in Italy. *International Business Research*, 2020, 13, (4), 44.
- Banthia, D., & Dey, S. K. (2022). Impact of financial knowledge, financial attitude and financial behaviour on financial literacy: Structural equation modeling approach. *Universal Journal of Accounting and Finance*, 10(1), 327-337. DOI: 10.13189/ujaf.2022.100133
- Benabou, R., &. (2003). Intrinsic and extrinsic motivation. *The Review of Economic Studies*, 489-520.
- Carvalho, M. (2019, March 4). Guan Eng: Low financial literacy among Malaysian youth contributing to high bankruptcy rates (Martin Carvalho, Ed.).
- Cunha, M. N., T. F. (2019). Financial literacy: Study of a university students' sample. *International Journal of Environmental and Science Education*, 99-510.
- Dewi, V. I., Febrian, E., Effendi, N., Anwar, M., & Nidar, S. R. (2020). Financial literacy and its variables: The evidence from Indonesia. *Economics & Sociology*, 13(3), 133-154. DOI:10.14254/2071-789X.2020/13-3/9.
- Dewi, V. I. (2022). How do demographic and socioeconomic factors affect financial literacy and its variables?. *Cogent Business & Management*, 9(1), 2077640. <https://doi.org/10.1080/23311975.2022.2077640>
- Douissa, I. B. (2020). Factors affecting College student.s' multidimensional financial literacy in the Middle East. *International review of economics education*, 35, 100173.
- Elrayah, M., & Semlali, Y. (2023). Sustainable total reward strategies for talented employees' sustainable performance, satisfaction, and motivation: Evidence from the educational sector. *Sustainability*, 15(2), 1605. <https://doi.org/10.3390/su15021605>.

- Fazli Sabri, M., Cook, C. C., & Gudmunson, C. G. (2012). Financial well-being of Malaysian college students. *Asian Education and Development Studies*, 1(2), 153-170.
<https://doi.org/10.1108/20463161211240124>.
- Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviours. *Management science*, 60(8), 1861-1883.
- Flore-Anne Messy, A. (2012). Measuring financial literacy: results of the OECD/International Network on Financial Education (INFE) Pilot study. *OECD Working Papers on Finance, Insurance and Private Pension*.
- Formadi, Patricia. (2018). Research on Financial Literacy Among Undergraduate Students: Empirical Evidence from Ghana.
- Group, W. B. (2019, December). *Malaysia Economic Monitor*. Making Ends Meet.
<https://openknowledge.worldbank.org/server/api/core/bitstreams/cba6f49b-556a-53c6-80e7-224172d4c662/content>
- Helen, T., & Ilias, S. (2019). Financial literacy of graduate high school students. *American Journal of Educational Research*, 7(3), 232-236.
- Herliani, R., Zainal, A., & Thohiri, R. (2018). *Factors affecting financial literacy among undergraduate students of accounting education in the Faculty of Economics of Universitas Negeri Medan*.doi: 10, 0009496401200126.
- Huzaini, N. (2019). 60 peratus muflis adalah golongan muda. *Berita Harian*.
<https://www.bharian.com.my/bisnes/lain-lain/2019/12/637714/60-peratus-muflis-adalah-golongan-muda-bank-dunia>.
- Insolvency, M. D. (2021 and 2022). *Official Portal Malaysian Department of Insolvency*.
<https://www.mdi.gov.my/index.php/legislation/statistics/75-bankruptcy>
- Filipović, J., & Popović, A. (2019). How to recognise potential school leaders among primary school teachers: Framework based on financial literacy level and type of motivation. *Management: Journal of Contemporary Management Issues*, 24(Special Issue), 107-121.
- Jusoh, A. M. M. (2024). Mediating effect of financial literacy on the influence of parental financial socialisation on subjective financial wellbeing of community college students. *MOJEM: Malaysian Online Journal of Educational Management*, 12(2), 28-49.
- Kharisma, Y., & Kumar, S. (2014). ACCAWS-258 financial education, social, and motivation influence toward personal financial behavior: A survey of undergraduate student in Java Island.
- Khurshid, M., Zahid, R. A., & Nisa, M. U. (2023). Factors affecting financial decisions of university students: evidence from Pakistan. *Managerial Finance*.
<https://doi.org/10.1108/MF-05-2021-0207>.
- Krejcie, K. (. (1970). Educational and psychological measurement. *Determining Sample Size for research activities*, 607.
- Lee, Y. G., & Lown, J. M. (2012). Effects of financial education and impulsive buying on saving behavior of Korean college students. *International Journal of Human Ecology*, 13(1), 159-169.
- Liew, H. (2021). Report on Malaysian financial literacy survey malaysian financial. Report on Malaysian Financial Literacy Survey Malaysian Financial by ringgit plus survey. *Ringgit Plus*.
- Lone, U. M., & Bhat, S. A. (2024). Impact of financial literacy on financial well-being: a mediational role of financial self-efficacy. *Journal of Financial Services Marketing*, 29(1), 122-137.
- Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement planning. *New evidence from the Rand American Life Panel*.
- Mandell, L., and Klein, L.S. (2007). Motivation and financial literacy. *Financial services review*, 16(2), 105.
- Mat Nawi, Hafizah (2015). *Determinants of capital structure in small and medium sized enterprises in Malaysia*.

- Nano, Dorjana, (2013). The differences in student's financial literacy based on financial education. *International Scientific Journal*, 149-160.
- Nawi, H. M., Siong, O. H., & Nee, C. Y. (2020). The effects of human capital, financial socialisation agents, and motivation on financial literacy among private university students in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 10(10), 159-168.
- Nguyen, H. D., Chau, T. N., & Huynh, Q. V. T. (2023). The impact of team support, financial incentives and public sector motivation on employee motivation: an empirical study of the public sector in Vietnam. *Asia-Pacific Journal of Business Administration*. <https://doi.org/10.1108/APJBA-09-2021-0460>.
- Owusu, G. M. Y., Ossei Kwakye, T., & Duah, H. (2023). The propensity towards indebtedness and savings behaviour of undergraduate students: the moderating role of financial literacy. *Journal of Applied Research in Higher Education*. <https://doi.org/10.1108/JARHE-11-2022-0340>.
- Pandey, A. (2023). Determinants of positive financial behaviour: a parallel mediation model. *International Journal of Emerging Markets*. <https://doi.org/10.1108/IJOEM-01-2022-0124>.
- Phillips, T., & Kiracofe, C. (2022). Financial literacy programming in higher education: What's there and what's missing. *Journal of Student Affairs Research and Practice*, 1-14.
- Sarpong-Danquah, B., Gyimah, P., Poku, K., & Osei-Poku, B. (2018). Financial literacy assessment on tertiary students in Sub-Saharan Africa: A Ghanaian perspective. *International Journal of Accounting and Financial Reporting*, 8(2), 76-91.
- Stanley Yap, F. (2017). Level of financial literacy in Malaysia. *International Journal of Research* 4(7), 1065-1074.
- Sulaiman, M. A., Yusof, A. binti, Alias, M. N., & Abdullah, M. I. (2021). A study on affordable housing issues among middle-income groups (M40) in Malaysia. *Insight Journal*, 8, 73–90. <https://doi.org/10.24191/ij.v8i0.98>.
- Thomas Huang. (2022). Financial Literacy tools are a key factor. *The Star*. <https://www.thestar.com.my/business/business-news/2022/03/30/financial-literacy-tools-a-key-factor>.
- (2016). 78% of Malaysians do not have enough funds for retirement. *Today online*. <https://www.todayonline.com/world/asia/78-malaysians-do-not-have-enough-funds-retirement>.

EVALUATING THE BENEFITS OF CO-CURRICULAR ACTIVITIES IN A COMMUNITY SERVICE PROGRAMME

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ABSTRACT

The purpose of this study was to investigate the benefits of co-curricular activities for students enrolled in this module during semesters two and three at public institutions in Malaysia through community service programs. The advantages of extracurricular activities for students' knowledge, attitudes, academic performance, and skills in community service programs are the main emphasis of this study. 154 surveys were completed by students enrolled in a two-semester community service program. The four benefits of extracurricular activities are measured in this study using four sections with corresponding questions. The results of this study demonstrate the beneficial effects that student participation in community service projects has a positive and useful benefit towards student academic performance, enhancing student skills, improving student attitude, and improving student knowledge.

Keywords: Co-curricular, Community service, Student academic, Student attitude, Student knowledge, Student skills

1.0 INTRODUCTION

Participating in co-curricular activities provides students in university with a multitude of advantages that go beyond the conventional academic curriculum. These activities provide university students the chance to cultivate crucial life skills, augment their personal development, and expand their entire educational encounter. This study also uncovers the rationale behind students' participation in co-curricular activities. There are several reasons for being involved in co-curricular activities such as status and recognition, the development of abilities and skills, pleasure and enjoyment, improvement in academic performance, and the development of a leadership style.

Engaging in co-curricular activities has consistently been associated with the cultivation of soft skills in students. Moreover, they have a pivotal function in cultivating leadership, teamwork, communication, and critical thinking abilities (Shaharuddin, 2021). Extra-curricular activities in Vietnamese universities have been recognised as a crucial approach to cultivate

general abilities in students. The efficiency of these activities is influenced by various aspects, including university leadership, student engagement, and external support (Nghia, 2017).

Co-curricular subjects are specifically designed to enhance academic learning by fostering students' abilities, talents, and personal qualities outside of the traditional classroom setting. These courses encompass a broad spectrum of domains, such as athletics, clubs, and organizations, performing arts, community service, and leadership development. Co-curricular activities are compulsory in Malaysian schools and universities. One of the public universities in Malaysia includes a community service module as part of its co-curricular offerings. This module is specifically designed for students who are in their second semester of a diploma or degree programme.

Participating in co-curricular activities is a crucial aspect of a student's academic advancement. These activities augment the official education provided in classrooms by offering a platform for students to develop essential skills such as leadership, teamwork, time management, and communication. Co-curricular activities enable students to discover and develop their hobbies, hidden talents, and overall personality. Engaging in co-curricular activities, particularly community service, can enhance students' knowledge, attitudes, academic performance, and skills. It will assist students in enhancing their interpersonal skills, which will be beneficial for them when they graduate and enter the professional job market.

1.1 Research Objective

This research is to identify the benefits of co-curricular activities through student participation in community service program.

2.0 LITERATURE SURVEY

2.1 Benefits of Community Service

Studies have shown that engaging in community service has several benefits, including improved mental well-being, the acquisition of new skills, and a deeper understanding of society values. (Dunn, 2018; Imamah, 2022; Rahim, 2023). The benefits of community service are particularly evident in educational settings, as it can enhance learning, promote active engagement in society, and foster a deeper understanding of one's community (Rahim, 2023).

Research has indicated that students who participate in community service activities attain superior academic scores in comparison to their non-engaged counterparts (Belete, 2024; Agurto et al., 2020). Research conducted by Caliwag (2019) has demonstrated that utilizing community service as a teaching approach has a substantial positive impact on student academic achievement and improves the overall quality of instruction. Moreover, students have reported utilizing the skills acquired from community participation workshops in their academic pursuits, resulting in enhanced academic achievements (Kubeka, 2018). Community participation has a positive impact on female students, leading to enhanced empowerment, self-efficacy, and motivation, as observed in a study by (Agurto et al., 2020). These studies jointly emphasize community service and participation as useful means for improving students' academic achievement and personal growth.

2.2 Student's Skill

Research has demonstrated that community service learning has substantial beneficial effects on students' abilities and personal growth. Several research studies have discovered that engaging in community service improves students' social skills, communication aptitude, and feeling of social responsibility (Afzal & Hussain, 2020; Llenares & Deocarís, 2019). According to Llenares and Deocarís (2019), regular volunteers exhibit greater levels of professional competence and ethical responsibility in comparison to non-regular volunteers.

According to Raja et al. (2024), business graduates who engage in community service gain better communication skills and interpersonal development, which enhances their competitiveness in the job market. Community service learning in medical school allows students to apply theoretical information in real-world situations, enhancing their clinical and communication abilities (Nauhria et al., 2021). These discoveries have prompted certain schools to include community service in their curricula, acknowledging its significance in cultivating well-rounded, socially conscientious graduates (Afzal & Hussain, 2020; Nauhria et al., 2021).

2.3 Students Attitude

A study conducted by Syed Yahya et al. (2019) found a strong correlation between students' personalities and their involvement in co-curricular activities. Studies indicate that engaging in community service and service-learning activities can have a beneficial effect on students' attitudes towards participating in community-related activities. Participation in service-learning programs resulted in enhanced attitudes among dental students on their comprehension of community needs and provision of dental treatment (H. A. Bahammam & S. Bahammam, 2023). Psychology students exhibited heightened empathetic attitudes towards poverty following the fulfilment of community service hours (Caswell, 2018). Specifically, community activities contribute positive influence on students' attitudes and personal development. These activities facilitate the cultivation of crucial soft skills, bolster self-assurance, and enhance self-worth, enhanced communication aptitude, advanced critical thinking capabilities, effective problem-solving skills, strengthened teamwork abilities, and refined leadership qualities (Shaharuddin et al., 2021). These activities also enhance character development, foster social connection, and promote community engagement, so serving as valuable elements of the educational experience (Shaharuddin et al., 2021).

2.4 Students' Knowledge

Several studies have investigated the effects of community service programs on different facets of society. Christwardana (2022) discovered that these programmes can improve students' understanding and involvement, especially in the realm of chemical engineering. Aliyyah (2018) demonstrated that community service can cultivate entrepreneurial characteristics and improve entrepreneurial knowledge among students, resulting in the creation of innovative business ventures. Research conducted in Japanese higher education has demonstrated that service-learning has a positive impact on students' perception of community service, sense of duty, and knowledge of the collective welfare (Kazunobu Horiuchi, 2020). These studies collectively emphasize the beneficial influence of community service programmes on the development of students' knowledge.

2.5 Conceptual Framework

Based on the previous literature review stated in the previous section, the researchers produced a research framework as shown in figure 1. The benefits of co-curricular activities in a community service program include (i) student academics, (ii) knowledge, (iii) skills, and (iv) attitudes. This framework is also in line with the framework developed by Shaharuddin (2021). Students' academic performance in this case includes improving writing and thinking skills, evaluating new ideas and techniques efficiently and preparation for future careers. Meanwhile, students' skills consist of improved cognitive skills, specifically critical thinking, develop communication skills and emphasise teamwork. Students' attitudes learning about time management, helps to accept criticism graciously and eliminates fears and anxieties. Students' knowledge is involved in decision making and provides the avenues of socialisation, self-identification and self-assessment.

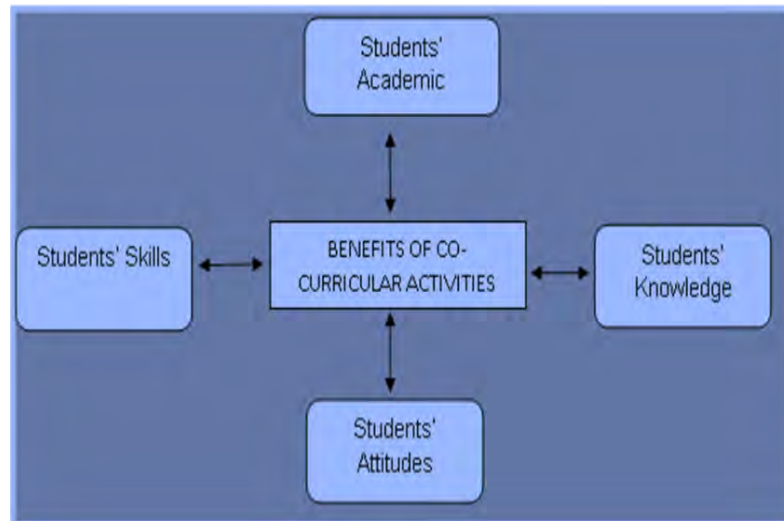


Fig. 1 Conceptual Framework of the Study – Benefit of Co-Curricular Activities in Community Service

3.0 METHODOLOGY

This quantitative study was done to identify the four benefits of co-curricular activities through community service programs among students. 154 participants were purposely chosen from a public university in Malaysia. The instrument (refer to table 1) used is a survey adapted from (Villalobos et al., 2016). Apart from the demographic profile in Section A, there are four different benefits of co-curricular activities which are divided in Section B, Section C, Section D and Section E. Section B has ten items measuring for Students' Academic Performance and Section C has ten items on Students' Skills. While section D with ten items on Students' Attitudes and Section E consists of ten items on Students' Knowledge.

All items in Section B, C, D and E are measured by Likert Scale of Studies have shown that engaging in community service has several benefits, including improved mental well-being, the acquisition of new skills, and a deeper understanding of society values. (Dunn, 2018; Imamah, 2022; Rahim, 2023). The benefits of community service are particularly evident in educational settings, as it can enhance learning, promote active engagement in society, and foster a deeper understanding of one's community (Rahim, 2023). One until 5 which indicate 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) and 5 (Strongly Agree).

Table 1: Distribution of Item in Survey

SECTION	BENEFITS OF CO-CURRICULAR ACTIVITIES	NO. OF ITEM
B	Students' Academic Performance	10
C	Students' Skills	10
D	Students' Attitudes	10
E	Students' Knowledge	10
TOTAL NO. OF ITEM		40

Table 2: Reliability Statistics

Cronbach's Alpha	N of Items
0.973	40

Data was collected via google form and analysed using SPSS version 27. With reference to Table 2, the SPSS analysis revealed a Cronbach analysis of .973. Thus, showing high internal reliability of the instrument used in this study. The data is presented in the form of percentage for the demographic profile and total percentage for agreed scale which is 4 (Agree) and 5 (Strongly Agree) to answer the research objective.

4.0 FINDINGS

4.1 Findings for Demographic Profile

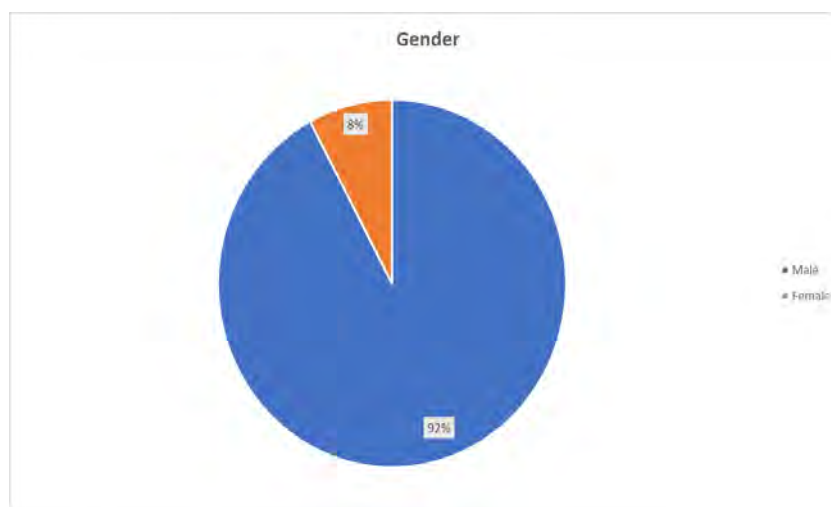


Fig. 2 Percentage for Gender

Based on **Fig. 2**, it shows that out of 154 respondents of the survey, 8 percent are female, and the other 92 percent are male. It shows that male students like to contribute more on community service programme and need outside exposure for their needs in future. This amount not showing any relevancy on gender because student have their right to choose their co-curricular activities they liked and how fast their registered the course.

4.2 Student Programme

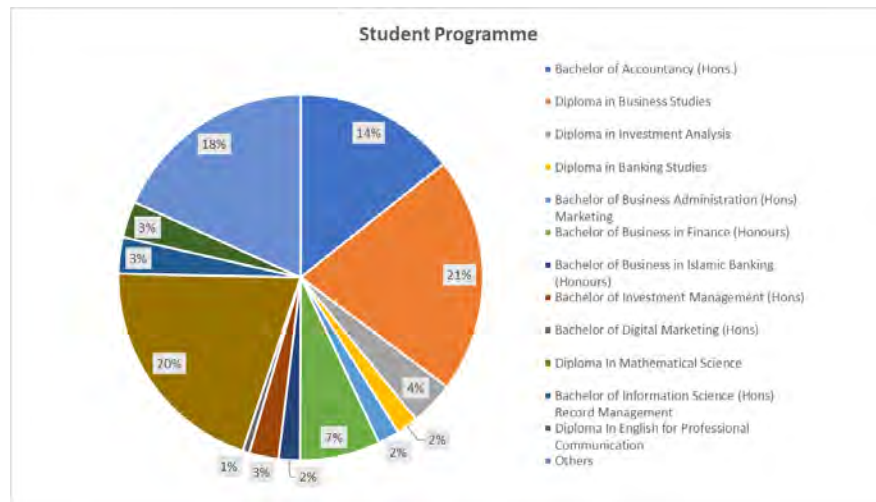


Fig. 3Percentage for Student Programme

Fig. 3 indicates the percentage of student programmes of the respondents and there are about sixteen student programmes. Sixty-eight percent of them are Diploma students' programme and the remaining 32 percent are Degree students' programme. Twenty-one percent student are from the banking course. Students have their right on choosing their co-curricular activities that why the co-curricular department cannot control student selection. The group of students are separate into diploma level and bachelor's degree level.

4.3 Reasons for Involving in Co-curricular Activities.

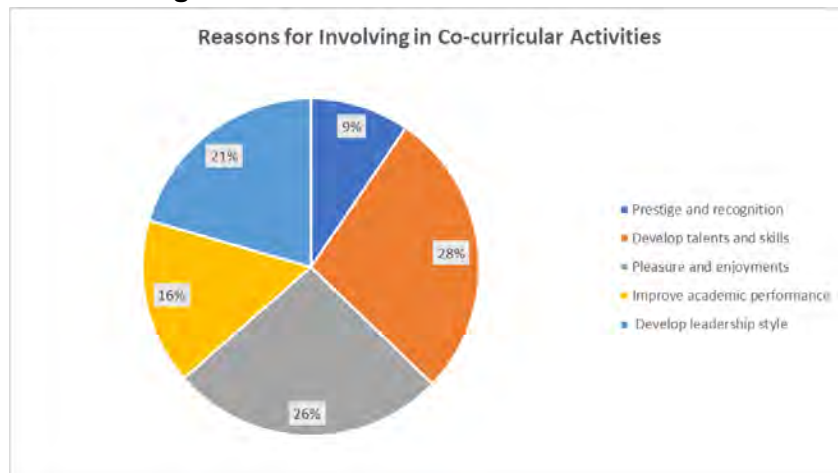


Fig.4 Percentage for Reasons for Involving in Co-curricular Activities.

Fig. 4 presents the percentage of respondents based on their reasons for involving in co-curricular activities. There are five reasons for being involved in co-curricular activities. Developing talents and skills, pleasure and enjoyments and developing leadership style are the main reasons which contribute about 28 per cent, 26 percent, and 21 percent, respectively. Reason for improving academic performance 16 percent and prestige and recognition 9 percent. Students choose this community service program as their co-curricular activity to develop their talents and skills. So that this will be their added value in future to enter the market after graduated. From this list of reason can help this study to evaluate the benefit of involving the community service programme.

4.4 Findings for Benefits of Co-curricular Activities to Students' Academic Performance

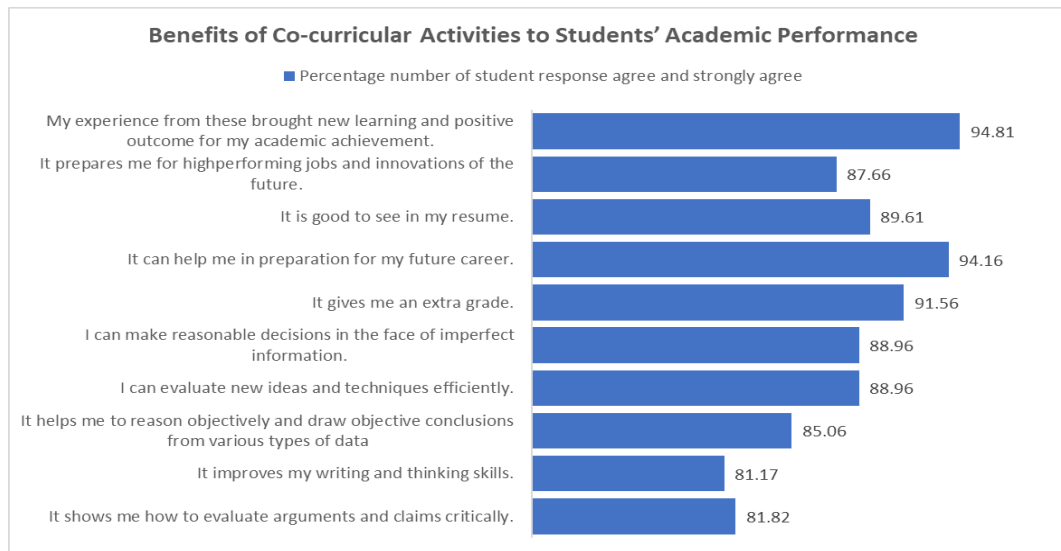


Fig.5: Percentage Agreed for Benefits of Co-curricular Activities to Students' Academic Performance

Fig. 5 shows the total percentage for agreed which is 4 (Agree) and 5 (Strongly Agree) in benefits of co-curricular activities to students' academic performance. The average percentage agreed for ten items in benefits of co-curricular activities to students' academic performance is 88.5 percent. All indicator is accepted more than 80 percent. It shows that most of the students agree that participating in co-curricular activities can benefit their academic performance. The highest for the academic performance is my experience from these brought new learning and positive outcome for my academic achievement ranked 94.81 percent. This shows that student join community service programme can help to increase their academic performance rather than just joining it without any reason. The lowest items from the Fig. 5 show improves students writing and thinking skills are only 81.17 percent because in this programme does not expose them in writing and attached much in thinking skill and hands on activities. The student only planned their activities during the community service programme that designed by the committee. The average item 88.96 percent shows that student can make reasonable decisions in the face of imperfect information and can evaluate new ideas and techniques efficiently. It helps the students clarify that ideas and techniques efficiently can encourage their academic performance.

4.5 Findings for Benefits of Co-curricular Activities to Students' Skills

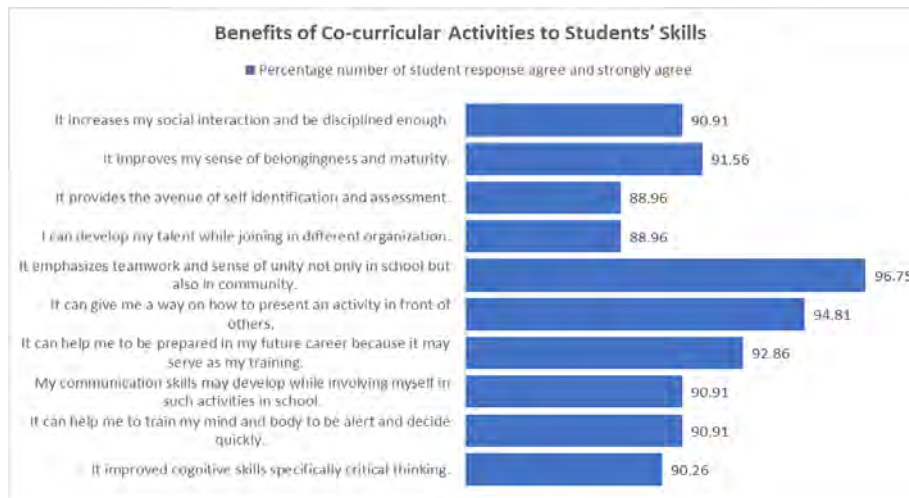


Fig. 6 Percentage Agree for Benefits of Co-curricular Activities to Students' Skills

Fig.6 shows the total percentage for agreed which is 4 (Agree) and 5 (Strongly Agree) in benefits of co-curricular activities to students' skills. The average percentage agreed for ten items in benefits of co-curricular activities to students' skills is 91.8 percent. Its clarify that the items that near with the average percentage is it improves students' sense of belongingness and maturity 91.56 percent. Community service programme can upgrade the students' skill on their belongingness and increase their maturity for them to act and make decision. Other than that, most of the students agree that participating in co-curricular activities can benefit their skills. The highest item selected by the student is it emphasizes teamwork and sense of unity not only in school but also in community. This shows that student's skill is upgrade as working in teamwork and have an esprit de corp during attending the community service programme. The lowest item has two that are it provides the avenue of self-identification and assessment, and I can develop my talent while joining in different organization shared a same percent 88.96. Even these two items are the lowest, but the score still achieve more than 80 percent. Student think that their self-identification and talent development does not contribute to their skills.

4.6 Findings for Benefits of Co-curricular Activities to Students' Attitudes

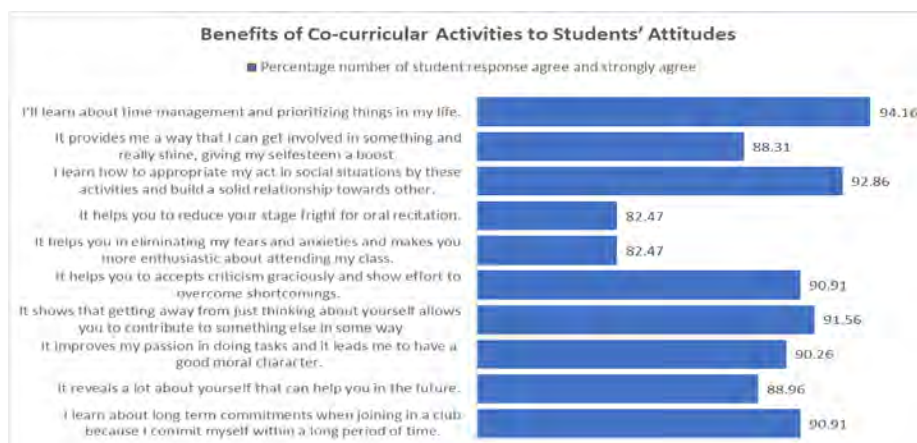


Fig.7: Percentage Agree for Benefits of Co-curricular Activities to Students' Attitudes

Fig. 7 shows the total percentage for agreed which is 4 (Agree) and 5 (Strongly Agree) in benefits of co-curricular activities to students' attitudes. The average percentage agreed for ten items in benefits of co-curricular activities to students' skills is 89.2 per cent. It shows that most of the students agree that participating in co-curricular activities can benefit their attitudes. The highest item selected by the students is they learn about time management and prioritizing things in my life that is 94.16 percent. Student have benefit on joining the community service programme to change their attitude in managing their personal time and can identify the priority of each activity. The lowest item 82.47 percent has two items contributed to the benefit on students' attitudes are it helps student to reduce their stage fright for oral recitation and the other items is it helps to eliminating student fears and anxieties and make students more enthusiastic about attending their class. For them these two items are lower on impacting their attitudes becomes most of them maybe do not have any problem on their anxiety and fear because they are already familiar joining a programme. The average percentage item is it help the students to accepts criticism graciously and show efforts to overcome shortcomings. Student attitudes can make the student accepts the criticism and put effort on handling the incoming situations.

4.7 Findings for Benefits of Co-curricular Activities to Students' Knowledge

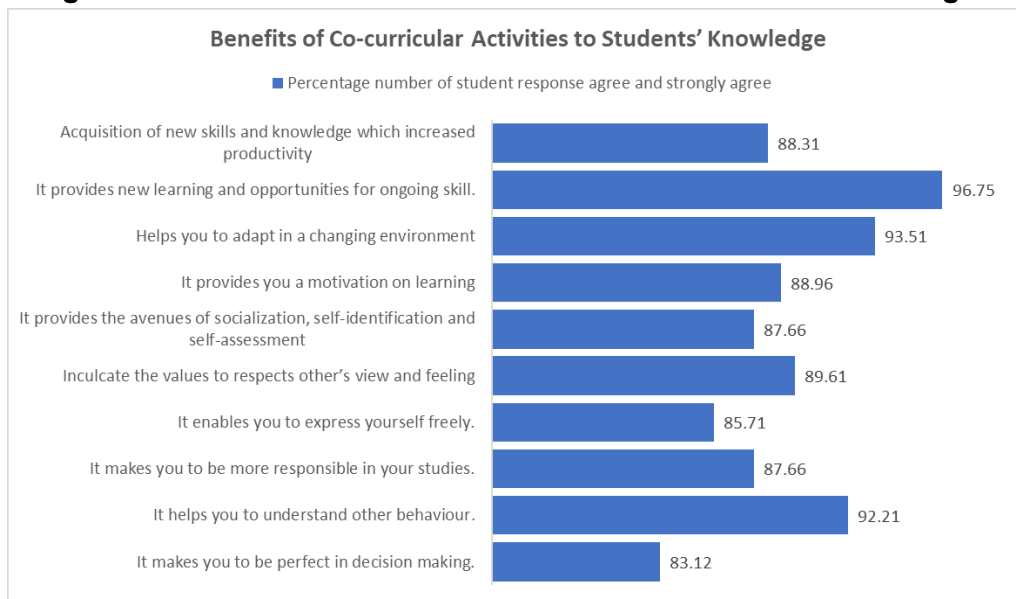


Fig.8- Percentage Agree for Benefits of Co-curricular Activities to Students' Knowledge

Fig. 8 shows the total percentage for agreed which is 4 (Agree) and 5 (Strongly Agree) in benefits of co-curricular activities to students' knowledge. The average percentage agreed for ten items in benefits of co-curricular activities to students' knowledge is 89.5 per cent. It shows that most of the students agree that participating in co-curricular activities can benefit their knowledge. The highest item that contributes to student knowledge is 96.75 percent it provides new learning and opportunities for ongoing skill. Student may feel that joining this community service programme can increase their ongoing skill facing the community outside the university and learn new environment and experience during the program. While the lowest item is 83.12 percent it makes student to be perfect in decision making. Student may feel that all humans are not perfect in life or decision making because they are still in learning process

and need to gain more experience to make a good decision in life. The average item scored by Fig. 8 is 89.61percent shows inculcate the values to respects others' view and feeling can help the student knowledge better and help increase their maturity.

5.0 CONCLUSION

Student engagement in community activities is now highly valued in university curricula since the university believes students' involvement in these activities will have numerous positive effects. This study aims to identify the benefits of co-curricular activities through student participation in community service programs. The findings of this study show that the involvement of students in community service programmes has a positive impact and useful for the students benefits. The first benefit is the student's academic performance. They agree that the experience gained from the involvement of such programmes adds new knowledge that will have a positive impact on their academic achievement. Besides, it also helps students prepare early for their future careers. The second benefit of this study is the enhancement of students' skills. They strongly agreed that the program would be a good platform for them to learn to work as a teamwork together with an individual they did not know before. This community service programme also makes them braver to make presentations or communicate in front of the crowd or the community itself. In addition, it improves their cognitive skills especially on critical thinking and increase their decision-making skill. Third benefit is enhancing students' attitude. Students agree that their involvement in this community service program trains them to be more respectful of time and know which actions they need to pay more attention to and attend first. They can prioritize their activities and plan their time in the daily routine. The last benefit of this study is enhancing students' knowledge. Surprisingly, students strongly agree this programme helps them to adapt in a new environment setting. Quick adaptation is much needed as involvement in this kind of activity will expose the participant with risk and circumstances that are sometimes out of our control. They prepared themselves to face a new environment and seek opportunities to increase their knowledge for their future preparation and daily life.

6.0 SUGGESTION FOR FUTURE RESEARCH

Selecting a sample from the community itself can help to expand the study's context. The advantages of community service participation for both the student and the community they serve may then be compared. In addition, future research also can be done to measure the benefits of involvement in community service towards career development.

CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest in this article. Author1 carried out the fieldwork and the introduction of the study, Author2 prepared the literature review and overlook the writeup of the whole article. Author3 wrote the research methodology and did the data entry. Author4 carried out the statistical analysis and interpretation of the results. Author4 interpretation of the results and make conclusions. Author5 overlooked the writeup of the whole article.

REFERENCES

- A. Rahim, S. Saleem & Mehreen Noman .(2023). A case study on the effectiveness of a College Civic Engagement Program in Gulmit Gojal Hunza, Pakistan. *International Journal of Social Science & Entrepreneurship*,3 (2), 19 – 34.
- Azmina Afzal & N. Hussain .(2020). The impact of community service learning on the social skills of students. *Journal of Education and Educational Development*,1 (7), 55-70.

- Belete, Y. (2024). The link between students' community engagement activities and their academic achievement. *EDUCATIONE*, 3 (1), 61-84 .
- Caliwag, P. A. L. (2019). Community service as a teaching method and its impact on student performance. *Journal of Physics: Conference Series*, 1254 .
- Caswell, T. A (2018). Psychology of poverty: attitude change via service learning. *Journal of Service Learning in Higher Education*, 7(1) ,25-34.
- Dunn, J.(2018). The impact of community service in the classroom setting: a research study. *Assumption University*,36.
- Bahammam, H. A. & Bahammam, A. (2023). Service-learning's impact on dental students' attitude to community service. *BBMC Medical Education*, 23(1).
- Llenares, I. I. & Deocarís, C. (2019).Volunteerism is associated with improved student soft skills of Marine Engineering students in the Philippines. *Springer Link*,8 (2), 57 – 73.
- Kazunobu ,H.(2020).serving other people: an empirical study of the impact of service learning on the moral character of students in Japanese Higher Education. *Journal of International Business Research and Marketing, Inovatus Services Ltd.*, 5(3), 32-38, .
- Christwardana,M. et.al .(2022). Community service as an application of the independent learning – independent campus program to improve the competence of Chemical Engineering students through collaborative and student project-based learning. *Education for Chemical Engineers*, 40, 1-7.
- Marcos. A. et al.(2020).empowering college students through community engagement: Experimental evidence from Peru. *Lima School of Economics*. Working Papers.
- Nauhria et.al .(2021). The impact of community service experience on the undergraduate students' learning curve and subsequent changes of the curriculum:-A quality improvement project at a Caribbean Medical University. *Front. Educ* 6.
- N. Shaharuddin et.al .(2021). Benefits of co-curricular activities amongst students. *Jurnal Teknikal& Kajian Sosial*. 3,(22), 1-13.
- Nur Imama et.al. (2022). Implementasi social responsibility di Desa Waru Barat Kecamatan Wary, Pamekasan. *Jurnal Pengabdian Masyarakat dan Penelitian Thawalib*, 1 (1) ,37-44.
- Syed Yahya et.al .(2019). Students' personalities and the level of engagement in co-curricular activities. *Creative Education*10(12),2984-2992.
- Raja, Farhanuddin et.al .(2024). Impact of community service on the communication skills of Business Graduated. *Spry Contemporary Education Practice*,3 (1).
- Kubeka, W. M. (2018). From comfort zone to reality: A community engagement to enhance student's academic performance. *InTech*.
- Villalobos et.al . (2016). Benefits of Co-curricular activities to academic performance of financial and management accounting students. *Asia Pacific Journal of Education, Arts and Sciences*,3 (1) 1, 83-93.

ESG DISCLOSURE, GREEN INNOVATION, AND CORPORATE PERFORMANCE: EMPIRICAL EVIDENCE FROM LISTED CHINESE A-SHARE COMPANIES

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ABSTRACT

In recent years, the ESG concept has been highly aligned with China's sustainable development strategy and green and low-carbon transition goals. ESG disclosure and green innovation have become a hot issue for shareholders, governments and investors. This study examines the relationship between ESG, green innovation and performance. This paper uses Chinese A-share listed companies in the software and information technology service industry from 2015 to 2022 as research samples to investigate the impact of ESG disclosure and green innovation on corporate performance. Using panel fixed effect regression, this study found that ESG disclosure and green innovation can significantly improve corporate performance. Furthermore, ESG disclosure and green innovation are complementary in promoting corporate performance. The finding of this study incentivises corporates to invest in ESG disclosure and green innovation to pursue sustainable performance. This study only uses a sample of a single industry, so the conclusions of this study do not have explanatory power for corporates in other industries.

Keywords: ESG disclosure, corporate performance, green innovation

1.0 INTRODUCTION

In recent decades, economic growth and development have become the consensus of all countries worldwide. China's GDP has grown at an average annual rate of 6.6% in the past ten years (Ai, 2022). China has entered the stage of high-quality development in 2020. Under this macro background, micro-economic entities must achieve "high-quality development". "High-quality development" refers not only to the reduction of expenses or the increase of revenue and profits but also to the sustained and stable growth of corporate performance, which is even more critical. Improving corporate performance is one of the complex problems that has always been a concern in management practice and academic research.

China's software and information technology service industry has contributed to economic growth. In 2022, China's software and information technology service industry completed a total software business revenue of 10,812.6 billion yuan, an increase of 11.2%

(Central People's Government of the People's Republic of China, 2023). As the main body of scientific and technological support to promote China's economic development, improving its corporate performance is conducive to transforming and upgrading the information technology industry and the high-quality development of China's economy. How to guide software and information technology service corporates to achieve value creation and high-quality development.

In the report *Who Cares Wins* written by the United Nations Global Compact in 2004, ESG was formally proposed. The Environmental, Social and Governance (ESG) value management concept, which represents the environmental, social, and governance and focuses on long-term value and sustainable development, is increasingly attracting the attention of stakeholders (Yuan & Cao, 2022). The concept of ESG is highly compatible with the requirements of high-quality development. Therefore, promoting corporate ESG practice activities is gradually becoming the focus of promoting high-quality economic development.

ESG disclosure by Chinese corporations started late, and there is still a big gap compared with Countries where ESG started earlier. By 2022, 1,755 of the 5034 listed corporates in China have disclosed ESG-related reports, with a disclosure rate of 34.32% (Xie, 2023). In the same period, there were 336 listed corporates in the Chinese A-share software and information technology service industry, of which 76 disclosed ESG-related reports, with a disclosure rate of 22.62%, lower than the industry-wide level of 34.42%. In terms of ESG rating, 63 corporates were rated as A, accounting for 18.75%; There were 96 corporates rated as B, accounting for 28.57%; The number of corporates that obtained C was the largest, 105, accounting for 31.25%; and 72 corporates were rated D, accounting for 21.43% (Huang, 2023). It shows that the ESG disclosure rate of the Chinese A-share software and information technology service industry is low, and the ESG performance is poor. Therefore, it is significant to promote software and information technology service corporates to improve ESG practice and disclosure to achieve value creation and high-quality development.

Furthermore, research shows that green innovation is also a driving force for promoting high-quality corporate development. Green innovation can effectively improve energy utilisation and reduce waste generation by using alternative energy, improving processes, and recycling resources (Yu et al., 2017), and ensuring the production and manufacturing processes of corporates comply with environmental regulations, thus avoiding environmental pollution penalties (Xie et al., 2016). Moreover, green innovation can enhance production efficiency through improved processes (Xie et al., 2019), bring technological leadership to corporates, build better recycling systems, and promote cost minimisation through reduced resource use, thereby bringing financial returns to the corporate (Fernando et al., 2019).

This paper examines the relationship between ESG disclosure, green innovation, and corporate performance in Chinese A-share software and information technology service companies from 2015 to 2022. The main contributions of this study are as follows: Firstly, this study investigates the impact of ESG disclosures on corporate performance based on Chinese A-share listed companies in the software and information technology services sector, this enriches the existing literature on the economic implications of ESG disclosure and its effects on corporate performance. Secondly, the study explores the link between green innovation and corporate performance, this offers new evidence about green innovation can improve corporate performance from China's software and information technology service listed companies. This adds to the relevant literature on the economic consequences of green innovation. Lastly, the study considers green innovation as a moderating variable to further examine its effect with ESG disclosure on corporate performance.

This article is organized as follows: Section 2 provides an overview of the literature and outlines the research hypotheses. Section 3 describes the research design, including the sample description, variable definitions, and the adopted analyses. The main empirical results are presented and discussed in section 4. Finally, conclusions are provided in section 5.

2.0 LITERATURE REVIEW AND RESEARCH HYPOTHESIS

According to the stakeholder theory, the excellent development of a corporation is the result of the joint governance of managers and stakeholders. Corporations can gain competitive advantages such as social reputation and media attention by adopting positive environmental management measures, undertaking corporate social responsibility, and strengthening corporate governance. These competitive advantages are conducive to improving the overall performance of corporates.

ESG disclosure can positively affect corporate performance in three ways. First, the quality of ESG disclosure can improve the internal governance and internal control of corporates (Ronalter et al., 2023), thus reducing the risk of financial violations (Chen & Zhao, 2022), reducing the cost of capital (Khanchel & Lassoued, 2022), and ultimately improving corporate performance (Zhao et al., 2018).

Second, voluntary ESG disclosure reports can be used as a communication channel with stakeholders, alleviate information asymmetry, improve the financial transparency of corporates, gain reputation and good image, increase the trust of investors, ease financing constraints (Wang & Xie, 2022), attract experienced institutional investors (Rau & Yu, 2023), and thus obtain economic benefits (Oncioiu et al., 2020).

Third, good ESG performance can improve corporates' investment and operation efficiency. On the one hand, ESG disclosure can reduce overinvestment by reducing agency costs (Tang, 2022); On the other hand, the higher the ESG disclosure was able to attract more institutional investors and increase inefficient investment (Wang & Li, 2022). Therefore, this study puts forward the first hypothesis:

H1: Corporate with good environmental disclosure is positively related to corporate performance.

According to the resource-based view theory, rare, imitable and irreplaceable heterogeneous resources are the source of organisational performance improvement and long-term competitive advantage. When a corporation has the advantage of resources and capabilities and can allocate them efficiently, it is easier to innovate than other corporations. Green innovation involves technological improvements that save energy, prevent pollution, or enable waste recycling. It encompasses green product design and has gained more attention due to its contributions to resource conservation, environmental protection, and financial performance.

Prior studies have discovered a positive relationship between green innovation and corporate performance (Chouaibi et al., 2022; Li et al., 2020). First, green product innovation encourages the efficient use of raw materials, leading to lower raw material costs and guiding corporates to convert waste into product revenue. Second, green innovation improves existing production technology to reduce adverse environmental effects, thereby improving the corporate's environmental compliance, helping to shape a green brand image, gaining consumer trust, and gaining market competitive advantages. Third, as the number of

patents representing a corporation's green innovation output increases, it can effectively improve its financial performance. So, this study proposes the following hypothesis:

H2: Green innovation is positively related to corporate performance.

The green innovation investment can increase ESG disclosure and corporate performance as this factor can beat resource-based view in supporting ESG disclosure and corporate performance. Prior studies can prove that high-quality ESG disclosure and green innovation impact corporate performance (Gong et al., 2021).

Some scholars discover that the moderating between ESG disclosure and green innovation may be a complementary effect. They believe that ESG disclosure and green innovation do not conflict, ESG can be internalised into the corporate culture, and jointly promote corporate innovation and performance improvement. High-quality ESG disclosure can alleviate information asymmetry and deepen cooperation and communication with stakeholders, thus contributing to corporates' green innovation activities (Ma et al., 2022). Therefore, this study puts forward the following hypotheses:

H3: There is a moderating effect between green innovation and ESG disclosure on corporate performance.

3.0 DATASOURCE AND MODEL DESIGN

3.1 Sample Selection and Data Source

This study uses the data of Software and Information technology services in Chinese A-share listed corporates from 2015 to 2022. The chosen time frame is because China's ESG disclosure developed rapidly during this period. ESG data were obtained from the ESG score provided by China Securities Database. Meanwhile, corporate performance and control variables data were gathered from the China Stock Market & Accounting Research Database (CSMAR), and green innovation data were gathered from the China Research Data Service Platform (CNRDS).

The samples were screened and processed according to the following steps: (1) ST, *ST and PT corporates were excluded; (2) IPO-listed corporates and delisted corporates from 2015 to 2022; (3) Eliminate the corporates with missing core data; After the above screening, finally, 1132 sample observations were obtained. All continuous variables were interned by 1% up or down to eliminate the effect of extreme values.

3.2 Description of Variables

(1) Explained variables

The explained variable is firm performance (Tobin's Q). Tobin's Q measures the corporate's market value ratio to total assets. Tobin's Q has advantages because it is difficult for management to manipulate it. Tobin's Q ratio can predict the corporation's future cash flow and long-term performance and is less sensitive to inflation. Tobin's Q value can reflect corporate performance from market and profit dimensions (Rahman & Zahid, 2021).

(2) Explanatory variables

The explanatory variable was ESG disclosure (ESG score). This paper adopts the Huazheng ESG score, a mainstream rating agency in China. Huazheng ESG rating gives the evaluated corporation a nine-grade rating of "AAA-C", with an ESG score ranging from 0 to 100. The higher the score, the better the ESG performance of the evaluated corporation.

(3) Moderating variables

The Moderating variable is green innovation. This study uses the number of green patents as a proxy variable for green innovation (Xu et al., 2021). This study follows Xu et al. (2021), which uses the natural logarithm of (number of greens patents granted + 1) as a proxy variable for green innovation. The higher the number, the higher the corporate's green innovation level.

Drawing on existing research, this paper introduces the following control variables: corporate size (Size), type of corporate ownership (Ownership), cash holding ratio (Cash), proportion of the largest shareholder (Top1), and total asset turnover (Turnover). See Table 1 for details.

Table 1. List of variables

Type of Variables	Variable	Operationalisation
<i>Dependent Variable:</i>		
Corporate Performance	Tobin's Q	The ratio of market value to total assets
<i>Independent Variable</i>		
ESG disclosure	ESG score	Huazheng ESG score
Green Innovation	Green-Patent	Natural logarithm of (number of green patents granted + 1)
<i>Control Variables</i>		
	Size	Natural logarithm of total assets at year-end
	Ownership	1 for state-owned corporates and 0 for non-state-owned
	Cash holding	Net operating cash flow divided by total assets
	Top1	The holding ratio of the first large shareholder
	Turnover	Operating income divided by total assets

3.3 Equation Model

The following equation model was constructed to test the hypotheses 1 and 2. The following is the baseline regression model:

$$\text{Tobin's } Q_{i,t} = \beta_0 + \beta_1 \text{ESG}_{i,t} + \beta_2 \text{Green-Patent}_{i,t} + \beta_3 \text{Control}_{i,t} + \text{Year} + \varepsilon_{i,t} \quad (1)$$

Furthermore, to test hypothesis 3, equation Model 2 was constructed to examine the moderating effects of green innovation on ESG disclosure to corporate performance:

$$\text{Tobin's } Q_{i,t} = \beta_0 + \beta_1 \text{ESG}_{i,t} + \beta_2 \text{Green-Patent}_{i,t} + \beta_3 \text{ESG}_{i,t} \times \text{Green-Patent}_{i,t} + \beta_4 \text{Control}_{i,t} + \text{Year} + \varepsilon_{i,t} \quad (2)$$

Where Tobin's $Q_{i,t}$ represents corporate performance of the explained variable, $\text{ESG}_{i,t}$ represents corporate ESG disclosure of the explained variable, $\text{Green-Patent}_{i,t}$ represents green innovation, $\text{control}_{i,t}$ represents all control variables, Year represents time fixed effect, $\varepsilon_{i,t}$ represents error term.

4.0 RESULT AND DISCUSSIONS

4.1 Descriptive Statistics

Please refer to Table 2 for the descriptive results. The standard deviation of Tobin's Q is 2.727, the minimum value is 0.0878, the maximum value is 17.497, and the average value is 3.306, which shows that the performance of different corporates in China's software and information technology service industry varies greatly. The maximum value of ESG disclosure is 83.771, the minimum value is 58.960, and the standard deviation is 4.734, reflecting the different degrees of ESG disclosure of corporates in the software and information technology service industry, which is attributed to the different depth of understanding of ESG of Chinese software and information technology service corporates, coupled with the short development time of ESG, and the uneven growth level of corporates. There is a particular imbalance.

However, the average value is 73.829, showing that the corporates in the sample have a relatively good performance of ESG disclosure, mainly because relevant regulations require mandatory disclosure in specific industries, and corporates' awareness of ESG is strengthened. The maximum value of green patents for green innovation in the software and information technology service industry is 6.457, and the minimum value is only 0, reflecting significant differences in green innovation among different corporates, with an average value of 0.171. Green innovation in the software and information technology service industry is low.

Table2. Descriptive Analysis

Variables	Obs	Mean	SD	Min	Median	Max
Tobin's Q	1132	3.306	2.727	0.878	2.419	17.497
ESG	1132	73.829	4.734	58.960	74.050	83.771
Green-Patent	1132	0.171	0.604	0.000	0.000	6.457
Size	1132	12.878	0.951	10.829	12.842	15.563
Ownership	1132	0.211	0.408	0.000	0.000	1.000
Cash Holding	1132	0.038	0.060	-0.134	0.035	0.217
Top1	1132	0.243	0.122	0.067	0.212	0.574
Turnover	1132	0.501	0.339	0.119	0.428	2.604

Note: Tobin's Q is corporate performance measured by the ratio of market value to total assets; ESG score is total ESG score by the corporations; Green-patent measured by Natural logarithm of (number of green patents granted + 1); Size is measured by Natural logarithm of total assets at year-end; Ownership is a dummy variables of 1 for state-owned corporates and 0 for non-state-owned; Cash holding is measured by net operating cash flow divided by total assets ; Top1 is measured by holding ratio of the first large shareholder; and Turnover is measured by operating income divided by total assets.

4.3 Regression Analysis

The first column of Table 3 lists the regression results of ESG disclosure and green innovation on corporate performance. During the sample period, ESG disclosure in China's software and information technology service industry has a significant positive effect on corporate performance, showing that ESG disclosure can bring economic benefits to corporations and promote corporate performance growth. Hypothesis 1 is verified.

The research results of this paper are consistent with Oncioiu et al. (2020) and Wang (2022). The influence coefficient of ESG disclosure on corporate performance is 0.0459, and it is positive at the significance level of 1%; that is, when a corporation's ESG rating is increased by 1%, its performance will increase by 0.0459%. It shows that good corporate ESG performance plays a positive role in improving corporate performance. Better ESG performance can strengthen the "bond" between corporates and stakeholders. This "bond"

can not only help corporates reduce financing costs to attract external investment but also help corporates obtain the necessary strategic resources in time to form their unique competitive advantages and thus promote the growth of corporate performance. Good ESG disclosure can help corporates improve their performance in the above ways.

The influence coefficient of green innovation on corporate performance is significantly positive at the 5% level, shows that enhancing green innovation is conducive to improving corporate performance, consistent with Chouaibi et al. (2022) and Li et al. (2020). This may be because corporate green innovation can improve corporate performance from the two aspects of cost-benefit and resource effect, respectively. From the cost-benefit perspective, the design of green products and the improvement of cleaner production processes can improve resource utilisation, reduce unnecessary losses, and thus improve production efficiency, which is helpful in reducing the production cost of corporations. In addition, from the resource effect perspective, improving green innovation can help corporates establish an excellent green image and win the support of stakeholders and government departments. With the support of such intangible resources, corporates can obtain the support of tangible resources such as investor financing and special project funds, thus promoting the improvement of corporate performance.

The second column of Table 3 lists the moderating effect between green innovation and ESG disclosure on corporate performance. The regression coefficient of ESG* Green-patent is positive and significant, which shows that ESG disclosure and green innovation are complementary in promoting corporate performance improvement, this is consistent with the research conclusions of Hang et al. (2022) and Xu et al. (2021). ESG can be internalised into the corporate culture and jointly promote innovation and performance improvement. High-quality ESG disclosure can alleviate information asymmetry and deepen cooperation and communication with stakeholders, thus contributing to corporates' green innovation activities.

Table 3. Empirical Research Result

	(1) Tobin's Q	(2) Tobin's Q
Constant	21.2088*** (4.5057)	21.3944*** (4.4917)
ESG	0.0459*** (0.0139)	0.0437*** (0.0141)
Green-Patent	0.3883** (0.1550)	-1.4244 (1.0110)
ESG*Green-Patent	-	0.0236* (0.0134)
Size	-1.4482*** (0.3574)	-1.4480*** (0.3574)
Ownership	-0.3834 (0.3840)	-0.3766 (0.3839)
Cash	2.7514** (1.3112)	2.7451** (1.3114)
Top1	2.8335 (2.4565)	2.7661 (2.4406)
Turnover	0.8353* (0.4855)	0.8185* (0.4847)
Year FE	YES (4.5057)	YES (4.4917)
Adjusted R ²	0.5982	0.5984
N	1132	1132

Note: The reported t-statistics are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) levels, respectively.

Tobin's Q is corporate performance measured by the ratio of market value to total assets; ESG score is total ESG score by the corporations; Green-patent measured by Natural logarithm of (number of green patents granted + 1); Size is measured by Natural logarithm of total assets at year-end; Ownership is a dummy variables of 1 for state-owned corporates and 0 for non-state-owned; Cash holding is measured by net operating cash flow divided by total assets; Top1 is measured by holding ratio of the first large shareholder; and Turnover is measured by operating income divided by total assets.

5.0 CONCLUSION

In recent years, the ESG concept has been highly aligned with China's sustainable development strategy and green and low-carbon transition goals. This paper uses China's software and information technology service listed companies from 2015 to 2022 as research samples to explore the relationship between ESG disclosure, green innovation, and corporate performance. The main conclusions are: (1) ESG disclosure has a long-term positive impact on corporate performance improvement. (2) Green innovation has a positive impact on corporate performance improvement. (3) ESG disclosure and green innovation complement and jointly promote corporate performance improvement. This study shed light on the corporations investing in ESG and green innovation to pursue sustainable performance.

ESG disclosure and green innovation have become focal points for shareholders, governments, and investors. The following specific recommendations are put forward. First, from the perspective of corporates, good ESG disclosure can bring good brand image to corporates and improve their own management and development capabilities. Therefore, corporates should pay attention to the long-term positive effects of non-financial information disclosure on corporate value, such as environmental, social responsibility, and corporate governance. Moreover, it will be incorporated into the construction of corporate culture and the incentive mechanism design framework system. In addition, to promote the sustainable development of corporates, corporates should not only pay attention to the improvement of green innovation ability but also provide fundamental impetus for the development of corporates.

Second, from the perspective of the government and regulatory authorities, it is necessary to learn from the regulatory standards of international organisations on ESG disclosure to gradually improve the rating standards and system of China's ESG responsibility performance and implement reward and punishment measures to promote corporates to disclose ESG responsibility performance information in a timely and accurate manner. In addition, the government should conduct green innovation incorporating weak research and development capabilities, provide financing support and policy support for green innovation of corporates, and promote high-quality development of the local economy.

Third, from the perspective of investors, investors should attach importance to the disclosure of ESG information of corporates, incorporate both corporate financial information and ESG non-financial information into the evaluation framework of investment projects, and measure the future development prospects of corporates through the long-term social value and sustainable development value of corporates. At the same time, while better managing investment risks to obtain sustainable investment returns, more funds will continue to flow to green industries to achieve industrial transformation and upgrading in China.

This study uses an empirical analysis of listed companies in China's software and information technology service industry. Therefore, the findings have no explanatory power for corporates in other industries. Future research could extend the method of this study to

other industries or even all listed corporates to provide more comprehensive confirmation of the relationship between ESG disclosure, green innovation, and corporate performance.

REFERENCES

- Ai, L. (2022). *In the past ten years, China's GDP has grown at an average annual rate of 6.6%, and its average contribution to world economic growth has exceeded 30%*. Www.Xinhuanet.Com.
- Central People's Government of the People's Republic of China. (2023). *Software and Information Technology Services Industry Statistical Bulletin 2022*. www.Gov.Cn.
- Chen, R., & Zhao, X. (2022). The impact of ESG performance on financing costs. *Journal of Scientific Decision*, 11, 24–40.
- Chouaibi, S., Chouaibi, J., & Rossi, M. (2022). ESG and corporate financial performance: the mediating role of green innovation: UK common law versus Germany civil law. *Euro Med Journal of Business*, 17(1), 46–71.
- Fernando, Y., Chiappetta Jabbour, C. J., & Wah, W. X. (2019). Pursuing green growth in technology firms through the connections between environmental innovation and sustainable business performance: Does service capability matter? *Resources, Conservation and Recycling*, 141, 8–20.
- Gong, Y., Yan, C., & Ho, K. C. (2021). The effect of managerial ability on corporate social responsibility and firm value in the energy industry. *Corporate Social Responsibility and Environmental Management*, 28(2), 581–594.
- Hang, Y., Sarfraz, M., Khalid, R., Ozturk, I., & Tariq, J. (2022). Does corporate social responsibility and green product innovation boost organizational performance? a moderated mediation model of competitive advantage and green trust. *Economic Research-Ekonomskastrazivanja*, 35(1), 5379–5399.
- Huang, Z. (2023). *The disclosure rate of ESG reports in software and information technology services is 22.62%*. National Business Daily.
- Khanchel, I., & Lassoued, N. (2022). ESG disclosure and the cost of capital: Is there a ratcheting effect over time? *Sustainability*, 14(15), 1–19.
- Li, L., Msaad, H., Sun, H., Tan, M. X., Lu, Y., & Lau, A. K. W. (2020). Green innovation and business sustainability: New evidence from energy intensive industry in China. *International Journal of Environmental Research and Public Health*, 17(21), 1–18.
- Ma, X., Ock, Y. S., Wu, F., & Zhang, Z. (2022). The effect of internal control on green innovation: corporate environmental investment as a mediator. *Sustainability*, 14(3), 1–19.
- Oncioiu, I., Popescu, D. M., Aviana, A. E., Serban, A., Rotaru, F., Petrescu, M., & Marin-Pantelescu, A. (2020). The role of environmental, social, and governance disclosure in financial transparency. *Sustainability*, 12(8), 1–16.
- Rahman, H. U., & Zahid, M. (2021). Women directors and corporate performance: firm size and board monitoring as the least focused factors. *Gender in Management*, 36(5), 605–621.
- Rau, P. R., & Yu, T. (2023). A survey on ESG: investors, institutions and firms. *China Finance Review International*.
- Ronalter, L. M., Bernardo, M., & Romani, J. M. (2023). Quality and environmental management systems as business tools to enhance ESG performance: a cross-regional empirical study. *Environment, Development and Sustainability*, 25(9), 9067–9109.
- Tang, H. (2022). The effect of ESG performance on corporate innovation in China: The mediating role of financial constraints and agency cost. *Sustainability*, 14(7), 1–21.
- Wang, N., & Li, Y. (2022). Research on ESG performance and corporate investment efficiency: examination of impact effects and mechanisms. *Accounting and Finance*, 6, 23–31.

- Wang, R. (2022). Research on ESG performance and inefficiency investment level of enterprises. *Enterprise Economy*, 41(06), 89–100.
- Wang, Y., & Xie, M. (2022). The impact of ESG information disclosure on corporate financing costs: Empirical evidence based on China's A-share listed companies. *Nankai Economic Studies*, 11, 75–94.
- Xie, R. (2023). More than 1,700 A-share companies have disclosed ESG reports for 2022, the impact of capital decisions is deepening. *Securities Daily*, 1–2.
- Xie, X., Huo, J., Qi, G., & Zhu, K. X. (2016). Green process innovation and financial performance in emerging economies: Moderating effects of absorptive capacity and green subsidies. *IEEE Transactions on Engineering Management*, 63(1), 101–112.
- Xie, X., Huo, J., & Zou, H. (2019). Green process innovation, green product innovation, and corporate financial performance: A content analysis method. *Journal of Business Research*, 101, 697–706.
- Xu, J., Liu, F., & Shang, Y. (2021). R&D investment, ESG performance and green innovation performance: evidence from China. *Kybernetes*, 50(3), 737–756.
- Yu, W., Ramanathan, R., & Nath, P. (2017). Environmental pressures and performance: An analysis of the roles of environmental innovation strategy and marketing capability. *Technological Forecasting and Social Change*, 117, 160–169.
- Yuan, B., & Cao, X. (2022). Do corporate social responsibility practices contribute to green innovation? The mediating role of green dynamic capability. *Technology in Society*, 68(5), 1–15.
- Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation companies. *Sustainability*, 10(8), 1–18.

ENHANCING WATER RESILIENCE: THE IMPACT OF WATER RISK AWARENESS ON RESERVE MARGIN RATIOS IN MALAYSIA

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ABSTRACT

This study investigates the relationship between water risk awareness and the reserve margin ratio within the context of Malaysia's water management practices. Utilizing a mixed-methods approach, the research combines quantitative analysis of secondary data from the Suruhanjaya Perkhidmatan Air Negara (SPAN) with qualitative insights from interviews with SPAN personnel. The study aims to provide a comprehensive understanding of the operational and regulatory challenges faced by water companies in Malaysia and the impact of these challenges on water supply and resilience. The findings reveal that SPAN monitors two main areas: services, encompassing the entire water service chain from intake to end-users, and facilities, including asset ownership, operations, and construction. SPAN conducts quarterly Water Regulatory Meetings to address technical aspects and capital expenditures, ensuring compliance and identifying water shortages that necessitate the construction of new plants. However, several states, such as Kelantan, Kedah, and Perlis, report critically low or zero reserve margin ratios, highlighting significant water supply vulnerabilities. The study further outlines crucial concerns about water utilisation practices and infrastructure. Leakages in pipes, frequently resulting from the deterioration of pipes that are more than 40 years old, have a substantial impact on water loss and inefficiency. The study emphasises the importance of making substantial investments in infrastructure and implementing a more efficient regulatory approach. This is important to maintain an ideal reserve margin and ensure efficient service delivery. The insights gained from this study have crucial implications for policymakers, water service providers, and other stakeholders in the development of sustainable water management policies.

Keywords: Awareness, Margin Ratio, Reserve, Water risk

1.0 INTRODUCTION

Water risk awareness has become an essential element in ensuring the long-term viability and effectiveness of enterprises, particularly those heavily reliant on water resources (Ross et al., 2020). Issues such as water purity, shortages, and regulatory impacts pose significant challenges for many enterprises, affecting their ability to maintain sustainability and achieve financial success (Sekercioglu et al., 2018). With global water resources increasingly strained by climate change, population growth, and industrial demands, companies need to understand and address water-related hazards to ensure environmentally responsible operations (Drechsel et al., 2023; Koroleva & Novak, 2020).

The reserve margin ratio is an essential metric that quantifies the ability of a business or utility to fulfil water demand above its regular operational capacity (Gaur et al., 2014). The reserve margin ratio is a significant metric that quantifies an organization's ability to handle fluctuations in water supply and demand, providing a safeguard against unforeseen disruptions (Das et al., 2024). A greater reserve margin ratio signifies an enhanced ability to manage unexpected changes in water supply, hence reducing susceptibility to water hazards (Lindner et al., 2018).

The relationship between knowledge of water risk and the reserve margin ratio is crucial for the effective management of water resources (Wu et al., 2012). Water providers who possess knowledge of and actively oversee and regulate water hazards are more likely to keep bigger reserve margins. This would guarantee their ability to maintain operations even in times of water scarcity or issues with water quality (Ahmad et al., 2023). This proactive strategy not only encourages the ongoing functioning of corporate activities but also strengthens the ability to withstand future water-related difficulties (Rahman et al., 2023).

In addition, including an understanding of water risk in an organization's efforts and business strategy can provide significant benefits that go beyond immediate operational gains (Merabtene et al., 2002). Organisations that give priority to water sustainability are frequently seen as frontrunners in environmental stewardship. Consequently, this would bolster their standing and fortify connections with stakeholders, such as clients, shareholders, and regulators.

Water service providers that demonstrate a strong commitment to efficiently managing water-related risks have the opportunity to gain a competitive advantage and attract investors that prioritise social responsibility (Abdelrady&Hussien, 2020). Moreover, fostering a culture of water risk awareness inside a corporation has the potential to provide inventive solutions and enhance operational efficiency. Implementing this would enhance the organization's long-term sustainability and financial prosperity (Ahmad et al., 2023; Cai et al., 2003). The significance of incorporating environmental considerations into strategic planning is exemplified by the comprehensive approach to water resource management outlined by Mysiak et al. (2005). Moreover, it highlights the need to maintain a strong reserve margin ratio within a complete risk management framework. This is because maintaining a balance in water reserves while adhering to constraints such as water demand and the capacity of storage reservoirs is important(Akimoto et al., 2024).

This study examines the correlation between water risk awareness and the reserve margin ratio, assessing how water service providers perceive and address water hazards in their operating strategies. This analysis would offer a valuable understanding of the need to maintain adequate reserve margins and the broader consequences for sustainability and risk mitigation. This work contributes to the growing body of literature on water resource management, offering significant insights that might influence policy choices and help

businesses enhance their capacity to manage water-related risks. Additionally, this would also assist in shaping the policy and practices of water management strategies specifically in Malaysia.

The remainder of the paper is organised as follows. The next section explains the research literature review about water management in Malaysia. The paper further explains the theoretical framework shaping this study. It then explains the mixed methodology being applied in this study. Following that, the findings are presented. Finally, the discussions, conclusions, and suggestions for future research are outlined.

2.0 LITERATURE REVIEW

2.2 Water Management in Malaysia

Malaysia's water services business operates under a monopolistic market system, where each state or territory has control over the full water supply process, including abstraction, treatment, and distribution (Raihanet al., 2023). This decentralised system results in each water utility operating in varied locations, employing different systems, and adhering to distinct sets of regulations. Consequently, the water services in Malaysia vary significantly, resulting in a variety of challenges and responses that are specific to each utility's operational structure and regional environment (Farouk et al., 2023).

This scenario calls for a pressing need for greater coordination and standardisation within the industry to ensure equitable access to safe and reliable water services nationwide. Additionally, fostering collaboration and knowledge-sharing among utilities can facilitate the adoption of best practices. It also encourages innovative solutions to address common challenges such as water scarcity, pollution, and infrastructure degradation.

2.3 History of water resource management in Malaysia

The history of water management in Malaysia dates back to ancient times, with various civilisations and indigenous communities implementing their methods of water management. Malaysia became a British territory in the nineteenth century, and water management developed further under British control (Rivil Water, 2023). To increase access to clean water, the British deployed innovative technology including piped water supplies. To conserve water for use in agriculture and urban areas, they also constructed enormous reservoirs, such as the Chenderoh Dam and the Temenggor Dam (Rivil Water, 2023).

The control of water resources was turned over to the government in 1957 when Malaysia attained independence. As a result of rising water demand brought on by urbanisation and industry, the nation was confronted with new problems. During these early years (1950s – 1960s), the government put policies into place aimed at boosting water supply, enhancing water quality, and effectively managing water resources to meet these issues. The establishment of the Public Works Department (PWD) in 1954 marked the beginning of centralised water supply development efforts. Key water infrastructure projects were initiated, including the construction of dams, reservoirs, water treatment plants, and distribution networks. The first major dam, the Temenggor Dam in Perak, was completed in 1968, followed by the Kenyir Dam in Terengganu in 1985 (Rivil Water, 2023).

Following that, the formation of the National Water Authority occurs during the 1970s to 1980s. The Department of Drainage and Irrigation (DID) was established in 1975 to oversee water resource management, flood control, and irrigation development. In 1979, the National Water Authority (now known as the National Water Services Commission or SPAN) was established to regulate the water industry and ensure efficient water service provision (Wahid et al., 2014). The government introduced a series of water-related legislation, including the Water Supply Enactment and the Sewerage Services Act, to improve governance and regulation.

Malaysia experienced rapid urbanisation and industrialisation, necessitating the expansion of water supply infrastructure. Accordingly, the expansion of water supply infrastructure occurs during the 1990s to the year 2000s. Major projects were implemented, such as the Pahang-Selangor Raw Water Transfer Scheme, which transferred water from Pahang to meet the increasing water demand in the Klang Valley. Privatisation of water services began in the late 1990s, with the government entering into concessions and management contracts with private companies for water supply and services (Hall et al., 2004; Saad and Harun, 2017).

The government placed greater emphasis on sustainable water management and conservation in the 21st century. Integrated Water Resources Management (IWRM) principles were adopted to ensure the holistic and sustainable management of water resources (Sukereman&Suratman, 2014). Efforts were made to enhance water efficiency, reduce non-revenue water (NRW) losses, and promote water conservation practices among industries, communities, and individuals. The government also focused on addressing water pollution and protecting water catchment areas through legislation and enforcement measures (Elfithri& Mokhtar 2018).

Malaysia continues to face challenges in water management, including water scarcity, pollution, climate change impacts, and infrastructure maintenance. The government is actively promoting water demand management, rainwater harvesting, and wastewater reuse to ensure long-term water security and sustainability. Collaborative efforts between government agencies, water service providers, communities, and stakeholders are being pursued to address these challenges and achieve the goals of the National Water Resources Policy to provide a comprehensive framework and strategic direction for the sustainable management and utilisation of Malaysia's water resources (National Water Resource Policy, 2012).

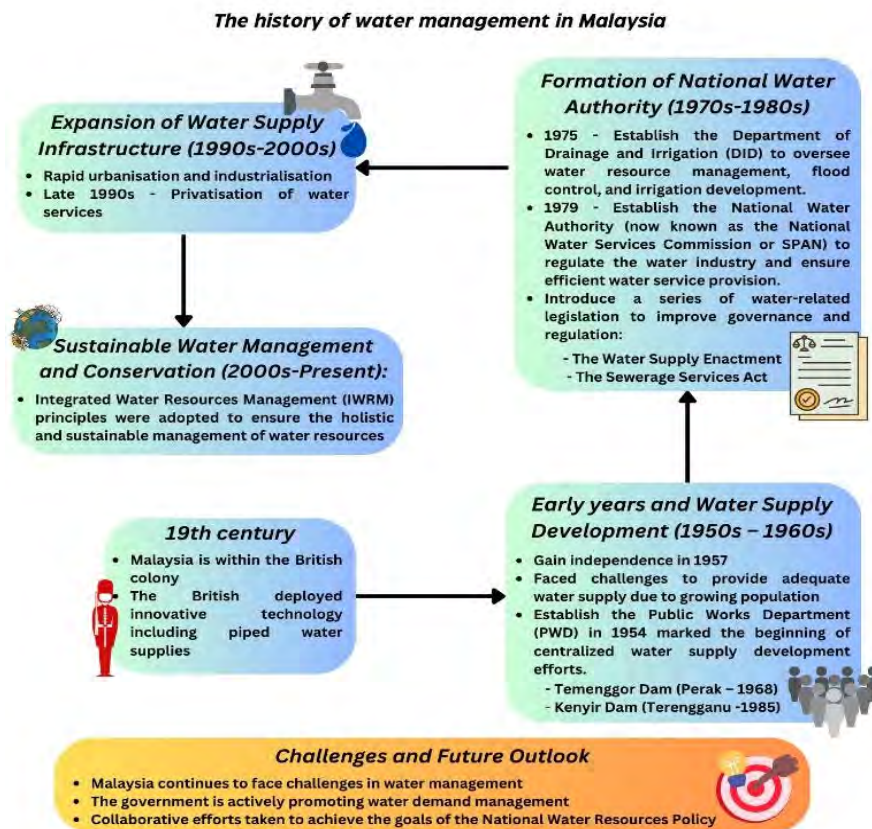


Fig. 1 The history of water management in Malaysia (Source: Self-developed by authors)

2.4 Resource-Based View (RBV) Theory

RBV theory posits that an organisation's sustainable competitive advantage is derived from its capability to effectively manage and utilise its resources (Freeman et al., 2021). In the context of water risk awareness and reserve margin ratio, RBV theory can be employed to explain how organisations that recognise and proactively manage water risks can develop and leverage their water resources more efficiently (Khan et al., 2023). This awareness leads to the establishment of higher reserve margins, which act as a buffer against potential water-related disruptions (Gaur et al., 2014). By using this strategy, organisations can maintain continuity in operations, reduce vulnerability, and sustain long-term profitability. The RBV theory highlights the strategic importance of water resources as critical assets that need to be managed effectively to achieve sustainable competitive advantage and resilience (Madhani, 2010; Halawiet al., 2005).

By integrating advanced water management practices, investing in water-saving technologies, and fostering a culture of environmental stewardship, companies may establish a strong buffer against water-related disruptions. This strategic resource management not only safeguards operational continuity but also enhances the organisation's reputation and stakeholder trust. As a result, companies that excel in water risk management can distinguish themselves from competitors, achieve cost savings, and attract investment, thereby securing a long-term competitive edge in their industry (Féreset al., 2008). Hence, the RBV framework emphasises the strategic significance of water resource management in improving organisational resilience and promoting sustainable growth.

2.5 Water risk awareness and reserve margin ratio

Water risk awareness refers to the understanding and proactive management of risks associated with water availability, quality, and regulatory constraints of water (Sekercioglu et al., 2018; Hubbard et al., 2013; Ross et al., 2020). As global water resources face increasing pressure due to industrialisation, population growth, and climate change, businesses and governments are placing greater emphasis on identifying and mitigating water-related risks. Preventive measures and risk mitigation should be determined and applied based on the multiple barrier principle. This method employs multiple measures or barriers to manage the risks of various hazards, enhancing the process's overall reliability (Drechsel et al., 2023).

According to Schulte and Morrison (2014), developing a deep understanding of water risk is essential for promoting sustainable water management practices and strengthening organisational resilience. This awareness helps organisations anticipate potential disruptions, plan appropriate responses, and implement strategies to safeguard their water resources.

The reserve margin ratio is a critical metric in water resource management, representing the buffer capacity that allows a business or utility to meet water demand beyond its normal operational capacity (Lindner et al., 2018). A higher reserve margin ratio indicates a greater ability to manage fluctuations in water availability, thereby reducing the vulnerability to water risks (Hall & Borgomeo, 2013). Fisher and Rubio (1997) emphasise the need to maintain a sufficient reserve buffer to ensure the dependability and robustness of water delivery systems, especially in regions with fluctuating water supplies.

Organisations with a strong understanding of water risks are better prepared to maintain higher reserve margins, which helps them mitigate the impacts of water scarcity and maintain stable operations (Pereira et al., 2002). This is in alignment with the Resource-Based View (RBV) theory, which posits that organisations can achieve a competitive advantage by effectively managing and utilizing their resources.

3.0 METHODOLOGY

This study employs a mixed-methods approach, combining quantitative analysis of secondary data with qualitative insights from interviews. The research aims to investigate the relationship between water risk awareness and the reserve margin ratio within the context of Malaysia's water management practices. The integration of both quantitative and qualitative methods provides a comprehensive understanding of the issues at hand (Cadena-Iñiguez et al., 2017).

The secondary data for this study were obtained from the Suruhanjaya Perkhidmatan Air Negara (SPAN), the National Water Services Commission of Malaysia. SPAN provides extensive data on water companies, including information on water supply, demand, reserve margins, and performance metrics. The data covered a period of five years, providing a robust dataset for analysis.

To complement the secondary data, qualitative data were collected through semi-structured interviews with personnel from SPAN. These interviews aimed to gather in-depth insights into the operational challenges, regulatory frameworks, and water risk management practices. The interview questions focused on:

1. SPAN's monitoring practices: "Does SPAN monitor all water companies in Malaysia?"
2. Operational issues: "What are the issues related to water and supply chain operations for each state water company?"
3. Water use patterns: "What is the pattern of water use in Malaysia?"

Participants were selected based on their expertise and roles within SPAN, ensuring that the information gathered was relevant and comprehensive.

The qualitative data from interviews were analysed using thematic analysis. The process involved transcribing the interviews, coding the data, and identifying common themes and patterns. This analysis provided contextual understanding and deeper insights into the quantitative findings (Joffe, 2011). Key themes explored included:

- Regulatory challenges and effectiveness
- Strategies for improving water risk management
- Variability in water use patterns across different states

3.4 Validity and Reliability

To ensure the validity and reliability of the findings, several measures were undertaken. By combining secondary data analysis with qualitative interviews, the study ensured a more comprehensive and corroborative approach. Additionally, secondary data were obtained from SPAN, a credible and authoritative source, ensuring the accuracy and reliability of the data. Regarding the interview Protocols, semi-structured interview guides were used to maintain consistency across interviews, and participants were selected based on their expertise to ensure the relevance of the information collected.

4.0 Results and Discussion

The results are categorised into two distinct sections: quantitative and qualitative. The quantitative component examines secondary data collected from SPAN to offer numerical analysis on reserve margins and the stability of water supply in different states. The qualitative portion provides insights from interviews conducted with SPAN people, including detailed perspectives on operational difficulties, regulatory frameworks, and techniques for managing water risks. This dual methodology enables a thorough comprehension of water resource

management in Malaysia by integrating empirical data with expert perspectives to develop a complete assessment of the present state and possible remedies.

4.1. Quantitative findings

This section highlights the findings derived from the secondary data obtained from SPAN, focusing on the reserve margin for states in Peninsular Malaysia and F.T. Labuan over the period from 2018 to 2022.

The reserve margin data provides critical insights into the water supply stability and risk management capabilities of various states. The table illustrates fluctuations and trends in water reserve margins, highlighting areas of concern and improvement. This information is essential for understanding the current state of water resource management and identifying areas that require targeted interventions to ensure a sustainable and reliable water supply.



RESERVE MARGIN					
Unit (%)	2018	2019	2020	2021	2022
Johor	12.8%	7.8%	9.7%	9.0%	11.5%
Kedah	8.3%	1.4%	0.5%	0.6%	0.0%
Kelantan	5.0%	0.0%	0.0%	0.0%	3.9%
F.T. Labuan	30.1%	24.6%	18.7%	19.5%	20.3%
Melaka	19.7%	15.8%	11.2%	7.5%	4.7%
N.Sembilan	23.0%	21.1%	20.0%	19.7%	19.1%
Pulau Pinang	33.8%	31.6%	30.7%	30.4%	26.4%
Pahang	25.1%	19.3%	14.2%	14.2%	17.3%
Perak	28.8%	28.1%	26.2%	26.1%	27.3%
Perlis	7.3%	1.9%	4.2%	1.5%	8.4%
Selangor	0.0%	0.0%	0.0%	17.4%	15.2%
Terengganu	27.1%	24.6%	23.6%	23.9%	31.8%
Pen. Malaysia & F.T. Labuan	12.9%	11.0%	16.3%	16.2%	15.7%

Fig. 2 Reserve Margin for States in Peninsular Malaysia and F.T. Labuan (Source: Water and Sewerage Fact Book 2022, SPAN page 46)

Based on Table 1, the overall reserve margin for Peninsular Malaysia and F.T. Labuan fluctuated over the five years. It started at 12.9% in 2018, dropped to 11.0% in 2019, increased significantly to 16.3% in 2020, remained stable at 16.2% in 2021, and slightly decreased to 15.7% in 2022.

Kedah shows a critical decline from 8.3% in 2018 to 0.0% in 2022, indicating severe water reserve issues. Similarly, Kelantan maintained critical reserve margins at 0.0% from 2019 to 2021, with a slight recovery to 3.9% in 2022. On the other hand, Selangor demonstrates significant improvement, rising from 0.0% in 2018 to 15.2% in 2022, reflecting effective water management efforts. Perak shows stable and high reserve margins, slightly fluctuating but remaining strong from 28.8% in 2018 to 27.3% in 2022. Meanwhile, Pulau Pinang indicates high but declining reserves, from 33.8% in 2018 to 26.4% in 2022.

Critical observations from Table 1 highlight that both Kedah and Kelantan consistently show critical reserve margin levels, with Kedah reaching 0.0% in 2022 and Kelantan maintaining 0.0% from 2019 to 2021 before a slight increase. In contrast, Selangor demonstrates significant improvement, especially from a critical level of 0.0% in 2018 to a robust 15.2% in 2022.

These findings indicate varied performance in water reserve management across different states, with some regions showing significant improvements while others face critical shortages. The data highlights the need for targeted interventions to ensure sustainable water management and mitigate the risk of water shortages.

4.2 Qualitative findings

4.2.1 SPAN's monitoring practices

According to the interview with Respondent 1, SPAN monitors two main areas: services and facilities. Service monitoring encompasses the entire water service chain from intake to end-users and sewerage management from users to sewage plants. Facilities monitoring includes asset ownership, operations, and asset construction, overseen through a licensing fee mechanism.

As indicated by Respondent 1: *"SPAN monitors by holding Water Regulatory Meetings every quarter, focusing on the technical side as well as CapEx."* Additionally, if there is a water shortage, *"the construction of the water treatment plant will be made,"* though this process involves high costs.

This highlights that SPAN conducts Water Regulatory Meetings every quarter, focusing on technical aspects and capital expenditures (CapEx). These meetings ensure that water companies adhere to regulatory standards and address any emerging issues. If a water shortage is identified, SPAN facilitates the construction of new plants, although this involves significant costs. Plant control and construction fall under the jurisdiction of Pengurusan Aset Air Berhad (PAAB).

4.2.2 Operational issues

In the interview, we aimed to uncover the specific challenges faced by state water companies in their operations and supply chains. The primary question posed was: *"What are the issues related to water operations and the supply chain for each state water company?"*

In response, Respondent 1 highlighted several critical issues. Firstly, the set reserve margin rate is 15%, but many states struggle to meet this standard. Notably, Kelantan and Kedah, have recorded a Reserve Margin Ratio of 0%, indicating severe deficiencies. According to Respondent 1, *"The set reserve rate is 15%. Some states record zero and there are also negative ones. Kelantan and Kedah once recorded a Reserve Margin Ratio of 0%."*

Another key point made was that while maintaining a reserve margin that is too high can lead to increased costs, a margin that is too low results in service inefficiencies. This is reflected in Respondent 1's statement: *"Reserve margin cannot be too high because it will involve costs. It should also not be too low because it will lead to service inefficiency."* This indicates that maintaining an optimal reserve margin is crucial; a margin that is too high results in excessive costs, while one that is too low leads to inadequate service provision. The data analysis revealed significant variability in reserve margins across different states, reflecting regional disparities in water supply and management practices.

Additionally, Respondent 2 pointed out significant problems with pipe leaks. *“Many pipe failures occur due to the old age of the pipe. Some are over 40 years old,”* explained Respondent 2. This situation highlights the urgent need for infrastructure upgrades to prevent service disruptions and ensure a reliable water supply.

4.2.3 Water use patterns and infrastructure issues

The interview also shed light on water use patterns and infrastructure challenges in Malaysia. Generally, Malaysia exhibits very high domestic water usage, with some regions exceeding 300 litres per day per capita. For instance, Penang demonstrates particularly high water consumption. According to Respondent 1, *“This excessive usage is attributed to a lack of investment and insufficient funds to build new water treatment plants.”*

In Kelantan, numerous small plants are constructed to serve local areas. However, as Respondent 2 explained, *“This approach results in high operational costs due to the need to regulate many small plants.”* In contrast, states like Selangor have large, centralized plants that are more efficient in terms of operation and regulation.

A significant issue in Malaysia’s water management is water loss, often referred to as non-revenue water (NRW). Respondent 2 further elaborated that *“NRW can be divided into three categories: commercial loss, operational loss, and physical loss.”* Commercial loss includes water used for purposes such as firefighting that does not generate revenue. Operational loss includes activities like flushing or plant washing, which account for about 1-2%. The largest category is physical loss, which comprises about 40% of total water loss and includes leaks and other losses in the physical distribution system.

These patterns and issues highlight the critical need for investment in water infrastructure and more efficient water management practices to address high consumption and significant water losses. The insights from the interview emphasize the urgency of upgrading infrastructure and implementing more effective water management strategies to ensure sustainable water supply across Malaysia.

5. DISCUSSIONS

Based on the findings from the quantitative analysis and the insights gathered from the three main interview questions, several key conclusions can be drawn regarding water management in Malaysia.

Firstly, SPAN’s monitoring practices reveal that the commission actively oversees all water companies in Malaysia through regular Water Regulatory Meetings held every quarter. These meetings focus on technical aspects and capital expenditures, ensuring that water companies adhere to regulatory standards and address emerging issues promptly. However, the data indicates variability in the effectiveness of these practices across different states, with some regions still struggling to maintain adequate reserve margins.

Secondly, the operational issues related to water and supply chain operations vary significantly across states. Critical challenges include maintaining an optimal reserve margin, which is crucial for balancing cost and service efficiency. States like Kelantan and Kedah have recorded zero reserve margins, indicating severe deficiencies and highlighting the need for targeted interventions. Additionally, the high operational costs associated with regulating numerous small plants, particularly in Kelantan, contrast with the efficiency of larger, centralised plants in states like Selangor.

Thirdly, the pattern of water use in Malaysia demonstrates very high domestic consumption, with some regions, such as Penang, exceeding 300 litres per day per capita.

This excessive usage is primarily attributed to a lack of investment and insufficient funds for building new water treatment plants. Moreover, water loss, categorised as NRW, poses a significant challenge. NRW includes commercial losses (water used for firefighting), operational losses (activities like plant flushing), and physical losses (leaks and distribution system inefficiencies), with physical losses accounting for about 40% of the total water loss.

It can be highlighted that findings bring to light the need for enhanced investment in water infrastructure and more efficient management practices to address the high water consumption and significant water losses. It is critical to address these issues. Ageing water infrastructure could lead to leaks and inefficiencies that would result in the wastage of huge amounts of water, which could hamper the existing limited resources. By modernising water distribution systems and implementing smart technologies, the government can reduce waste and ensure a more sustainable water supply. Additionally, adopting more efficient water management practices, such as promoting the use of water-saving appliances can help lessen the pressure on water resources and reduce overall consumption. These steps are crucial to meeting future demand while preserving water for future generations.

In addition, the variability in reserve margins and the operational challenges faced by different states highlight the importance of targeted interventions and strategic planning to ensure a sustainable and reliable water supply across Malaysia. The allocation of the appropriate amount of financial resources to repair and improve the ageing water systems could prevent water losses via leakages and finally would enhance overall efficiency.

One important aspect of water resilience to be able to compare between countries is to ensure the implementation of the major components such as infrastructure, policy frameworks, and climate adaptability. The latest study results imply that those countries which have strong water management systems, for example, the Netherlands and Singapore, will likely exhibit to a great extent better water resilience than countries that have inferior technologies. For example, floods in the Netherlands are now prevented due to the implementation of the most detailed water management plan in the country, and the use of controlled inundation techniques and pump and tide management strategies which will be able to adapt to flood-related climate changes advantageous (Bakker & Morinville, 2013). The country demonstrating its exceptional achievement in terms of water security by implementing innovative recycling and desalination projects is also Singapore (Chew et al., 2010). These two countries can be compared in this light that water resilience, modern infrastructure and technology are the two significant pieces of the puzzle.

On the other hand, less developed countries with poorer water infrastructures like India and some African countries have a harder time dealing with this issue. The discovery of how some regions lack the necessary infrastructure, have leaky water use procedures, as well as are exposed to the risk of changing climate that prevents them from being water-resilient (Bharti et al., 2020; Onu et al., 2023). For instance, in India, inconsistent water distribution and high dependence on monsoon rains underscore the need for more resilient water management approaches (Bharti et al., 2020). Similarly, the continent of sub-Saharan Africa is in a bad state because it cannot access any advanced water technologies and infrastructural help and therefore, it is more prone to water problems (Onu et al., 2023). The current analysis of similarities and differences in using technology and infrastructure to the enhancement of the world's water security is quite obvious.

6.0 CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In conclusion, although the study provides valuable insights, it is not without limitations. The reliance on secondary data means the study's accuracy is dependent upon the records provided by SPAN. Additionally, the qualitative findings are based on interviews with a limited

number of SPAN personnel, which may not fully capture the perspectives of all stakeholders involved in water management.

Despite these limitations, the use of a mixed-methods approach in this study enables a thorough investigation of water risk awareness and reserve margin ratios in Malaysia. The research provides a comprehensive framework for understanding the intricacies of water risk management and its impact on reserve margins by combining quantitative data from SPAN with qualitative insights from expert interviews. The purpose of the research is to provide information that may be used to shape policy and practice, to improve the resilience and effectiveness of water management techniques.

The findings highlight that several states, such as Kelantan, Kedah, and Perlis, report critically low or zero reserve margin ratios. This highlights significant challenges in the water supply system, revealing the potential risk regarding the limited resources and outdated infrastructure. These vulnerabilities could lead to reduced access to clean water, and water shortages and could potentially affect sustainability in the long run. Addressing these challenges requires proactive intervention from the management and high investment in infrastructure improvements. This in turn would promote water conservation practices to ensure a stable and resilient water supply in the long run.

The study further outlines crucial concerns about water utilisation practices and infrastructure. Leakages in pipes, frequently resulting from the deterioration of pipes that are more than 40 years old, have a substantial impact on water loss and inefficiency. The study emphasises the importance of making substantial investments in infrastructure and implementing a more efficient regulatory approach. This would ensure reliable access to clean and safe water and reduce the risk of water shortages.

Future research should examine the effectiveness of different investment strategies in water infrastructure, particularly in states with critical reserve margins. Comparative analyses of centralised and decentralised water treatment facilities can offer valuable insights into cost-effectiveness and operational efficiency.

Additionally, examining societal and behavioural factors contributing to excessive domestic water consumption would be beneficial as it would assist in planning water usage. An analysis of consumer behaviour, public knowledge, and the impact of water conservation programmes can provide valuable insights for developing policies that target the reduction of individual water use. This multifaceted approach can help develop more targeted and effective water management strategies, ensuring a sustainable water supply for Malaysia.

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RESEARCH ETHICS

This research has received ethical approval from the Research Ethics Committee of UiTM: REC/02/2023 (ST/MR/27).

REFERENCES

- Abdelrady, M., & Hussien, F. (2020). The relationship between water management, operational performance and competitive advantage in Egyptian hotels. *International Academic Journal Faculty of Tourism and Hotel Management*, 6(1), 1-31.
- Ahmad, R. A. R., Yatim, N. H. B. M., Samsudin, S., Azmi, N. A., & Nazri, S. M. F. M. (2023). The role of attitude in shaping water conservation intention among Malaysians. *Insight Journal*, 10(2), 30-42.
- Ahmad, R. A. R., Yatim, N. H. B. M., Samsudin, S., Azmi, N. A., & Nazri, S. M. F. M. (2023). Examining ESG disclosure practices and firm performance in the food and beverages industry: A content analysis approach. *Insight Journal*, 10(2), 80-96.
- Akimoto, Y., Negishi, S., & Ikegami, T. (2024). Evaluation of effect of providing balancing reserves to power system in Japan through operational control of water pumps. *Energy Reports*, 11, 3424-3435.
- Bakker, K., & Morinville, C. (2013). The governance dimensions of water security: a review. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 371(2002), 20130116.
- Bharti, N., Khandekar, N., Sengupta, P., Bhadwal, S., & Kochhar, I. (2020). Dynamics of urban water supply management of two Himalayan towns in India. *Water Policy*, 22(S1), 65-89.
- Cadena-Iñiguez, P., Rendón-Medel, R., Aguilar-Ávila, J., Salinas-Cruz, E., Cruz-Morales, F. D. R. D. L., & Sangerman-Jarquín, D. M. (2017). Quantitative methods, qualitative methods or combination of research: an approach in the social sciences. *Revista Mexicana de Ciencias Agrícolas*, 8(7), 1603-1617.
- Cai, X., McKinney, D. C., & Rosegrant, M. W. (2003). Sustainability analysis for irrigation water management in the Aral Sea region. *Agricultural systems*, 76(3), 1043-1066.
- Chew, M. Y., Watanabe, C., & Tou, Y. (2010). Technology leapfrogging: findings from Singapore's water industry. *Journal of Technology Management for Growing Economies*, 1(2), 29-47.
- Das, S., Chatterjee, N. H., Choudhury, A., Ray, A., Rana, N., Banerjee, A., Ray, M., & Ray, S. (2024). Characterization and ecological risk assessment of microplastics accumulated in sea water, sand, sediment, shell water and selected tissues of hermit crab of Sundarban Biosphere Reserve. *Environmental Pollution*, 357, 124484. <https://doi.org/10.1016/j.envpol.2024.124484>
- Drechsel, P., Marjani Zadeh, S., & Salcedo, F. P. (2023). Water quality in agriculture: Risks and risk mitigation. Rome, FAO & IWMI. <https://doi.org/10.4060/cc7340en>
- Elfithri, R., & Mokhtar, M. B. (2018). Integrated water resources management in Malaysia: Some initiatives at the basin level. In: Singh, V., Yadav, S., Yadava, R. (eds) *Water Resources Management. Water Science and Technology Library*, vol 78. Pp. 231-244. Springer Singapore. https://doi.org/10.1007/978-981-10-5711-3_16

- Farouk, A. M., Rahman, R. A., & Romali, N. S. (2023). Economic analysis of rehabilitation approaches for water distribution networks: Comparative study between Egypt and Malaysia. *Journal of Engineering, Design and Technology*, 21(1), 130-149.
- Féres, J., Reynaud, A., Thomas, A., & Seroa da Motta, R. (2008). Competitiveness and effectiveness concerns in water charge implementation: a case study of the Paraíba do Sul River Basin, Brazil. *Water Policy*, 10(6), 595-612.
- Fisher, A. C., & Rubio, S. J. (1997). Adjusting to climate change: Implications of increased variability and asymmetric adjustment costs for investment in water reserves. *Journal of Environmental Economics and Management*, 34(3), 207-227.
- Freeman, R. E., Dmytriiev, S. D., & Phillips, R. A. (2021). Stakeholder theory and the resource-based view of the firm. *Journal of management*, 47(7), 1757-1770.
- Gaur, S., Cruz, J., & Atwater, E. (2014). Why water agencies need reserves. *Journal-American Water Works Association*, 106(11), 24-31.
- Gonzalez, M. D. R. M. (2024). Water sustainability in the literature from 2020 to 2024. *IPHO-Journal of Advance Research in Applied Science*, 2(03), 37-55.
- Halawi, L. A., Aronson, J. E., & McCarthy, R. V. (2005). Resource-based view of knowledge management for competitive advantage. *The electronic journal of knowledge management*, 3(2), 75-86.
- Hall, D., Corral, V., Lobina, E., & de la Motte, R. (2004). *Water privatisation and restructuring in Asia-Pacific*. Public Services International.
- Hall, J., & Borgomeo, E. (2013). Risk-based principles for defining and managing water security. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 371. <https://doi.org/10.5027/jnrd.v4i0.09>
- Hubbard, B., Gelting, R., Portillo, M. D. C., Williams, T., & Torres, R. (2013). Awareness, adoption and implementation of the water safety plan methodology: insights from five Latin American and Caribbean experiences. *Journal of water, sanitation and hygiene for development*, 3(4), 541-548.
- Joffe, H. (2011). Thematic analysis. *Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners*, 209-223.
- Khan, S. A. R., Tabish, M., & Zhang, Y. (2023). Embracement of industry 4.0 and sustainable supply chain practices under the shadow of practice-based view theory: Ensuring environmental sustainability in corporate sector. *Journal of Cleaner Production*, 398.
- Koroleva, K., & Novak, J. (2020). How to engage with sustainability issues we rarely experience? A gamification model for collective awareness platforms in water-related sustainability. *Sustainability*, 12(2), 712-736.
- Lindner, B. G., Brits, R., Van Vuuren, J. H., & Bekker, J. (2018). Tradeoffs between levelling the reserve margin and minimising production cost in generator maintenance scheduling for regulated power systems. *International Journal of Electrical Power & Energy Systems*, 101, 458-471.
- Madhani, P. M. (2010). Resource based view (RBV) of competitive advantage: an overview. *Resource based view: concepts and practices*, Pankaj Madhani, ed, 3-22.
- Merabtene, T., Kawamura, A., Jinno, K., & Olsson, J. (2002). Risk assessment for optimal drought management of an integrated water resources system using a genetic algorithm. *Hydrological Processes*, 16(11), 2189-2208.
- Mysiak, J., Giupponi, C., & Rosato, P. (2005). Towards the development of a decision support system for water resource management. *Environmental modelling & software*, 20(2), 203-214.
- National Water Resources Policy (2012) *Department of Environment*. <https://www.doe.gov.my/en/national-water-resources-policy/>
- Onu, M. A., Ayeleru, O. O., Oboirien, B., & Olubambi, P. A. (2023). Challenges of wastewater generation and management in sub-Saharan Africa: A Review. *Environmental Challenges*, 11.
- Pereira, L. S., Oweis, T., & Zairi, A. (2002). Irrigation management under water scarcity. *Agricultural water management*, 57(3), 175-206.

- Rahman, N. A., Jol, C. J., Linus, A. A., Ming, C. K., Arif, P., Baharuddin, N., ... & Hamid, D. F. A. A. A. (2023). Treatment of tropical peat water in Sarawak peatlands nature reserve by utilising a batch electrocoagulation system. *Sustainable Chemistry for the Environment*, 4..
- Raihan, A., Pereira, J. J., Begum, R. A., & Rasiah, R. (2023). The economic impact of water supply disruption from the Selangor River, Malaysia. *Blue-Green Systems*, 5(2), 102-120.
- Rivil Water. (2023). *The history of water management and its impact on modern water policies in Malaysia*. <https://www.linkedin.com/pulse/history-water-management-its-impact-modern-policies-malaysia-rivil>
- Ross, A. D., Hotard, A., Kamalanathan, M., Nolen, R., Hala, D., Clay, L. A., ... & Quigg, A. (2020). Awareness is not enough: Frequent use of water pollution information and changes to risky behaviour. *Sustainability*, 12(20), 8695.
- Saad, N. M., & Harun, A. (2017). Restructuring to improve water services in Malaysia. *Institutions and Economies*, 21-49.
- Schulte, P., Orr, S., & Morrison, J. (2014). Shared risks and interests: The case for private sector engagement in water policy and management. *The world's water: The biennial report on freshwater resources*, 19-33.
- Sekercioglu, M. F., White, J., Shrubsole, D., & Baxter, J. (2018). Towards a sustainable small non-community drinking water system in Ontario: Owners' risk awareness and perceptions to water safety. *J. Sustain. Dev*, 11, 71.
- Sukereman, A. S., & Suratman, R. (2014). The needs for integrated water resource management (iwrn) implementation progress assessment in Malaysia. *International Journal of Innovation, Management and Technology*, 5(6), 479-482. <http://doi.org/10.7763/IJIMT.2014.V5.563>
- Suruhanjaya Perkhidmatan Air Negara (SPAN). (2022). *Water and sewerage fact book 2022*.
- Wahid, N. A., Ahmad, Z. A., & Arshad, R. (2014). Malaysia water services reform: Legislative issues. *Journal of Natural Resources and Development*, 4, 64-64.
- Wu, J., Wu, J., Wang, X., & Zhong, M. (2012). Securing water for wetland conservation: A comparative analysis of policy options to protect a national nature reserve in China. *Journal of environmental management*, 94(1), 102-111.

EMPOWERING STUDENTS IN THE DIGITAL ERA: EXPLORING MOTIVATIONAL FACTORS IN ONLINE EDUCATION

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ABSTRACT

In the era of technology, practicality, and knowledge, online learning is an educational approach that has rapidly gained attention due to the use of technology and artificial intelligence and the convenience of internet accessibility. This study aims to investigate the factors that currently motivate students to engage in online learning at public universities in Malaysia. Maintaining students' and educators' excitement and participation is equally imperative as online education continues to gain popularity. Online learning empowers students to take responsibility for self-regulation, encourage self-discipline, increase motivation, and have the ability to set and accomplish personal learning goals. Therefore, it is crucial to enable students to continuously use online learning platforms to achieve the desired outcomes. In this study, a cross-sectional was conducted by randomly selected 565 students from public higher education. The questionnaire was adapted from the survey conducted by Fowler (2018) and analyzed using the Statistical Package for Social Science (SPSS). Multiple regression analysis was employed to determine the significant variables. The study found that instructor support and intrinsic goal orientation are the most critical factors influencing motivation in online learning among students. These findings are valuable insights into sustaining and enhancing motivation among students participating in online learning, contributing to the broader discussion on the practical implementation of digital educational approaches.

Keywords: Motivation, Online learning, Educators, and Students

1.0 INTRODUCTION

The advent of digital technology has dramatically changed the way that education is delivered and learned. Online platforms have become the new standard, and students must be able to regulate their learning. When students are motivated and in control of their learning activities, they engage more and receive better academic performance. Based on a study conducted by Kim and Frick (2011), students must quickly acquire the necessary skills and knowledge they need to succeed in the online learning environment. This is supported

by Tohidi (2012), who defines motivation as the driving force that encourages individuals to achieve outstanding success despite hurdles. It shows that students who can create a strong drive in their self-directed study are more likely to achieve exceptional academic results.

According to Fowler (2018), several factors, such as social interaction, instructor support, self-efficacy, control over one's own learning beliefs, task value, and intrinsic and extrinsic orientations, impact one's motivation to learn online. Understanding these determinants is crucial because they impact student motivation and engagement in the online learning environment. Hence, exploring these determinants can offer better outcomes, promoting continuous engagement in online learning. However, the advancement of digital learning environments has brought about several challenges, including technological issues, a lack of support systems, declining motivation, insufficient self-regulation strategies, decreased self-efficacy, and rising social anxiety. Online learning, which offers autonomy and reduced direct instruction, further compounds these challenges (Jansen et al., 2020).

This study aims to investigate the factors that currently motivate students to engage in online learning at public universities in Malaysia. The study will focus on the following question: What are the significant variables influencing students' motivation to engage in online learning? By addressing this research question, this study hopes to contribute to the existing body of knowledge and provide insights into the factors affecting motivation in online education. The findings of this study will offer a better understanding of how to sustain and increase the level of motivation among students, especially in virtual academic settings. At the same time, the findings will inform the best strategies to improve students' motivation and optimize the most effective online learning methods for the learners.

2.0 LITERATURE REVIEW

Theory of Learning Online

Basically, studies relate online learning with the internet and technology where the digitization of learning becomes possible for any form of pedagogy (Basar et al., 2021). Online learning is distinct from face-to-face (F2F) learning since it does not include a physical classroom. Instead, it relies on web-based technology to facilitate learning opportunities that may be accessed outside of traditional class settings, without constraints of time, location, or speed (Bernard et al., 2014). Within these digital learning environments, learners engage with educational resources and corresponding assessments, as well as communicate with fellow students or mentors and educators. The interactions between students and their learning environment have a significant impact on both their academic achievement and overall experience (Garrison & Cleveland-Innes, 2005).

Theory of Motivation

The theory-driven research conducted by many researchers provides the groundwork for more understanding of the theory of motivation. According to Cook and Artino (2016), the concept of motivation explains the process whereby goal-directed activities are instigated and sustained. For students to successfully self-regulate their learning, motivation is essential. Motivation is a conceptual framework that seeks to comprehend the factors that stimulate, guide, intensify, sustain, and determine the quality of behaviour, especially activities that are oriented towards specific goals (Brophy, 2010).

Past Studies on Self- Efficacy

Bandura (1977) introduced the concept of self-efficacy, which refers to an individual's confidence in their ability to achieve success. According to this concept, individuals are motivated to engage in activities that align with their beliefs in their own effectiveness. They

will exert effort and persevere in the face of obstacles based on their estimation of their own efficacy. Self-efficacy beliefs, which play a crucial role in the progress of self-regulated learning, refer to individuals' convictions regarding their ability to exert influence over their own level of functioning and over events that impact their life. In general, self-efficacy beliefs have a significant impact on individuals' emotions, thoughts, motivation, and actions (Bandura, 1997). According to Peterson and Arnn (2005), self-efficacy serves as the fundamental basis for human performance. Zimmerman and Schunk (2003) agreed that self-efficacy beliefs have been thoroughly validated as a reliable predictor of students' academic performance in the context of human learning.

The transition from traditional face-to-face education to online training has the potential to impact learners' self-efficacy perceptions. In the context of online learning, self-efficacy beliefs pertain to the convictions held by students regarding their capacity to effectively perform the tasks and activities offered within the online learning setting (Cai et al., 2017; Al-Rahmi et al., 2018). This includes having faith in their aptitude to utilize the learning management system provided by their educational institution. Furthermore, these technology tools are designed to adapt to educational processes and facilitate self-regulated learning, which necessitates increased autonomy and well-defined objectives, among other essential characteristics (Carter et al., 2020; Qetesh et al., 2020). When students are not provided with an instructional design specifically tailored for online courses, they tend to have low perceptions of learning (Chen et al., 2018) and low levels of academic self-efficacy (Casanova et al., 2018; Gopal et al., 2021). However, interacting with instructional media and content can enhance learners' sense of control, leading to improved satisfaction, enjoyment, and confidence (Luskin & Hirsén, 2010).

Past Studies on Control of Learning Beliefs

The concept of control belief, as described by Pintrich, et al. (1991), has a direct impact on cognitive performance. It refers to the assumption that one's efforts will lead to beneficial outcomes. According to Pekrun (2006), control belief serves an assessment role in relation to academic emotions. The level of learner control can vary based on the specific approach employed and the underlying theoretical framework utilised, as it is a multidimensional construct (DeRouin, Fritzsche, & Salas, 2005). Learner control refers to the degree to which students have the ability to determine what, when, where, and how they participate in the learning process (Kraiger & Jerden, 2007). DeRouin et al. (2005) conducted a review of the topic and identified several distinct types of learner control. These types include learner control over pacing, sequencing, task difficulty, optional content, method of presentation rewards, learner control with advice, and learner control with hypermedia. According to Lawless and Brown (1997), the practice of having control over one's instructional sequence has the potential to improve learning outcomes, foster positive attitudes, and build self-efficacy.

The immediate benefits of learner control have been observed in the context of online learning. The study conducted by Means et al. (2009) revealed that the efficacy of online learning can be augmented by the provision of learner autonomy in managing their interactions. According to Luskin and Hirsén (2010), prior research has indicated that learners' perception of control during their engagement with instructional medium and content can lead to heightened levels of satisfaction, enjoyment, and confidence. According to Maag's (2004) study, participants engaged in an interactive multimedia online class did not demonstrate any significant increase in knowledge and self-efficacy when compared to a control group. However, they expressed higher levels of satisfaction with the interactive technologies utilised in the lesson. Similarly, Jaffe's research (1997) demonstrates that the level of engagement does really impact learner self-efficacy. Conversely, Ebner and Holzinger (2007) observed that games improved learning, motivation, and self-efficacy as a result of a factor referred to as 'pleasure'. In a similar vein, Chang and Ho (2009) observed

that students who were given control over their web-based interactive instructional language programme achieved superior test scores and self-efficacy levels compared to those who were given control over the programme. Hence, in both traditional and online educational settings, students with a strong sense of control belief saw a rise in happy feelings and a decline in negative emotions (Bieg, Goetz, Hubbard, 2013; Lichtenfeld, Pekrun, & Stupnisky, Reiss, & Murayama, 2012; You & Kang, 2014).

Past Studies on Intrinsic Goal

In the past few years, online learning has emerged as a convenient and adaptable alternative to traditional classroom-based education. The Covid-19 pandemic has necessitated the transition of numerous higher education institutions in Malaysia to online learning. Due to the increasing prevalence of online learning, researchers have begun to investigate the factors that may affect motivation and engagement in this form of learning environment. Intrinsic goal orientation is one such factor of interest. This term denotes an individual's likelihood to engage in activities for the intrinsic delight and satisfaction they provide, rather than for external rewards or outcomes (Kadous et al., 2019). Including online learning, it is crucial for motivating individuals in a variety of contexts.

Many studies have investigated the relationship between intrinsic goal orientation and motivation in the context of online learning. One study conducted by Tiauw (2022) discovered that the transition to online education led to a decline in student motivation. Nevertheless, the study highlighted the importance of intrinsic motivation in online learning, as it was designated as a critical aspect of this educational approach. In the online learning environment, it is evident that intrinsic motivation is vital for fostering student engagement and success.

The research conducted by Cirak et al. (2023), concentrated on the correlation between academic achievement and goal orientation in online learning. The academic achievement of pupils in online learning was significantly predicted by their intrinsic goal orientation, as they discovered. In an effort to improve students' motivation, engagement, and academic performance, these results underscore the significance of cultivating intrinsic goal orientation in online learning environments. Furthermore, Sahan and Aypay (2021) demonstrated that students who exhibit a more robust intrinsic goal orientation exhibited higher levels of academic motivation when learning online. The findings indicate that the online learning environment necessitates an inherent motivation and engagement to fulfil objectives.

Furthermore, Mehta et al. (2022) conducted a study that examined the impact of student characteristics on the development of active learning strategies. Students' intrinsic goal orientation can be fostered by satisfying three psychological needs: autonomy, competence, and relatedness, according to the researchers. Consequently, the establishment of an online learning environment that accounts for psychological requirements can indirectly enhance intrinsic motivation and goal orientation. Generally, research consistently indicates that students are more likely to engage and succeed in online learning when they have an intrinsic goal orientation. Online learning is significantly influenced by motivation, as it directly impacts students' engagement and subsequent success.

Past Studies on Extrinsic Goal

When individuals are motivated to complete a task, they are more likely to do so. They become more motivated to succeed when an external incentive is present. The term for this is extrinsic motivation. The practice of performing an action for external reasons, such as earning a high grade, is known as extrinsic motivation (Oclaret, 2021). There are situations in which extrinsic motivation seems to be beneficial, such as when people are

striving to complete specific tasks and tangible rewards can be useful in that regard. This is comparable to the dedication and drive that students exhibit in their academic pursuits. The implementation of a reward system has the potential to greatly enhance the academic performance of students. He concurred with a number of other studies, according to a research study by Covington and Mueller (2001), that extrinsic motivation strategies, such as rewarding students, are effective in increasing their learning engagement. According to the findings of the study analysed by Che Soh et al. (2022), students affirmed that achieving high grades and performing well in class satisfy their extrinsic goal orientation, which in turn enhances their motivation to learn.

Some studies, however, contend that the effects of goal orientation on extrinsic motivation are typically ambiguous. At first glance, there may appear to be a positive correlation between extrinsic motivation and academic achievement, as students who are motivated primarily by extrinsic factors tend to achieve higher grades. However, in contrast to students who possess intrinsic motivation, students with external motivation fail to acquire the material in a more profound or lasting manner by the end (Midgley et al., 2001).

Involvement of students in their peers, instructors, classroom, or teachers is another indication of an extrinsic goal orientation. Students are more likely to attain favourable learning outcomes when they are actively involved in the educational process and derive enjoyment and significance from their endeavours. Vezne et al. (2023) defined extrinsic goal orientation as student engagement in instructional activities due to the correlation between learning effort and desired outcomes, which necessitates an external incentive or factor (e.g., material rewards, recognition, promotions, etc.). This is supported by the findings of Esra and Sevilen (2021), who discovered that learners were more engaged in activities, classes, and assignments that they perceived as relevant and purposeful. Self-control and engagement with the course material were factors that contributed to the students' increased motivation.

Past Studies on Task Value

In the expectancy–value theory, the term task value refers to the extent to which students perceive a particular task as essential, engaging, and advantageous. According to Alanazi et al. (2020) students' perceived performance and engagement in online courses are significantly influenced by task value. As the task value increases, so does the level of engagement and performance. He said further, task value and content quality are the strongest predictors of student performance in graduate-level online courses, while usability and technology satisfaction have weaker relationships. In addition, study conducted by Wei et al. (2023) found that learning motivation in online learning is positively influenced by task value, which is mediated by self-efficacy. The same conclusion had been made by Liu and Yu (2021) when they summarized that the perception of the worth of a task has positive effects on rote learning activities, which is mediated by both extrinsic and intrinsic goal orientations.

Past Studies on Social Engagement

Online learning provides students with the opportunities to learn, interact, share their views, be independent in learning, and use time on their own (Azzi et al., 2021; Hwang et al., 2021). Students are more comfortable in online classes when interacting with their classmates since it allows them to express their thoughts in their own unique ways and without fear. According to Esra and Sevilen (2021) in their study, it is reported that higher levels of engagement in the activities, classes and tasks were relevant and meaningful to the learners. Subsequently, it leads to the perceived and the acceptance of online learning. Additionally, it encourages a positive attitude and mindset when they have an online class. It has been suggested that participation enhances learner motivation (K. Vimala et. al., 2021).

In the study by Qunfei et al. (2020), they figured out that, according to the online English learning platform records of attendance and the performance, students are inclined to compare with their peers, which means peers can have a positive or negative influence on students' learning motivation. Despite having different opinions on how online participation should be set up, several academics seem to agree that it is a crucial component of learning (Hrastinski, 2008). Thus, it is proved that students' involvement in online learning has a significant impact on their motivation.

The engaging design and material of the online course, technology adaptation, as well as the chance for contact with other students, can affect how much a learner participates simultaneously drives to online learning motivation. In a study conducted by Hirumi (2006), he emphasised that students can actively contribute to knowledge acquisition through online conversation with the help of technology.

Apart from that, students are more passionate about online learning when there is an engagement between students, teachers, facilitators, online reading materials and resources. The attractive format and content of the online course and the ability of interaction with other peers can also influence learner's participation (Vimala et. al., 2021). This element appears a strong driver and factor of motivation in online learning.

Past Studies on Instructor Support

Student – instructor interaction brings a good impact in online learning motivation. In certain situations, it indicates students' satisfaction and perceived in learning (Kuo et al., 2014 ; Arbaugh & Benbunan-Fich, 2007). Furthermore, this can encourage the student's growth intellectually when they engage in constructive learning activities (Fozi et. al., 2022). Previous studies show that students who integrate the learning and their instructor stimulates the positive learning outcomes. A study conducted by Boling et al. (2012) found out that courses with little interaction with students were less helpful and the students felt that they were disconnected from both their peers and instructors. It appears that instructor support is very important in students' interaction in learning.

In online classes, instant feedback and interactions with peers and the teacher tend to increase students' motivation. Students' learning levels and overall course satisfaction increased as a result of daily interaction with teachers. The social interaction with peers and instructors in online learning can ameliorate motivation of students (Gedera et. al., 2015). This is in line with Johnson (2017) findings that instructors can motivate their students to learn by providing them with positive and frequent feedback. Additionally, it is crucial to promote and maintain student contact in which it results in enhancement of student participation significantly.

Moreover, instructors' engagement and support in student learning might enhance student's motivation in online learning. Since COVID-19, the educational system has been forced to incorporate online learning, although not all teachers and students would be amenable to it. Here, the instructor plays a vital role in motivating the student to get engaged in online learning. Numerous studies have noted the importance of instructors in raising student motivation in online courses. According to Mese and Sevilen (2021), in their study, the significance of teachers in the areas of teaching methodology, lesson presentation, feedback, and interaction was emphasized by students. They claimed that the main extrinsic factor affecting students' motivation was teachers' competence.

Online learning required students to engage with the instructors frequently. Transition from virtual classroom to online classroom really challenges the student's learning ability. Students positively believe that the instructors is efficient when they are responsive, enthusiastic, student- centered, professional, and expert (Onwuegbuzie et al., 2007). While

employing online modes, there is probably the instructors unable to uphold all the teaching standards thereto hindering the student's learning performance. This might influence the teacher-student relationship in which it is particularly important for laying the groundwork for students' educational experiences and expectations.

Past Studies on Motivation in Online Learning

Nevertheless, the pandemic COVID-19 gave a major impact to the economy landscape, people livelihood, health, working style and economy industries including education sectors. Universities are struggling to deal with the pandemic after it landed the educational system in the international spotlight. This partly will affect the learning motivation among students as it changed students' learning style, from virtual classroom to online classroom. Aviv (2004) suggested that the strongest motivator for pursuing an online education was the learner's motivation and life situation. Students must have a strong will to continue online study and be motivated always. Cole et. al. (2004) defined student motivation as the power, creativity, and readiness of students to learn and participate in classroom learning.

On the other hand, previous studies found several constituents in online learning motivation. According to Esra and Sevilen (2021), they found that by comparing face-to-face learning and online education, the participants' extrinsic and intrinsic motivation much better in face-to-face learning. The researchers also argued that peer and teacher interaction are important as it leads to online learning motivation. This is supported in a study done by Ushida (2005) that teachers play an important role in being responsive and providing adequate communication to students, resulting in higher motivation among students.

3.0 METHODOLOGY

This quantitative study is being conducted to investigate students' motivation in online learning. 565 students were specifically chosen from a Malaysian public university. According to Sekaran & Bougie (2016) the minimum number of sample sizes with a large population is 384, therefore the number of samples is adequate in this study. The instrument of study (refer to table 1) used here is a survey adapted from a study by Fowler (2018). The questionnaire was disseminated to the students over the online platform using Google Form. Apart from the demographic profile, section A has 8 items to measure the self-efficacy, section B, C and D has 4 items to measure the control of learning beliefs, intrinsic goal orientation and extrinsic goal orientation, respectively. While section E has 6 items on task value and section F has 5 items on social engagement. Section G and H has 7 items each on instructor support and motivation in online learning.

Table 1: The distribution of items in survey

Section	Variables	No. of items
A	Self-Efficacy	8
B	Control of Learning Beliefs	4
C	Intrinsic Goal Orientation	4
D	Extrinsic Goal Orientation	4
E	Task Value	6
F	Social Engagement	5
G	Instructor Support	7
H	Motivation in Online Learning	7
Total		45

The dependent variable in this study is defined as motivation in online learning, while the independent variables are self-efficacy, control of learning beliefs, intrinsic goal orientation, extrinsic goal orientation, task value, social engagement, and instructor support. The conceptual framework of the study is shown in figure 1. To calculate the internal consistency of an item's reliability, Cronbach's alpha is employed. The bottom limit of acceptable range was determined to be between 0.6 and 0.7 (Hair et al., 2010). The analysis begins by exploring the relationship between the independent variable and dependent variable using the Pearson product-moment correlation coefficient. The correlation coefficient close to ± 1 is categorized as a strong relationship between the dependent and independent variable. While the significant independent variables are determined using multiple regression analysis. The statistical F-test is used to test the null hypothesis that there is no significant relationship between independent variable and motivation in online learning, while the alternative hypothesis suggests that at least one independent variable has a significant relationship to the dependent variable. Other than F-test to assess the model fit to the data, R-squared is also discussed to measure the proportion of variation in motivation in online learning that can be explained by the significant independent variables in the model. Next, a test of regression coefficient, the statistical t-test, is employed to identify the variables for the motivation to learn online that are significant.

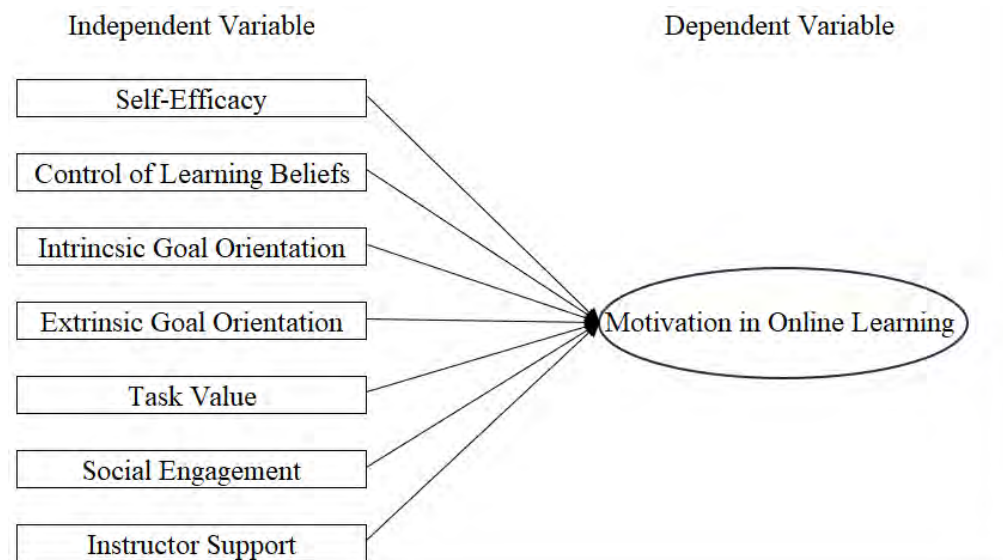


Figure 1: The theoretical framework of the study

The quality of the model is also discussed by evaluating the multicollinearity, and residual analysis which must follow the assumption of linearity, normality, independence and homoscedasticity of error terms (Kutner et al., 2004).

4.0 FINDINGS

Table 2 summarizes the descriptive statistics of gender and program. From a total 565 students, 65.5% of them are female and 34.5% male. According to the programme, most of the respondents are from Diploma in Computer Science (CS110) with 20.5 %, followed by students from Bachelor of Business Administration (Hons.) Finance (BA242) with 12.6%, and 11.7% respondents are from Bachelor of Administration (Hons.) Islamic Banking (BA249). The least number of respondents are from Bachelor of Record Management (Hons.), Diploma in Business Studies and Diploma in Banking with 0.5%, 0.4% and 0.2% respectively.

Table 2: The crosstabulation table of gender and program

		Gender		Total	Percent (%)
		Female	Male		
Programme	AC110	12	5	17	3
	AC220	30	19	49	8.7
	BA111	2	0	2	0.4
	BA114	20	18	38	6.7
	BA119	1	0	1	0.2
	BA240	44	4	48	8.5
	BA242	51	20	71	12.6
	BA244	24	7	31	5.5
	BA246	19	5	24	4.2
	BA249	49	17	66	11.7
	BA251	22	21	43	7.6
	BA252	16	12	28	5
	CS110	62	54	116	20.5
	CS143	3	4	7	1.2
	IM110	12	9	21	3.7
	IM246	3	0	3	0.5
Total		370	195	565	100
Percent (%)		65.5	34.5		

The reliability analysis was assessed using Cronbach Alpha (refer table 3). The coefficient of Cronbach Alpha lies from 0.706 to 0.967 exceeded the cut off value 0.7 indicating the higher internal consistency and greater reliability of the scale. Table 4 shows the relationship between each independent and dependent variable. Based on the result, the relationship between independent variable and dependent variable are significant at a 5% level of significance. Self-efficacy has moderate positive correlation ($r=0.548$; $p<0.001$) with motivation in online learning. There is also a moderate positive correlation between variable of intrinsic goal orientation ($r=0.507$; $p<0.001$), task value ($r=0.473$; $p<0.001$), social engagement ($r=0.481$; $p<0.001$) and instructor support ($r=0.413$; $p<0.001$) towards motivation in online learning. Meanwhile, the correlation between the variable of control of learning beliefs and extrinsic goal orientation towards motivation in online learning were found to be 0.342 ($p<0.001$) and 0.313 ($p<0.001$), respectively. This suggests a weak positive relationship between the control of learning beliefs and extrinsic goal orientation towards motivation to learn online.

Table 3: The distribution of items in survey and reliability test

Section	Variables	No. of items	Cronbach Alpha
A	Self-Efficacy	8	0.936
B	Control of Learning Beliefs	4	0.864
C	Intrinsic Goal Orientation	4	0.868
D	Extrinsic Goal Orientation	4	0.897
E	Task Value	6	0.935
F	Social Engagement	5	0.706
G	Instructor Support	7	0.946
H	Motivation	7	0.967

Table 4: Result of Pearson Correlation Coefficient

	Pearson Correlation	P-value
Self-Efficacy	0.548	$<0.001^{***}$

Control of Learning Beliefs	0.342	<0.001***
Intrinsic Goal Orientation	0.507	<0.001***
Extrinsic Goal Orientation	0.313	<0.001***
Task Value	0.473	<0.001***
Social Engagement	0.481	<0.001***
Instructor Support	0.413	<0.001***

Note: ***p <0.01

A multiple linear regression model was developed to examine the significant relationship between independent variable and dependent variable. Based on table 5, R-squared value was found to be 0.353 indicating that 35.3% variation in motivation in online learning is explained by the seven variables. The F-test of the regression model was found to be 43.423 (df=7, 557), p-value < 0.001 indicating that the regression model is statistically significant. The null hypothesis is rejected and suggests that at least one independent variable has a significant relationship to the dependent variable.

Table 5: The fitness of a multiple linear regression model

Statistical Test	Value	P-value
R-squared	0.353	
Adjusted R-squared	0.345	
F-test	43.423	<0.001

Table 6: T-test of regression coefficient

Variable	Unstand ardized Coeffie nts	Standard ized Coeffie nts	t-test	p-value	Findings
Constant	0.339		1.522	0.129	
Self-Efficacy	0.320	0.248	4.835	<0.001***	Significant
Control of Learning Beliefs	-0.067	-0.052	-1.067	0.286	Insignificant
Intrinsic Goal Orientation	0.159	0.132	2.716	0.007***	Significant
Extrinsic Goal Orientation	0.022	0.019	0.400	0.690	Insignificant
Task Value	0.143	0.106	1.805	0.072*	Significant
Social Engagement	0.163	0.119	2.336	0.020**	Significant
Instructor Support	0.170	0.134	2.712	0.007***	Significant

Note: ***p <0.01; **p<0.05; *p<0.10

Table 6 gives the summary of significant variables in the regression model. It was found that self-efficacy ($\beta=0.32$, $t=4.835$, $p<0.001$), intrinsic goal orientation ($\beta=0.159$, $t=2.716$, $p=0.007$) and instructor support ($\beta=0.170$, $t=2.712$, $p=0.007$) were statistically significant at 1% level of significance. While social engagement ($\beta=0.163$, $t=2.336$, $p=0.020$) was statistically significant at 5% level of significance and the task value ($\beta=0.143$, $t=1.805$, $p=0.072$) was statistically significant at 10% level of significance. However, control of learning beliefs ($\beta=-0.067$, $t=-1.067$, $p=0.286$) and extrinsic goal orientation ($\beta=0.022$, $t=0.4$, $p=0.69$) were found to be insignificant predictors of motivation to learn online.

The adequacy of the multiple regression model was also assessed by analyzing the assumptions of residuals, linearity and multicollinearity. Figure 2 shows the scatterplot matrix of the dependent variable and independent variables; it clearly demonstrates that the relationship is assumed to be linear. Figure 3 explains that there is no systematic pattern as the residual is scattered evenly, thus the multiple regression model met the assumption of homoscedasticity. Test of normality of the residuals was assessed by Kolmogorov-Smirnov and the value was found to be 0.109 (df=565, $p<0.001$) indicating that the residuals are

normally distributed. Then, the test statistic of the Durbin- Watson test is equal to 1.882 which is close to 2 indicates no autocorrelation in the residuals of a regression model.

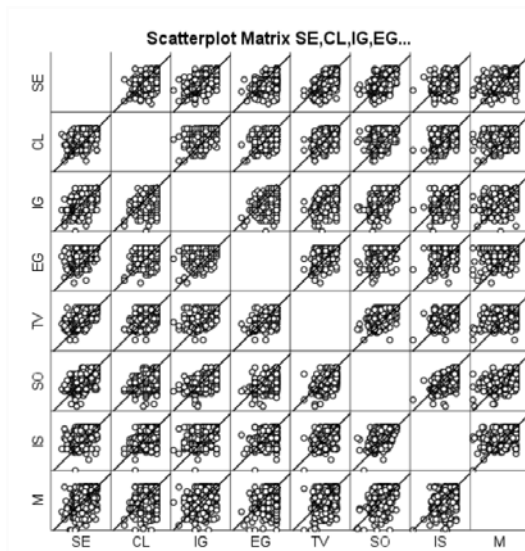


Figure 2: The scatterplot matrix

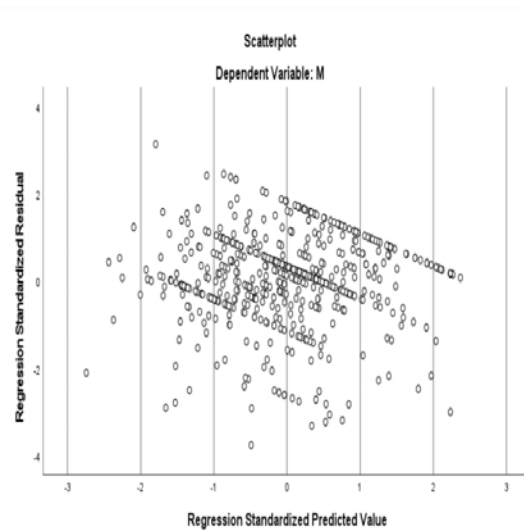


Figure 3: The scatterplot of residuals against predicted value

Table 7 discusses the findings on the multicollinearity assumption by indicating the variance inflation factor (VIF) and tolerance value. The VIF values do not exceed threshold above 5 or 10, thus it can be concluded that the independent variables are not highly correlated. The tolerance values above 0.1 shows that the independent variable has low multicollinearity with the other predictor variables. All the assumptions of multiple regression models hold true; thus the model is adequate and well fits to the observed data.

Table 7: Multicollinearity results

	Tolerance	VIF	Findings
Self-Efficacy	0.441	2.266	No multicollinearity
Control of Learning Beliefs	0.497	2.014	No multicollinearity
Intrinsic Goal Orientation	0.491	2.035	No multicollinearity
Extrinsic Goal Orientation	0.528	1.894	No multicollinearity
Task Value	0.340	2.942	No multicollinearity
Social Engagement	0.447	2.237	No multicollinearity
Instructor Support	0.474	2.112	No multicollinearity

5.0 CONCLUSION

Intrinsic motivation plays a pivotal role in successfully implementing online learning initiatives. Developing a comprehensive understanding of the factors that foster intrinsic motivational goals, integrated with technology-mediated strategies, can contribute to creating effective online learning environments that promote engagement, persistence, and positive learning outcomes. However, further research is needed to explore novel approaches to enhance intrinsic motivation within the rapidly evolving landscape of online education. Educators and instructional designers can create more effective and engaging online learning environments by understanding the factors influencing task value and incorporating

captivating activities. Motivation is crucial in online learning, especially in the digital era, where students and educators must adapt to new educational innovations. Encouraging and fostering motivation is essential to keeping students on track with their studies and reducing the risk of dropping out.

The findings of this study suggest that self-efficacy is a crucial factor in motivating individuals to engage in online learning. This finding is supported by Xiao (2012), who indicated that successful distance learners must display a strong intrinsic motivation, possess an internal locus of control, exhibit high levels of self-efficacy, and can tolerate substantial anxiety during the learning process. Self-efficacy emerged as the most dominant predictor of motivation to engage in online learning. While self-efficacy was the most significant predictor of motivation to study online, intrinsic goal orientation and instructor support were the second and third most influential factors.

A study conducted by Tan et al. (2013) indicated that Herzberg's Two-Factor Theory holds an advantage over other motivation theories, as it integrates individuals' intrinsic and extrinsic motivational components. However, the results of the present study demonstrate that only intrinsic goal orientation is significantly related to the motivation to learn online. This finding aligns with the study by Robin and Judge (2013), which claimed that organizations should concentrate on providing intrinsic or motivational factors to motivate employees. In addition, Yusop et al. (2022) summarized that social support, expectancy, and value elements should be considered to encourage motivation in students, particularly in online learning environments.

This study found that social engagement and task value were significant motivational factors in online learning. The focus of the communication issue here extends beyond the communication tools, encompassing the content, how the instructor delivers instructions, and how students receive feedback (Baber, 2022). The result also aligns with the study by Jenkins (2001), which showed that some students are intrinsically motivated to learn programming, while others may value it more for external reasons as they gain knowledge. However, the results also suggest that the factors of control of learning beliefs and extrinsic goal orientation were not significant predictors for motivation of online learning. Some studies claim that the effects of goal orientation on extrinsic motivation are typically uncertain. At first glance, there may appear to be a positive correlation between extrinsic motivation and academic achievement, as students who are predominantly motivated by extrinsic factors tend to achieve higher grades. However, in contrast to students who possess intrinsic motivation, those with external motivation fail to acquire the material in a deeper or lasting manner by the end (Midgley et al., 2001).

Pedagogical Implications and Suggestions for Future Research

As the learning environment transitions from face-to-face to online education, educators and students must quickly adapt to the new environment. The findings from the study summarize four significant variables contributing to motivation in online learning: self-efficacy, intrinsic goal orientation, social engagement, and instructor support. These insights may assist educators and students in navigating the new educational environment, and it is hoped that the significant factors identified will be considered motivational factors to enhance the effectiveness of online learning. Future research should prioritize investigating time management, as students must possess high self-motivation and discipline to organize their schedules independently.

REFERENCES

- Alanazi, A., Frey, B., Niileksela, C., Lee, S., Nong, A., & Alharbi, F. (2020). The role of task value and technology satisfaction in student performance in graduate-level online courses. *Tech Trends*, 64, 922 - 930. <https://doi.org/10.1007/s11528-020-00501-8>.
- Alqurashi, E. (2016). Self-efficacy in online learning environments: A literature review. *Contemporary Issues in Education Research (CIER)*, 9(1), 45-52.
- Baber, H. (2022). Social interaction and effectiveness of online learning– a moderating role of maintaining social distance during the pandemic COVID-19. *Asian Education and Development Studies*, 11(1), 159–171. <https://doi.org/10.1108/AEDS-09-2020-0209>.
- Basar, M. Z., Mansor, A., Jamaludin, K., & Alias, B. (2021). The effectiveness and challenges of online learning for secondary school students – a case study. *Asian Journal of University Education*, 17(3), 119-129. <https://doi.org/10.24191/ajue.v17i3.14514>.
- Bernard, R., Borokhovski, E., Schmid, R., Tamim, R., & Abrami, P.. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. *Journal of Computing in Higher Education*. 26. 10.1007/s12528-013-9077-3.
- Brophy, J. (2010). *Motivating students to learn* (3rd ed.). Routledge.
- Che Soh, M., Puteh, F., Mahmud, M. B., Abdul Rahim, M., Soegiono, A.G., & Rahmat, N.M. (2022). Investigating the source of motivation for online learning. *International Journal of Academic Research in Business and Social Sciences*, 12(1), 2189–2208.
- Cook, D.A. & Artino, A.R., Jr. (2016), Motivation to learn: an overview of contemporary theories. *Med Educ*, 50,997-1014. <https://doi.org/10.1111/medu.13074>.
- Covington, M. V., & Müeller, K. J. (2001). Intrinsic versus extrinsic motivation: An approach/avoidance reformulation. *Educational Psychology Review*, 13(2), 157–176. <https://doi.org/10.1023/A:1009009219144>.
- Esra, M. E. Ş. E., & Sevilen, Ç. (2021). Factors influencing EFL students' motivation in online learning: A qualitative case study. *Journal of Educational Technology and Online Learning*, 4(1), 11-22. <http://doi.org/10.31681/jetol.817680>
- Fowler, S. (2018) *The motivation to learn online questionnaire* [Doctor of Philosophy Dissertation, University of Georgia]. https://getd.libs.uga.edu/pdfs/fowler_kevin_s_201805_phd.pdf.
- Garrison, D. R., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. *American Journal of Distance Education*, 19(3), 133–148. https://doi.org/10.1207/s15389286ajde1903_2.
- Hair Jr., J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th). Pearson Prentice Hall.
- Jansen, R. S., van Leeuwen, A., Janssen, J., Conijn, R., & Kester, L. (2020). Supporting learners' self-regulated learning in Massive Open Online Courses. *Computers & Education*, 146, 103771.
- Jenkins, T. (2001). *The motivation of students of programming*. In Proceedings of the 6th annual conference on Innovation and technology in computer science education (ITiCSE '01). Association for Computing Machinery, 53–56. <https://doi.org/10.1145/377435.377472>.
- Juyeon, S., & Yoonkyung, C. (2020), Reexamining the interaction between expectancy and task value in academic settings. *Learning and Individual Differences*, 78, <https://doi.org/10.1016/j.lindif.2020.101839>.
- Kutner, M. H., Nachtsheim, C., Neter, J., & Li, W. (2004). *Applied linear statistical models* (5th). McGraw-Hill.
- Liu, X., & Yu, J. (2021). Relationships between learning motivations and practices as influenced by a high-stakes language test: The mechanism of washback on learning. *Studies in Educational Evaluation*, 68., <https://doi.org/10.1016/j.stueduc.2020.100967>.

- Midgley, C., Kaplan, A., & Middleton, M. (2001). Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost? *Journal of Educational Psychology*, 93(1), 77–86. <https://doi.org/10.1037/0022-0663.93.1.77>.
- Oclaret, V. N. (2021). *Impact of academic intrinsic motivation facets on students' academic performance*. La Consolacion University Philippines. <https://doi.org/10.13140/RG.2.2.16764.46723>.
- Robbins, S. P., Judge, T. (2013). *Organizational behavior*. Pearson.
- Sekaran, U., Bougie, R. (2016). *Research methods for business: A skill building approach*. Wiley.
- Tan, S. K., Fauziah, W., Yusoff, W., Kian, T. S., Talha, M., & Idris, M. (2013). Herzberg's Two-Factor Theory on work motivation: Does it works for todays environment?. *Global Journal of Management Perspective*, 2(5), 18–22.
- Vezne R., Yildiz Durak H. & Atman Uslu N. (2023), Online learning in higher education: Examining the predictors of students' online engagement, *Journal of Education and Information Technologies*, 28,1865–1889.<https://doi.org/10.1007/s10639-022-11171-9>.
- Wei, L., Chen, X., Zheng, M., He, L., Zhang, X., & Gao, Y. (2023). *An analysis on the influencing factors of learning motivation based in the teaching blending online and offline: the mediating role of self-efficacy and task value*. E3S Web of Conferences. <https://doi.org/10.1051/e3sconf/202340903007>.
- Wigfield, A., & Eccles, J. S. (2002). *The development of competence beliefs, expectancies for success and achievement values from childhood through adolescence*. In A. Wigfield, & J. S. Eccles (Eds.).(pp. 91-120).Academic Press. <http://dx.doi.org/10.1016/B978-012750053-9/50006-1>.
- Xiao, Frank. (2012). Successful and unsuccessful distance language learners: An 'affective' perspective. *Open Learning: The Journal of Open and Distance Learning*, 27. 121-136. 10.1080/02680513.2012.678611.
- Yusop, H., Rosnan, S., Ismail, Z., Jaafar, N. H., Nurfazrina, & Wibowo, M. (2022). Motivation to learn online: the case for social support. *International Journal of Academic Research in Business and Social Sciences*, 12(9), 1606 – 1627.

DOES COMMUNICATION SATISFACTION INFLUENCE JOB PERFORMANCE: A STUDY ON THE MALAYSIAN HOTEL INDUSTRY

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ABSTRACT

Frontline employees play a pivotal role in shaping the public perception of the hotel industry, serving as a crucial standard for competing on service quality. This research aims to examine how emotional intelligence and communication satisfaction influence job performance among frontline employees, employing a causal steps approach. A structured survey, adapted from previous studies, measured job performance (18 items), emotional intelligence (21 items), and communication satisfaction (17 items) among 377 respondents from star-rated hotels in Malaysia. The findings highlight significant and positive correlations between emotional intelligence, communication satisfaction, and job performance. The study emphasises the potential for the hotel industry to enhance frontline employee performance through targeted training interventions based on these results.

Keywords: Communication Satisfaction, Emotional Intelligence, Frontline Employees, Hotel Industry, Job Performance

1.0 INTRODUCTION

The hotel industry is a developed and major economic contributor in Malaysia. Quality-of-service hotels are important factors in defining customer satisfaction and business success in this competitive environment. Wattimena (2023) found that the ability of hotel staff to carry out procedures and provide quality service, as well as their empathy and responsiveness to customer needs, has a significant influence on customer satisfaction. The work performance of front-line employees is the main key to resolving the quality of services offered. Thus, understanding the factors that determine the effect of frontline employees on the hotel industry is very important.

The work performance of hotel workers is influenced by various factors, including emotional intelligence, culture, and development (Hamidah Norman et al., 2021). The

organisation of hotel management refers to the ability to deal with multiple tasks simultaneously (Araslı et al., 2014; Wu et al., 2020), which all the frontline employees need to implement since they are the ones who first face customer demand. On the other hand, it offers an innovative culture that promotes the introduction of new ideas and methods (Bibi, 2018; Zakariah et al., 2018) in variation that allows organisations to adapt to environmental changes to make sure the employees are stabilised, especially in emotional intelligence (Dubey et al., 2018; Ogiemien et al., 2016). It is consistency that emphasises core values, agreement, and integration between employees (Casey, 2013; Mohammed et al., 2016). These factors play an essential role in the work performance of hotel employees and further contribute to the organisation's success in the increasingly competitive hotel industry.

Communication satisfaction is considered a crucial factor affecting frontline employees' job performance. Communication will give a good impression of the relationship between the company and the customer (Tahir & Monil, 2015). Communication satisfaction refers to individual satisfaction with various aspects of organisational communication, such as with supervisors, colleagues, and customers. The communication style of leaders and employees is important to improve work performance (Viana, 2018).

Work performance, communication, and emotions are crucial, especially in the service industry, especially for frontline employees (Miao et al., 2021). Since the hotel industry is not excluded as one of the most crucial industries in the service industry, enhancing the research in the area is needed to improve and help it excel in competing within the industries. Frontline employees are most adaptable with the research of emotional intelligence and communication satisfaction in their work performance as the front face to confront customer demand.

2.0 LITERATURE REVIEW

Job performance encompasses behaviours aligned with an organisation's goals and objectives, managed by individual employees (Zacher et al., 2023). According to Demerouti et al. (2010), job performance is vital to organisations due to its impact on workplace productivity. Katz et al. (2022) suggest that further performance involves deliberate, goal-orientated behaviours, and significant job performance issues will arise in the coming decades. The ongoing focus on organisational effectiveness, productivity, and rising community demands for quality service will emphasise the connection between individual and corporate performance (Bhayangkara, 2023). These pressures will necessitate a more strategic and integrated approach to performance management (Treinta et al., 2020; Da Waal, 2017; Ismail et al., 2023).

A critical factor for success in the hotel and tourism industries is the ability of frontline employees to maintain relationships with tourists. These employees are customers' first point of contact and play a pivotal role in shaping long-term relationships within the organisation and with tourists through their human interactions. Garrigos-Simon et al. (2019) argues that most service failures in tourism and other sectors reduced by perceptual issues and interactions influenced by passion and emotions. Kusulvan (2003) emphasises that the primary role of frontline employees is to sustain long-term relationships in hospitality firms, especially in emotional intelligence.

Numerous studies consistently demonstrate the substantial impact of emotional intelligence on job performance (Cote & Miners, 2006; O'boyle Jr. et al., 2011; Alwali & Alwali, 2022). Individuals exhibiting higher levels of emotional intelligence across dimensions such as self-regulation, self-awareness, self-motivation, and social skills are apt to excel in their professional roles, correlating with heightened job satisfaction (Mohamad & Jais, 2016). Besides, employees with high emotional intelligence are better at dealing with stress and formulating strategies to mitigate its adverse effects (Thomas et al., 2006). Additionally, they

can leverage their capacity to regulate emotions in others, fostering constructive interactions, boosting group morale, and collectively bolstering job performance for all involved (Shimazu et al., 2004; Rohman et al., 2022).

Several studies have shown a significant relationship between emotional intelligence and job performance, such as among academicians (Mohamad & Jais, 2016; Chong et al., 2020), information technology professionals (Masrek et al., 2014), service workers (Hwa & Amin, 2016), and other sectors. Regarding the hospitality industry, Salisu et al.'s (2014) study of 190 employees of four-star hotels in Malaysia revealed a favourable correlation between EI and job performance. A similar result was also found in another study by Francis et al. (2018) with one hundred hotel staff in Kuala Lumpur. The study conducted by Ramos et al. (2021), including 172 employees in family hotels, demonstrates that job satisfaction and organisational commitment positively impacted by views of organisational support. In the meantime, the association between organisational commitment and organisational support moderated by emotional intelligence. Emotional intelligence is an important aspect that affects communication satisfaction among front-line workers in the hotel industry. Front-line workers are a group that is often faces challenging situations due to having to deal with several types of customers. Thus, emotional intelligence is essential to ensure effective communication can be implemented in hotel organisations to achieve communication satisfaction.

According to Miao et al. (2017), front-line employees' communication satisfaction and job performance were associated with emotional intelligence, especially in controlling empathy. Employees with good emotional control tend to have higher communication satisfaction levels because they can communicate more effectively even in difficult situations. It aligns with Sharifah Hanim et al.'s (2023) show that front-line workers with high emotional intelligence are more satisfied with communication at work. Emotional intelligence also assists frontline workers in avoiding conflicts and misunderstandings with colleagues and customers (Ganesh et al., 2022). It will enhance the employee's satisfaction and provide good customer feedback to generate a harmonious environment through communication satisfaction. Liu et al. (2022) demonstrated that effective emotional intelligence significantly influences communication satisfaction; aligning with Mensah et al. (2021) study, there is a positive correlation between emotional intelligence, communication satisfaction, and work performance among front-line workers. These studies emphasise these factors' critical role in employee success and service excellence. Hence, enhancing communication satisfaction is essential, as it can lead to increased job satisfaction, improved productivity, and superior service delivery within the hospitality industry.

However, a gap remains in identifying the factors that enhance frontline workers' communication satisfaction. Consequently, it is imperative for hotel management to prioritise the cultivation of emotional regulation among these employees (Law et al., 2024). Initiatives such as implementing emotional management training programs, fostering a supportive work environment, and encouraging the practice of emotional intelligence should be undertaken to aid employees in managing their emotions more effectively. Such measures are expected to elevate communication satisfaction levels, enhancing the quality of service delivered to customers.

3.0 METHODOLOGY

The quantitative analysis methodology leverages numerical data and insights to process knowledge and validate claims. This research will focus on Malaysia's hotel industry, encompassing establishments ranging from one to five stars. Primary data, derived from previous studies, will be utilized, with the unit of analysis being the individual frontline employees. A probability sampling technique, specifically simple random sampling, will be employed to ensure minimal bias and high generalizability (Sekaran, 2016). The sample size

for this study is 120, with a response rate of 90 percent. The Statistical Package for Social Science (SPSS) version 21 will be used to examine the reliability, correlations, and regression models based on the approach of Baron and Kenny (1986) to test the relationships between dependent and independent variables (Benitez et al., 2020). The individual survey items are guided by well-established theoretical concepts and constructs, which have been validated in prior research (McNeish & Wolf, 2020). A 5-point Likert Scale will be used to measure respondents' attitudes, allowing them to indicate their level of agreement or disagreement. The adapted job performance measure includes 18 items, while 21 items will assess emotional intelligence, and another 21 items will measure communication satisfaction. Therefore, the conceptual framework as follow:

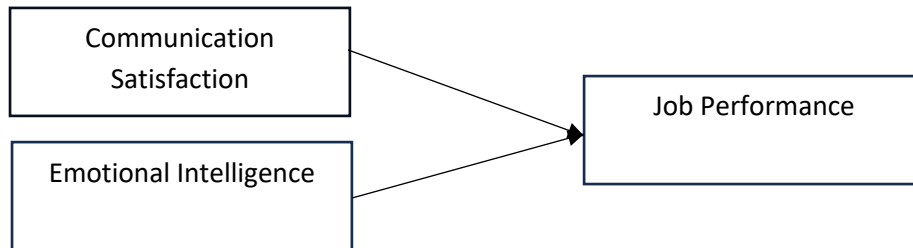


Fig.1 Conceptual Framework

4.0 RESULTS AND DISCUSSION

The tables below present the study's outcomes examining the effects of two independent variables, emotional intelligence, and communication satisfaction, on job performance as dependent variables. The study uses Cronbach's alpha for reliability measurement, Pearson Correlation Coefficient for correlations, and regression to analyse to answer the research objective. The first table shows the results of Cronbach's alpha which was 0.976, suggesting a good value of the reliability test dependent variable (Sekaran, 2016). Meanwhile, emotional intelligence was 0.916, also considered good, and communication satisfaction was also good at 0.953. Therefore, all the variables are categorized as good in the value of Cronbach Alpha.

Table 1: Reliability analysis

No	Name of variable	No of item	Cronbach Alpha
1	Job Performance	18	0.976
2	Emotional Intelligence	21	0.916
3	Communication Satisfaction	17	0.953

The Pearson Correlation Coefficient was employed to evaluate the strength of the relationships between the dependent and independent variables. A p-value less than 0.05 was considered significant, indicating whether the correlation was strong, moderate, weak, or nonexistent (Schober et al., 2018). The table below shows that all independent variables significantly correlate with job performance. Notably, only one independent variable exhibited a significant and strong correlation: career emotional intelligence ($r = 0.884$, $p < 0.1$). Communication satisfaction demonstrated a moderate yet significant correlation ($r = 0.790$, $p < 0.1$), supporting both of independents towards dependent relationship.

Table 2: Correlation

	Performance	Emotional Intelligence	Communication Satisfaction
Job Performance	1.000		
Communication Satisfaction	.790**	1.000	
Emotional Intelligence	.884**	.820**	1.000

The results below of table 3 indicate coefficient R square was 0.7947 and adjusted R was 0.7940. Thus, 79.4 variations in job performance were justified by the varying independent variables: communication satisfaction and emotional intelligence. The β values indicated the relationship of the variables: emotional intelligence ($\beta = 0.8752$, $p < 0.05$), and communication satisfaction ($\beta = 0.2099$, $p < 0.05$). All the variables were supported as $p < 0.05$.

Table 3: Multiple Regression Analysis

Unstandardised β Coefficient	β	Sig.
Emotional Intelligence	0.8752	0.00
Communication Satisfaction	0.2099	0.00
Coefficient of Determination	Model 1	
R	0.8914	
R ²	0.7947	
Adjusted R ²	0.7940	

The study examined how emotional intelligence and customer satisfaction relate to job performance in the hotel industry. Its goal was to understand the connection between these variables, using both descriptive and inferential survey methods. The research employed quantitative methods to gather unbiased data, ensuring the reliability and generalizability of its findings to a wider audience (Yoon et al., 2021). On the other hand, many businesses encounter challenges in job performance due to a lack of well-structured career development programs and emotional intelligence training for employees (Merican et al., 2022). This issue highlights the importance of enhancing job performance through effective retention programs. While numerous studies have explored the impact of emotional intelligence on performance and effectiveness, they have often overlooked the influence of communication satisfaction (Alsayed, 2022; Tahir & Monil, 2015).

Communication satisfaction and emotional intelligence are key motivators for employees, leading to improved job performance by demonstrating an employer's commitment to their future (Fairudeen et al., 2021). Other factors, such as career development, are increasingly important for enhancing performance and productivity. Implementing effective methods can foster an increase in the motivation and growth of subordinates (Forson et al., 2021).

5.0 FUTURE RESEARCH AND CONCLUSION

This research was conducted quantitatively in the hotel industry, ranging from 1- to 5-star hotels. Future research recommends further qualitative research and using different types of methodology, such as focus groups or interviews. The respondents can also be expanded to other departments and other levels of management. The mixed method will also assist in further research in the future. In conclusion, this study's target audience included 377 employees who responded to a standardised questionnaire using a Likert scale. Statistical descriptive and inferential techniques were applied to examine the data, uncovering a noteworthy link between the variables studied. The results suggested that employees expressed satisfaction with their roles and a desire to continue working within the

organization. Moreover, the research demonstrated that both independent variables are crucial in employee job performance. Thus, the study highlighted the significant influence of emotional intelligence and communication satisfaction on employee performance, emphasising their importance for future research endeavours (Alsayed, 2022).

CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest in this article. Author1 carried out the fieldwork methodology, data entry and results. Author2 overlooked the writeup of the whole article, Author3, Author4, and Author5 prepared the literature review and references.

REFERENCES

- Alsayed, A. K. (2022). Trust and communication satisfaction as mediators in the relationship between emotional intelligence and work-related outcomes: a conceptual framework. *International Journal of Contemporary Management and Information Technology*, 2(2), 1-14.
- Alwali, J. & Alwali, W. (2022). The relationship between emotional intelligence, transformational leadership and performance: A test of the mediating role of job satisfaction. *Leadership & Organization Development Journal*, 43(6), 928-952.
- Araslı, H., Daşkın, M., & Saydam, S. (2014). Polychronicity and Intrinsic motivation as dispositional determinants on hotel frontline employees' job satisfaction: Do Control Variables Make a Difference?. *Procedia Social and Behavioral Sciences*, 109, 1395–1405. <https://doi.org/10.1016/j.sbspro.2013.12.643>, Attitudes. *Journal Of Occupational And Organizational Psychology*, 90(2), 177–202.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173.
- Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & management*, 57(2), 103168.
- Bhayangkara, D. P. (2023). Functionally public accountability, management control systems and organizational culture to increase organizational performances. *Insight Journal*. 10(1), 40-50.
- Bibi, A., & Jadoon, B. (2018). The mediating effect of exploitative and explorative learning on the relationship between job embeddedness and innovative work behavior. *Science Journal of Business and Management*, 6(1), 1.
- Casey, S. (2013). *Job performance. cultural sociology of divorce: An encyclopedia*. <https://doi.org/10.4135/9781452274447.n222>.
- Chong, S. C., Falahat, M., & Lee, Y. S. (2020). Emotional intelligence and job performance of academicians in Malaysia. *International Journal of Higher Education*, 9(1), 69-80.
- Cote, S. & Miners, C.T.H. (2006). Emotional intelligence, cognitive intelligence, and job performance. *Administrative Science Quarterly*, 51(1), 1-28.
- De Waal, A. (2017). *Strategic Performance management: A managerial and behavioral approach*. Bloomsbury Publishing.
- Demerouti, E., Cropanzano, R., Bakker, A., & Leiter, M. (2010). From thought to action: Employee work engagement and job performance. *Work engagement. A handbook of essential theory and research*, 65(1), 147-163.
- Dubey, R., Altay, N., Gunasekaran, A., Blome, C., Papadopoulos, T., & Childe, S. J. (2018). Supply chain agility, adaptability and alignment: Empirical evidence from the Indian auto components industry. *International Journal of Operations and Production Management*, 38(1), 129–148. <https://doi.org/10.1108/IJOPM-04-2016-0173>.

- Fairudeen, M., Tajuddin, D., & Monil, M. (2021). The influence of job satisfaction and job stress on the desire to resign voluntarily. *Journal of Human Capital Development (JHCD)*, 14(2), 17-28.
- Forson, J. A., Ofosu-Dwamena, E., Opoku, R. A., & Adjavon, S. E. (2021). Employee motivation and job performance: a study of basic school teachers in Ghana. *Future Business Journal*, 7(1), 30.
- Francis, R.S., Alagas, E.N. & Jambulingam, M. (2018). Emotional intelligence perceived organizational support and organizational citizenship behavior: Their influence on job performance among hotel employees. *Asia-Pacific Journal of Innovation in Hospitality and Tourism*, 7(2), 1–20.
- Garrigos-Simon, F. J., Narangajavana-Kaosiri, Y., & Narangajavana, Y. (2019). Quality in tourism literature: A bibliometric review. *Sustainability*, 11(14), 3859.
- Norman, H., Azim, A. M. M., & Rashid, I. M. A. (2021). Faktor Penentu Prestasi Kerja Industri Perhotelan. *Journal of Business Innovation*, 6(1), 133.
- Hwa, M. A. C., & Amin, H. (2016). Why emotion at work matters: examining the influence of emotional labour and emotional intelligence on workplace behaviors among service workers in east Malaysia. *Kajian Malaysia*, 34(1), 79-105.
- Katz, I. M., Rauvola, R. S., Rudolph, C. W., & Zacher, H. (2022). Employee green behavior: A meta-analysis. *Corporate Social Responsibility and Environmental Management*, 29(5), 1146-1157.
- Kulsuvan, S. (2003). *Employee attitudes and behaviors and their roles for tourism and hospitality businesses*. Nova Science Publishers Incorp.
- Yue, L. Y., & Basnyat, S. (2022). Managing employee emotions at the workplace in the hospitality industry. *Nepalese Journal of Hospitality and Tourism Management*, 3(1), 14-24.
- M.P., Ganesh., Sarlaksha, Ganesh. (2022). Using emotional intelligence and personal coping strategies to achieve work family balance in frontline hotel employees. *Management*, 6(1), 1. <https://doi.org/10.11648/j.sjbm.20180601.11>
- Masrek, M. N., Osman, M. A. F., Khamis, Y., & Paiman, M. J. (2014). The relationship between emotional intelligence and job satisfaction: The case of Malaysian information technology professionals. *International Journal of Multidisciplinary and Current Research*, 2(1), 1106-1111.
- McNeish, D., & Wolf, M. G. (2020). Thinking twice about sum scores. *Behavior research methods*, 52, 2287-2305.
- Mensih, M., Ibrahim, F., & Hassan, N. (2021). Hubungan antara motivasi pencapaian, kecerdasan emosi dan ketahanan diri dalam kalangan mahasiswa kerja sosial. *e-BANGI*, 18(1), 37-48.
- Merican, N., Monil, M., Rafie, U. N., & Tajuddin, D. (2022). The effect of career planning, talent management and training development towards employee retention. *International Journal of Academic Research in Business and Social Sciences*, 12(8), 165-173.
- Miao, C., Humphrey, R. H., & Qian, S. (2021). Emotional intelligence and job performance in the hospitality industry: a meta-analytic review. *International Journal of Contemporary Hospitality Management*, 33(8), 2632-2652.
- Mohamad, M. & Jais, J. (2016). Emotional intelligence and job performance: A study among Malaysian teachers. *Procedia Economics and Finance*, 35, 674-682.
- O'boyle Jr, E.H., Humprey, R.H., Pollack, J.M., Hawver, T.H. & Story, P.A. (2011). The relation between emotional intelligence and job performance: A meta-analysis. *Journal of Organizational Behaviour*, 32(5), 788-818.
- Ramos, H. M., Mustafa, M., Caspersz, D., & Raveentheran, A. (2021). Organizational support and pro-organizational behaviors in hotel family-SMEs: the role of emotional intelligence. *Journal of Human Resources in Hospitality & Tourism*, 20(4), 542–564. <https://doi.org/10.1080/15332845.2021.1959816>.

- Rohman, F., Noermijati, N., Soelton, M. & Mugiono, M. (2022). Model altruism in improving organizational performance in social welfare institutions, Ministry of Social Affairs of the Republic of Indonesia. *Cogent Business & Management*, 9(1), 2151678.
- Salisu, B., Yuping, W., Awang, S. R., Jusoh, A., & Jabar, N. A. (2019). A two-step cluster model of the emotional intelligence and leadership style preferences of four-star hotel employees. *Jurnal Kemanusiaan*, 17(2), 27-34.
- Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: appropriate use and interpretation. *Anesthesia & analgesia*, 126(5), 1763-1768.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.
- Mahbob, M. H., & Sulaiman, W. I. W. (2015). Kepentingan kecerdasan emosi dalam komunikasi keorganisasian dan pengaruhnya terhadap kepuasan kerja. *Jurnal Komunikasi: Malaysian Journal of Communication*, 31(2), 533-546.
- Shimazu, A., Shimazu, M. & Odahara, T. (2004). Job control and social support as coping resources in job satisfaction, *Psychological Reports*, 94(2), 449-456.
- Tahir, I. M., & Monil, M. (2015). Preliminary study of emotional intelligence and communication satisfaction on job performance: A study on Malaysian hotel industry. *Journal of Human Capital Development (JHCD)*, 8(2), 75-82.
- Thomas, S.Y., Tram, S. & O'Hara, L.A. (2006). Relation of employee and manager emotional intelligence to job satisfaction and performance. *Journal of Vocational Behavior*, 68(3), 461-473.
- Treinta, F. T., Moura, L. F., Almeida Prado Cestari, J. M., Pinheiro de Lima, E., Deschamps, F., Gouvea da Costa, S. E., ... & Leite, L. R. (2020). Design and implementation factors for performance measurement in non-profit organizations: A literature review. *Frontiers in Psychology*, 11, 1799.
- Viana Feranita, Nungky. (2018). *Hubungan komunikasi terhadap prestasi kerja bawahan*. *majalah ilmiah dian ilmu*. 10.37849/midi.v13i1.33.
- Wattimena, R. A. (2023). Analisis faktor-faktor pembentuk kepuasan pelanggan hotel:(Studi Pada Hotel Amboina Kota Ambon). *Jurnal Administras iTerapan*, 2(1), 225-231.
- Wu, T. J., Gao, J. Y., Wang, L. Y., & Yuan, K. S. (2020). Exploring links between polychronicity and job performance from the person–environment fit perspective—the mediating role of well-being. *International Journal of Environmental Research and Public Health*, 17(10). <https://doi.org/10.3390/ijerph17103711>.
- Yoon, S., Yang, Y., Ro, E., Ahn, W. Y., Kim, J., Shin, S. H., ... & Choi, K. H. (2021). Reliability, and convergent and discriminant validity of gaming disorder scales: A meta-analysis. *Frontiers in psychology*, 12, 764209.
- Zacher, H., Rudolph, C. W., & Katz, I. M. (2023). Employee green behavior as the core of environmentally sustainable organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, 10(1), 465-494.

DISPOSAL BEHAVIOUR OF UNUSED MEDICINES WITH ENVIRONMENTAL AWARENESS AS MODERATOR: A CONCEPTUAL PAPER

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ABSTRACT

Rising economies and developing nations lead to expanded access to essential medications. Malaysia is not an exception to the trend of increased pharmaceutical product. They are referred to medications or drugs that are necessary for maintaining public health as well as for the prevention and treatment of illnesses. Pharmaceutical products increased by 24% from 2015 to over 4.5 trillion doses globally in 2020. Nonetheless, not all patients had consumed all the prescribed medicines they have. Unused medicines are defined as pharmaceuticals that are no longer consumed by the intended users or patients. These unused medicines could be improperly disposed. Improper disposal of unused medicines is defined as discarding unused medicine other than returning them to a Medicine Return Programme (MRP). It is shown that most people in Malaysia did not aware of the proper disposition of unused medications. For instance, the potential environmental harm caused by medicines when disposed of in household trash, leading to their presence in landfill and contamination of surface water. Consequently, one objective of this conceptual paper is to examine the factors influencing the disposition behaviour of unused medicines and the moderating effect of environmental awareness in the relationship between intention and disposition behaviour in Malaysia. Health Belief Model (HBM) theory will be used in this paper to explain the factors influencing the disposition behaviour of unused medicines. Quantitative Research Design is used in this study. A sample size of 2,256,108 of Malaysia's population will be taken for this study. This paper aims to provide a conceptual process for understanding how patients evolve in their disposal behaviour of unused medicines by putting forth a conceptual framework that incorporated these elements.

Keywords: Environmental Awareness, Disposal, MRP, Unused Medicine, HBM Theory

1.0 INTRODUCTION

Due to growing economies with good healthcare infrastructure, including hospitals, clinics, and pharmacies, the medications are more accessible to a larger population. With an ageing population and people with chronic illnesses, Malaysia is seeing a rise in the use of pharmaceutical products. This can be proved as the budget for healthcare industries has risen every year since 2016 (Table 1). Recently, through The Star on 13 October 2023, Prime Minister, Anwar Ibrahim has announced for Budget 2024, Health Ministry will have the biggest allocation of RM41.2 billion for maintaining and upgrading the health services and facility, including to promote health information. It has risen 13.5% year over year (y-o-y) which is one of the biggest year-over-year growths in recent times.

Table 1: Budget Allocation for Healthcare Sector (RM) in billion 2016-2024

Year	Budget Allocation for Healthcare Sector (RM) in Billion
2016	22.87
2017	25
2018	26.58
2019	29
2020	30.6
2021	31.9
2022	32.4
2023	36.3
2024	41.2

Sources from Annual Report of Minister of Health from 2016 to 2023 and Announcement of Budget 2024 by Prime Minister from The Star on 13 October 2023

The increase in budget is important for the development of new hospitals, clinics, and healthcare facilities in both urban and rural locations, as well as the resolution of the overpopulation of ministry hospitals (Nurul, 2023). Ironically, while medications serve to prevent and treat diseases in humans and animals, they currently stand as one of the most prevalent environmental pollutants when they are disposed improperly (Ariffin & Zakili, 2019). Since not every patient had taken every prescription medication (Kristina, 2018), the unused medicine has increased over the time (Makki et al., 2019).

Patients could have unused medicines for a variety of reasons, such as non-compliance with their treatment plan, an improvement in their health, a change in their treatment plan, the occurrence of unfavourable effects, and an oversupply of medicines from various sources (Wang et al., 2021). According to a study done in Malaysia's government hospitals, patients preferred to keep obtaining as many prescriptions as they needed because they were provided free of charge or at a reduced cost by the government, even if they still had enough medication to last for a few months (Ong et al., 2019).

Dumping unused medicine instead of bringing them back to a Medicine Return Programme (MRP) constitutes improper disposal of unused medicines. Under the programme, the collected unused medicine will be disposed of as pharmaceutical waste through regulated incineration (Leong et al., 2021). Through the Medicine Return Programme (MRP) in 2010 introduced by the Ministry of Health (MOH) Malaysia, awareness programmes and programmes about sensible drug use have been promoted in Malaysia for the last 10 years (Yut, 2019). However, numerous studies found that improper drug disposal practices were related to a low level of knowledge and awareness among people in Malaysia (Yut, 2019). Several research have proven that, less than a quarter of the population in Malaysia returned unused or unwanted medicines to the collection points which are pharmacy departments at MOH hospitals and health clinics (Wang, 2021).

While in other countries, such as Dutch, showed a high degree of knowledge among them, when 80% of respondents in a poll have returned their unused medicines to pharmacies or to chemical waste facilities (Ong et al., 2019). The success of these nations is attributed to targeted information programmes conducted by their policymakers. These

programs have effectively raised public awareness regarding the disposal of unused medicines and promoted efficient disposal methods (Wang et al., 2021).

Guided by recommendations from poison-control centres, or only by convenience, health professionals and consumers alike have customarily disposed of unused medicines into the public water system by flushing them down the toilet or rinsing them down the drain (McCullagh et al., 2012; Ortner & McCullagh, 2010). This practice was standard until the discovery of measurable amounts of pharmaceutical chemicals in water triggered alarm about the consequences of pharmaceutical pollution in the environment, and its potential effects on human health (WHO, 2011), as it will contaminate the surface of water, endangering people who use the water sources for daily life, aquatic, and animals. To protect the environment from pharmaceutical products, it is essential to dispose of unused medicines correctly.

One of the most well-known theories that has been used in many studies related to healthy behaviour is the Health Belief Model or known as HBM (Umaki et al., 2012). Hence, HBM will be used in this study to explain the factors influencing the disposition behaviour of unused medicines.

2.0 LITERATURE REVIEW

2.1 Health Belief Model Theory (HBM)

Godfrey Hochbaum and Irwin Rosenstock, social psychologists, developed the Health Belief Model (HBM) in the early 1950s (Strecher & Rosenstock, 1997). According to Razmara et al. (2018), the model assesses the connection between preventive health behaviours and health-related attitudes. HBM is also one of the most functional theories for understanding preventive health behaviours (Rahnavard et al., 2011). Perceived vulnerability and perceived rewards of action are the two ideas that Hochbaum established as the foundation of the model based on thorough assessments of probability samples of adults living in places that provided tuberculosis screening. Although Hochbaum never conducted an empirical investigation into this aspect of the concept, he acknowledged the importance of both extrinsic and intrinsic cues or triggers in inspiring people to act (Strecher & Rosenstock, 1997).

The HBM has been improved and enlarged over decades, and it is well-supported by empirical research (Strecher & Rosenstock, 1997). It is predicated on the idea that preventive actions rely on an individual's beliefs. Based on the model, people will engage in preventive actions to avoid risk if they feel exposed and sensitive to a situation (perceived susceptibility); additionally, if someone believes that a situation is potentially dangerous and could have a significant impact (perceived severity); and finally, if they believe that they can reduce the risks and side effects of the situation through a series of actions and that the benefits of these actions (perceived benefits) outweigh the barriers to complying with the behaviour (such as time and money–perceived barriers), they will have a higher probability of exhibiting the necessary behaviour (Moghadam et al., 2020).

Therefore, HBM will be used in this study to explain the factors influencing the disposition behaviour of unused medicines. Perceived susceptibility, perceived severity, perceived benefits and perceived barriers are the independent variables that make up the HBM.

2.2 Disposal Behavior of Unused Medicines in Malaysia

Since the improper handling and disposal of unused medicines raises serious concerns globally, including in Malaysia, the Ministry of Health in Malaysia has designated this field of

research as one of the five study domains outlined in the Pharmacy Study Priorities of Malaysia. In order to dispose of leftover medications in government healthcare facilities securely, Malaysia has been implementing the Medicine Return Programme (MRP) since 2010. The country has also created national guidelines for managing returned medications. It is preferable to participate in the MRP in order to dispose of unused medicine. It would be inappropriate for users to dispose of unused medicine in other ways (Wang et al., 2021).

However, according to multiple surveys conducted in Malaysia, the majority of people (about 75%) dispose of their unused medicines in the trash, the sink, or the drainage system (Wang et al., 2021). According to different research, 93% of Malaysian university students had flushed unwanted drugs down the toilet or washbasin and were unaware of the "Return Your Medicines Programme" (Lai et al., 2021). However, this poor disposal behaviour is related to poor handling experience of unused medicines and health care facilities' and health professionals' behaviour on medication waste.

Compared to Malaysia, many nations have had official programmes in place for some years to gather leftover medications, including Australia, France, Sweden, Portugal, Spain, the United Kingdom, and New Zealand (Ruhoy & Daughton, 2008). Member states of the European Union are required by directives to establish appropriate mechanisms for the return of unused and expired medications (Health Canada, 2009). Australia's federal government provides funding for the Return Unwanted Medicines Project. Sweden has a unique retail pharmacy system that is consolidated under Apoteket B, a single government-owned chain. Targeted public awareness campaigns are used by Apoteket B to run an environmental programme that educates the public about the harmful consequences of disposing of or flushing pharmaceuticals down the toilet. The emphasis on raising public awareness appears to be effective, as over 70% of customers who have leftover medications return them to the drugstore. In addition, the Spain Integrated Waste Management System runs extensive public awareness efforts that are successful in generating a lot of medicine returns.

2.3 Perceived Susceptibility – Poor Handling Experience of Unused Medicines

Perceived susceptibility refers to an individual's subjective perception of experiencing a health or medical condition. This dimension encompasses susceptibility to illness in general in addition to vulnerability to a specific condition. In the study, poor handling experience of unused medicines is the perceived susceptibility.

Other than that, a study carried out in Malang and Yogyakarta, the majority of respondents did not process medications in a proper or safe manner. People's attitudes can be influenced by personal experience and cultural influences. Even if a person is knowledgeable about how to manage medication properly, due to the experience they have in their home contexts and their culture, this knowledge is often ignored (Pramestutie et al., 2021).

Besides, poor attitude towards unused medicines also may cause by many factors including the age of users, gender, and income of households (Ong et al., 2019). Elderly citizens tended to be more disciplined than young people, who typically take things for granted and look for simple ways to live. A study conducted in Ghana; women are recognised to be mainly accountable for all household duties including to properly dispose of medication waste compared to men. Proper disposal of waste was significantly and favourably impacted by household per capita expenditure, a measure of household wellbeing. Households with higher per capita expenditure were marginally more likely to collect their domestic waste (Adzawla et al., 2019).

2.4 Perceived Severity – Amount of Medication Waste Found in the Environment

Perceived severity is a related factor, denoting the seriousness of experiencing the condition or allowing it to remain untreated or unaddressed. This aspect includes medical consequences (pain, disability, and death) and social consequences (such as the impact of the condition on work and social relationships). In conjunction, perceived susceptibility and perceived severity produce perceived threat. In this study, the amount of medication waste found in the environment is the perceived severity.

As a result of increased drug use, these substances are more prevalent in the environment, which may have an impact on organisms' survival, reproduction, metabolism, and population as well as alter the ecosystem's community structure and ecological functions, which include biodiversity and biomass production (Shao et al., 2018). One of the main reasons medicines are present in the environment is improper disposal of unused medicine, particularly when it is done through solid waste disposal or into sinks and toilets (Vieno et al., 2017). According to a report released by the Baltic Marine Environment Protection Commission and UNESCO/HELCOM (United Nations Educational, Scientific, and Cultural Organisation), wastewater is the primary source of pharmaceutical contamination in the Baltic Sea (Vieno et al., 2017). Nevertheless, it will take time and money to modernise the wastewater treatment facilities that surround the Baltic Sea since they are not built to remove micro-pollutants. Thus, it is essential for residents of the Baltic Sea region to properly dispose of any unused medicines in order to lower the number of pharmaceuticals in the water (Rogowska & Zimmermann, 2022).

2.5 Perceived Barriers– Health Care Facilities' and Health Professionals' Poor Behaviour on Medication Waste

Despite awareness of the potential benefits of a given health behaviour or behaviours, perceived barriers serve as obstacles to the recommended course of action. In a comprehensive research review of the HBM, perceived barriers emerged as the single most important factor in health behaviours across all studies and behaviours (Strecher & Rosenstock, 1997). For preventive behaviours, perceived susceptibility and perceived barriers are the best predictors of behaviour, whereas for behaviour related to a current health problem (such as adhering to medication), perceived severity and perceived barriers are most significant (Nisbet & Gick, 2008). In this study, the potential perceived barrier is the health care facilities' and health professionals' poor behaviour on medication waste.

2.5.1 Poor Disposal Behaviour of healthcare facilities

The EPA (2008, 2010) started looking at how healthcare facilities dispose of their pharmaceutical waste after receiving strong evidence of detectable levels of different pharmaceutical chemicals in US waterways. The premise behind the study was that medical facilities are still disposing of enormous amounts of unneeded medications into sewers, which is bad for the environment and the general public's health. The primary factors influencing disposal procedures were, for the most part, federal, state, and municipal regulations controlling the disposal of medical waste. However, other factors that affected the disposal of unwanted pharmaceuticals were size, simplicity of use, and cost. Long-term care facilities were subject to stricter requirements for the return of unwanted pharmaceuticals than hospitals were because of the disparities in their respective regulatory frameworks.

2.5.2 Poor advice received from Health Care Worker

Other than that, advice from health care workers (HCWs) may not have had the desired effect for a number of reasons. Firstly, patients may not have followed the advice.

Secondly, the advice may not have been correct in the first place. Thirdly, the likelihood of correct disposal appears to be reduced when advice comes from multiple sources. Out of the 18 patients who reported receiving advice from sources other than HCWs, none were assessed to be consistently practicing a proper disposal method (Quiwa & Jimeno, 2014). It is crucial that pharmacy students, chemists, and medical personnel have the appropriate education in this area. Alhomond et al. (2021) found in the aforementioned survey that, of students who were given information on how to properly dispose of medications, 85% did not dispose of unused or expired medications in household garbage and 91% did dispose of medications in household garbage among those who had never received such information.

2.5.3 Suggestion for Health Care Worker to Encourage Proper Disposal of Unused Medicine

In order to comply with all applicable laws and maybe save expenses, the start of a waste-management programme involves a variety of waste segregation strategies (EPA, 2010). Staff training for chemists, nurses, and other people involved in managing unwanted medications is a crucial part of an effective waste-management programme. According to the EPA, employees should get training on when to discard or return unwanted prescriptions to the pharmacy, as well as how to do so. Staff members should receive regular training including refresher courses to keep them up to date, and their input should be sought for ongoing quality improvement.

2.6 Perceived Benefits - The Effect on the Environment with Efficient Disposal of Unused Medicines

Perceived Benefits are the good results that are achieved by healthy behaviour as it pertains to the efficiency of certain acts in minimising the risk of health problem (Moghadam et al., 2020). Bringing unused and expired drugs to a take-back event or MRP neutralises the potential hazard to people and pets and does not contribute to environmental pollution. Beyond the practical benefit, this action might produce the intrinsic reward of believing one has done the right thing. A drug take-back event can offer an opportunity for socialising with friends or neighbours or meeting others in the local community. For young people in particular, peer pressure to engage in environmentally friendly behaviour might influence unused medicines disposal practices.

It is beneficial to the government and environment if there is a smaller number of unused medicines and if efficient disposal of unused medicines is promoted. An upstream strategy for drugs already on the market entails reducing the over prescription of pharmaceuticals, restricting aggressive marketing that prompts patients to request medications that may not be necessary, and clearing out household medicine cabinets filled with samples of multiple drugs that are never used. Enhancing the diagnostic processes for these medications enables doctors to prescribe the best medications at the right doses to patients, which increases patient compliance with treatment regimens. Ineffective medication compliance is a primary cause of unused medications ending up in waterways (Daughton & Ruhoy, 2013).

Besides, the promotion of efficient disposal methods also aligned with the Sustainable Development Goals (SDG) of 13 – Climate Action. As stated by Thakur (2021), the environment and even ecosystem are suffering from water pollution which result in an increase in the heavy metals in the groundwater that is caused by leachate as an effect of improper disposal of unused medicine.

3.0 ENVIRONMENTAL AWARENESS AS MODERATOR

The main factor in the inappropriate disposal of unused and expired medicines was the lack of law, implementation, and education on the subject. Although Brazil's National Solid Waste Policy, issued in 2010, stated that waste products will be returned to their original makers (Brazil, 2010), a sizable proportion of respondents (71.9%) stated that they had never received any advice regarding proper medication disposal. The poor investment in environmental education to inform the populace and the lack of a reverse logistics system in Brazil are the main causes of these figures (Amoabeng et al., 2022).

A different study on the knowledge, attitude, and practice (KAP) of healthcare professionals in South India found that participants were very unclear about how to dispose of the medication waste because many nations lack standardised medication disposal protocols (Michael et al., 2019). According to research done in Indonesia, 64.91% of the respondents (209 respondents) had college-level education. A person with a high degree of education will be able to reason and think logically, which will enable them to address difficulties analytically, such as those in the medical or health fields (Pramestutie et al., 2021).

It should come as unsurprising that households headed by more educated individuals were more likely to separate their household waste specifically including the medication waste into trash cans instead of burying or burning it. It is generally anticipated that formal education will increase people's awareness of the importance of maintaining a clean and healthy environment. Education has made the detrimental impacts of burning trash widely acknowledged. Higher educated household heads can therefore make sure that their waste is appropriately covered and collected (Adzawla et al., 2019). The knowledge of inappropriate disposal methods and their present practices were found to be significantly correlated. Up to 85.7% of respondents who do not realise that it is improper to dispose of solid medications in the trash also dispose of unused or expired medicines in the trash, but only 67.9% of respondents who were aware of this fact did the same (Ong et al., 2019).

Educational initiatives and programmes run by local and national governments, environmental organisations, and commercial institutions are some sources of information which will run as environmental awareness. According to a study, the frequency of patients returning unused or expired medications to pharmacies increased significantly in just six months, from 1.1% to 87.3%, thanks to public education programmes on pharmaceutical waste management in the Bihor County (Romania) population (Tit et al., 2016).

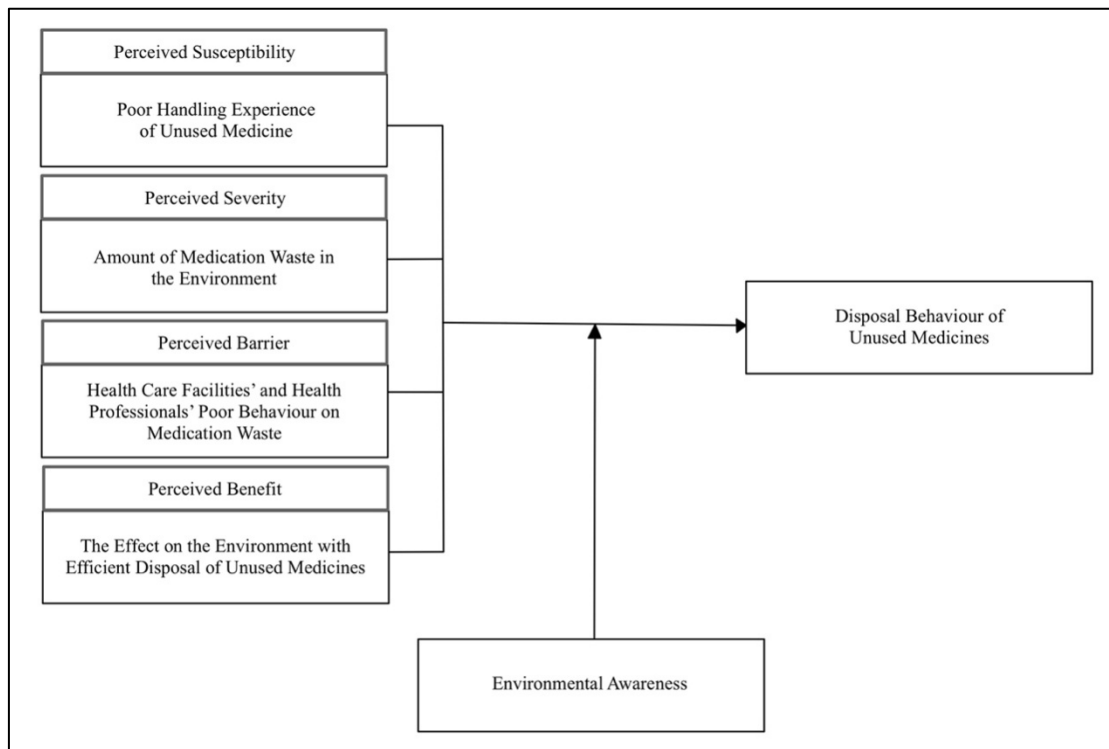


Fig. 1 Conceptual Framework Based on Health Belief Model
Adopted from Quiwa & Jimeno (2014)

4.0 IMPLICATION OF DISPOSITION BEHAVIOUR OF UNUSED MEDICINES

Participating community pharmacists discussed the potential risks of child poisoning from unused and expired medications, as well as the need for the drug returns program to be offered at their chemist's. According to prior research conducted in Malaysia, pharmaceuticals were the cause of 40.5% of purposeful poisoning cases and 30% of unintentional poisoning cases (Chong et al., 2022). Children between the ages of one and nine years old made up 46% of the victims of unintentional poisoning cases. According to a different research, pharmaceuticals were the main cause of paediatric poisoning, accounting for 39.2% of instances that were documented (Afni et al., 2012).

Other than that, Waste of medications is both an opportunity cost and a waste of financial resources from the perspective of health economics. Research at public hospitals in Malaysia has revealed that the average monthly waste of medicines was much greater than the amount that might have been used for each patient's care (Azas et al., 2016). According to the current findings, respondents were aware that improper prescription waste practices might have negative effects on the environment and public health. Nonetheless, there is a gap in their knowledge and actual medication disposal practices (Hassali & Shakeel, 2020).

5.0 METHODOLOGY

The research is using Saunders Onions as the methodology reference.

5.1 Research Philosophy

Positivist is chosen for the research philosophy since the Health Belief Model is an existing theory. Positivist researchers use existing theories to generate hypotheses. Howell (2013) claims that positivism has its roots in empiricist philosophy, which holds that hypotheses can only be proven true by empirical research. Ryan (2018) goes on to say that positivism upholds the idea of natural science, that things must have logical relationships

inside and between them, and that object study tries to identify these relationships and provide a rationale for them using scientific methods.

5.2 Research Approach

Deduction Approach is chosen in the research as data collection is used to evaluate hypothesis related to an existing theory. It is ideally for theory verification or falsification.

5.3 Methodological Choice

Quantitative research design will be used in this study. A quantitative approach is helpful when a researcher wants to look at relationships between concepts that can be quantified and are objectively measurable (Howell, 2010). This study's major goal was to test the hypothesis that there is a relationship between the factors (independent variables) that may have an impact on disposition behaviours of unused medicine—the outcome of interest or dependent variable—and those practices. A quantitative approach was appropriate because the factors under consideration are quantifiable and objectively measurable.

5.4 Research Strategies

Experimental and Survey will be used in the study. Experiment is a form of research that owes much to the natural sciences, although it features strongly in psychological and social science research. The purpose is to study the probability of a change in independent variable causing a change in another, dependent variable, as well as this study. While survey strategy is usually associated with a deductive approach. It is most frequently used to answer 'what', 'who', 'where', 'how much' questions. Hence, survey strategies are used to answer the questions in the study.

5.5 Time Horizon

The time horizon will be cross-sectional as the study is carried out and the data are gathered just once at a time.

5.6 Data Collection

Researchers use techniques like exams, questionnaires, and interviews to obtain information directly from primary sources, which is known as primary data. Primary data, which is usually obtained from the source where the data originally originates, is the most valuable kind of data for study. Hence, data will be collected through a structured online-survey questionnaire. All the questions were closed-ended, and some offered the option for the respondents to record their own opinion if the choices were not suitable (Amoabeng et al., 2022). The survey will include between 10 and 15 structured questionnaires for communities and pharmacies, and it will be divided into three parts. Part A will ask respondents about their sociodemographic characteristics and their background. Part B will be about the independent variables (Perceived Susceptibility, Perceived Severity, Perceived Barriers and Perceived Benefits), Part C will be about the moderating variables (Environmental Awareness) and Part D will be about the Disposal of Unused Medicines Behaviour, how they dispose of expired or unused medicines, and their knowledge of the environmental impact of improper medication disposal. An online questionnaire created specifically for this research will be distributed in Google Form with 5 scales of Strongly Disagreed, Disagree, Neutral, Agree, and Strongly Agreed except for the sociodemographic characteristics.

5.7 Data Analysis

The data collected will be analysed by the Smart Partial Least Square or known as Smart-PLS. The same function as Lisrel and AMOS, The Smart PLS examines the relationship between variables, both between latent and manifest indicator variables. When there are few samples available and the model being constructed is complicated, it is strongly advised to use Smart PLS compared to the other software. Hence, Smart PLS is a good choice to run the data especially when we are using quantitative measures (Purwanto, 2021).

5.8 Sampling Technique

The sampling technique chosen in the study is probability sampling. Based on annual report of Minister of Health in the year 2021, 2,256,108 of Malaysia's population are having morbidity patients. From this data, each member of the population has an equal chance of being selected. Hence, it is usually referred to as the probability sampling procedure.

Systematic Sampling Technique will be used as all information from the participants will be chosen after they are being filtered from the criteria needed. One easy way to draw scattered groupings of items is by systematic sampling. One element is chosen at random from the frame in a systematic probability sampling design, and all subsequent elements that are added to the sample are those that are separated from this initial selection by a predetermined sampling interval. While systematic sampling makes sure that every element has an equal chance of being included, it also makes only combinations of components that fall within the sample interval visible (Rahman et al., 2022).

6.0 CONCLUSION

Malaysia lags behind many other developed countries in establishing formal guidelines and policies for the safe disposal of pharmaceuticals. Countries such as Iran, Philippines, Australia, France, Sweden, Portugal, Spain, New Zealand, and the United Kingdom have had formal programs for collecting unused medications for quite some time (Moghadam et al., 2020, Helme et. al, 2020, Leslie Quiwa and Cecilia Jimeno, 2014). A study conducted by Health Canada (2009) compared the status of the recommended disposal practices across the European Union and member states to establish a benchmark against which to compare those established in Canada. For example, the report illustrated that Sweden has one of the most successful programs for the proper disposal of pharmaceuticals (Health Canada, 2009).

Taking unused or expired pharmaceuticals and bringing them to a designated location for proper disposal, or even mixing the drugs with unappetizing substances represents a radical shift in behaviour after years of disposing of pharmaceuticals down the drain or toilet, which may seem like the most convenient way to get rid of unused medicines. Medication disposal procedures have been the subject of investigations using frameworks like the TPB and the HBM to determine what encourages or impedes changes in health-related behaviour (Nisbet & Gick, 2008). Disposing of pharmaceuticals is different from altering one's behaviour in relation to health conditions that could endanger oneself right away, such as obesity or cardiovascular risk. Empirical studies on recycling habits, however, show that behaviour-change models are useful for protecting the environment. The environment and public health are at risk when medications are disposed of improperly (Fatta-Kassinos et al., 2011).

In conclusion, this conceptual paper has endeavoured to elucidate the intricate relationship between disposal behaviour of unused medicine and poor handling of unused medicine, health care facilities' and health professionals' behaviour on medication waste and

the effect on the environment with efficient disposal of unused medicines with environmental awareness as the moderator. Through an extensive review, this paper has underscored the paramount significance of these variables in shaping the behaviour intention.

REFERENCES

- (2020). A review on water pollution: causes, effects and treatment methods. *International Journal of Pharmaceutical Sciences Review and Research*.
<https://www.globalresearchonline.net> .
- (2023). *Malaysian Statistic on Medicine*. <https://pharmacy.moh.gov.my/en/documents/malaysian-statistics-medicines.html> on 15 March 2024.
- Adjovu, G. E., Stephen, H., James, D. E., & Ahmad, S. (2023). Measurement of total dissolved solids and total suspended solids in water systems: a review of the issues, conventional, and remote sensing techniques. *Remote Sensing*, 15(14), 3534.
<https://doi.org/10.3390/rs15143534> .
- Adzawla, W., Tahidu, A., Mustapha, S., & Azumah, S. B. (2019a). Do socioeconomic factors influence households' solid waste disposal systems? Evidence from Ghana. *Waste Management & Research*, 37(1_suppl), 51-57.
<https://doi.org/10.1177/0734242x18817717> .
- Alhamad, H., & Donyai, P. (2021). The validity of the Theory of Planned Behaviour for understanding people's beliefs and intentions toward reusing medicines. *Pharmacy*, 9(1), 58. <https://doi.org/10.3390/pharmacy9010058> .
- Alhomoud, F. K., Alsadiq, Y., Alghalawin, L., Alhifany, A., & Alhomoud, F. (2021). Pharmacy students' knowledge and practices concerning the storing and disposal of household medication in Saudi Arabia. *Currents in Pharmacy Teaching and Learning*, 13(1), 5–13. <https://doi.org/10.1016/j.cptl.2020.08.004>.
- Amoabeng, I. A., Otoo, B. A., Darko, G., & Borquaye, L. S. (2022a). Disposal of unused and expired medicines within the Sunyani Municipality of Ghana: A cross-sectional survey. *Journal of Environmental and Public Health*, 1–7. <https://doi.org/10.1155/2022/6113346> .
- Ariffin, M., & Zakili, T. S. T. (2019). Household pharmaceutical waste disposal in Selangor, Malaysia—Policy, public perception, and current practices. *Environmental Management*, 64(4), 509–519. <https://doi.org/10.1007/s00267-019-01199-y> .
- Aslam, A., Gajdács, M., Zin, C. S., Rahman, N. S. B. A., Ahmed, S. I., & Jamshed, S. Q. (2020). Public awareness and practices towards self-medication with antibiotics among the Malaysian population.: A development of questionnaire and pilot-testing. *Antibiotics*, 9(2), 97. <https://doi.org/10.3390/antibiotics9020097> .
- Azad AK, Muhammad K.R., Hossin M.M., Robiul I., Abdullahi M.M., Islam M.A.(2016). Medication wastage and its impact on environment: evidence from Malaysia. *Pharmacologyonline*.,3,14–21.
- Azzeri, A., Goh, H. C., Jaafar, H., Noor, M. I. M., Razi, N. A., Then, A. Y., Suhaimi, J., Kari, F., & Dahlui, M. (2020). A review of published literature regarding health issues of coastal communities in Sabah, Malaysia. *International Journal of Environmental Research and Public Health*, 17(5), 1533. <https://doi.org/10.3390/ijerph17051533> .
- Bashaar, M., Thawani, V., Hassali, M. A., & Saleem, F. (2017). Disposal practices of unused and expired pharmaceuticals among general public in Kabul. *BMC public health*, 17, 1-8.
- Bettington, E., Spinks, J., Kelly, F., Gallardo-Godoy, A., Nghiem, S., & Wheeler, A. J. (2018). When is a medicine unwanted, how is it disposed, and how might safe disposal be promoted? Insights from the Australian population. *Australian Health Review*, 42(6), 709-717.

- Busetto, L., Wick, W., & Gumbinger, C. (2020a). How to use and assess qualitative research methods. *Neurological Research and Practice*, 2(1). <https://doi.org/10.1186/s42466-020-00059-z>.
- Borhan, H., Ridzuan, A. R., Subramaniam, G., Amin, S. M., & Saad, R. M. (2021a). Modelling the environmental kuznets curve of water pollution impact on economic growth in developing country. *International Journal of Energy Economics and Policy*, 11(5), 545–552. <https://doi.org/10.32479/ijeep.11571>.
- Chong, K. M., Rajiah, K., Chong, D., & Maharajan, M. K. (2022). Management of medicines wastage returned medicines and safe disposal in Malaysian community pharmacies: a Qualitative study. *Frontiers in Medicine*, 9. <https://doi.org/10.3389/fmed.2022.884482>.
- (2022, December 8). *Collecting and disposing of unwanted medicines US EPA*. <https://www.epa.gov/hwgenerators/collecting-and-disposing-unwanted-medicines>
- De Oliveira Souza, H., Costa, R. D. S., Quadra, G. R., & Fernandez, M. A. (2019). How can we help to prevent medicines from polluting the environment? *Frontiers for Young Minds*, 7. <https://doi.org/10.3389/frym.2019.00081>
- . (2022, July 6). *Drug pollution is threatening the water quality of the world's rivers*. Natural History Museum. <https://www.nhm.ac.uk/discover/news/2022/july/drug-pollutionthreatening-water-qualityworldsrivers.html#:~:text=Drug%20pollution%2C%20also%20known%20as,primarily%20affects%20water%20and%20soil>.
- Ehrhart, A., Granek, E. F., Nielsen-Pincus, M., & Horn, D. A. (2020). Leftover drug disposal: Customer behavior, pharmacist recommendations, and obstacles to drug take-back box implementation. *Waste Management*, 118, 416–425. <https://doi.org/10.1016/j.wasman.2020.08.038>.
- Gidey, M. T., Birhanu, A. H., Tsadik, A. G., Welie, A. G., & Assefa, B. T. (2020). knowledge, attitude, and practice of unused and expired medication disposal among patients visiting ayder comprehensive specialized hospital. *BioMed Research International*, 1–7. <https://doi.org/10.1155/2020/9538127>.
- Hamilton, A. B., & Finley, E. P. (2019). Qualitative methods in implementation research: An introduction. *Psychiatry Research*, 280. <https://doi.org/10.1016/j.psychres.2019.112516>.
- Hamzah, N. M., Perera, P. N., & Rannan-Eliya, R. P. (2020). How well does Malaysia achieve value for money in public sector purchasing of medicines? Evidence from medicines procurement prices from 2010 to 2014. *BMC Health Services Research*, 20(1). <https://doi.org/10.1186/s12913-020-05362-8>.
- Hassali, M. A., & Shakeel, S. (2020). Unused and expired medications disposal practices among the general public in Selangor, Malaysia. *pharmacy*, 8(4), 196. <https://doi.org/10.3390/pharmacy8040196>.
- Helme, D. W., Egan, K. L., Lukacena, K. M., Roberson, L., Zelaya, C. M., McLeary, M. S., & Wolfson, M. (2020). Encouraging disposal of unused opioid analgesics in Appalachia. *Drugs: Education, Prevention Policy/Drugs: Education, Prevention & Policy*, 27(5), 407–415. <https://doi.org/10.1080/09687637.2020.1711871>.
- Hew, T. Y. A., Yap, C. K., Azhar, M. T., Defiffaldi, M., Chew, J. M., Sapawi, D. K. A., Rahman, M. N. A., Ismail, M. S., Wakid, S. A., Syazwan, W. M., Okamura, H., Horie, Y., Ong, M. C., Setyawan, A. D., Krishnan, K., & Cheng, W. H. (2023). Perception of water pollution among Malaysian university students: A case study. *Sustainable Social Development*, 1(2). <https://doi.org/10.54517/ssd.v1i2.2199>.
- Hojjati–Najafabadi, A., Mansoorianfar, M., Liang, T., Shahin, K., & Karimi-Maleh, H. (2022). A review on magnetic sensors for monitoring of hazardous pollutants in water resources. *Science of the Total Environment*, 824,. <https://doi.org/10.1016/j.scitotenv.2022.153844>.
- Global Monitoring of Pharmaceuticals Project. (n.d.). Global Monitoring Of. <https://www.globalpharms.org/>.

- IOSR Journal of Humanities and Social Science. (2017). *IOSR Journal of Humanities and Social Science*. <https://doi.org/10.9790/0837> .
- Janmaimool, P. (2017b). Application of Protection Motivation Theory to investigate sustainable waste management behaviors. *Sustainability*, 9(7), 1079. <https://doi.org/10.3390/su9071079> .
- Jie, W., Liu-Lastres, B., Ritchie, B. W., & Mills, D. (2019). Travellers' self-protections against health risks: An application of the full Protection Motivation Theory. *Annals of Tourism Research*, 78. <https://doi.org/10.1016/j.annals.2019.102743> .
- Jumani, Z. A., & Sukhabot, S. (2020). Identifying the important attitude of Islamic brands and its effect on buying behavioural intentions among Malaysian Muslims. *Journal of Islamic Marketing*, 12(2), 408–426. <https://doi.org/10.1108/jima-09-2019-0196>.
- Islahudin, F., & Hasan, S. Z. (2019). Medication adherence and satisfaction among patients in Malaysia. *Research Journal of Pharmacy and Technology*, 12(3), 1051. <https://doi.org/10.5958/0974-360x.2019.00173.2> .
- Khasawneh, O. F. S., & Palaniandy, P. (2021). Occurrence and removal of pharmaceuticals in wastewater treatment plants. *Process Safety and Environmental Protection*, 150, 532–556. <https://doi.org/10.1016/j.psep.2021.04.045> .
- Kim, S., Jeong, S., & Hwang, Y. W. (2012). Predictors of pro-environmental behaviors of American and Korean students. *Science Communication*, 35(2), 168–188. <https://doi.org/10.1177/1075547012441692> .
- Kim, J., Yang, K., Min, J., & White, B. (2021). Hope, fear, and consumer behavioral change amid COVID-19: Application of protection motivation theory. *International Journal of Consumer Studies*, 46(2), 558–574. <https://doi.org/10.1111/ijcs.12700> .
- Kılıç, Z. (2021). Water pollution: causes, negative effects and prevention methods. *İzûfbed İstanbul Sabahattin Zaim Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, 3(2), 129–132. <https://doi.org/10.47769/izufbed.862679> .
- Kristina, S. A. (2018). A survey on medicine disposal practice among households in Yogyakarta. *Asian Journal of Pharmaceutics (AJP)*, 12(3).
- Kothe, E., Ling, M., North, M., Klas, A., Mullan, B., & Novoradovskaya, E. (2019). Protection motivation theory and pro-environmental behaviour: A systematic mapping review. *Australian Journal of Psychology*, 71(4), 411–432. <https://doi.org/10.1111/ajpy.12271> .
- Kusturica, M. P., Sabo, A., Tomic, Z., Horvat, O., & Šolak, Z. (2012). Storage and disposal of unused medications: knowledge, behavior, and attitudes among Serbian people. *International Journal Of Clinical Pharmacy*, 34, 604–610.
- Lai, P. S. M., Tan, K. M., Lee, H. G., Wong, Y. Y., Wasi, N. a. A., & Sim, S. M. (2021). Effectiveness of an intervention to increase the knowledge, attitude, and practice regarding the return and disposal of unused medications. *Malaysian Family Physician: The Official Journal of the Academy of Family Physicians of Malaysia*, 16(1), 56–63. <https://doi.org/10.51866/oa1013> .
- Ling, M., Kothe, E., & Mullan, B. (2019a). Predicting intention to receive a seasonal influenza vaccination using Protection Motivation Theory. *Social Science & Medicine*, 233, 87–92. <https://doi.org/10.1016/j.socscimed.2019.06.002> .
- Liu, L., Yang, H., & Xu, X. (2022). Effects of water pollution on Human Health and Disease Heterogeneity: A review. *Frontiers in Environmental Science*, 10. <https://doi.org/10.3389/fenvs.2022.880246> .
- Loi, J. X., Chua, A. S. M., Rabuni, M. F., Tan, C. K., Lai, S. H., Takemura, Y., & Syutsubo, K. (2022). Water quality assessment and pollution threat to safe water supply for three river basins in Malaysia. *Science of the Total Environment*, 832, . <https://doi.org/10.1016/j.scitotenv.2022.155067> .
- Madhav, S., Ahamad, A., Singh, A. K., Kushawaha, J., Chauhan, J. S., Sharma, S., & Singh, P. (2019). *Water pollutants: sources and impact on the environment and human health*. In *Advanced functional materials and sensors* (pp. 43–62). https://doi.org/10.1007/978-981-15-0671-0_4 .

- Maeng, D. D., Snyder, R. C., Medico, C. J., Mold, W. M., & Maneval, J. E. (2016). Unused medications and disposal patterns at home: Findings from a Medicare patient survey and claims data. *Journal of the American Pharmacists Association*, 56(1), 41-46.
- Manocha, S., Suranagi, U. D., Sah, R. K., Chandane, R. D., Kulhare, S., Goyal, N., & Tanwar, K. (2020). Current disposal practices of unused and expired medicines among general public in Delhi and national capital region, India. *Current Drug Safety*, 15(1), 13–19. <https://doi.org/10.2174/1574886314666191008095344>
- Mehrad, A., & Tahriri Zangeneh, M. (2016). Comparison between Qualitative and Quantitative Research Approaches: Social Sciences. *International Journal for Research in Educational Studies*, 5(7).
- Michael, I., Ogbonna, B., Nduka, S. O., Anetoh, M. U., & Matthew, O. (2019a). Assessment of disposal practices of expired and unused medications among community pharmacies in Anambra State southeast Nigeria: a mixed study design. *Journal of Pharmaceutical Policy and Practice*, 12(1). <https://doi.org/10.1186/s40545-019-0174-1>.
- Milne, S., Sheeran, P., & Orbell, S. (2000). Prediction and intervention in health-related behavior: a meta-analytic review of Protection Motivation Theory. *Journal of Applied Social Psychology*, 30(1), 106–143. <https://doi.org/10.1111/j.15591816.2000.tb02308.x>.
- Moghadam, M. T., Raheli, H., Zarifian, S., & Yazdanpanah, M. (2020). The power of the health belief model (HBM) to predict water demand management: A case study of farmers' water conservation in Iran. *Journal of Environmental Management*, 263. <https://doi.org/10.1016/j.jenvman.2020.110388>.
- Nathanson, J. A. (2023, September 27). Water pollution : Definition, causes, effects, solutions, examples, & facts. *Encyclopedia Britannica*. <https://www.britannica.com/science/water-pollution>.
- Nur Afni, A., Rahmat, A., Sa'ed, Z., Sulastri, S., Haslina, H., & Sazarani, M. R. (2012). Poisoning in children: a 4-year review (2006–2009) on cases reported to the National Poison Centre of Malaysia. *J Med Toxicol*, 8, 192-237.
- Ong, S. C., Ooi, G. S., Shafie, A. A., & Hassali, M. A. (2019a). Knowledge, attitude and disposing practice of unused and expired medicines among the general public in Malaysia. *Journal of Pharmaceutical Health Services Research*, 11(2), 141–148. <https://doi.org/10.1111/jphs.12333>.
- Ortúzar, M., Esterhuizen-Londt, M., Olicón-Hernández, D. R., González-López, J., & Aranda, E. (2022a). Pharmaceutical pollution in aquatic environments: A concise review of environmental impacts and bioremediation systems. *Frontiers in Microbiology*, 13. <https://doi.org/10.3389/fmicb.2022.869332>.
- Othman, A., & Ariffin, M. (2019). Source water protection from pharmaceutical contaminants: Assessment of environmental quality act 1974 and its regulations. *Planning Malaysia Journal*, 17. <https://doi.org/10.21837/pm.v17i10.638>.
- Papa, A., Mital, M., Pisano, P., & Del Giudice, M. (2020). E-health and wellbeing monitoring using smart healthcare devices: An empirical investigation. *Technological Forecasting and Social Change*, 153. <https://doi.org/10.1016/j.techfore.2018.02.018>
- Pennente, K., Lyle, J., & Gardocki, B. (2015). *Global medicines use in 2020: Outlook and implications*. IMS Institute for Healthcare Informatics.
- Purwanto, A. (2021, July 16). Education research quantitative analysis for little respondents: Comparing of LisRel, Tetrad, GSCA, AMos, SmartPLS, WarpPLS, and SPSS. <https://deliverypdf.ssrn.com/delivery.php?ID=39708309407002509009310008111402902503301906304900203701008701610911112106408200310512300002202010812>

- 111806608810509803100112109804206904901111802006609500912411401906
906401312609010709211411602508702503111406610802300706406610609307
0000028090104084109&EXT=pdf&INDEX=TRUE .
- Pramestutie, H. R., Hariadini, A. L., Gusti, E. T., Kurnia, I. R., & Nur, I. S. (2021a). Managing unused, damaged, and expired medications: Knowledge and attitudes among people of Malang, Indonesia. *Journal of Applied Pharmaceutical Science*. <https://doi.org/10.7324/japs.2021.110912> .
- Quesada, H. B., Baptista, A. T. A., Cusioli, L. F., Seibert, D., & De Oliveira Bezerra, C. (2019a). Surface water pollution by pharmaceuticals and an alternative of removal by low-cost adsorbents: A review. *Chemosphere*, 222, 766–780. <https://doi.org/10.1016/j.chemosphere.2019.02.009> .
- Rahman, M. M., Tabash, M. I., Salamzadeh, A., Abduli, S., & Rahaman, M. S. (2022). Sampling techniques (probability) for quantitative social science researchers: A conceptual guidelines with examples. *SEEU Review*, 17(1), 42–51. <https://doi.org/10.2478/seeur-2022-0023>.
- Rogowska, J., & Zimmermann, A. (2022). Household pharmaceutical waste disposal as a global problem: A review. *International Journal of Environmental Research and Public Health/International Journal of Environmental Research and Public Health*, 19(23). <https://doi.org/10.3390/ijerph192315798>.
- Rogowska, J., Zimmermann, A., Muszyńska, A., Ratajczyk, W., & Wolska, L. (2019). Pharmaceutical household waste practices: Preliminary findings from a case study in Poland. *Environmental Management*, 64(1), 97–106. <https://doi.org/10.1007/s00267-019-01174-7> .
- Shafiei, A., & Maleksaeidi, H. (2020). Pro-environmental behavior of university students: Application of protection motivation theory. *Global Ecology and Conservation*, 22.. <https://doi.org/10.1016/j.gecco.2020.e00908> .
- Shamsudin, M. S., Azha, S. F., & Ismail, S. (2022a). A review of diclofenac occurrences, toxicology, and potential adsorption of clay-based materials with surfactant modifier. *Journal of Environmental Chemical Engineering*, 10(3), 107541. <https://doi.org/10.1016/j.jece.2022.107541> .
- Shamsudin, M. S., Azha, S. F., & Ismail, S. (2022b). A review of diclofenac occurrences, toxicology, and potential adsorption of clay-based materials with surfactant modifier. *Journal of Environmental Chemical Engineering*, 10(3), . <https://doi.org/10.1016/j.jece.2022.107541> .
- Shao, S., Hu, Y., Cheng, J., & Chen, Y. (2018). Research progress on distribution, migration, transformation of antibiotics and antibiotic resistance genes (ARGs) in aquatic environment. *Critical Reviews in Biotechnology*, 38(8), 1195–1208. <https://doi.org/10.1080/07388551.2018.1471038>.
- Sim, S. M., Lai, P. S. M., Tan, K. M., Lee, H. G., & Sulaiman, C. Z. (2018). Development and validation of the Return and Disposal of Unused Medications Questionnaire (REDIUM) in Malaysia. *Asia-Pacific Journal of Public Health*, 30(8), 737–749. <https://doi.org/10.1177/1010539518811161> .
- Speight, J. G. (2020). *Sources of water pollution*. In Elsevier eBooks (pp. 165–198). <https://doi.org/10.1016/b978-0-12-803810-9.00005-x> .
- Seehusen, D. A., & Edwards, J. (2006). Patient practices and beliefs concerning disposal of medications. *The Journal of the American Board of Family Medicine*, 19(6), 542–547. .
- Szymczycha, B., Borecka, M., Białk-Bielińska, A., Siedlewicz, G., & Pazdro, K. (2020a). Submarine groundwater discharge as a source of pharmaceutical and caffeine residues in coastal ecosystem: Bay of Puck, southern Baltic Sea case study. *Science of the Total Environment*, 713, 136522. <https://doi.org/10.1016/j.scitotenv.2020.136522> .

- Thakur, V. (2021a). Framework for PESTEL dimensions of sustainable healthcare waste management: Learnings from COVID-19 outbreak. *Journal of Cleaner Production*, 287, 125562. <https://doi.org/10.1016/j.jclepro.2020.125562> .
- Terzić-Šupić, Z., Bukumirić, D., Santric-Milicevic, M. M., Ćorac, A., Kusturica, M. P., Mirković, M., Bukumirić, Z., Todorović, J., Ristić, B., & Trajković, G. (2019). Knowledge and practices related to unused medications in households in Serbia. *Indian Journal of Pharmaceutical Education and Research*. <https://doi.org/10.5530/ijper.53.2.43> .
- Tit, D. M., Bungau, S., Nistor Cseppento, C., Copolovici, D. M., & Buhas, C. (2016). Disposal of unused medicines resulting from home treatment in Romania. *J. Environ. Prot. Ecol*, 17(4), 1425-1433.
- Vieno, N., Hallgren, P., Wallberg, P., Pyhälä, M., Zandaryaa, S., & Baltic Marine Environment Protection Commission. (2017). *Pharmaceuticals in the aquatic environment of the Baltic Sea region: a status report* , 1. UNESCO Publishing.
- (n.d.). *View of disposal practices of pharmaceutical waste among medical facilities in Nakuru Town, Nakuru County Kenya*. <http://journals.laikipia.ac.ke/index.php/ojs/article/view/10/14>
- Wang, L. S. (2021a). *Disposal practice and factors associated with unused medicines in Malaysia: A cross-sectional study*. Monash. https://www.academia.edu/72929675/Disposal_practice_and_factors_associated_with_unused_medicines_in_Malaysia_a_cross_sectional_study .
- Wang, L. S., Aziz, Z., & Chik, Z. (2021a). Disposal practice and factors associated with unused medicines in Malaysia: a cross-sectional study. *BMC Public Health*, 21(1). <https://doi.org/10.1186/s12889-021-11676-x> .
- Wu, F., Yuan, Y., Deng, Z., Yin, D., Shen, Q., Zeng, J., Xie, Y., Xu, M., Yang, M., Jiang, S., Zhang, C., Hui-Xi, L., & Sun, C. (2022). Acceptance of COVID-19 booster vaccination based on the protection motivation theory: A cross-sectional study in China. *Journal of Medical Virology*, 94(9), 4115–4124. <https://doi.org/10.1002/jmv.27825> .
- Yang, S. L., Tan, S. L., Goh, Q. L., & Liao, S. Y. (2018). Utilization of Ministry of Health Medication return programme, knowledge and disposal practice of unused medication in Malaysia. *Journal of Pharmacy Practice and Community Medicine*, 4(1), 07–11. <https://doi.org/10.5530/jppcm.2018.1.3> .
- Yimenu, D. K., Teni, F. S., & Ebrahim, A. J. (2020a). Prevalence and predictors of storage of unused medicines among households in Northwestern Ethiopia. *Journal of Environmental and Public Health*, 1–10. <https://doi.org/10.1155/2020/8703208>.
- Yut, F. P. (2019a). *Malaysian behaviour towards proper disposal of unused medications*. The European Proceedings of Social and Behavioural Sciences. <https://doi.org/10.15405/epsbs.2019.08.27> .
- Zhang, X., Liu, S., Wang, L., Zhang, Y., & Wang, J. (2019). Mobile health service adoption in China. *Online Information Review*, 44(1), 1–23. <https://doi.org/10.1108/oir-112016-0339>

DETERMINANTS OF UNIVERSITY ALUMNI'S INTENTION TO CONTRIBUTE TO EDUCATION WAQF

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ABSTRACT

Financial resources are crucial for universities to sustain the operational and managerial costs encompassing academic and administrative aspects. The financial stability of a university is reinforced by the role and support of its alumni, who are perceived as potential contributors. Universities are increasingly focusing on financial sustainability through education waqf. Therefore, this study aims to explore the relationship between attitudes, subjective norms, perceived behaviour control, knowledge, and financial ability on the intention of university alumni to contribute to education waqf. Additionally, the study seeks to investigate how university alumni acquire information about these education waqf. A total of 175 respondents from Johor Bahru participated in the study. The results indicate that most university alumni become aware of education waqf through former university lecturers or administrators. Furthermore, the findings reveal that attitudes, subjective norms, knowledge, and financial ability influence university alumni's intention to contribute to education waqf. The findings of this study are valuable for universities in their efforts to increase the number of donors for education waqf and to ensure the sustainability of funds for the future.

Keywords: Education waqf, waqf, education, financing, intention

1.0 INTRODUCTION

Education is fundamental to society's growth, providing information and awareness that empower future generations. Financial restraints frequently hinder educational progress, serving as significant obstacles for many individuals (Al-Ghaswyneh, 2020). The concept of waqf, an ancient Islamic philanthropic tradition, gains relevance by directing resources toward educational sustenance in response to prior studies by Abdullah (2018) and Fikri & Andrean (2023). Understanding the motivations of university alumni to contribute to waqf for educational purposes is a crucial topic in current discussions, shedding light on methods to create a fairer and more empowered educational environment (Wan Musa, et al., 2021; Mo & Zhu, 2022). Universities, as centres for spreading knowledge and fostering intellectual growth, have a distinct role in society. They cultivate a feeling of belonging and dedication among graduates, creating a connection beyond time and distance outside academic endeavours (Wood, 2022). Education waqf contributions thrive at the intersection of academia and alumni participation. The waqf's altruistic beliefs align well with the values taught in education and

provide graduates with the means to continue their effect after graduation (Kasri & Chaerunnisa, 2022).

Understanding alumni intentions toward education waqf contributions requires exploring various aspects of waqf. Historically, waqf has been crucial in influencing educational environments by providing institutions with resources to spread knowledge effectively (Sani et al., 2022). In today's context, the revival of waqf emerges as a powerful force, showing its readiness to tackle the growing difficulties in educational accessibility and cost. Alumni aspirations to contribute to education waqf are influenced by personal views, socio-economic situations, and institutional affiliations (Francioni et al., 2021). Contributing to waqf combines personal generosity with communal obligation, embodying the spirit of giving back to society. University alumni who have experienced higher education feel a deep appreciation and responsibility to enhance the educational opportunities for future generations by giving to education waqf (Haidlir et al., 2021).

The education waqf has a significant impact beyond financial matters, influencing societal transformation and creating a long-lasting legacy. Alumni consistently contribute financial resources to academic institutions, thereby facilitating achieving academic objectives that transcend socioeconomic constraints (Aldeen, 2021). By participating in these endeavours, individuals are exerting an impact on a forthcoming era wherein education symbolizes optimism and agency for every person. The revolutionary potential of waqf is hindered by regulatory compliance challenges, limited management effectiveness, and a lack of complete understanding (Abas & Raji, 2018). To address these problems, examining the factors influencing university alumni's intention to contribute to education waqf is crucial.

2.0 LITERATURE REVIEW

2.1 Theory Planned Behavior

The Theory of Planned Behavior (TPB) is employed to analyze university alumni to contribute to education waqf. The theory, an expansion of Fishbein and Ajzen's Theory of Reasoned Action (1980), consists of three main elements: attitude, subjective norm, and perceived behaviour control. Attitude is an individual's assessment of the favourable or unfavourable consequences linked to behaviour (Nugroho et al., 2022). Positive attitudes increase the probability of adopting a behaviour (Van Deventer et al., 2017). Subjective norms represent the social pressures an individual perceives from influential sources, such as parents or friends to participate in a behaviour (Ajzen, 1991).

Perceived behaviour control is the ultimate factor in the Theory of Planned Behavior (TPB), indicating the level of control that an individual believes they have overperformed in a behaviour (Ajzen, 2001). This control includes both the extent of control and the certainty in carrying out the behaviour (Ajzen, 2002). According to Kim & Chung (2011), this viewpoint is influenced by various circumstances such as time, money, and talent.

According to TPB, the intention has a vital role in forecasting behaviour. It refers to a person's probability of participating in a specific behaviour (Ajzen & Fishbein, 1975). Armitage & Conner, 2000) define intention as the drive to carry out a particular behaviour. According to the Theory of Planned Behavior (Ajzen & Fishbein, 1975), this intention directly influences behaviour. The concept is shaped by attitude, subjective norms, and perceived behaviour control (Randall & Gibson, 1991).

In summary, The TPB clarifies the aspects that impact persons' intents and behaviours. Attitude, subjective norm, and perceived behaviour control influence behavioural intentions, impacting actual behaviour. This theoretical framework provides useful insights for

comprehending and forecasting behaviours, especially exploring the university alumni to contribute to education waqf.

2.2 An overview of education waqf

Waqf has been a fundamental practice in the development of Islamic civilization since the early days of Islam. Education waqf became significant throughout the Abbasid and Ottoman eras, leading to the establishment of mosques, madrasas, libraries, and schools through waqf (Iskandar, 2022; Kasri & Chaerunnisa, 2022). The main goal of education waqf is to enhance information accessibility and foster intellectual growth in communities (Saputra, 2021). Waqf provides educational resources including schools, scholarships, and research facilities to allow individuals, particularly those from disadvantaged families, access high-quality education regardless of their socio-economic situation. Education waqf aligns with the Islamic concept of Sadaqah Jariyah, as the educational advantages persist and accumulate over time (Abdullah, 2020).

Education waqf has a significant impact that reaches beyond benefiting individuals as it can include larger societal transformation (Kharomah et al., 2023). Waqf enhances human capital development, economic empowerment, and social cohesion through investments in education. Furthermore, education waqf promotes a culture of philanthropy and community involvement, where donors and recipients work together to respect the principles of sharing knowledge and providing mutual assistance (Slamet & Avedta, 2022). Effective education waqf efforts rely on sustainable management and governance, necessitating transparent administration, strategic planning, and adaptable leadership for long-term success (Zulkifli et al., 2022).

Education waqf signifies the long-term effect of Islamic charitable giving and the significant influence of education. Empowering communities with information can help them overcome the cycle of poverty, ignorance, and inequality, leading to a more inclusive and prosperous future. Education waqf provides a timeless answer based on compassion, solidarity, and knowledge in the challenges of the 21st century. By working together and showing strong dedication, we can utilize the power of education waqf to create a world where learning is limitless, and opportunities are accessible to everyone.

2.3 Past studies on intention to contribute to education waqf

Various research has investigated the several elements that impact individuals' intentions to give to education waqf (Yusoff et al., 2023 ; Md Nor et al., 2023). Ahmad and Abdullah (2018) and Wan Ismail & Abdul Rasool (2021) discovered that factors such as religious beliefs and trust had a beneficial impact on the intention to contribute to education waqf. The feeling of satisfaction gained from helping improve society was a major psychological motivator for people's willingness to donate through waqf (Nguyen et al., 2017). Furthermore, individuals' donation intentions are influenced by their attitudes towards waqf management and perceptions of transparency and trustworthiness in waqf institutions (Kasri & Chaerunnisa, 2022; Ismail & Maryanti, 2022; Z. A. Ahmad & Rusdianto, 2020).

Socio-cultural variables significantly influence individuals' willingness to contribute to education waqf (Abd Aziz & Noh, 2019). The giving behaviour in Islamic societies is substantially influenced by cultural norms, religious teachings, and communal values (Brown & Osman, 2017). A study by Filo et al. (2020) showed that social influence, including family and peer pressure, had a favourable impact on individuals' willingness to donate to waqf for educational reasons. Religiosity and adherence to Islamic values are significant indicators of donation intentions, highlighting the close relationship between religious convictions and charitable actions (Tuan Ibrahim et al., 2020).

Furthermore, economic factors also influence individuals' willingness to give to education waqf. Donation behaviour is significantly influenced by financial stability, income level, and perceptions of affordability (Wan Musa et al., 2021). Research indicates that people with higher incomes and improved financial situations are more inclined to contribute to educational causes through waqf (Saad et al., 2019). The perceived competence of waqf organisations in managing funds and impacting education outcomes can influence people's willingness to donate (Kassim et al., 2019).

The decision to contribute to education waqf is a complex phenomenon shaped by psychological, socio-cultural, and economic considerations. Altruistic reasons, sense of fulfilment, and trust in waqf organisations are important factors that influence donation intentions (Chen et al., 2021; Yang & Sun, 2022). Religious teachings, community ideals, and social influence are important socio-cultural factors that greatly influence persons' likelihood to donate. Economic factors including financial stability, income level, and perceived affordability also impact donating behaviour (Lee & Kim, 2023).

2.4 Financial Stability and Education Waqf Contributions

An alumni's ability to contribute to education waqf is significantly influenced by their financial stability. Alumni who have attained financial success are more inclined to feel obligated to contribute to their educational institutions. Research suggests a positive correlation between the economic success of alumni and their propensity to donate, as they frequently support initiatives consistent with their values and experiences during their education. (Dean & Graeme, 2021). Additionally, the financial capacity of alumni can improve their perception of the efficacy of waqf funds, as they are more inclined to believe that their contributions will be effectively allocated to educational initiatives. (Furstenberger et al., 2017).

Moreover, the concept of financial fairness also impacts donation intentions. Alumni who perceive their contributions will be used fairly and effectively will likely contribute to education waqf. This perception is especially pertinent in the context of waqf, where transparency and accountability in fund management are essential. (Li & Feng, 2021). Alumni are more likely to contribute to the future if they believe their financial contributions are effectively managed and have a tangible impact. This is corroborated by research that indicates a robust correlation between donors' perceptions of impartiality and their intention to donate.

Considering the emotive and psychological factors associated with alumni's intention to contribute to education is imperative. Alumni with a strong connection to their institution are more inclined to make financial contributions. This identification cultivates a sense of responsibility and belonging to the institution, which may result in financial support for waqf education initiatives. (Stephenson & Yerger, 2014). The desire to contribute is frequently bolstered by the affective connection to the institution, mainly when alumni believe their contributions will assist future students in obtaining comparable educational opportunities. (Meer & Rosen, 2012).

2.5 Knowledge and education waqf contributions

The intention of individuals to contribute to waqf initiatives is positively influenced by their level of comprehension regarding educational waqf (Abd Aziz & Noh, 2019). This statement is supported by Laila et al. (2023), who emphasize that attitudes, influenced by knowledge, play a significant role in determining the intention to participate in waqf activities. Additionally, Mokhtar's research underscores the importance of promoting contributions by raising awareness of waqf and its advantages, such as religious obligations and community ties. (Ahmad & Rusdianto, 2020).

Additionally, knowledge increases awareness and fosters trust in waqf institutions. Kasri and Chaerunnisa (2022) found that trust, which is frequently founded on knowledge of the operational transparency and accountability of waqf organizations, significantly impacts the intentions of potential donors. This is consistent with the findings of Ahmad and Rusdianto (2020), who argue that transparency and accountability are crucial for developing trust and increasing the intention to donate. Therefore, knowledge is a conduit that links alums' comprehension of waqf mechanisms with their confidence in these institutions, influencing their willingness to contribute.

Furthermore, it is imperative to consider the generational perspective. Examine how the behaviours and attitudes of various generational cohorts, particularly Millennials and Gen Z, towards waqf contributions are influenced by their knowledge and familiarity with waqf practices. (Jatmiko et al., 2024). This implies that educational institutions should customize their outreach and educational initiatives to improve alumni knowledge, particularly emphasizing younger generations who may be more receptive to innovative waqf models.

3.0 METHODOLOGY

This study is descriptive research that employs the survey approach by distributing questionnaires. Questionnaires were personally administered to guarantee a high response rate. 175 respondents, who are university alumni in Johor Bahru, participated in this survey using a Stratified random sample. In addition to descriptive statistics, Pearson Correlation was used to determine the link between the variables. The reliability and validity of the questionnaire were assessed using Cronbach's Alpha. The overall alpha value obtained was 0.880, which is considered satisfactory.

4.0 RESULT AND DISCUSSION

4.1 Profile of Respondents

Table 1. Profile of respondents

Demographic		Frequency	Percentage (%)
Gender	Male	39	22.3
	Female	136	77.7
Age	21-30 years old	143	81.7
	31 -40 years old	24	13.7
	41-50 years old	7	4.0
	50 and above	1	0.6
Occupation sector	Private Sector Employee	123	70.3
	Government Sector Employee	34	19.4
	Self-employed	10	5.7
	Unemployed	8	4.6
Household income range	Below RM1000	7	4.0
	RM1001-RM2000	39	22.3
	RM2001-RM3000	57	32.6
	RM3001-RM4000	34	19.4

Alumni level of study	RM5000 and above	38	21.7
	Diploma	5	2.9
	Bachelor's degree	161	92
	Master	9	5.1

The data presented in Table 1 provide information about the demographic of the university alumni participating in this study. The sample is predominantly female, making up 77.7% of the total, with males accounting for only 22.3%. The data shows that most respondents are between 21 and 30 years old, accounting for 81.7% of the total. Representation decreases as age increases, with a small fraction being 50 or older, suggesting a mostly young demographic.

The data shows that 70.3% of the respondents work in the private sector, while 19.4% work in the government sector. Self-employed individuals account for 5.7%, while the unemployed comprise 4.6%. The distribution indicates that most of the population is employed, with a considerable number working in the private sector. The data shows that 70.3% of the respondents work in the private sector, while 19.4% work in the government sector. Self-employed individuals account for 5.7%, while the unemployed comprise 4.6%. The distribution indicates that most of the population is employed, with a considerable number working in the private sector.

The data indicates a diverse distribution of household income, with the largest proportion falling between the RM2001-RM3000 range at 32.6%. Significant representation in the RM1001-RM2000 and RM3001-RM4000 ranges suggests a varied income distribution within the sample group. A lesser fraction earns less than RM1000, while a significant proportion earns RM5000 and beyond, indicating diverse socioeconomic backgrounds within the group.

4.2 Sources information on education waqf

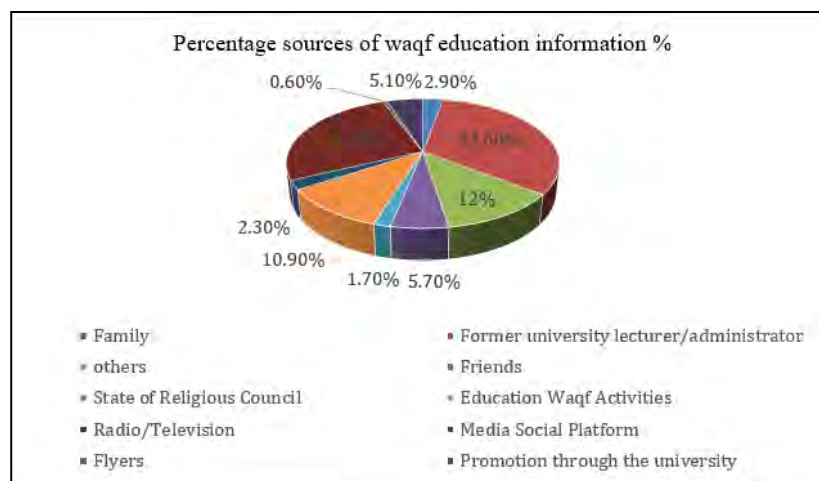


Fig. 1 Sources of waqf education information

Figure 1 illustrates how university alumni acquire knowledge about education waqf. Former university lecturers/administrators make up 32.6% of the total sources. These persons are important in disseminating educational knowledge and may use their influence and

trustworthiness in the academic world. Their significant presence highlights the need to use established networks in educational institutions to support and promote waqf initiatives.

Social media platforms represent 26.3% of the total. This underscores the growing impact of digital platforms on the distribution of knowledge, especially among younger age groups. Social media's widespread use highlights the importance of deliberate online involvement in reaching a broader audience and raising awareness about education waqf programs. Social media can efficiently enhance communication and interaction with alumni and other stakeholders.

Family and friends comprise 2.9% and 5.7%, respectively. Although these sources may appear less impactful than previous university instructors or social media, their significance rests in their ability to facilitate personal and direct communication. Family and friends can be reliable sources, helping spread information locally and encouraging community involvement in education waqf initiatives.

Education waqf activities solely represent 10.9% of the total sources. Direct participation in waqf projects is indicated to contribute to the dissemination of awareness and information. Participating in waqf activities supports the cause and offers firsthand experiences that can be shared with others, enhancing the reach and impact of education waqf initiatives. An integrated strategy utilizing different channels such as university connections, social media, personal networks, and active participation in waqf activities is crucial for effectively spreading information and encouraging involvement among university alumni and the wider community.

4.3 Correlation Analysis

Variables	1	2	3	4	5
1. Attitude	-				
2. Subjective norm	0.528**	-			
3. Perceived behavior control	0.720**	0.478**	-		
4. Financial ability	0.518**	0.454**	0.485**	-	
5. Knowledge	0.671**	0.479**	0.628**	0.401**	-
6. Intention	0.669**	0.513**	0.692**	0.504**	0.611**

The outputs of six variables were statistically significant, as indicated in Table 2. The correlation between all variables varied from $r = 0.401$ ($p < 0.05$) to $r = 0.720$ ($p < 0.05$). The correlation between knowledge and financial ability ($r = 0.401$, $p < 0.05$) is moderately positive and statistically significant.

It was determined that there was a significant correlation between Attitude and Perceived Behavior Control ($r = 0.720$, $p < 0.05$), Subjective Norm and Attitude ($r = 0.528$, $p < 0.05$), Intention and Attitude ($r = 0.669$, $p < 0.01$), Intention and Subjective Norm ($r = 0.669$, $p < 0.05$), Intention and financial ability ($r = 0.504$, $p < 0.05$), and Intention and Knowledge ($r = 0.611$, $p < 0.05$). Therefore, it can be deduced that each variable is self-contained and exhibits a positive correlation.

Positive relationships were observed among all the variables that correlated statistically significantly. There are the following correlations: knowledge and attitude ($r = 0.671$, $p < 0.05$); knowledge and perceived behaviour control ($r = 0.628$, $p < 0.05$); knowledge and financial ability ($r = 0.401$, $p < 0.05$); and knowledge and subjective norm ($r = 0.479$, $p < 0.05$). The correlation between perceived behaviour and subjective norm is 0.478 , $p < 0.05$.

Although the correlations among most variables were significant, their strength was below 0.90, indicating no substantial multicollinearity issues among the variables (Hair et al., 1998). A correlation study was performed to investigate the association between Attitude, Subjective Norm, Perceived Behavior Control, financial ability, and Knowledge with alumni universities to contribute to education waqf. These results indicate that all variables exhibit positive and substantial connections.

4.4 Regression Analysis on Coefficient of Determination (R²)

The result of multiple regression analysis among independent variables and dependent variables can be illustrated in Table. R² is the coefficient of determination and represents the extent of changes in the dependent variable that can be explained by the independent variables. It determines how well all the regression line fits the data. It is a number ranging from 0 to 1 ($1 > R^2 > 0$) and represents the proportion of the total variation in the dependent variables explained by the regression equation.

Table 3. Analysis of Coefficient of Determination (R ²)	
Model	1
R	0.764
R Square	0.583
Adjusted R Square	0.571
Std. The error of the estimate	0.35954
a. Predictors: (Constant), knowledge, financial ability, Subjective Norm, Attitude, Perceived Behavior	
b. Dependent Variable: Intention to participate	

Table 3 indicates that the coefficient of determination (R-squared) for the regression model with five independent variables (Attitude, Subjective Norm, Perceived Behavior Control, financial ability, and Knowledge) is 0.764. The calculated inter-correlation coefficient R square (R²) is 0.583, indicating that about 57.1% of the variance in the dependent variable can be explained by the five independent variables. The regression analysis does not account for the remaining 42.9% as indicated by the rule of thumbs. Other variables, such as promotion from higher education institutions, may also influence the intention to contribute to education waqf.

4.5 Multiple Regression Analysis of Coefficient

Regression analysis assesses the coefficients between independent and dependent variables, as shown in Table 4. The result from the table shows that the Beta of perceived behaviour control is (0.334), followed by Attitude (0.191), knowledge (0.168), financial ability (0.124) and subjective norm (0.116). Based on the result, Perceived behaviour control has the highest impact on university alumni's intention to contribute to education waqf with a Beta value equal to 0.334.

Four variables significantly influence university alumni's intention to contribute to education waqf: knowledge ($p=0.019$), attitude ($p=0.021$), perceived behaviour control ($p=0.000$), and financial ability ($p=0.043$). Subjective Norm is not a significant predictor of intention to contribute to education waqf ($p = 0.061$).

Table 4: Regression Analysis of Coefficient

Coefficients				
Model	Unstandardized Coefficients		Standardized Coefficients	t
	B	Std. Error	Beta	
(Constant)	0.756	0.228		3.313
Attitude	0.177	0.076	0.191	2.331
Subjective Norm	0.099	0.052	0.116	1.887
Knowledge	0.160	0.067	0.168	2.372
Perceived behavior control	0.326	0.074	0.334	4.397
Financial ability	0.111	0.055	0.124	2.038

a. Dependent Variable: intention

Regression analysis explored the relationship among Attitude, Subjective Norm, Perceived Behavior Control, financial ability, and Knowledge that influence university alumni's intention to contribute to education waqf. The regression study indicates that Perceived behaviour control had the most significant influence on university alumni's intention to contribute to education waqf, with a t-value of 4.397 and the highest Beta value of 0.334 among all variables.

5.0 RESULT AND DISCUSSION

The results indicate that a comprehensive strategy is necessary to spread awareness of education waqf among university alumni and the wider community. Former university lecturers/administrators are important owing to their credibility and influence, while social media outlets are crucial for reaching younger audiences. Furthermore, including family and friends, even in lower proportions, highlights the significance of personal connections in nurturing local assistance. Actively engaging in waqf activities increases awareness and expands outreach. An all-encompassing approach utilizing academic affiliations, social media, personal relationships, and active engagement is essential for successfully marketing education waqf projects and fostering community engagement.

The correlation analysis reveals significant positive relationships among variables regarding alumni's willingness to contribute to education waqf. Notably, knowledge correlates moderately with financial competence. Key variables like attitude, subjective norm, and intention show positive connections, indicating their influence. Additionally, positive relationships exist between knowledge and attitude, perceived behaviour control, and financial ability. Multicollinearity issues are absent, affirming the findings' robustness. Overall, these results emphasize the interconnectedness of attitude, subjective norm, perceived behaviour control, financial ability, and knowledge in motivating alumni to engage to contribute to education waqf.

The multiple regression analysis reveals significant insights into the elements that impact university alumni's intention to contribute to education waqf. Perceived behaviour control is the most influential factor among the variables tested, with a Beta value of 0.334 and a significant t-value of 4.397. This highlights the importance of individuals' perceived control over their actions in influencing their intentions to make education waqf contributions. Furthermore, attitude and knowledge play significant roles, highlighting the relevance of positive attitudes and understanding in influencing such aspirations. Subjective norms and financial abilities have lesser connections in this situation. The results offer helpful information for individuals interested in encouraging education waqf among university alumni, indicating a

need to improve perceived behaviour control and cultivate favourable attitudes and awareness about this charitable initiative.

6.0 SUGGESTION FOR FUTURE RESEARCH

This study proposes many potential directions for future research to expand upon these findings and address the challenges surrounding university alumni's intentions about education waqf contributions. Future research should investigate the impact of demographic variables such as age, gender, income, and field of study on alumni education waqf contributions. Comprehend these variations in population characteristics to modify strategies for addressing alumni groups. Younger alumni may be more inclined towards using social media marketing, but older alumni may prefer traditional forms of communication and engagement. Research might also investigate the perspectives of graduates from various academic disciplines on education waqf, thereby providing insights for outreach and engagement initiatives.

Furthermore, a longitudinal approach would enable continuous monitoring of alumni attitudes and behaviors. This would expose enduring patterns and the viability of the engagement approach over time. To sustain and enhance engagement, institutions may monitor the aspirations of their former students. This approach might also assess the effectiveness of education waqf awareness campaigns and other initiatives. Subsequent research should investigate the impact of communication channels and marketing strategies on alumni engagement and contributions. Examine the differences between digital and traditional media and explore the importance of personalized advertising and storytelling in connecting individuals and the waqf cause. Gaining a comprehensive understanding of effective communication strategies may assist organizations in efficiently allocating resources and developing highly effective campaigns.

Qualitative research methods, such as in-depth interviews and focus groups, may uncover alumni's underlying reasons and difficulties when making donations. This will enhance quantitative data and provide a more comprehensive perspective on the motivations of alumni for education waqf contributions. These techniques may provide intricate viewpoints and personal anecdotes that reveal alumni support's emotional and psychological foundations. Furthermore, researching the impact of peer influence and social networks on alumni intentions might provide valuable insights. Universities may enhance their contributions by comprehending the influence of peers, family, and friends on alumni. Promoting the participation of graduates in education waqf networks or groups might enhance engagement via the demonstration of social proof and collective action.

CO-AUTHOR CONTRIBUTION

The authors confirm that there are no conflicts of interest in this article. All authors contributed to their respective roles in preparing this research paper, encompassing the writing of the literature review, methodology, data collection, data analysis, and the overall writing of the paper.

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REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- Abas, F. N., & Raji, F. (2018). Factors contributing to inefficient management and maintenance of waqf properties: A literature review. *UMRAN - International Journal of Islamic and Civilizational Studies*. <https://doi.org/10.11113/umran2018.5n3.233>.
- Abd Aziz, N. A., & Noh, M. K. A. (2019). Factors Influencing willingness to contribute for Waqf Education. *International Journal of Modern Education*. <https://doi.org/10.35631/ijmoe.12004>.
- Abdullah, M. (2018). Waqf, Sustainable Development Goals (SDGs) and maqasid al-shariah. *International Journal of Social Economics*. <https://doi.org/10.1108/IJSE-10-2016-0295>.
- Abdullah, M. (2020). Reflection of Maqāṣid al-Sharī'ah in the classical Fiqh al - Awqāf . *Islamic Economic Studies*. <https://doi.org/10.1108/ies-06-2019-0011>.
- Ahmad, M. A., & Abdullah, A. J. (2018). Waqf commitment for higher education: does religious value matter? *ASEAN Entrepreneurship Journal (AEJ)*.
- Ahmad, Z. A., & Rusdianto, R. (2020). Impact of transparency and accountability on trust and intention to donate cash Waqf in islamic microfinance institutions. *Shirkah: Journal of Economics and Business*. <https://doi.org/10.22515/shirkah.v5i2.317>.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*. <https://doi.org/10.1146/annurev.psych.52.1.27>.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*. <https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>.
- AL-Ghaswyneh, O. F. M. (2020). Marketing universities' services role in providing financial resources. *Journal of Financial Services Marketing*. <https://doi.org/10.1057/s41264-020-00075-9>.
- Aldeen, K. N. (2021). 40-Year bibliometric analysis of Waqf: Its current status and development, and paths for future research. *Journal of Islamic Monetary Economics and Finance*. <https://doi.org/10.21098/jimf.v7i1.1308>.
- Armitage, C. J., & Conner, M. (2000). Social cognition models and health behavior: A structured review. In *Psychology and Health*. <https://doi.org/10.1080/08870440008400299>.
- Brown, L., & Osman, H. (2017). The female tourist experience in Egypt as an Islamic destination. *Annals of Tourism Research*. <https://doi.org/10.1016/j.annals.2016.12.005>.
- Chen, Y., Dai, R., Wang, L., Yang, S., Li, Y., & Wei, J. (2021). Exploring donor's intention in charitable crowdfunding: intrinsic and extrinsic motivations. *Industrial Management and Data Systems*. <https://doi.org/10.1108/IMDS-11-2020-0631>.
- Dean, A., & Graeme McLean, J. (2021). Adopting measures to increase alumni donations at prestigious universities. *International Journal of Business and Management*. <https://doi.org/10.5539/ijbm.v16n12p27>.
- Fikri, M. K., & Andrean, R. (2023). Development of sustainable Tamanu industry in Indonesia based on the green waqf model through sharia crowdfunding platforms. *Review of Islamic Social Finance and Entrepreneurship*. <https://doi.org/10.20885/risfe.vol2.iss1.art6>.
- Filo, K., Fechner, D., & Inoue, Y. (2020). The donors supporting charity sport event participants: An exploration of the factors driving donations. *Journal of Sport Management*. <https://doi.org/10.1123/JSM.2019-0253>.
- Francioni, B., Curina, I., Dennis, C., Papagiannidis, S., Alamanos, E., Bourlakis, M., & Hegner, S. M. (2021). Does trust play a role when it comes to donations? A comparison of Italian and US higher education institutions. *Higher Education*. <https://doi.org/10.1007/s10734-020-00623-1>.

- Furstenberger, P. G., Hidayat, S. E., & HWA, A. G. P. (2017). The role of Waqf in financing education: A case study of the Waqf fund of Central Bank of Bahrain. *Journal of Islamic Financial Studies*. <https://doi.org/10.12785/jifs/030203>.
- Haidlir, B. M., Laksmono, B. S., Kasri, R. A., Azizon, A., & Hartono, D. (2021). Public behavior on cash Waqf: Evidence from Indonesia. *JEJAK*. <https://doi.org/10.15294/jejak.v14i2.32032>.
- Iskandar. (2022). Waqf institution and management cash waqf during the Ottoman period. *International Journal of Islamic Business and Economics (IJIBEC)*. <https://doi.org/10.28918/ijibec.v6i1.4851>.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis*. Prentice Hall.
- Ismail, N., & Maryanti, T. (2022). Determinants of intention to donate on share Waqf: The case of muslim workers In Jakarta. *Jurnal Ekonomi Dan Bisnis Islam (Journal of Islamic Economics and Business)*. <https://doi.org/10.20473/jebis.v8i1.28654>.
- Jatmiko, W., Haidlir, B. M., Azizon, A., Laksmono, B. S., & Kasri, R. (2024). Intergenerational analysis of cash waqf behavior: lessons learned from Indonesia. *Journal of Islamic Accounting and Business Research*. <https://doi.org/10.1108/JIABR-03-2022-0086>.
- Kasri, R. A., & Chaerunnisa, S. R. (2022). The role of knowledge, trust, and religiosity in explaining the online cash waqf amongst Muslim millennials. *Journal of Islamic Marketing*. <https://doi.org/10.1108/JIMA-04-2020-0101>.
- Kassim, M., Embi, N. A. C., Haron, R., & Ibrahim, K. (2019). Internal factors affecting continuous donations among cash Waqf donors. *International Journal of Academic Research in Business and Social Sciences*. <https://doi.org/10.6007/ijarbss/v9-i9/6464>.
- Kharomah, L. N., Zein, A., & Syam, S. (2023). Implementation of Waqf management in the development of islamic education. *Munaddhomah: Jurnal Manajemen Pendidikan Islam*. <https://doi.org/10.31538/munaddhomah.v3i3.281>.
- Kim, H. Y., & Chung, J. E. (2011). Consumer purchase intention for organic personal care products. *Journal of Consumer Marketing*. <https://doi.org/10.1108/07363761111101930>.
- Lee, J. Y., & Kim, S. S. (2023). The effect of multidimensions of trust and donors' motivation on donation attitudes and intention toward charitable organizations. *Nonprofit Management and Leadership*. <https://doi.org/10.1002/nml.21567>.
- Laila, N., Ratnasari, R. T., Ismail, S., Mohd Hidzir, P. A., & Mahphoth, M. H. (2023). The intention of small and medium enterprises' owners to participate in waqf: the case of Malaysia and Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management*. <https://doi.org/10.1108/IMEFM-01-2022-0014>.
- Li, X., & Feng, L. (2021). Impact of donors' financial fairness perception on donation intention in nonprofit organizations after covid-19 outbreak. *PLoS ONE*. <https://doi.org/10.1371/journal.pone.0251991>.
- Md Nor, M. N., Ishak, N. S., & Khairudin, N. (2023). Predicting the intention for waqf education among polytechnic staff in Malaysia. *AZKA International of Zakat & Social Finance*, 4(3), 87–103.
- Meer, J., & Rosen, H. S. (2012). Does generosity beget generosity? Alumni giving and undergraduate financial aid. *Economics of Education Review*. <https://doi.org/10.1016/j.econedurev.2012.06.009>.
- Mo, L. and Zhu, Y. (2022). How is alumni giving affected by satisfactory campus experience? analysis of an industry-research-oriented university in China. *Sustainability (Switzerland)*. <https://doi.org/10.3390/su14137570>.
- Nguyen, T. N., Nguyen, H. V., Lobo, A., & Dao, T. S. (2017). Encouraging Vietnamese household recycling behavior: Insights and implications. *Sustainability (Switzerland)*. <https://doi.org/10.3390/su9020179>.
- Nugroho, A. S., Nursalim, M., & Sujarwanto. (2022). Spiritual Intelligence Is Directly proportional to the improvement of social attitudes of elementary school students. *Jurnal Pendidikan Dasar Nusantara*. <https://doi.org/10.29407/jpdn.v8i1.17990>.

- Randall, D. M., & Gibson, A. M. (1991). Ethical decision making in the medical profession: An application of the theory of planned behavior. *Journal of Business Ethics*. <https://doi.org/10.1007/BF00383614>.
- Saad, A. Y. Q., Mohammed, M. O., & Al-Jubari, I. (2019). An overview of Waqf assets in yemen: Importance and challenges. *Humanities and Social Sciences Reviews*. <https://doi.org/10.18510/hssr.2019.75142>
- Sani, A. A., Saidin, A., Abd Samad, K., Bustam.am, K. S., Adanan, S. A., & Mamat, S. N. (2022). Modelling Waqf performance and governance for public universities in Malaysia. *International Journal of Academic Research in Business and Social Sciences*. <https://doi.org/10.6007/ijarbss/v12-i10/14951>.
- Saputra, E. (2021). Waqf based education independence in making islamic education institutions quality. *Ilomata International Journal of Social Science*. <https://doi.org/10.52728/ijss.v2i2.215>.
- Slamet Rusydiana, A., & Avedta, S. (2022). Development of islamic bank-based cash Waqf management in Indonesia. *Islamic Social Finance*. <https://doi.org/10.58968/isf.v2i2.135>
- Stephenson, A. L., & Yerger, D. B. (2014). Optimizing engagement: Brand identification and alumni donation behaviors. *International Journal of Educational Management*. <https://doi.org/10.1108/IJEM-04-2013-0057>.
- Tuan Ibrahim, T. A. F., Hashim, H. A., & Mohamad Ariff, A. (2020). Ethical values and bank performance: evidence from financial institutions in Malaysia. *Journal of Islamic Accounting and Business Research*. <https://doi.org/10.1108/JIABR-11-2016-0139>.
- Van Deventer, M., De Klerk, N., & Bevan-Dye, A. (2017). Antecedents of attitudes towards and usage behavior of mobile banking amongst Generation y students. *Banks and Bank Systems*. [https://doi.org/10.21511/bbs.12\(2\).2017.08](https://doi.org/10.21511/bbs.12(2).2017.08).
- Wan Ismail, W. M., & Abdul Rasool, M. S. Bin. (2021). Roles of technology usage in cash Waqf contribution: Factors to enhance collection of cash waqf in malaysia. *international journal of academic research in business and social. Sciences*. <https://doi.org/10.6007/ijarbss/v11-i8/10803>.
- Wan Musa, W. R., Abdul Rasool, M. S., & Ibrahim, S. S. (2021). The role of intangible resources for Waqf in higher education: A conceptual review. *International Journal of Academic Research in Business and Social Sciences*. <https://doi.org/10.6007/ijarbss/v11-i10/11512>.
- Wood, V. (2022). The third mission of health faculties, departments, and schools: A role in society beyond education and research. *Creative Education*. <https://doi.org/10.4236/ce.2022.1312240>.
- Yang, D., & Sun, Y. (2022). A study on the influencing factors of individuals' intention to donate in charitable crowdfunding. *Journal of Management and Humanity Research*. <https://doi.org/10.22457/jmhr.v08a022250>.
- Yusoff, M. N. H., Yaso, M. R., Musa, Z. K. C., Muhamad, S. F., Zainudin, S. A., Nasir, N. A., & Abdullah, T. (2023). *Waqf education participation among employees of higher learning institutions: A conceptual framework*. Lecture notes in networks and systems. https://doi.org/10.1007/978-3-031-08090-6_14.
- Zulkifli, N., Ismail, M. N., Osman, G., & Ambali, A. (2022). An Empirical investigation on integrated Waqf governance in Malaysian Waqf institutions. *Environment-Behavior Proceedings Journal*. <https://doi.org/10.21834/ebpj.v7i22.4146>.

CORE CATALYST CONDITIONS INFLUENCING DARK DATA EMERGENCE: A GROUNDED THEORY APPROACH

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ABSTRACT

Most of the literature highlighted dark data research from the perspective of academic research institutions and large business firms, and none was found to be about Small and Medium Enterprises (SMEs). The impact of dark data is the risk that could harm the business enterprise. The dark data residing within the enterprise repository could disturb legal compliance with data management regulations and legislation. Therefore, grounded theory research was conducted to investigate the dark data phenomenon towards SMEs in Malaysia. The primary goal of this study is to discover how organizations prepare themselves for dark data caretaking. By using the Grounded Theory Methodology (GTM), 18 SMEs were selected and sampled through snowballing and theoretical sampling procedures. The study found that business owners prepare their organization to deal with dark data by enabling data caretaking which is comprised of a few core catalyst conditions consisting of leveraging technology, upskilling, security and controlling. Although the enabling caretaking effort facilitates the data caretaking activities simultaneously it influences the occurrences of data crisis.

Keywords: Dark Data, Core Catalyst, Leveraging Technology, Upskilling, Security Controlling

1.0 INTRODUCTION

Dark data has been defined from various perspectives as (Corallo et al., 2021) reviewed 22 publications comprised of academic and non-academic publications about dark data definition from various fields and perspectives. The systematic literature review conducted by them is to facilitate the establishment of dark data definitions according to the manufacturing industry. It seems that the establishment of the dark data definition falls under the property of searchability (Kambies et al., 2017), accessibility (Banafa, 2015), unknown existence (Lugmayr et al., 2017), uncategorized and ignored data (Intel, 2018) which influenced by its formats and led to unused of data (Trajanov, et al., 2018) yet being hoarded throughout time.

However, the demarcation of the dark data definition was not explored to its deepest epistemology.

While this demarcation is still in debate, yet dark data impact towards organizations has already started. Dimitrov et al. (2018) regard the impact of dark data as a risk that could harm the business enterprise. The dark data residing within the enterprise repository could disturb legal compliance with data management regulations and legislation. For example, in Malaysia, the establishment of the Personal Data Protection Act (PDPA), disallows data to be kept forever and a maximum of 7 years of duration for the data to be kept must be justified and unreasonable excuses for keeping the data would be penalized. Dimitrov et al. (2018) discussed that as dark data resides deep and rarely being used or in awareness unlike the active data currently being used, such data owners are open to cybersecurity threats and risks with the occurrences of personal data breached, and stolen data which put the business owners at a very risky position. The phenomenon of stolen data would jeopardize intellectual property rights and put the business trade secrets in a risky position and at the same time, decreasing business intelligence will be experienced whenever the unattended dark data leaked or fall into malicious actors. Due to data security breaches and stolen data, the reputation of business handlers could be tarnished, which would harm business profitability. Furthermore, if such enterprises are reluctant to invest in mining their dark data, they would miss out on opportunities for improvement, such as increased productivity, staff and consumer behaviour analysis to enhance services and profitability and avoid liabilities. At worst, a business enterprise will always be exposed to the risk of dark data if it neglects the numerous possibilities it could bring.

Akbar and Al-Mutahr & Nazeh (2018) emphasized how the dark data would impact the data quality. The presence of dark data, which is embedded within both structured and unstructured data, poses a challenge to accessing unstructured data. Unstructured data contains valuable information such as images, videos, and audio, which is not easily accessible through computer keyword processing. Unfortunately, this unstructured data contributes to the existence of dark data, which may consist of redundant, obsolete, and trivial (ROT) data (IBM, 2016). The barrier to data accessibility could compromise the accuracy of data analysis and lead to faulty data-driven decision-making.

Commvault, as an IT company, has experienced the impact of dark data and the costs associated with it (Commvault, 2014). Storing dark data internally requires a significant amount of storage capacity, resulting in higher storage management costs. The issue is exacerbated by the proliferation of file shares among employees using remote devices such as mobile phones, leading to a multiplication of dark data. Enterprises are increasingly aware of the vast amount of data they possess and seek to implement data management and analytics strategies to derive value from this data. However, the larger and more complex the data, the higher the associated costs, which could have been avoided at the early stages of business establishment. Costs further increase with the implementation of data extraction technology and the need to train staff on dark data awareness and technology utilization for managing it.

1.1 Problem Statement and Major Purpose

The phenomenon of dark data is also faced by the government. Veritas (2017) found that the main causes of dark data growth are due to a lack of strategic addressing of data issues, users treating storage systems as data "dumping grounds," and most IT strategies and budgets being meant for data storage and processing, not its value. On the other hand, Gimple and Alter (2021) and Heidorn et al. (2018) emphasized the disconnection of data creation and usage, where both should be aligned with each other instead of going sideways. This unaligned relationship contributed to the unawareness of dark data contribution resulting from

unused data. Moreover, data become completely dark when generated data is not captured (Gimple & Alter, 2021). Generated data may come with unknown potential value, but unrecorded data deletes the opportunity of leveraging the data. Furthermore, dark data accumulates due to forsaken accuracy and traceability, where data is left unclassified. The absence of data architecture leaves the dark data unattended, and the lack of awareness of data users about dark data's existence and its impact (Angelo et al., 2021). Therefore, the study aims to discover how organizations prepare themselves to manage dark data.

2.0 LITERATURE REVIEW

Research on dark data began with the establishment of Databerg by Veritas in 2015. Databerg represents the concept of big data within an organization, with data being categorized into three layers: business-critical data, ROT data, and dark data. The study surveyed 1,475 respondents from 14 countries across Europe, the Middle East, and Africa (EMEA) to understand how they manage data. It was discovered that 54% of the data in EMEA organizations was classified as dark data, 32% as redundant, obsolete, or trivial (ROT) data, and only 14% as critical business data. The accumulation of dark data was found to be influenced by three myths of data hoarding: the belief that more data means more value, that storage is free, and that all data is equal. The study recommends that Databerg can be managed by protecting critical business data, eliminating ROT data, and shedding light on dark data. The unveiling of the Databerg by Veritas in 2015 has prompted businesses to reconsider how they handle dark data and find ways to address and benefit from it. The findings revealed by Veritas have shed light on the issue of dark data and how organizations can better manage their data and its storage.

Similarly, Veritas reports discovered the dark data characteristics of dark data as what this research is partly focussing. Bhatia and Alojail (2022) stated that dark data is the accumulation of structured, semi-structured, and unstructured data from multiple sources and in different sizes. Therefore, business leaders were mentioned to be involved in the study which is similarly involved in this research. Unfortunately, the report did not completely explain the types of data being studied, the responsibility of the respondents upon dark data, and the approaches taken to collect those data either qualitatively or quantitatively. These are some of the issues which were not discussed in the report and would influence the findings of the report findings. Differently, the nature of the data collection environment is not clearly stated as the researcher assumed that respondents of the study might come from an unfamiliar nature of the business operation and influenced the findings of the data. Moreover, the data collection populations only involve 14 developed countries in the EMEA regions and the treatments and culture of data organizations might differ in different continents and regions due to economic conditions, regional culture or even social culture. These hollow characteristics of research approaches motivate the researcher to discover dark data phenomena using more specific approaches.

Dark data management (DDM) is lacking in many areas of business due to less research being done. The emergence of social media networks and the mobility of ICT devices has created the era of dark data. There were some suggestions on how to handle the dark data including encrypting, analyzing the data regularly and taking actions such as classifying legacy data. Elimination of the dark data hiding in the digital cracks and corners of the organization is an important milestone when establishing an information governance strategy that can withstand inspection by auditors and compliance officers. Even though there are lack of research that clearly defines Dark Data Management as a whole. However, Commvault (2014) and Kevin et al. (2016) mentioned Dark Data Management is a process involving monitoring storage growth by ensuring only business-valued data being stored, holistic data capture, self-

service access delivery due to a variety of data requirements, automation of Data Lifecycle, and ensuring compliance and discovery. Significantly, dark data management could reduce 33% of redundant, obsolete and trivial data or ROT data (Martin, 2016). Although publications on dark data management are scarce, Ryan (2014) proposed a way of lighting up the darkness of the data as an attempt to manage the dark data. Four stages of dealing with the dark data were proposed comprised of identification, classification of data, controls and continuous monitoring.

While dark data is part of the types of data that exist within an organization, presumably data lifecycle management is a wide subject area which can be viewed as part of the solution to the dark data phenomenon. Committee on Earth Observation Satellites (2012) has compiled 55 data lifecycle concepts and models which comprise the framework and model of data lifecycle management from the perspective of research point of view, digital data curation, and project data management. These 55 data lifecycles were analyzed by the researcher and each model possesses a concept which closely to be identified using 6 lifecycle stages of what has been listed by IBM which comprises of (1) data capture or creation; (2) data maintenance/store; (3) data usage; (4) data share; (5) data archival and, (6) data retention or deletion (Kumar & Banyal, 2020). These 55 data lifecycle principles were analyzed by the researcher and compared with IBM's six lifecycle stages (IBM, 2013), 7 lifecycle phases of Texas A&M Transportation Institute (Miller, K., Miller, M., Moran, M. & Dai B. 2018) and 6 stages of Big Data DLM (Kumar & Banyal, 2020).

Even though the researcher has analyzed a total of 68 data lifecycle management models, and compressed those into 4 generic DLM processes, some elements seem to be missing in the process of dealing with the dark data issues, data that is considered unfindable, un-interoperable, inaccurate and un-reusable (Schembera, 2019). According to the paradigm in section 2.4, approaches or methods to deal with data that is unstructured, lies deep within the repository, with unknown existence or values were found to be the great challenge to be solved by the generic DLM process. This area was also not covered by previous studies and such knowledge is required to face the existence of dark data phenomenon. The lack of acknowledgement of the management of dark data in the literature demonstrates a significant gap in the area being studied. Scarce publications on a theory that could explain the dark data phenomenon and its management urged the researcher to conduct grounded theory research about the dark data phenomenon.

3.0 METHODOLOGY

The study employed Qualitative Research to investigate the major purpose of the research. Specifically, Grounded Theory Methodology (GTM) was applied according to Corbin and Strauss's (1990) systematic grounded theory procedures to analyze the data being collected. In a grounded theory study, research is not initiated based on a theory or framework to be proved yet it studies the area and allows relevant theory to emerge (Strauss & Corbin, 1990). Figure 1 displays the GTM procedure of the study.

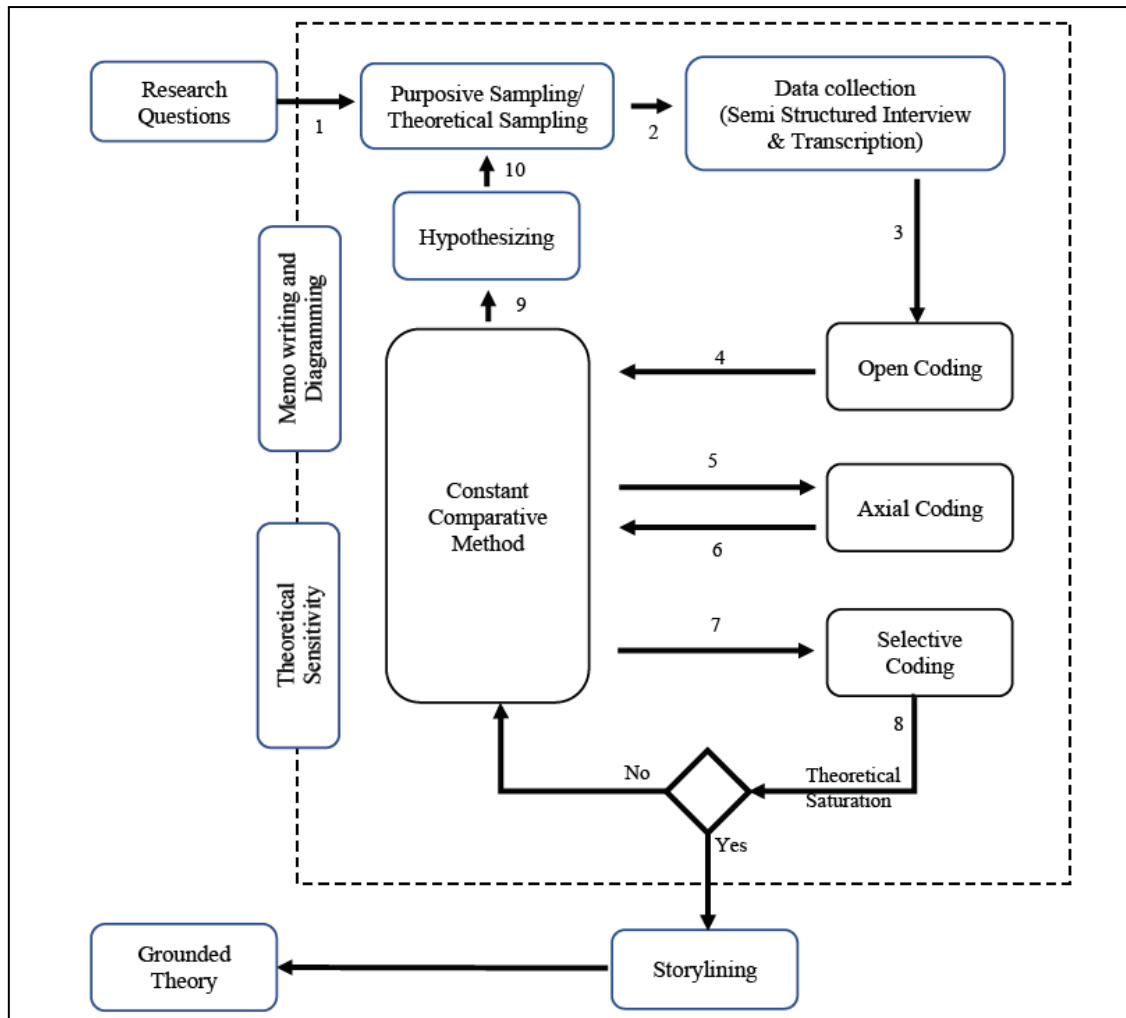


Fig. 1: Grounded Theory Methodology (Ajis, et al. 2022)

The purposive sampling method was conducted in phases whereby it involved the selection of expert sampling, snowballing sampling and inductive grounded & emergent theory sampling (Patton, 2014). Sampling was initiated with purposive sampling of a business owner of Small and Medium Enterprises in Malaysia who was chosen and regarded as the expert sample based on their experience and practices of Data Management; dominant in the Data Management procedures of the company; and involved in analyzing the company's performance. Further, the sampling uses snowballing sampling, and inductive grounded & emergent theory to collect the data. Snowballing samples were obtained from the first sample only to facilitate the inductive grounded & emergent theory sampling. Inductive grounded & emergent theory sampling also known as theoretical sampling is a procedure of sampling intended to maximize the opportunity to discover variation in concepts by densifying the emergent categories by collecting data to analyze events, not the individuals or respondents themselves which usually generalize by volumes of respondents in quantitative research. It does not predetermine who to be included in the data collection but allows the data to provide direction of whom to be sampled next, what events or phenomena to be investigated and where it took place. For this research, the theoretical sampling was sequenced in a structured table called the Theoretical Sampling Guide Matrix which was modified from Lehmann (2011). During this research, all three sizes of business operations including Microenterprises, Small Enterprises and Medium Enterprises were involved as the variation in the demographic

description supported the densification of emerging categories through range and variations in properties and dimensions.

Data collections were done through a series of semi-structured open-ended interviews towards respondents and recorded using video and audio to initiate the research and identify emerging concepts and categories as the entries towards the field of dark data. Recorded data were transcribed, analysed and coded to extract the central concept from data collected after every interview whereby constant comparative analysis was also utilized to establish the hierarchical structure of emerging categories and to find saturation of the emergent categories, before engaging with the proceeding interview. The analysis part involved three stages of coding including open coding, axial coding, and selective coding. The coding procedure was started using open coding by slicing up the data into pieces to open up the data and employing constant comparative analysis to group concepts with shared properties and identify emergent categories. Then, relationships of emerging categories were established during the axial coding phase using the coding paradigm (Strauss & Corbin, 1998) and finally, the central category of dark data management was identified in the selective coding phase.

To ensure the correct coding procedure, the researcher's theoretical sensitivity is required to be in place. Theoretical sensitivity is a pre-requisite substance that could be obtained during the pre-coding or mid-coding process to facilitate the coding process. It is also used to prevent preconception ideas from being forced onto the data. Theoretical Sensitivity obtained by the researcher through literature, professional and personal experience, and knowledge gained during the analytical process. Memo writing, diagramming and field notes were utilized in the analysis and regarded as essential substances that support the elicitation of theory in the grounded theory method in this research. The Atlas. Ti application was used to facilitate the analysis process in the management of concepts and categories along with their relationships.

In the end, storylining was used to integrate all categories and concepts by describing the phenomenon of dark data and dark data management among Malaysian SMEs to answer the research questions.

Reliability and validity of the study are also the major concerns whereby the validity of the study was established based on credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1984). The credibility of the study was determined by prolonged engagement with the respondents with limited observation through virtual meetings. Other than that, triangulation and peer debriefing are also implemented to protect the credibility of the data collected and findings produced. Triangulation was executed based on data triangulation only due to the limitation of the research whereby analysed data were triangulated among different data providers which comprised of Micro, Small and Medium Enterprises. Negative case analysis was also selected and analysed to provide variation in the theory development and display the norm of research findings. In this case, few respondents represent the negative cases. Multiple mediums of data recording were used to safeguard referential adequacy for the analysis. Moreover, a few respondents were also contacted again after the analysis was completed for member checking to identify their reactions to the results of the analysis. Other than that, the transferability of the research could not be used to generalize the whole area of dark data phenomenon and its management however, the findings of the research could be tested for further research. Furthermore, the dependability of the research was also examined by observing the overlap demonstration of former research participants and whether their

experience and practices were equivalent to the latter participants. Finally, the confirmability of the research was executed to assess the accuracy of research by requiring that facts be presented in their natural state, unaltered by the inquirer's value judgments. It was accomplished by the completion of a confirmability audit, which included an audit trail and audit methodology.

4.0 FINDINGS

The data collected for the research was derived from the business owners of 18 Malaysian SMEs which comprises two major business sectors including Manufacturing and Services & Others. These business owners were considered expert samples who owned three layers of business sizes including Micro SMEs, Small SMEs, and Medium SMEs which influenced their approach to dealing with the dark data phenomenon.

Table 1 Responded Malaysian SMEs

SME	ID	Size	business activities	n	%
Manufacturing	M-Manufacturer IV5	Medium	Printing & Publishing	1	5.6
	S-Manufacturer IV8	Small	Food & Beverages	1	5.6
	Mi-Manufacturer IV14	Micro	Food & Beverages	1	5.6
Services	M-Services IV2; IV3; IV12	Medium	Wholesaling & retail trades, and communication service	3	16.7
	S-Services IV1; IV4; IV7; IV15	Small	Wholesaling & retail trades, health services, & Food & Beverages	4	22.0
	Mi-Services IV6; IV9; IV10; IV11; IV13;	Micro	Food & Beverages, Fitness Services	5	27.8
Others	S-Others IV17; IV18	Small	Agriculture	2	11.1
	Mi-Others IV16	Micro	Agriculture	1	5.6

N=18

4.1 Enabling Data Caretaking

Enabling data caretaking in Figure 4.6 is an effort to enable the strategies or interaction conditions which are the 6 stages of caretaking, experienced by business owners. The enabling mechanism acts not only as the lubricant towards the engine of the caretaking process but also realizing them to be properly executed. Consequently, enabling data caretaking practices allows business owners and data caretakers to facilitate the consequences of the data caretaking strategies. Enabling data caretaking is comprised of a few paradigms which are leveraging technology, upskilling, security and controlling.

4.1.1 Leveraging Technology

Business owners leverage technology as a way of taking advantage of technology superiority to support business activities whereby it does not replace their business operation but encourages simplification of data handling procedures. It involves simplifying the tedious manual operation process to be simplified with the assistance of technology and enhancing data discovery and retrieval by engaging in systematic data handling and also storing the data. The entire business owners were found to be involved with the use of technology in the business in the aspect of data caretaking although some were using technology extensively

in data handling while few relied on technology with limited data management function. The study found that the business owners were leveraging the technology by automating the data processing activity and optimizing technology features to gain benefits from the technology.

Computerizing Data Handling

Business owners were found to be computerizing data handling activity by employing technology to speed up and ease data caretaking whereby mobile applications and computer software were utilized to facilitate business activities. In dealing with the phenomenon of dark data, computerizing the data handling activity helps business owners control the increasing existence of dark data by ensuring data capture is safe and recorded with multiple backups, data analytics activities were able to be accomplished with a single button, and data usage with data storage can be monitored simultaneously which prevent the phenomenon of dark data to be happened. Computerizing data handling started with data capture, especially during business transactions. Previously data captured during business transactions became dark data due to data crises such as unrecorded transactions, and damaged and unreadable written data. The study found that the dark data were reduced with the intervention of business owners by capturing data automatically.

Later, the captured data were kept by storing them in a digital storage facility such as cloud-based storage technology. The study also found that most business owners were using multiple storage facilities to hold their data. Generally, the purpose of storing enterprise data is meant as a backup facility. Further, the data were also categorized automatically using customized computer programming to ease the process of metadata assignment and encourage data searching and retrieval.

These interventions were none other than to facilitate the process of data analysis which the analysis of the dark data will generate precious information which provides input to view the effectiveness of decision-making, performance measurement, or any operation being done during the business activities.

Computerized data handling provides opportunities the dark data can be handled properly. Even, the deletion of those unwanted data was scheduled automatically with the utilization of technology. As a result, trading transactions can be sped up and data verification can be done to reduce dark data quickly.

Digitizing searching

Computerized data handling has put business owners with the enormous size of data volume generated during business activity. The enormous size of the data influences the possibility of data discovery during data searching. As the business owners already experience the impact of dark data on data quality which comprises data accessibility, traceability, and audibility due to manual annoying data searching; the technology was used to digitize the searching whereby the business owners convert the previous process of searching which are done manually into digital searching by adopting technology platform to ensure data retrieval success.

The process started by implementing physical data conversion which mostly contributed to the dark data phenomenon to be converted into digital data. Retrospective data conversion was applied by some business owners to ensure the accessibility and retrievability of the converted dark data. Few business owners who have the technical skills in computer programming have set up their customized data filtration systems according to their business needs. Business owners' practices in digitizing searching have shone a light on dark data which previously unfound from being searched due to massive data volume and existed in a format that limits searchability and accessibility.

4.1.2 Optimizing Technology Features

A lot of software and computer applications have been developed in recent years, to accommodate the data caretaking processes. Sophisticated features of software and applications were optimized by the business owners by utilizing existing or customized technology features and exploiting them for the benefit of the business. It was also found that some business owners are involved in customizing the technology to fulfil desired objectives while others are only optimizing the use of existing technology to achieve business goals. Business owners optimizing the technology features based on the following:

Sequencing data

Business owners are using technology to do systematic handling of data where all the data will be handled according to a systematic sequence which was pre-set up in the software to reduce time consumption during business activity and increase transaction validity. As a result, dark data occurrences could be minimized as the data processes sequenced as scheduled operations. The process of sequencing data involved simplification of capturing customers' data during the ordering process. Furthermore, data sequencing enables business owners to reduce errors in data with the pre-setup automation of data compilation and analysis. A greater impact on the practices of sequencing data is the prevention of fabricated transactions whereby systematic data handling technology verifies the transaction on real real-time basis as the transaction is lively happening.

Systematic data management with the assistance of technology exhibits the reduction of falsified data which contributed to the phenomenon understudied. Although business owners enjoy the significant advantage of the ease of data handling processes, these advantages still contribute to the data crisis, especially the capturing of voluminous data due to the speedy data capturing.

Complementing technological difference

The study exhibits that business owners leverage the differences in technology features by complementing technology with each other. Business owners were found to be adopting multiple technology platforms due to the technological features differences since each platform features fulfilling different objectives and purposes of their business activities and complementing each other's limitations. Specific functions urged the business owners to integrate different software functions to fulfil data needs by the business activities. Certain computer applications were integrated because of their data handling function and business operation, while some were integrated for data sharing. Many business owners did not integrate the technology used for the business; however, they utilized the software by optimizing the features offered by each software to fulfil their information needs however redundant data is imminent and occurs every time a transaction happens which influences the accumulation of dark data. Complementing technological differences provides insights into how different technologies complete each other limitations. However, the disintegration of multiple data handling software would contribute to the phenomenon of dark data. Its implementation may provide advantages towards dark data management but its utilization under an uncontrolled environment would create chaotic data handling events.

Customizing data tools

Customizing data tools is a situation of business owners who developed their technology to facilitate business activity whereby specification of the technology is set up by the business owner. Innovations made by business owners were mainly done to facilitate data searching and retrieval and reduce the time consumption of manual data searching methods. Moreover, data could also be linked with the network to enable data sharing and ease the process of business monitoring.

Although customizing their data management system is considered an ideal skill for business owners to have, however, only a few business owners can customise their own data handling technology. Nonetheless, the flexibility to modify data handling tools enables data owners to develop software features to the maximum extent possible.

Minimizing physical storage

Another effort to optimise technology features is a situation of business owners keeping all data using cloud-based storage whereby it reduces the storage of physical data. However, minimal impact was found on minimizing physical storage since the majority of the subjects were still relying on physical data stored within the enterprise premises.

4.2 Upskilling

The existence of technology employment does not guarantee successful management of dark data without prior knowledge of leveraging the technological features. Upskilling refers is a situation of a business owner obtaining advanced skills which relevant in the present setting and in the future whereby the upskilling was provided by a domain expert, community of practice or acquired during business operation. In this study, the data suggested that upskilling is required to be acquired by mastering the domain knowledge.

4.2.1 Mastering Domain Knowledge

Mastering domain knowledge is a situation of business owner learning specific knowledge on specific skillsets of discipline or field whereby it is used to support the dark data management processes. Two core domain knowledge indicated by the data were learning ICT knowledge and data skill knowledge.

Learning ICT

The data suggest that business owners are compulsory to have ICT knowledge in the present era of technology as technology helps a lot in running business activities especially when it comes to data management. ICT knowledge not only was told to support business growth but also become an essential skill that must be possessed by any business owners. Some business owners were found to be learning ICT on their own while some got the knowledge by reading and taking formal classes. The ICT knowledge is believed to be the foundation of dark data management. Therefore, the data indicated that ICT knowledge is required to enable business owners and data caretakers to be able to handle dark data properly.

Acquiring Data Skills

Another domain of knowledge to be mastered as indicated by the findings is acquiring data skills. It is a situation of the owner acquires knowledge of dark data handling and caretaking whereby is sourced from formal training or gained through personal experience. The majority of the business owners were found to be learning the data skills through their own experience of fixing data handling mistakes during business activities or getting inspiration from others' successful encounters with dark data. Only few engaged in formal training and learn from coaches. Without any knowledge of data skills, the data revealed that the occurrences of dark data massively happened and attracted unnecessary risk to the business such as losing valuable data, unjustified decision making and decreasing profitability survivability.

4.3 Security

Security of the data dealing with the safety protection either preventing data from being lost, stolen or unusable. Security of the data is determined by the safeguarding effort planned by the business owners.

4.3.1 Safeguarding

Safeguarding refers to an effort to ensure the protection of data-keeping safety. The study found that the business owners were safeguarding the data by limiting access to data, gradually assessing the protection and planning for data disaster intervention. Although these practices are as important only a few business owners embarked on the safeguarding effort.

Limiting access

Limiting access is the practice of forbidding unauthorized access to enterprise data. The study suggested that limiting access can be implemented by hardening security features including encrypting data storage, limiting access to staff only, and restricting access including trade secret data. Consequently, limiting access enhances data security by preventing access by unauthorized parties and some were limiting access only to business owners.

Assessing protection

Schedule protection assessments were also found to be the routine of ensuring data safety. Major purpose of assessing protection is to prevent data from lost or inaccessible. The business owners execute the assessment activities by determining data platform healthiness by practising data risk assessment, assessing the strength of security protection by hiring hackers and preparing data recovery plans. Thus, the finding indicated that enabling data protection is not sufficient to protect the security of dark data without assessing the strength of the data protection.

Data disaster planning.

Another security feature that business owners employ is data disaster planning. Data disaster would expose data to be damaged, inaccessible, and unusable. Therefore, the data exhibit that data disaster planning could prevent data access failure and loss of data. The data disaster plans were found to help recover missing or lost data by executing automatic data backup and the use of printed data recording in the event of system failure.

4.4 Controlling

The findings indicate controlling as one of the guidance mechanisms whereby it governs the processes of data caretaking. Controlling the caretaking was found to be executed by structuring policy on dark data management and harnessing integrity among workers to develop trustworthiness among workers.

4.4.1 Structuring Policy

Structuring policy is the process of business owners constructing standard operating procedures to prevent any data threats such as human errors, fraudulent business transactions, and data loss. Structuring policies was done by business owners by updating procedures.

Updating procedures

Procedures of data handling were found to be updated regularly by business owners to prevent any careless data handling and prevent data errors from emerging. Indirectly the updated procedures not only prevent dark data phenomenon but also improve business operations to be more structured and minimise dark data derived from human error.

Therefore, the findings indicate that the business owners update their standard operating procedure (S.O.P) not only about the business operation but also dark data management. Generally, most of the business owners did not possess any data handling S.O.P. before they experienced the impact of dark data. Such impact of the dark data made them realize that data handling is crucial and needs to be properly acknowledged. Consequently, structuring

policy influences the business owners to execute the strategies accordingly which results in proper management of the dark data.

Harnessing integrity

Harnessing integrity is also one of the core controlling attributes in the enabling caretaking effort. It is the practice of being honest and demonstrating a persistent and unwavering devotion to strong moral and ethical ideals and values, regardless of the circumstances. Updating the procedure would assist the process of harnessing integrity among data caretakers by instilling an integrity culture.

Integrity Culture

Integrity culture is a practice of believing that honesty is the approach that guaranteed data handling procedure is complying by the data caretakers. Majority of the business owners practice an integrity culture to avoid undesirable trouble caused by dishonesty. Some business owners use a religious approach to maintain an integrity culture in the company which believes in fostering business sustainability, protecting data and handling integrity.

Other than the religious aspects in promoting integrity culture, putting the trust of staff by the business owners also harnesses the integrity culture among workers. As a result, data handling integrity protects business survival and influence profitability. In a nutshell, integrity culture not only protects the data handling integrity but the company as a whole. As integrity culture is embraced by business owners and data caretakers, caretaking initiatives can be successfully implemented, and dark data occurrences can be suppressed effectively.

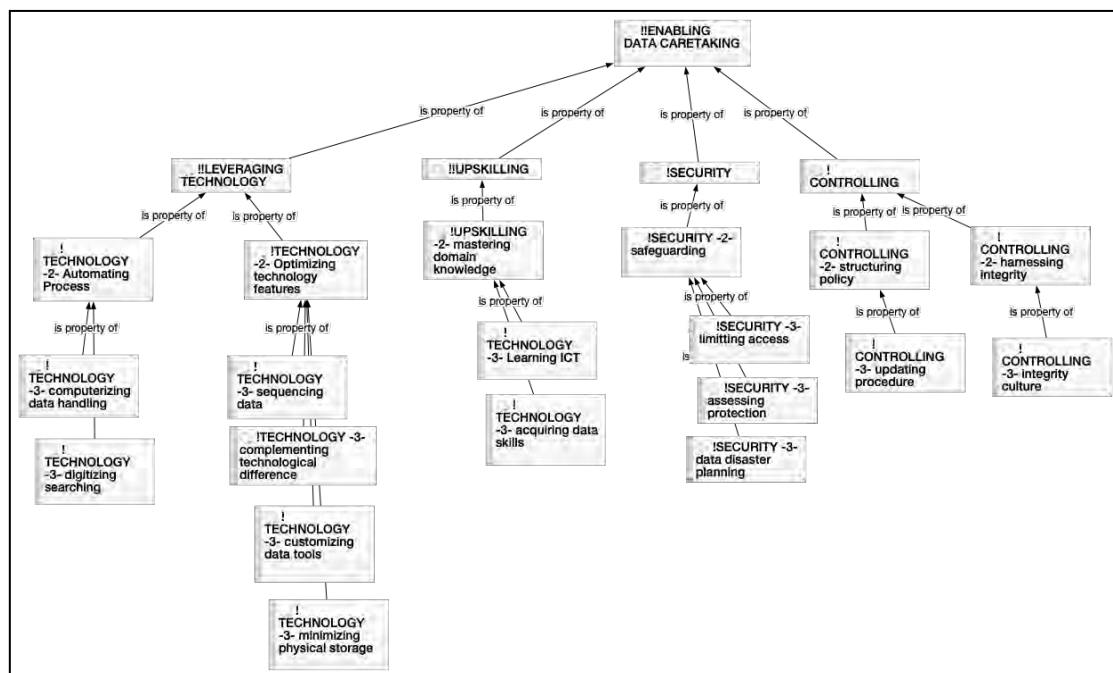


Fig. 2: Model of Dark Data Caretaking Enablers

5.0 DISCUSSION & CONCLUSION

Enabling data caretaking involved a few attributes including technology, upskilling, security and control. Technology was used to automate the data processing operation and simplify the manual process (Akbar et al., 2018). Furthermore, upskilling ICT knowledge and data skills were suggested by the data to be a prerequisite and mastered by the business owners to intervene the dark data management. While dark data possessed precious value to the enterprise, protection of the data safety was found compulsory as it would prevent unnecessary risk to the company (Commvault, 2014; Dimitrov, et al. 2018). Each of the

attributes was then monitored and administered by the controlling effort using standard operation procedures and integrity culture (Al-Sai & Abualigah, 2017). Although the enabling caretaking effort facilitates the data caretaking activities simultaneously it influences the occurrences of data crises whenever the drawbacks happen such as failing technology, lack of knowledge on required skills, breached security protection and non-compliance with the controlling mechanism.

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REFERENCES

- Ahmed, W. & Ameen, K. (2017). Defining big data and measuring its associated trends in the field of information and library management. *Library Hi Tech News*, 9, 21-24.
- Baragan, S. P. (2020). Appraisal and retention of information in the private sector: a case study. [Doctoral Dissertation].
https://eprints.qut.edu.au/199783/1/Salvador_Barragan_Thesis.pdf
- Bhatia, S., & Alojail, M. (2022). A Novel Approach for Deciphering Big Data Value Using Dark Data. *Intelligent Automation & Soft Computing*, 33(2).
- Birks, M., & Mills, J. (2014). *Grounded theory: A practical guide* (2nd ed.). Sage.
- BNM (2013). *Circular on new definition of Small and Medium Enterprises (SMEs)*.
https://www.bnm.gov.my/documents/20124/761700/Appendix1-Circular_on_Definitions+_for_SMEs.pdf.
- Charmaz, K. (2008). *Constructing grounded theory* (2nd ed.). Sage Publications.
- Commvault (2014). *5 ways to illuminate your dark data*. Commvault Systems.
- Corallo, A., Crespino A. M., Vecchio, V. D., Lazoi, M. & Marra, M. (2021). Understanding and defining dark data for the manufacturing industry. *IEEE Transactions on Engineering Management*.
- Delve. (2010). *The essential guide to coding qualitative data*. <https://delvetool.com/guide>
- Dimitrov, W., Siarova, S., & Petkova, L. (2018). *Types of dark data and hidden cybersecurity risks*. doi:10.13140/RG.2.2.31695.43681.
- Erik J. Martin, (2016). *Dark data: Analyzing unused and ignored information*. econtentMag.com.
- Gharehchopogh, F.S., & Khalifelu, Z.A. (2011). *Analysis and evaluation of unstructured data: text mining versus natural language processing*. 5th International Conference on Application of Information and Communication Technologies (AICT).
- Gimpel, G. (2020). Dark data: The invisible resource that can drive performance now. *Journal of Business Strategy*.
- Gimpel, G. & Alter, A. (2021). Benefit from the internet of things right now by accessing dark data. *IT Professional*, 23(2), 45-49.
- Glaser, B. G. & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for Qualitative Research*. Aldine.
- Glass, R., & Callahan, S. (2014). *The big data-driven business: How to use big data to win customers, beat competitors, and boost profits*. Wiley.
- Guetat, S., & Dakhli, S. (2015). The architecture facet of information governance: The Case of urbanized information systems. *Procedia Computer Science*, 64, 1088-1098.
- Hand, D. J., (2020). *Dark data: Why what you don't know matters*. Princeton University Press.
- Highquest Solution (2016). *Dark data making your organisation data-enabled?*.
<https://doczz.net/doc/8987800/white-paper-dark-data-making-your-organisation-data>
- Hitachi (2013). *Big Data - Shining the light on enterprise dark data (EDD)*.
<https://www.hitachivantara.com/en-us/resources.html>.

- IBM (2013). *The fundamentals of data lifecycle management in the era of big data: How data lifecycle management complements a big data strategy*. <http://hosteddocs.ittoolbox.com/TheFundamentals.PDF>.
- Intel (2018). *Datumize and Intel transform dark data into operational insight for manufacturing and logistics*. <https://www.intel.sg/content/dam/www/public/us/en/documents/solution-briefs/atomize-dark-data-in-manufacturing-and-logistics-solution-brief.pdf>.
- Kantardzic, M. (2020). *Data mining: Concepts, models, methods, and algorithms*. New Jersey.
- Kumar, K & Banyal R. K. (2020). Data life cycle management in big data analytics. *Procedia Computer Science*. 173, 364–371.
- Liu, Y., et al. (2019). *A framework for image dark data assessment*. Doi:10.1007/978-3-030-26072-9_1.
- Mayer-Schönberger, V., & Cukier, K. (2013). *Big data: a revolution that will transform how we live, work, and think*. Houghton Mifflin Harcourt.
- Miller, K., Miller, M., Moran, M. & Dai B. (2018). *Data management life cycle: Final report*. Texas, Texas A&M Transportation Institute.
- Schembera, B. & Duran, J. M. (2020). Dark data as the new challenge for big data science and the introduction of the scientific data officer. *Philosophy & Technology*, 33, 93–115.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage.
- Urquhart, C. (2013). *Grounded theory for qualitative research: A practical guide*. Sage Publications.

BEHAVIOURAL BIASES TOWARDS INVESTMENT DECISION WITH THE MODERATING ROLE OF TECHNICAL ANALYSIS: A CONCEPTUAL PAPER

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ABSTRACT

Traditional finance believes that an investor always gathers all the necessary information and rationally reacts in their investment decisions. However, behavioural finance recognizes that human emotions, biases, and cognitive errors have a significant impact on making decisions for investment in the stock market. Investment decisions involve the process by which investors select the most appropriate investment strategy when analyzing various investment opportunities. Behavioural biases on the other hand can influence individuals' investment decisions and lead them to make choices that deviate from their objectives because they rely more on emotion. Knowledge of technical analysis as an investment tool will control and help investors make investment decisions properly and achieve positive returns. Hence, this conceptual paper aims to propose a research framework that empirically examines the relationship between behavioural biases toward investment decisions with the moderating role of technical analysis. The finding will become a starting point for future research where this knowledge has uses in both academic and business practitioners.

Keywords: Behavioural Biases, Investment Decision, Technical Analysis

1.0 INTRODUCTION

In traditional finance, individuals are assumed to be rational, considering all available information when making investment decisions. The Efficient Market Hypothesis (Fama, 1970), the Capital Asset Pricing Model (Sharpe, 1964), the Modern Portfolio Theory (Markowitz, 1952), and the Arbitrage Pricing Theory (Ross, 1976) can be used by investors to make intelligent, rational, and optimal investment decisions. Unfortunately, individuals' investment decisions are not entirely rational. Emotions, cognitive psychology, and environmental factors can cause investors to make irrational and suboptimal decisions. Irrationality in decision-making negatively impacts the portfolio return of an individual and generates several market anomalies that cannot be explained by traditional finance theories (Fama and French, 1993). Traditional finance theories, rooted in the efficient market hypothesis, assume that investors are rational, have access to all relevant information, and make decisions solely based on maximizing returns while minimizing risks and these theories often overlook the impact of human emotions, biases, and cognitive errors on investment decisions. Market anomalies challenge traditional finance theories by highlighting discrepancies between the assumptions of rationality and market efficiency upon which traditional finance is based and the actual behaviour observed in financial markets.

Traditional finance theories, such as the efficient market hypothesis, assume that investors are rational and that asset prices reflect all available information accurately Malkiel & Fama (1970). However, anomalies in market behaviour, such as bubbles, crashes, and persistent price inefficiencies, cannot be explained by traditional finance theories alone (Pradhan, 2021).

On the other hand, behavioural finance theories consider the psychological and emotional aspects of investors, acknowledging that individuals do not always make rational decisions due to cognitive biases, emotions, and social influences (Devadas & Vijayakumar, 2019). Behavioural finance focuses on how investors and markets behave in practice, rather than in theory, by studying actual investor behaviour and decision-making processes (Bankole, 2020). Behavioural finance acknowledges that financial decision-making and market outcomes are heavily influenced by human emotions, biases, and cognitive errors. Hence, it is important to comprehend the genuine conduct of investors to enhance efficiency in making investment decisions. The behaviour of investors significantly influences the performance of financial markets and the broader economy (Kumari et al., 2022). The field of behavioural finance has recently evolved as a distinct academic study to comprehend the psychological biases exhibited by individuals in financial markets, and subsequently enhance the ability in decision making (Wheatcroft & Wynn, 2021). The fundamental underpinnings of behavioural biases can be attributed to heuristic, prospect, and herding theories (Shefrin, 2000; Tversky & Kahneman, 1973). These ideas include substantial consequences for comprehending the real-life conduct of investors and the choices they make within financial markets. Additionally, behavioural finance, often known as the behavioural element of finance, is a financial market model that places significant emphasis on the potential consequences of psychological factors that influence the behaviour of investors. The emergence of theories on behavioural finance might be attributed to the disparities observed in comparison to traditional finance, wherein the participants are assumed to be rational individuals.

Additionally, behavioural finance, recognizes that investors are not always rational and that their decisions are influenced by cognitive biases, emotions, and social factors (Fama, 1970). Anomalies in financial markets, such as herding behaviour, overconfidence, and loss aversion, challenge the notion of rational decision-making assumed in traditional finance theories (Rehan et al., 2021). These anomalies suggest that investors do not always act in accordance with the principles of rationality and efficiency that traditional finance theories propose. The failure of traditional finance models to explain market anomalies has led to the development of behavioural finance, which integrates insights from psychology, sociology, and other disciplines to better understand investor behaviour and decision-making processes (Khaskhelly, 2023). Behavioural finance theories aim to explain the irrationalities and anomalies observed in financial markets by considering the psychological factors that influence investor decisions. By acknowledging the impact of behavioural biases on investment decisions, behavioural finance provides a more comprehensive framework for understanding market dynamics and anomalies (Natahadi, 2024). In summary, while traditional finance theories assume rationality and efficiency in investor decision-making, behavioural finance theories highlight the role of psychological factors, biases, and emotions in shaping investment choices. By considering the human element in decision-making, behavioural finance provides a more suitable understanding of how investors behave in real-world scenarios, offering valuable insights into the complexities of financial markets.

Furthermore, investment decision-making entails a thorough analysis and assessment of investment goals, risk preferences, anticipated returns, market conditions, and other relevant aspects. It also involves the allocation and modification of the investment portfolio (Bihari et al., 2023). Behavioural biases are psychological and behavioural tendencies exhibited by investors while making investing decisions that deviate from reasonable objectives and expectations. These biases are indicative of investors' specious beliefs, emotions,

preferences, and habits (Kumar and Goyal, 2015). Gaining insight into the significance of behavioural biases in investing decision-making is beneficial for investors to enhance their self-awareness and mitigate or minimize the adverse effects of irrational behaviour on investment outcomes. Investors may disregard or misinterpret market information, exhibit excessive confidence or caution, conform to popular opinion, hold strong opinions, pursue gains and losses, or strongly adhere to expenses due to behavioural biases. At the same time, research has found several biases, including overconfidence, anchoring, disposition effect, herding behaviour, and cognitive biases such as availability, regret aversion, and loss aversion. These biases result in illogical decision-making processes, which affect investment outcomes (Madaan & Singh, 2019; Singh et al., 2020; Gupta & Shrivastava, 2021; Mohammad, 2023). The impacts of these biases are not restricted to individual investors but also apply to group settings, where biases associated with the collective might surpass individual biases in influencing unsustainable behaviour (Engler et al., 2019; Brito & Jardim, 2020).

Furthermore, a study conducted by Santoso et al. (2022) examined the behaviour of retail investors in the Indonesian capital market amidst the Covid-19 pandemic. Their findings indicate that investment decision-making in retail investors is notably influenced by overconfidence and representativeness biases. However, herding behaviour was not found to have a significant impact. The formation of these two biases can be attributed to the presence of market uncertainty resulting from the impact of the COVID-19 epidemic. In a study conducted by Jaiyeoba et al. (2018) on the perception bias observed among retail and institutional investors in Malaysia, it was shown that both categories of investors are susceptible to the influences of overconfidence, representativeness, and anchoring biases. The disposition effect, herding behaviour, and overconfidence are three perception biases that have been extensively examined in the context of Pakistan and have been found to exert substantial influence on investment decision-making. Raut et al. (2020) identified three psychological biases, namely overconfidence, anchoring, and representativeness, that are prevalent among retail investors in the Indian capital market during the process of making investment decisions. Retail investors in Malaysia face important issues, such as a lack of financial knowledge and education, which can lead to bad investment choices and possible losses. Aside from that, there have been cases of market manipulation and scams that target retail investors. This shows how important it is for regulators to keep a closer eye on the market and protect investors. In a media release on August 2023, the Securities Commission Malaysia (SC) warned the public, especially investors, that some entities and companies are using the SC's name and logo without permission in marketing materials for their investment goods. In particular, the SC wants to stress that it does not endorse or approve any cash trust investment goods on the market. So, it is against the rules to use the SC's name and image in marketing materials for cash trust investments. In addition to that, the New Straits Times reported in March 2023 that the fraudulent investment syndicate had a strategy of offering an enticing dividend ranging from 15 to 17 percent. This method successfully deceived over 150 investors, resulting in significant losses of RM830 million. Both cases indicate that retail investor needs to polish their knowledge in investment tools such as technical analysis or fundamental analysis to improve their investment decision. Retail investors frequently depend on multiple sources of information, such as newspapers, media, and market rumours in making investment decisions whereas professional investors make more extensive use of fundamental and technical studies (Jaiyeoba and Haron ,2016).

Therefore, this study aims to investigate the influence of behavioural biases toward investment decisions with the moderation effect of technical analysis among retail investors in Malaysia.

2.0 LITERATURE REVIEW

2.1 Behavioural Biases and Investment Decisions

Behavioural biases and investment decisions reveal the significant influence of various biases on investment outcomes. Behavioural biases can lead investors to deviate from rationality, resulting in irrational investment decisions (Kumar & Goyal, 2016; Madaan & Singh, 2019; Wang, 2023;). Understanding these biases is crucial as they can influence individuals either positively or negatively from achieving their investment goals (Kumar & Goyal, 2016; Gupta & Shrivastava, 2021). Additionally, behavioural biases have been identified as significant predictors of investment decisions, influencing choices such as loss aversion and overconfidence (Mohammad, 2023).

Furthermore, other biases such as loss aversion, overconfidence, representativeness, disposition effect, herding effect, and more, influence decision-making in stock markets, mutual funds, and real estate (Zhang, 2023). Likewise, research on the moderating effects of factors like the preferred sector of investment influences the relationship between behavioural biases and investment decisions (Gupta & Shrivastava, 2021). At the same time, behavioural biases also play a crucial role in moulding investment decisions and affecting both individual and institutional investors (Ahmad et al., 2017).

2.1.1 Overconfidence Bias

Overconfidence plays a significant role in investment decision-making, as evidenced by most studies related to behavioural biases toward investment decisions. Pikulina et al. (2017) found that strong overconfidence leads to excess investment, while moderate overconfidence results in accurate investments. Furthermore, Seraj et al. (2022) highlighted that overconfidence positively influences investment decisions and moderates the relationship between financial literacy and investment decisions. Overconfidence positive and significant influence on investment decisions (Almansour et al., 2023; Adil et al., 2021; Akgul & Cetin, 2021; Hafez, 2021; Kunjal, 2021; Nurbarani & Soepriyanto, 2022).

Likewise, Ranaweera & Kawshala (2022) analyzed the impact of overconfidence bias on investment decisions, considering financial literacy and risk attitude as moderating factors. Syarkani & Tristanto (2022) demonstrated that overconfidence has a positive influence on investor attitudes and decisions, with financial literacy also playing a significant role in shaping investment decisions. These studies collectively emphasize the importance of understanding and managing overconfidence in investment decision-making processes to enhance investment outcomes. Conversely, a study by Adil et al. (2021) found that overconfidence has no significant impact on investment decisions. Hypothesis based on the above discussion:

H1 a: There is a significant influence of overconfidence bias on investment decision

2.1.2 Representative Bias

Psychologically, representativeness bias worsens the investment decision-making process and perceived market efficiency because investors who are suffering from representativeness bias cannot make rational decisions. This leads to trading mistakes or poor trading decisions and misinterpretation of probabilities associated with non-relevant situations that ultimately affect the efficiency of the market (Shah et al. 2018; Maiziyah & Helmayunita, 2023). The impact of heuristic biases, specifically availability bias and representativeness bias, significantly and positively influences the investment decisions of investors (Khan et al., 2021).

Moreover, representative bias has a positive effect on investment decisions (Loris & Jayanto, 2021; Hafez, 2021; Talwar et al., 2021; Santoso et al., 2022). Recognizing the presence of representativeness bias while making investment decisions is crucial for stock

market investors and advisors to take preventive measures for both current and future transactions (Khan & Bashir, 2020). These findings underscore the need for strategies to address representativeness bias in investment decisions. Based on the above discussion it is hypothesized that:

H1 b: There is a significant influence of representative bias on investment decision

2.1.3 Anchoring Bias

Anchoring bias is the tendency for individuals to heavily rely on initial information or reference points when making decisions, even if these points are irrelevant or arbitrary (Kudryavtsev & Cohen, 2010). Studies have shown that this bias especially significantly anchoring bias and loss aversion influences investment decisions, leading individuals to make suboptimal choices based on the initial information they receive (Ermulyawati, 2024). Moreover, a study by Jain et al. (2019) assessed how behavioural biases, including anchoring bias, affect the decision-making of individual equity investors using the fuzzy analytic hierarchy process. The research emphasized that anchoring bias, along with biases like loss aversion and overconfidence, plays a crucial role in shaping investment decisions. Additionally, Arora & Rajendran (2023) investigated the impact of anchoring bias and the disposition effect on portfolio performance under different market conditions, highlighting the influence of these biases on investment outcomes.

To add with that, other studies have explored the interaction between anchoring bias and other biases such as herding, overconfidence, and the representativeness heuristic in investment decision-making (Silwal & Bajracharya, 2021; Gyanwali, 2021; Kudryavtsev & Cohen, 2010). These studies have demonstrated that anchoring bias, when combined with other cognitive biases, can significantly impact investment performance and decision-making processes. Contradict with a study by Madaan and Singh, 2019 found that anchoring bias has no significant impact on investment decisions. Hypothesis based on the above discussion:

H1 c: There is a significant influence of anchoring bias on investment decision

2.1.4 Confirmation Bias

Literature has extensively explored the influence of confirmation bias on investment decision processes. Confirmation bias acts as cognitive bias where individuals seek out information that confirms their pre-existing beliefs or hypotheses while ignoring contradictory evidence, has been identified as a significant factor affecting investment choices (Armansyah, 2022; Cheng, 2019; Shah et al., 2018). They also find that confirmation bias can lead investors to selectively seek information that aligns with their initial beliefs, potentially distorting their decision-making processes. Moreover, this bias can impact various aspects of investment decisions, such as stock selection, portfolio management, and risk assessment. On top of that, confirmation bias has been found to mediate the relationship between psychological and social factors and investment decisions in cryptocurrency markets (Shahani & Ahmed, 2023).

Likewise, research has highlighted the role of confirmation bias in influencing investors' perceptions of market efficiency and their strategies for processing information. The presence of confirmation bias, along with other cognitive biases like overconfidence and representativeness bias, has been shown to have a negative impact on investment decisions made by individual investors (Shah et al., 2018). Understanding and mitigating confirmation bias in investment decision-making is crucial for investors to make more rational and informed choices. By recognizing the influence of this bias, investors can strive to seek

diverse perspectives and consider a broader range of information to enhance the quality of their investment decisions. Based on the above discussion it is hypothesized that:

H1 d: There is a significant influence of confirmation bias on investment decision

2.1.5 Loss Aversion Bias

Loss aversion, a cognitive bias where individuals feel the pain of losses more acutely than the pleasure of gains, has been identified as a significant factor influencing investment choices (Benartzi & Thaler, 1995; Armansyah, 2021; Rahawarin, 2023). At the same time, their study also has shown that loss aversion bias significantly affects investors' decision-making processes, leading them to be more sensitive to losses than gains. This bias can influence various aspects of investment decisions, such as risk-taking behaviour, evaluation periods, and equity premium puzzles. Loss aversion has been found to play a crucial role in shaping investors' perceptions of risk and return, impacting their investment strategies (Haigh & List, 2005).

Moreover, research also has explored the interaction between loss aversion and other behavioural biases, such as herding bias, overconfidence, and regret aversion, in investment decision-making (Armansyah, 2021; Yuwono & Elmadiani, 2021; Rahawarin, 2023). These studies have demonstrated that loss aversion, when combined with other cognitive biases, can significantly impact investment performance and decision-making processes. Other than that, loss aversion was also found that positive and significant influence on investment decisions (Gupta & Shrivastava, 2021; Hafez, 2021; Talwar et al. 2021; Hala et al. 2020). In opposition, Hala et al., 2020 also show that negative and significant influence in the case of herding is an intervening variable between loss aversion and investment decisions. Hypothesis based on the above discussion:

H1 e: There is a significant influence of loss aversion bias on investment decision

2.1.6 Regret Aversion Bias

Regret aversion plays a significant role in behavioural biases to influence investment decision-making processes. Studies have shown that regretful experiences can influence subsequent investment choices and no interaction toward risk aversion (Elisa Daniati Edison & Hesty Aisyah, 2023). Furthermore, regret aversion bias, along with other behavioural biases, impacts investment decisions in the real estate sector, with financial literacy moderating the negative effects of these biases and risk perception mediating their relationships with decision-making processes (Wangzhou et al., 2021; Hafez, 2021).

Additionally, research on millennials in Indonesia revealed that financial behaviour had a significant positive effect on investment decisions, while financial literacy and regret aversion bias did not directly influence investment choices (Octivia et al., 2022). Oppositely, finding from Ardini and Achyani, 2023 found that regret aversion as well as loss aversion, herding behaviour, and risk perception have insignificant effects on investment decisions. These findings highlight the complex interplay between regret aversion, cognitive biases, financial literacy, and investment decisions. Based on the above discussion, it is hypothesized that:

H1 f: There is a significant influence of regret aversion bias on investment decision

2.1.7 Mental Accounting

A growing literature review on mental accounting on investment decisions reveals several key findings. Mental accounting has been found to significantly influence investment decisions in various contexts (Abdani, 2019; Santi, 2019; Sharma & Firoz, 2020; Talwar et

al., 2021). Furthermore, Rashwan, (2021) also agrees and suggests that mental accounting can enhance risk assessment and decision-making on investment. However, Road (2013) stands for the opposite finding and found a negative relationship between mental accounting and investor decisions in the Tehran Stock Exchange. These studies collectively highlight the complex and multifaceted nature of mental accounting in investment decision-making.

In the context of investment decisions, mental accounting aids in managing portfolios but can lead to high-risk choices and losses due to anomalies and prospect theory (Ginting et al., 2023). Additionally, a realistic mental accounting model competes with traditional utility alternatives, generating optimal portfolio allocations for various investor types (Hubner & Lejeune, 2022). Loss aversion and mental accounting positively influence investment decisions, with self-control moderating the effect of mental accounting on decisions (Anwar et al., 2023). Hypothesis based on the above discussion:

H1 g: There is a significant influence of mental accounting on investment decision

2.2 Technical Analysis and Investment Decision

A range of studies have explored the use of technical analysis in selecting stocks for their portfolio for investment decisions. Kubińska et al. (2016) found that professional traders in the futures market rely on technical analysis as a rational, cognitive tool, while neophyte(beginner) investors use technical analysis intuitively and experientially. However, a mix of fundamental and technical factors in stock investment decisions where neither the fundamental nor the technical analysis approach is more influential in making decisions (Layyinaturrobaniyah et al., 2016). Recently, research done by Liugita et al. (2024) applied both fundamental and technical analysis to stock investment and found that fundamental analysis focused on financial indicators, while technical analysis involved stock returns and selling prices. The study also aims to understand the fundamental analysis and technical analysis needed to make investment decisions. This research provides insights into the importance of utilizing both fundamental and technical analysis in the decision-making process.

Technical analysis is a method used in the stock market to analyze historical data, price patterns, and trading volumes to forecast future price movements and determine optimal entry and exit points for trading (Maghfira, 2022). This method complements fundamental analysis and psychological factors in influencing investment outcomes (Fikriyah & Suhartini, 2023). By analyzing indicators like moving averages and price trends, technical analysis aids investors in making informed decisions on when to buy or sell stocks (Joshi, 2022). Technical analysis is also beneficial for short-term traders who need to make quick decisions on buying, selling, or holding stocks to maximize profits. Investors use technical analysis to predict stock and asset price movements based on historical data and technical indicators and considered a crucial tool for decision-making in investments due to its ability to analyze market behaviour and trends (Maghfira, 2022). While fundamental analysis focuses on intrinsic stock value, technical analysis concentrates on supply and demand dynamics to predict short-term price changes (Mahina, 2018).

Investors often combine both fundamental and technical analyses to enhance their decision-making process (Bello, 2024). Moreover, technical analysis plays a role in forecasting stock price fluctuations and complements fundamental analysis in investment approaches (Mahina, 2018). It is utilized in predicting stock behaviour in the short term by combining financial theory, economic analysis, and time series evaluation (Wu et al., 2021). Additionally, the study of technical analysis indicators aids in forecasting market trends and making investment decisions based on historical price and volume data (Hung, 2023). On the other hand, finding from Riaz and Zubair, 2024 found that fundamental and technical analysis plays a mediating role in the relationship between self-control, over-confidence, and

investment decisions, providing valuable insights for institutional investors in their decision-making processes.

Additionally, investor behaviour, influenced by psychological factors and market conditions, also plays a significant role in decision-making. For instance, investors may exhibit overconfidence during uptrend conditions and may not always consider the intrinsic value of stocks, although their decisions are generally rational and influenced by fundamental and technical analyses (Simanjuntak et al., 2023). Therefore, combining technical analysis with other analytical methods and understanding investor psychology can significantly enhance investment decision-making, providing a robust framework for navigating the financial markets.

In conclusion, technical analysis is a vital component of investment decision-making in the stock market. By analyzing historical data and market indicators, investors can gain valuable insights into market trends, price movements, and optimal trading points, ultimately influencing their investment decisions. Additionally, the research by Oktaba (2023) focuses on the modification of technical analysis indicators to increase the rate of return on investment. This study highlights the practical application of technical analysis in forecasting changes in financial asset prices to enhance investment outcomes. Then, Utami and Nughroho (2017) revealed a preference for technical analysis among Indonesian investors, with experience and time horizon being significant influencing factors in investment decisions. Based on the above discussion it is hypothesized that:

H2: Technical analysis significantly moderates the relationship between behavioural biases and investment decisions.

2.3 Underpinning Theory

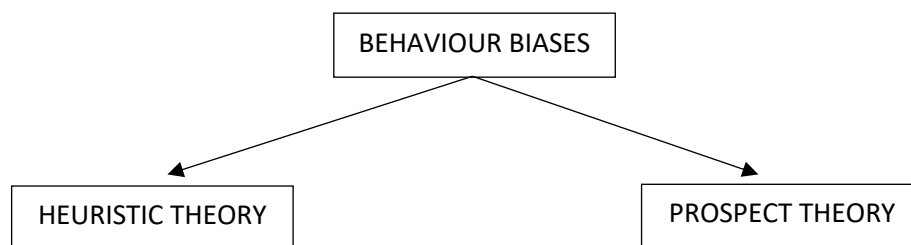


Figure 1: Theories related to behavioural biases

2.3.1 Heuristic Theory

According to heuristic theory, when the situation is not absolute and significantly complicated for choice development, decision-makers follow a mental shortcuts or rules of thumb in order to avoid loss (Kumara & Kawshala 2021; Shah et al., 2018). The theory also acknowledges the presence of heuristic biases such as representativeness, availability, anchoring and overconfidence that impact investment decision-making (Haritha, 2023; Hoxha & Hasani, 2022; Kasoga, 2021). The major cause of irrational decision-making and investment performance together with the final portfolio outcomes is these biases (Peprah, 2024; Ahmad & Wu, 2023; Saputra, 2023; Khan et al., 2021 Sattar et al.,2020).

Moreover, heuristics, such as overconfidence, representativeness, anchoring, confirmation bias, and availability biases, play a significant role in shaping investors' perceptions and judgments, impacting their investment decisions. These cognitive shortcuts

can lead to biased decision-making, affecting investment strategies and outcomes (Sudirman, 2023; Ahmad et al., 2022; Juwita et al., 2022).

2.3.2 Prospect Theory

Expected utility theory does not represent the behaviour demonstrated by most people due to its simplifying assumptions about preferences and mistakes humans make in probability judgements (Kahneman & Tversky, 2013), which has led researchers turn into alternative models. Introduced by, prospect theory offers one of these alternatives amenable for understanding decision-making under risk conditions. It stated that people framed the outcome as a loss or gain on their own reference point, rather than judging it in terms of absolute magnitude. This framework was then elaborated in cumulative prospect theory with the goal of generalizing how prospects over outcomes under uncertainty and risk (Tversky & Kahneman, 1992). Among these studies, some applied prospect theory to modelling bounded rational behaviour of decision-makers for complex decisions such as risk assessment in construction project investments and supply chain sustainability (Sutrisno & Kumar, 2022; Gou et al., 2021).

Additionally, prospect theory has also shed light on numerous decision-making biases, including regret aversion, loss aversion and mental accounting that influence how individuals make investment decisions (Goyal et al., 2021). Prospect theory has been useful in property investment decision (Amorim et al., 2022), renewable energy investments (Hoxha & Hasani, 2022) and portfolio selection due to the theoretical implications of it have for behavioural finance researches (Ogbeide & Okpamen, 2020). The theory has also been used to evaluate the risk in investment decisions due mainly due to behavioural biases, and psychology of individual investors (Ilbahar et al., 2022; Ogunlusi & Obademi 2019).

Furthermore, studies have explored the application of prospect theory in risk assessment models, decision support systems, and investment behaviour analysis, demonstrating its versatility and relevance in various decision-making contexts (Tan et al., 2023; Lee et al., 2014; Barberis, 2013). Prospect theory has been instrumental in explaining deviations from rationality, such as the disposition effect and risk-seeking behaviour, providing valuable insights into the complexities of human decision-making (Zhang, 2024; Guo et al., 2022). In sum, the study of prospect theory and investment decision-making reveals important implications in explaining behaviour under risk/uncertainty, providing insights into cognitive processes that drive investment decisions.

3.0 CONCEPTUAL FRAMEWORK

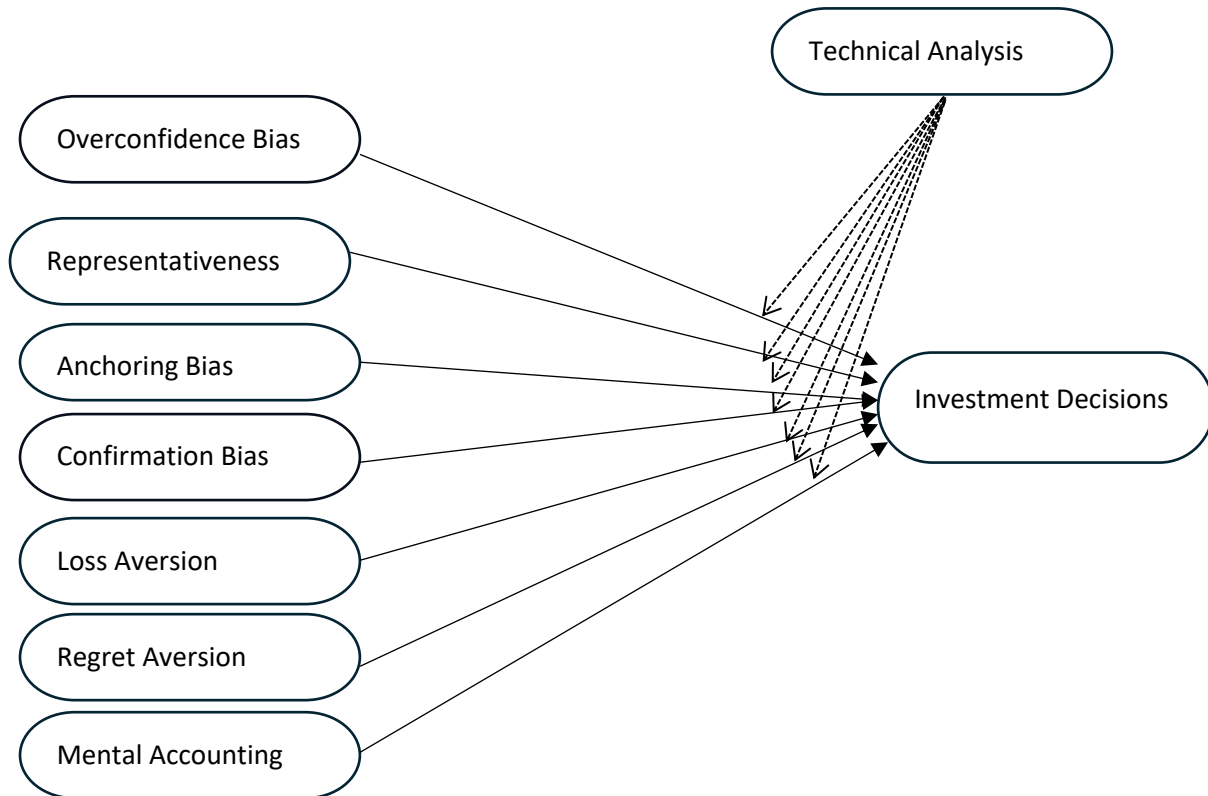


Figure2: Proposed Conceptual Framework

From the proposed conceptual framework, the following hypotheses are suggested:

H1 a,b,c,d,e,f,g: Behavioural biases (overconfidence, representativeness, anchoring, confirmation, loss aversion, regret aversion and mental accounting) significantly influence investment decisions.

H2: Technical analysis significantly moderates the relationship between behavioural biases (overconfidence, representativeness, anchoring, confirmation, loss aversion, regret aversion and mental accounting) and investment decisions.

4.0 CONCLUSION

In conclusion, this conceptual paper presents the research framework for behavioural biases and investment decisions among retail investors in Malaysia. The potential of the moderating influence of technical analysis remains untested for the direct relationship between behavioural biases towards investment decisions. For retail investors, knowledge in technical analysis provides a structured approach to analyzing market data, such as price movements, volume, and patterns. By relying on objective data, traders are less likely to make impulsive decisions based on emotions like overconfidence, fear, or greed as investors rely on data and charts rather than gut feelings. Other than that, when retail investors understand technical analysis, they feel more in control of their decisions. This knowledge can boost confidence, making them less likely to panic during market volatility. At

the same time, equipped with technical skills, investors are less likely to follow the crowd or make decisions based on market rumours, which can be emotionally driven. Furthermore, technical analysis often involves looking at longer-term trends, which can help investors focus on the bigger picture rather than getting caught up in short-term market noise, thus reducing emotional reactions to daily fluctuations.

By discovering the moderation influence of technical analysis whether strengthens or weakens the direct relationships, the finding will become a starting point for future research where this knowledge has uses in both the academic and business realms. Furthermore, the direction of behavioural biases toward investment decisions is an evolving area, and this study can contribute to the field's literature by providing insights into how behavioural biases need to be controlled to improve decision-making in investment among retail investors. Educating retail investors on the psychological factors that influence their trading behaviour and providing recommendations to prevent the negative effects and will assist individuals in making better decisions and achieving higher portfolio performance in the stock market.

REFERENCES

- Abdani, F., & Nurdin, F. (2019). Kausalitas Mental Accounting dan Pengambilan Keputusan Investasi Mesin Produksi: Suatu Studi Eksperimen. *Akuntabilitas: Jurnal Ilmu Akuntansi*, 12(2), 146-156.
- Adil, M., Singh, Y., & Ansari, M. N. (2021). How financial literacy moderate the association between behaviour biases and investment decision? *AJAR (Asian Journal of Accounting Research)*, 7(1), 17–30. <https://doi.org/10.1108/ajar-09-2020-0086>
- Adil, M., Singh, Y., & Ansari, M. N. (2021). How financial literacy moderate the association between behaviour biases and investment decision? *AJAR (Asian Journal of Accounting Research)*, 7(1), 17–30. <https://doi.org/10.1108/ajar-09-2020-0086>
- Ahmad, M., & Wu, Q. (2023). Heuristic-driven biases as mental shortcuts in investment management activities: a qualitative study. *Qualitative Research in Financial Markets*, 16(2), 291-309.
- Ahmad, M., Wu, Q., & Abbass, Y. (2023). Probing the impact of recognition-based heuristic biases on investment decision-making and performance. *Kybernetes*, 52(10), 4229-4256.
- Ahmad, Z., Ibrahim, H., & Tuyon, J. (2017). Institutional investor behavioral biases: syntheses of theory and evidence. *Management Research Review*, 40(5), 578-603.
- Akgül, E. F., & Cetin, I. B. (2021). An investigation on behavioral biases in ship investments of small-sized shipping companies. *Maritime Business Review*, 6(4), 377-391. <https://doi.org/10.1108/mabr-08-2020-0049>
- Almansour, B. Y., Elkrghli, S., & Almansour, A. Y. (2023). Behavioral finance factors and investment decisions: A mediating role of risk perception. *Cogent Economics & Finance*, 11(2), 2239032.
- Amorim, J. Q., Sales, G. A., & Grecco, M. C. P. (2022). Covid-19 and its impacts on financing and investment policies. *RAM. Revista de Administração Mackenzie*, 23(2), eRAMF220225.
- Anwar, M., Irbayuni, S., Wikartika, I., & Pratikto, H. (2023). Behavioural bias in investment decisions: moderate role of self-control.

- Ardini, F., & Achyani, D. (2023). The influence of overconfidence, regret aversion, loss aversion, and herding behavior of investment decision in the capital market with the moderating role of risk perception in generation Z students. *Int. j. of Social Science and Economic Research*, 8(5), 936-950.
- Armansyah, R. F. (2021). Over confidence, mental accounting, and loss aversion in investment decision. *Journal of Auditing, Finance, and Forensic Accounting*, 9(1), 44-53.
- Armansyah, R. F. (2022). Herd instinct bias, emotional biases, and information processing biases in investment decisions. *Jurnal Manajemen dan Kewirausahaan*, 24(2), 105-117.
- Arora, R., & Rajendran, M. (2023). Moored minds: An experimental insight into the impact of the anchoring and disposition effect on portfolio performance. *Journal of Risk and Financial Management*, 16(8), 349.
- Bankole, O. E. (2020). Influence of Cognitive Errors on Investor's Decision Making in Nigeria. *The Journal of Accounting and Management*, 9(3)
- Barandagh, M. I., & Hasanzadeh, M. (2013). Examining the impact of mental accounting on the investment decisions in the Tehran stock exchange. *International Journal of Accounting Research*, 1(5), 6-10.
- Barberis, N. C. (2013). Thirty years of prospect theory in economics: A review and assessment. *Journal of economic perspectives*, 27(1), 173-196.
- Bello, S. T. (2024). The Fundamentals of Stock Market Investing in the Twenty-First Century.
- Benartzi, S., & Thaler, R. H. (1995). Myopic loss aversion and the equity premium puzzle. *The quarterly journal of Economics*, 110(1), 73-92.
- Bihari, A., Dash, M., Muduli, K., Kumar, A., Mulat-Weldemeskel, E., & Luthra, S. (2023). Does cognitive biased knowledge influence investor decisions? An empirical investigation using machine learning and artificial neural network. *VINE Journal of Information and Knowledge Management Systems*.
- Cheng, C. X. (2019). Confirmation bias in investments. *International Journal of Economics and Finance*, 11(2), 50-55.
- Devadas, M., & Vijayakumar, T. (2019). Investment decisions, herd behaviour and retail investors. *International Journal of Innovative Technology and Exploring Engineering*, 8(10), 3291-3294.
- Edison, E. D., & Aisyah, H. (2023). The Effect of Regret Experienced in Investment Decision: an Experimental Study. *International Journal of Asian Business and Management*, 2(1), 85-98.
- Engler, J. O., Abson, D. J., & von Wehrden, H. (2019). Navigating cognition biases in the search of sustainability. *Ambio*, 48, 605-618.
- Ermulyawati, E., Hariyanto, D., & Safitri, H. (2024). The Influence of Loss Aversion, Herding Bias and Regret Aversion Towards Investment Decision to Shareholder in Pontianak. *Kompartemen: Jurnal Ilmiah Akuntansi*, 22(1), 99-108.
- Fama, E. F. (1970). Efficient capital markets. *Journal of finance*, 25(2), 383-417.

- Fama, E. F., French, K. R., Booth, D. G., & Sinquefeld, R. (1993). Differences in the risks and returns of NYSE and NASD stocks. *Financial Analysts Journal*, 49(1), 37-41.
- Fikriyah, T. M., & Suhartini, D. (2023). Analysis of Factors that Influence Investment Decisions with Financial Literacy as a Moderating Variable. *Indonesian Journal of Business Analytics*, 3(4), 1363-1376.
- Ginting, R., Crystopher, D., & Yunita, K. (2023). Revealing the Meaning of Indonesian Cryptocurrency Investment Decisions Based on Mental Accounting: A Phenomenological Study. *Jati: Jurnal Akuntansi Terapan Indonesia*, 6(1), 45-57.
- Gou, X., Xu, Z., Zhou, W., & Herrera-Viedma, E. (2021). The risk assessment of construction project investment based on prospect theory with linguistic preference orderings. *Economic research-Ekonomika istraživanja*, 34(1), 709-731.
- Goyal, P., Gupta, P., & Yadav, V. (2023). Antecedents to heuristics: decoding the role of herding and prospect theory for Indian millennial investors. *Review of Behavioral Finance*, 15(1), 79-102.
- Guo, G., Xiao, Y., & Yao, C. (2022). Multi-period uncertain portfolio selection model with prospect utility function. *Plos one*, 17(9), e0274625.
- Gupta, S., & Shrivastava, M. (2021). Herding and loss aversion in stock markets: mediating role of fear of missing out (FOMO) in retail investors. *International Journal of Emerging Markets*, 17(7), 1720–1737. <https://doi.org/10.1108/ijpem-08-2020-0933>
- Gupta, S., & Shrivastava, M. (2021). Impact of behavioral biases on investment decisions: Moderating effect of preferred sector of investment. *Ramanujan International Journal of Business and Research*, 6, 37-48.
- Gyanwali, I., & Neupane, G. (2021). Individual Investors Psychology and Investment Decision in NEPSE. *The Lumbini Journal of Business and Economics*, 9(1-2), 43-53.
- Hafez, H. M. (2021). Investigating the psychological factors that affect Egyptian investors' behaviour and decisions before and after the pandemic. *Journal of Governance and Regulation*, 10(4), 113–129 <https://doi.org/10.22495/jgrv10i4art10>
- Haigh, M. S., & List, J. A. (2005). Do professional traders exhibit myopic loss aversion? An experimental analysis. *The Journal of Finance*, 60(1), 523-534.
- Hala, Y., Abdullah, M., Andayani, W., Ilyas, G. B., & Akob, M. (2020). The Financial Behavior of Investment Decision Making Between Real and Financial Assets Sectors. *The Journal of Asian Finance, Economics and Business*, 7(12), 635–645. <https://doi.org/10.13106/jafeb.2020.vol7.no12.635>
- Haritha, P. H. (2024). The Effect of Heuristics on Indian Stock Market Investors: Investor Sentiment as a Mediator. *Management and Labour Studies*, 49(1), 43-61.
- Henriques de Brito, M., & do Valle Jardim, P. E. (2020). GROUP BEHAVIORAL BIASES AFFECT FINANCIAL DECISIONS UNLIKE INDIVIDUAL BEHAVIORAL BIASES. *IADIS International Journal on Computer Science & Information Systems*, 15(1).

- Hoxha, V., & Hasani, I. (2022). Decision-making biases in property investments in Prishtina, Kosovo. *Journal of Property Investment & Finance*, 41(2), 155-181.
- Hübner, G., & Lejeune, T. (2022). Portfolio choice and mental accounts: A comparison with traditional approaches. *Finance*, 43(1), 95-121.
- Hung, N. V. (2023). Forecasting The Vietnamese Stock Market Using Technical Analysis Indicators. *International Journal of Management & Entrepreneurship Research*, 5(12), 1076-1084.
- Ilbahar, E., Kahraman, C., & Cebi, S. (2022). Risk assessment of renewable energy investments: A modified failure mode and effect analysis based on prospect theory and intuitionistic fuzzy AHP. *Energy*, 239, 121907.
- Jain, J., Walia, N., & Gupta, S. (2019). Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process. *Review of Behavioral Finance*, 12(3), 297-314.
- Jaiyeoba, H. B., & Haron, R. (2016). A qualitative inquiry into the investment decision behaviour of the Malaysian stock market investors. *Qualitative Research in Financial Markets*, 8(3), 246-267.
- Jaiyeoba, H. B., Adewale, A. A., Haron, R., & Che Ismail, C. M. H. (2018). Investment decision behaviour of the Malaysian retail investors and fund managers: A qualitative inquiry. *Qualitative Research in Financial Markets*, 10(2), 134-151.
- Joshi, D. L. (2022). Use of moving average convergence divergence for predicting price movements. *International Research Journal of MMC (IRJMMC)*, 3(4), 21-25.
- Kahneman, D., & Tversky, A. (2013). Prospect theory: An analysis of decision under risk. In *Handbook of the fundamentals of financial decision making: Part I* (pp. 99-127).
- Kasoga, P. S. (2021). Heuristic biases and investment decisions: multiple mediation mechanisms of risk tolerance and financial literacy—a survey at the Tanzania stock market. *Journal of Money and Business*, 1(2), 102-116.
- Khan, A., & Bashir, T. (2020). Scale Development and Exploration in Representativeness Bias Intervening Investment and Financial Decisions. *Pakistan Social Sciences Review*, 4(1), 403-417.
- Khan, I., Afeef, M., Jan, S., & Ihsan, A. (2021). The impact of heuristic biases on investors' investment decision in Pakistan stock market: moderating role of long term orientation. *Qualitative Research in Financial Markets*, 13(2), 252-274.
- Khaskhelly, I. Z. (2023). How Behavioral Finance Impacts Investor Decision-Making: an Empirical Study of the Pakistan Stock Exchange. *International Journal of Contemporary Business and Economics (IJCBE)*, 1(02), 56-68.
- Kubinska, El' zbieta, Marcin Czupryna, Łukasz Markiewicz, Jan Czekaj (2016). Technical Analysis as a Rational Tool of Decision Making for Professional Traders. *Emerging Markets Finance and Trade*, 52(12), 2756–2771.
- Kudryavtsev, A., & Cohen, G. (2010). Anchoring and pre-existing knowledge in economic and financial settings. *American Journal of Social and Management Sciences*, 1(2), 164-180.

- Kumar, S., & Goyal, N. (2015). Behavioural biases in investment decision making—a systematic literature review. *Qualitative Research in financial markets*, 7(1), 88-108.
- Kumar, S., & Goyal, N. (2016). Evidence on rationality and behavioural biases in investment decision making. *Qualitative Research in Financial Markets*, 8(4), 270-287.
- Kumara, R. R., & Kawshala, B. A. H. (2021). The Impact of Heuristic Biases on Investors' Investment Decision Making; Evidence from Colombo Stock Exchange. *Journal of Business and Technology*, 5.
- Kumari, K. M. P. G. G. D., Kumari, J. S., & Senani, K. G. P. (2022). Impact Of Emotional Intelligence On Investment Decisions Of Individual Stock Market Investors.
- Kunjal, D. (2021). Investor overconfidence in the South African exchange traded fund market. *Cogent Economics & Finance*, 9(1), 1978190. <https://doi.org/10.1080/23322039.2021.1978190>
- Layyinaturrobaniah, Masyita, D., & Sekartadje, G. (2016). Fundamental and technical analyses for stock investment decision making. *Journal of Administrative and Business Studies*, 2(1), 1-7. doi:<https://doi.org/10.20474/jabs-2.1.1>
- Lee, J. S., Yen, P. H., & Chan, K. C. (2014). Investor sentiment and investment behavior in the chinese mutual fund market. *Chinese Economy*, 47(1), 38-52.
- Liugita, P., Salsabilla, S., & Meythi, M. (2024). Fundamental Analysis And Technical Analysis In Investment Decision Making. *International Journal of Innovative Technologies in Economy*, (1 (45)).
- Loris, R. P., & Jayanto, P. Y. (2021). The effect of representativeness, availability, anchoring, risk perception, and herding on investment decisions syariah investors. *Jurnal akuntansi*, 11(1), 81-92.
- Madaan, G., & Singh, S. (2019). An analysis of behavioral biases in investment decision-making. *International Journal of Financial Research*, 10(4), 55-67.
- Maghfira, Y. H. S. P. Technical Analysis: Penny Stock Manipulation Company Share Listed on the Indonesian Sharia Stock Index in 2022.
- Mahina, J. N., & Bashaija, W. (2018). Measuring the Effect of Confirmatory Bias on the Level of Investment at the Rwandan Stock Market. *European Business & Management*, 12(3), 67-74.
- Maiziyah, A. R., & Helmayunita, N. (2023). Pengaruh Representativeness Bias dan Availability Bias terhadap Pengambilan Keputusan Investasi. *Jurnal Nuansa Karya Akuntansi*, 1(3), 261-273.
- Markowitz, H. (1952). The utility of wealth. *Journal of political Economy*, 60(2), 151-158.
- Mohammad, E. A., & Salhy, B. B. (2023). The Economics of Behavioral Finance and its Effects on Investment Decisions in Kurdistan Region of Iraq for the Period 2020-2022. *Koya University Journal of Humanities & Social Sciences*, 6(1).
- Natahadi, H., Makaryanawati, M., & Keliwon, K. B. (2024). Impact of Influencer Trustworthiness and Financial Literacy on Herding Behavior with Risk Perception Mediating

Variables of Indonesian Millennial Investors. *International Journal of Social Service and Research*, 4(01), 15-30.

Nurbarani, B. S., & Soepriyanto, G. (2022). Determinants of Investment Decision in Cryptocurrency: Evidence from Indonesian Investors. *Universal Journal of Accounting and Finance*, 10(1), 254–266. <https://doi.org/10.13189/ujaf.2022.100126>

Octavia, A. D., Yuwono, C. C., & Monangin, F. G. (2022). The Effect of Financial Literature, Financial Behavior, & Regret Aversion Bias on Millennial Investment Decisions. *Indikator*, 6(1), 411888.

Ogbeide, S. O., & Okpamen, P. E. (2020). Cumulative Prospect Theory and Radner Theory: A Critical Assessment from Nigeria.

Ogunlusi, O. E., & Obademi, O. (2021). The Impact of behavioural finance on investment decision-making: A study of selected investment banks in Nigeria. *Global Business Review*, 22(6), 1345-1361.

Oktaba, P., & Grzywińska-Rapca, M. (2023). Modification of technical analysis indicators and increasing the rate of return on investment. *Central European Economic Journal*, 10(57), 148-162.

Peprah, W. K., Kwakwah-Oppong, C. A., Osei-Kuffour, F., & Evinita, L. L. (2024). The mediating effect of the COVID-19 pandemic on heuristic techniques and cognitive biases on investment decision-making. *International Journal of Applied Economics, Finance and Accounting*, 18(2), 351.

Pikulina, E., Renneboog, L., & Tobler, P. N. (2017). Overconfidence and investment: An experimental approach. *Journal of Corporate Finance*, 43, 175-192.

Pradhan, A. (2021). Quantitative model for impact of behavioral biases on asset allocation decisions: a case study of investors in UAE. *Journal of Asset Management*, 22(7), 573-580.

Rahawarin, F. R. (2023). The effect of loss aversion bias and regret aversion bias on financial decisions with financial literacy as an intervening variable. *Accounting and Finance Studies*, 3(1), 24-37.

Ranaweera, S. S., & Kawshala, B. A. H. (2022). Influence of behavioral biases on investment decision making with moderating role of financial literacy and risk attitude: A study based on colombo stock exchange. *Journal Homepage: Https://Sajf. Sljol. Info*, 2(1), 56-67.

Rashwan, A. E. R. M., Khalil, I. S. (2021). "Measuring the Impact of Mental Accounting on Financial and Investment Decisions among Investors." *Arab Journal of Administration*, 44(1), 227-243.

Raut, R. K., Das, N., & Mishra, R. (2020). Behaviour of individual investors in stock market trading: Evidence from India. *Global Business Review*, 21(3), 818-833.

Rehan, M., Alvi, J., Javed, L., & Saleem, B. (2021). Impact of behavioral factors in making investment decisions and performance: Evidence from Pakistan Stock Exchange. *Market Forces*, 16(1), 22-22.

Riaz, M., & Zubair, A. M. (2024). Does Self-Control and Over-Confidence Influence Investment Decision: The Mediating Role of Fundamental and Technical Analysis. *The Asian Bulletin of Contemporary Issues in Economics and Finance*, 4(1), 1-26.

- Road, E. R. P., M. I. Barandagh, & M. Hasanzadeh. (2013). "Examining the Impact of Mental Accounting on the Investment Decisions in the Tehran Stock Exchange." *International Journal of Accounting Research*, 1(5), 6-10.
- Ross, S. (1976). The arbitrage pricing theory. *Journal of Economic Theory*, 13(3), 341-360.
- Santi, F., Sahara, N. V., & Kamaludin, K. (2019). The effect of mental accounting on student's investment decisions: a study at investment gallery (GI) FEB University of Bengkulu and Syariah investment gallery (GIS) FEB Iain Bengkulu. *Jurnal Ilmiah Ekonomi Bisnis*, 24(2), 137-152. *International Journal of Financial Research*. 11(2), 26-39. <https://doi.org/10.5430/ijfr.v11n2p26>
- Santoso, N. B., Farida, N., & Wijayanto, A. (2022, September). Individual Investors Trading Behavior in Indonesia Stock Exchange and the Covid-19. In *ICISPE 2021: Proceedings of the 6th International Conference on Social and Political Enquiries, ICISPE 2021, 14-15 September 2021, Semarang, Indonesia* (Vol. 248). European Alliance for Innovation.
- Saputra, S. E., Adrianto, F., Alfarisi, M. F., Hamidi, M., & Muharja, F. (2023). Endogeneity testing: Heuristic behavior AS a reference for beginning investors in making investment decisions. *Jurnal Apresiasi Ekonomi*, 11(2), 339-347.
- Sattar, M. A., Toseef, M., & Sattar, M. F. (2020). Behavioral finance biases in investment decision making. *International Journal of Accounting, Finance and Risk Management*, 5(2), 69.
- Seraj, A. H. A., Alzain, E., & Alshebami, A. S. (2022). The roles of financial literacy and overconfidence in investment decisions in Saudi Arabia. *Frontiers in psychology*, 13, 1005075.
- Shah, S. Z. A., Ahmad, M., & Mahmood, F. (2018). Heuristic biases in investment decision-making and perceived market efficiency: A survey at the Pakistan stock exchange. *Qualitative Research in Financial Markets*, 10(1), 85-110.
- Shahani, R., & Ahmed, S. F. (2022). Psychological and social factors determining investment decisions in cryptocurrency: exploring the mediating role of cognitive biases. *Journal of Organisational Studies and Innovation*, 9(4), 24-45.
- Sharma, M., & Firoz, M. (2020). Do Investors' Exhibit Cognitive Biases: Evidence from Indian Equity Market.
- Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, 19(3), 425-442.
- Shefrin, H., & Statman, M. (2000). Behavioral portfolio theory. *Journal of financial and quantitative analysis*, 35(2), 127-151.
- Silwal, P. P., & Bajracharya, S. (2021). Behavioral factors influencing stock investment decision of individuals. *The International Research Journal of Management Science*, 6(1), 53-73.
- Simanjuntak, R., Putri, S., & Muda, I. (2023). The influence of technical and fundamental analysis on investment decision making for traders with theory of reasoned action. *Brazilian Journal of Development*, 9(12), 31972-31986.

- Sudirman, W. F. R., Winario, M., Priyatno, A. M., & Assyifa, Z. (2023). Risk Tolerance: Heuristic Bias Towards Investment Decision Making. *Jurnal Manajemen Teori dan Terapan*, 16(2).
- Sutrisno, A., & Kumar, V. (2022). Supply chain sustainability risk decision support model using integrated Preference Selection Index (PSI) method and prospect theory. *Journal of Advances in Management Research*, 19(2), 316-346.
- Syarkani, Y., & Trisanto, T. A. (2022). Examining the predictors of crypto investor decision: The relationship between overconfidence, financial literacy, and attitude. *International Journal of Research in Business and Social Science* (2147-4478), 11(6), 324-333.
- Talwar, S., Talwar, M., Tarjanne, V., & Dhir, A. (2021). Why retail investors traded equity during the pandemic? An application of artificial neural networks to examine behavioral biases. *Psychology & Marketing*, 38(11), 2142–2163. <https://doi.org/10.1002/mar.21550>
- Tan, J., Liu, Y., Senapati, T., Garg, H., & Rong, Y. (2023). An extended MABAC method based on prospect theory with unknown weight information under Fermatean fuzzy environment for risk investment assessment in B&R. *Journal of Ambient Intelligence and Humanized Computing*, 14(10), 13067-13096.
- Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive psychology*, 5(2), 207-232.
- Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and uncertainty*, 5, 297-323.
- Utami, W., & Nugroho, L. U. C. K. Y. (2017). Fundamental versus technical analysis of investment: Case study of investors decision in Indonesia stock exchange. *The journal of internet Banking and Commerce*, 22, 1-18.
- Wangzhou, K., Khan, M., Hussain, S., Ishfaq, M., & Farooqi, R. (2021). Effect of regret aversion and information cascade on investment decisions in the real estate sector: The mediating role of risk perception and the moderating effect of financial literacy. *Frontiers in Psychology*, 12, 736753.
- Wheatcroft, E., & Wynn, H. P. (2021). Probability distortion with applications to investment bias. *Journal of Statistics and Management Systems*, 24(3), 591-611.
- Wu, J. M. T., Li, Z., Srivastava, G., Tasi, M. H., & Lin, J. C. W. (2021). A graph-based convolutional neural network stock price prediction with leading indicators. *Software: Practice and Experience*, 51(3), 628-644.
- Yuwono, W., & Elmadiani, C. (2021, May). The effect of emotional contagion, availability bias, overconfidence, loss aversion, and herding on investment decisions in the millennial generation during the beginning of the Covid-19 pandemic. In *Proceedings of the 1st International Conference on Law, Social Science, Economics, and Education, ICLSSEE 2021, March 6th 2021, Jakarta, Indonesia*.
- Yuyang Wang. Behavioral Biases in Investment Decision-Making. AEMPS (2023) Vol. 46: 140-146. DOI: 10.54254/2754-1169/46/20230330.

- Zhang, L., Feng, J., & Feng, B. (2024). Research on PPP-ABS projects hesitant fuzzy multi-criteria investment decision-making with prospect theory and VIKOR method. *Journal of Industrial and Management Optimization*, 0-0.
- Zhang, X. (2023). The Role of Behavioral Bias in Investment Outcomes. *Highlights in Business, Economics and Management*, 15, 99-104.

A STUDY OF RELATIONSHIP BETWEEN TEACHING PRESENCE WITH COGNITIVE AND SOCIAL PRESENCE IN ONLINE GROUP TASKS

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ABSTRACT

Group work is an effective way of learning in traditional classrooms. To foster effective involvement, academics have emphasised the need to study group interactions more closely in online learning environments. However, online classrooms have made group work more difficult during the post-pandemic period. Therefore, the study investigated how learners perceive mixed-mode group work at different stages of study. Moreover, some learners are more benefiting and more comfortable in groups expressing ideas and opinions under the direction of teachers. The data was collected via a questionnaire. The study employed a modified version of the instrument developed by earlier researchers. The questionnaire was examined using the Social Science Statistical Package (SPSS). The study surveyed 296 randomly selected participants from Universiti Teknologi MARA to investigate how learners view these three factors in mixed-method group work. The study has three main sections. Section A covers demographic profiles. Section B includes eight cognitive presence-related elements, Section C contains eight social presence elements, and Section D comprises eight teaching presence elements. A summary of findings reveals that the three subconstructs of teaching presence, cognitive presence, and social presence consumed good reliability. The Cronbach alpha for the study instrument is 0.842. The presence of teaching in these groups was discovered to have a moderate impact on the relationship between the presence of cognitive and social people in mixed group work. Thus, hybrid learning, which uses a group-work approach in classrooms, offers exciting implications for each form of presence.

Keywords: Cognitive Presence, Online Group Work, Social, Teaching Presence

1.0 INTRODUCTION

1.1 Background of Study

Group work has been proven to be an effective method for learners since traditional classrooms. To promote effective involvement, academics have highlighted the need to study group interactions in online learning environments more closely. By participating students, the terms collaboration, group, and cooperative learning can be used interchangeably to minimise individual cooperative learning. Most students were satisfied

with their academic achievements, considering that the collaborative learning environment helped them to learn effectively in a comfortable environment (Novitasari, 2019). A study of the perceptions of learners in mixed group learning experiences is necessary for several reasons. By establishing the presence of teaching, the social and cognitive presence of online classes will enable meaningful learning in collaborative work between learners (Jitendra Singh and others, 2022).

Since the breakup of COVID-19, the country's educational landscape has changed. Higher education is increasingly incorporating online and mixed learning, and research on this subject has grown considerably. The current learning strategy adopted by many universities is fast adjusted to the learning process, and students can follow various learning methods, including face-to-face classes or online courses guided by teachers. Education providers are not fully prepared for remote learning, making it difficult to establish social and cognitive presences to improve students' learning experiences (Meda and ElSayary, 2021). However, the challenge to overcome is for learners to work in groups. An overview of the impact on students' perceptions of mixed learning situations is given by the study. As a result, Malaysian teachers can use research results and effective techniques into their teaching methods to enhance the creation, delivery, and design of curricula and to strengthen their dedication to completing group projects in a variety of learning environments.

1.2 Statement of Problem

In today's learning, various methods and approaches have been taken to ensure that every student receives the best education. It began with face-to-face methodology, but it is more modern and systematic today. The framework of Community of Inquiry (CoI) approach is among the best methods for teaching students online (Pool, Reitsma and Berg, 2017). The challenge is how each student understands the lecturer's words. Although each professor used the best approach in each lesson, some students left school and fell behind. It has been shown that many studies related to this theory have been used from the CoI theory. However, there is still a research gap, such as the correlation between the presence of teaching and the cognitive and social presence in the tasks of the online group.

1.3 Objective of the Study and Research Questions

This study is done to explore the perceptions of learners on their use of learning strategies. Specifically, this study is done to answer the following questions.

- How do learners perceive teaching presence in mixed mode group work?
- How do learners perceive cognitive presence in mixed mode group work?
- How do learners perceive social presence in mixed mode group work?
- Is there a relationship between teaching presence and cognitive and social presence?

2.0 LITERATURE REVIEW

2.1 Online Learning

Online learning has recently been widely known for its flexibility, convenience, and accessibility. Online learning refers to educational courses and programs that are delivered entirely or in part by the Internet, using various technologies such as Internet conferences, video lectures, discussion forums, and online assignments. Personalised learning is one of the benefits of online learning; teachers can tailor course materials and assessments to each

student's needs; students have more opportunities for self-directed learning through online learning, which boosts motivation and participation (Garrison & Kanuka, 2021). In addition, effective online courses should offer opportunities for cooperation and discussion, as these activities can improve the education of students and promote social participation (Garrison & Cleveland-Innes, 2021).

Zhong (2022) highlighted that self-regulation, the presence of teaching, and society are important predictors of students' engagement and persistence in a mixed synchronous learning environment. Their research shows that promoting these elements can improve learning results and reduce dropout rates. Turk et al. (2022) discovered that the presence of teaching and social has a significant impact on the satisfaction of students' perception of the ability to meet their psychological needs, consequently on their engagement and persistence in online courses. The development of online learning has been significantly influenced by technological advancement such as learning management systems (LMS), video conference platforms, and interactive multimedia have improved the provision and accessibility of online education. Woo et al. (2023) examined the impact of these technologies during remote emergency education (ERT) and concluded that they were essential to maintaining continuity of education and participation of students in the COVID-19 pandemic. Despite the benefits, online learning after COVID-19 poses several challenges, including digital differences, learning isolation, and different levels of technical competence. Studies by Moore and Kohnke (2021) and others highlight these issues and emphasise the need for equitable access to technology and continuous professional development for educators to use online tools effectively.

2.2 Online Group Work

The interaction of students, including discussions and collaborations between colleagues, is an important feature of effective and interactive online learning experiences. Davidson and Katopodis (2020) believe that advice is the best way to work in a successful online group and effectively collaborate with students. When students deal with important projects with real consequences, learning will be improved. Furthermore, they encourage students to work online and ask them to create a job description to increase participation. They proposed some intermediate dates and, at each milestone, outlined precise delivery dates for each group member. Start asynchronous group work (in class) at check-in, where students share completed tasks and subsequent steps. Before any group project, you must understand your colleagues' expectations for courses and projects, strengths and weaknesses. Students should then know exactly the purpose of their project. The best group has a clear organisational structure to use each group member's talents to achieve their goals. Good and clear communication will help them succeed in their group projects. Ensure the group knows all communication methods, deadlines, feedback opportunities, questions, and other important information. Then, the work with the team is important.

Recent research on online group work, particularly between 2022 and 2024, has continued to evolve, focusing on the effectiveness of digital collaboration tools, educational strategies, and the impact of hybrid learning models. The COVID-19 pandemic significantly accelerated the adoption of online learning, highlighting the potential and challenges of online group work. Studies show that Microsoft Teams, Zoom, and Google Docs are essential tools for facilitating real-time student communication and collaboration (Choukaier, 2024). Effective group work requires carefully designed activities, clear instructions, and continuous feedback from instructors to ensure student participation and fair participation (Donelan & Kear, 2024). While challenges such as communication obstacles and uneven workloads persist, strategies such as role assignment, regular monitoring, and peer review have been found to address these problems. According to Lim et al. (2024), group work's formation, storming, regulation, and performance stages are linked in a constructive

progression, indicating that they are not different from each other but rather linked in a positive progression. Raising awareness of these links is useful to guide a group effectively.

2.3 Elements of Social presence, cognitive presence, and teaching presence

Kilis and Yildirim (2019), have used the Community of Inquiry (CoI) framework, such as the presence of the social, cognitive, and educational environment. The study uses a goal sampling method to collect data from 91 students at the Department of Medical Documentation and the Secretary of the Department of Medical Documentation, an online associate degree program at a well-known public university, for six months. In addition, the data were analysed using descriptive and deductive methods. The results showed that students' social, cognitive, and educational posting behaviours were significantly high and could be significantly improved during treatment.

Garrison et al. (2010) studied the causes and consequences of the CoI. The authors explained that the development of the CoI-based instrument could verify causal relationships, that the assumptions of causal relationships between education and social presence have a significant impact on cognitive presence, and that the assumptions of causal relationships between education presence and the presence predicted by the CoI framework have been assessed. The study also showed the structure of the CoI framework factor. These results pointed to education's vital role in forming and maintaining research communities.

The COVID-19 epidemic quickly changed to online education, focusing on tools and technologies for replicating face-to-face interactions but often neglecting the whole learning experience. According to ElSayad (2023), the important presence of learning positively impacts learning and cognitive presence through the social presence of the extensive research community in the mixed learning context. This finding explains that increasing the presence of teachers and social interactions between peers contribute to encouraging students' motivation, behaviour, and development, thus encouraging them to apply cognitive learning methods. Based on these findings, the study confirms that the presence of social and learning is an important practice that should be considered in the emergency mixed learning environment to support the cognitive presence of students and to develop their learning perceptions. In line with the case study conducted with postgraduate students, the focus is on the social presence, the presence of teaching, the presence of cognition, and overall educational experiences. The study advocates the inclusion of "self-representation" in the CoI framework, emphasising the importance of understanding the relationship between the self and the virtual self-representation at different levels (body, emotion, identity), especially in terms of effectiveness factors and digital expression (Carrol et al., 2024).

These studies demonstrate the ongoing relevance and applicability of the CoI framework in modern educational environments and emphasise the need for a balanced and integrated presence to promote an effective online learning environment.

Conceptual Framework

Fig. 1 shows the conceptual framework of the study. The study explores learners' perceptions about group work performance through online mode. Regardless of face-to-face or online modes, collaborative tasks can promote critical thinking and long-term information retention among students (Rahmat, 2020). In this study on online modes, the relationship between the presence of teachers and cognitive and social were investigated. According to Aderibigbe (2021), online group tasks should be designed to enable learners to experience the presence of teachers, cognitive and social.

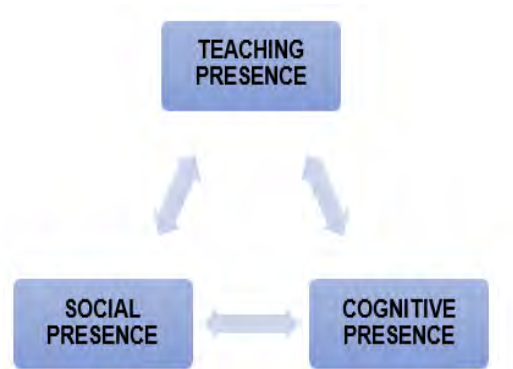


Fig. 1 Conceptual Framework of the Study

3.0 METHODOLOGY

This quantitative study is done to explore motivation factors for learning among undergraduate students at Universiti Teknologi MARA Cawangan Johor. A purposive sample of 296 participants responded to the survey. The instrument used is a 5 Likert-scale survey and is rooted in Aderibigbe (2021) to reveal the variables in Table 1 below. The survey has four (4) sections. Section A has items on the demographic profile. Section B has 8 items on cognitive presence. Section C has 8 items on social presence. Section D has 8 items on teaching presence.

Table 1. Distribution of Items in the Survey

Section	Elements	No. of Items
B	Cognitive Presence	8
C	Social Presence	8
D	Teaching Presence	8
		24

Table 2. Reliability of Survey

Reliability Statistics

Cronbach's Alpha	N of Items
.842	24

Source: Author's calculation using SPSS 25

Table 2 indicates the reliability of the survey. The analysis records a Cronbach Alpha of 0.842, thus revealing good reliability of the instrument chosen or used. Further analysis using SPSS 25 is done to present the findings to answer the research questions for this research.

4.0 FINDINGS

4.1 Findings for Demographic Profile

There are three items for demographic: gender, education background and faculty. The results are as follows.

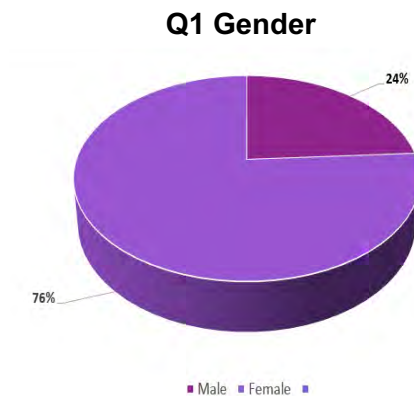


Fig. 2 Gender (%)

Fig. 2 shows the gender percentage. The pie chart reports that 24% of males and 76% of females were among the respondents among students from Universiti Teknologi MARA Cawangan Johor who were involved in this study.

Q2 Education Background

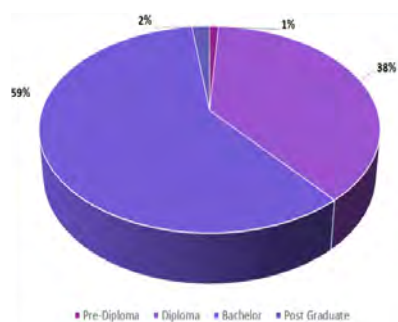


Fig. 3 Education Background (%)

Fig. 3 indicates the percentage for educational backgrounds of the respondents. The pie chart shows that 1% of pre-diploma, 38% of diploma, 59% of bachelor, and 2% of postgraduate students were involved as respondents in this research.

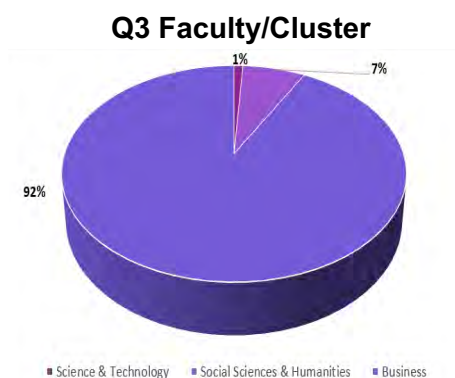


Fig. 4 Faculty (%)

Fig. 4 presents the respondents' faculty in percentage. The results recorded that 1% of the respondents were in science and technology, 7% were in social sciences and humanities,

and 92% were in business. All the respondents come from the same university, Universiti Teknologi MARA Cawangan Johor.

4.2 Findings for Teaching Presence

This section presents the recorded data to answer research question 1: How do learners perceive teaching presence in mixed-mode group work?

SECTION D (Teaching Presence)

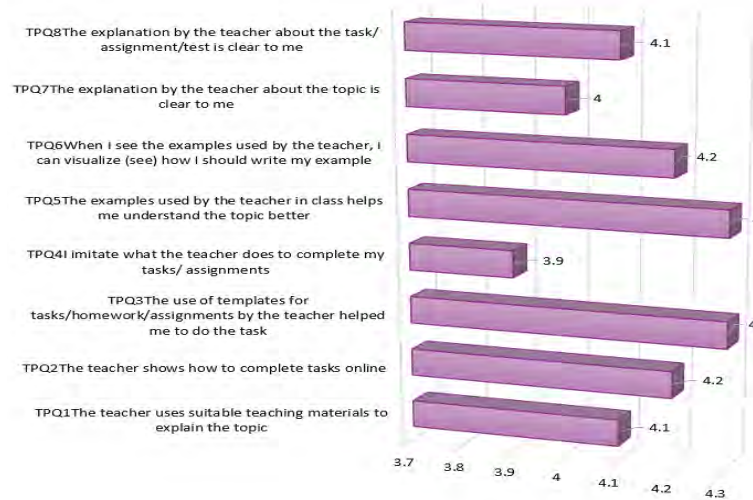


Fig. 5 Mean for Teaching Presence

The mean for teaching presence is presented in Fig. 5. The results indicate that question 5, related to the examples used by the lecturer in class, helps the students understand the topic better and has the highest mean, with a total of 4.3. As for the lowest mean, question 4 is related to imitating what the lecturer does to complete the tasks or assignments, with a total mean of 3.9.

4.3 Findings for Cognitive Presence

This section presents the data to answer research question 2: How do learners perceive cognitive presence in mixed-mode group work?

SECTION B (Cognitive Presence)

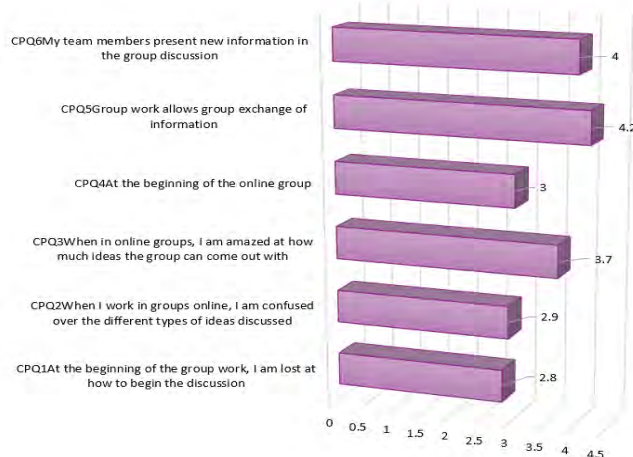


Fig. 6 Mean for Cognitive Presence

Fig. 6 shows the average score for cognitive presence in group work tasks in online learning. The highest average score is 4.3, and the CPQ7Group work allows team members to connect their ideas, while the CPQ5Group work is 4.2, allowing group information exchange. At the beginning of group work, the lowest average was 2.8, and CPQ1I lost how to start discussions because only a few students could not focus on discussions. Although it is online learning, students can still work well in groups by sharing new information and ideas, as shown by the average 4.0 score for CPQ6My team members who present new information in group discussions and CPQ6My team members who present new information in group discussions.

4.4 Findings for Social Presence

This section presents the data to answer research question 3: How do learners perceive social presence in mixed-mode group work?

SECTION C (Social presence)

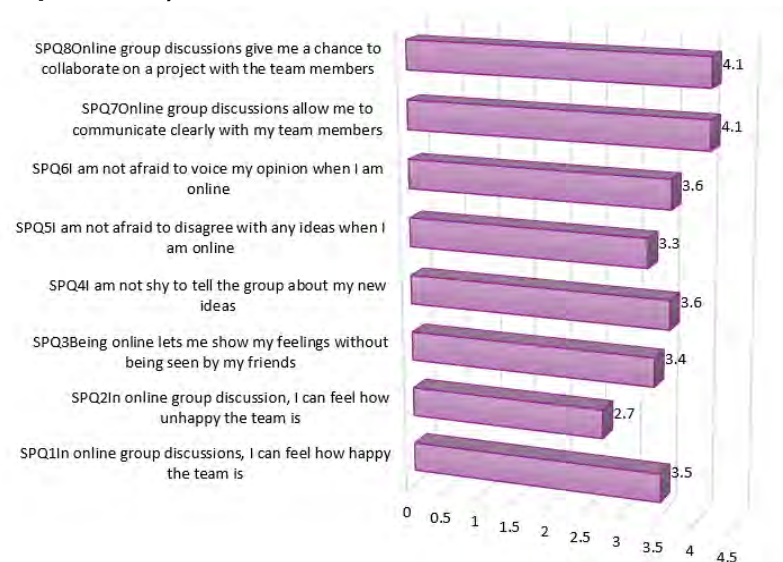


Fig. 7 Mean for Social Presence

Fig. 7 shows the mean for social presence. The highest means are SPQ7 and SPQ8, which are 4.1. SPQ7 is an online group discussion that allows me to communicate clearly with my team members and SPQ8 is an online group discussion that gives me a chance to collaborate on a project with the team members. The lowest value of the mean is SPQ2, which is 2.7. SPQ2 is in an online group discussion, and I can feel how unhappy the team is. The rest recorded the value of means is between 3.3 to 3.6. From these results, it was recorded that the students agreed that the online group discussions allowed them to communicate clearly with the team members and gave them a chance to collaborate on a project with the team members. They disagree that they can feel unhappy with the team.

4.5 Findings for Relationship

This section presents the data to answer research question 4: Is there a relationship between teaching presence and cognitive and social presence?

To determine if there is a significant association in the mean scores between metacognitive, effort regulation, cognitive, social, and affective strategies, data is analysed using SPSS for correlations. Results are presented separately in tables 3, 4, 5, and 6 below.

Table 3. Correlation between Teaching and Cognitive Presence

Correlations		TOTALTEACHING	TOTALCOGNITIVE
TOTALTEACHING	Pearson Correlation	1	.328**
	Sig. (2-tailed)		.000
	N	296	296
TOTALCOGNITIVE	Pearson Correlation	.328**	1
	Sig. (2-tailed)	.000	
	N	296	296

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

Source: Author's calculation using SPSS 25

Table 3 shows that there is an association between teaching and cognitive presence. Correlation analysis indicates that there is a moderately significant association between teaching and cognitive presence ($r=0.328^{**}$) and ($p=0.000$). According to Jackson (2015), the coefficient is significant at 0.05, and a positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a solid positive correlation from 0.5 to 1.0. This means that there is also a moderate positive relationship between teaching and cognitive presence.

Table 4. Correlation between Teaching and Social Presence

Correlations		TOTALTEACHING	TOTALSOCIAL
TOTALTEACHING	Pearson Correlation	1	.441**
	Sig. (2-tailed)		.000
	N	296	296
TOTALSOCIAL	Pearson Correlation	.441**	1
	Sig. (2-tailed)	.000	
	N	296	296

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

Source: Author's calculation using SPSS 25

Table 4 shows an association between teaching and social presence. Correlation analysis shows a moderately significant association ($r=0.441^{**}$) and ($p=0.000$). According to Jackson (2015), a moderate positive relationship exists between teaching and social presence.

Table 5. Correlation between Cognitive and Social Presence

Correlations		TOTALCOGNITIVE	TOTALSOCIAL
TOTALCOGNITIVE	Pearson Correlation	1	.276**
	Sig. (2-tailed)		.000
	N	296	296
TOTALSOCIAL	Pearson Correlation	.276**	1
	Sig. (2-tailed)	.000	
	N	296	296

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

Source: Author's calculation using SPSS 25

Table 5 shows an association between cognitive and social presence. Correlation analysis shows a low significant association between cognitive and social presence ($r=0.276^{**}$) and ($p=0.000$). According to Jackson (2015), cognitive and social presence have a weak positive relationship.

5.0 CONCLUSION

A general overview of the results examined the relationships between the teaching presence and the cognitive and social presence in mixed-mode group work among learners. It has been found that the group work of learners in blended learning positively impacts teaching, cognitive, and social presence. Meanwhile, students' cognitive and social presence in group work is weak in mixed-mode teaching. Learners' perception of cognitive presence can be important in online group discussions. The participation of teachers is necessary to promote cognitive presence to achieve higher learning results. The study was supported by Beckmann and Weber, 2015; Olesova et al. 2022; and Nungu et al. 2023.

The results indicate that learners perceive that the teacher's efforts to create a greater sense of teaching presence are not clear instructions, but rather the need for guidance and understanding of the subject rather than seeing and hearing the teacher in mixed group work. Similarly, Wang and Liu (2019) found that too much direct instruction can hinder the engagement and development of students' knowledge. The study also showed that the higher the social presence of learners, the more beneficial it is, and the better it can be to engage in collaboration work during online learning. People who do not enjoy social interaction and who are socially anxious will feel less social. The study results are consistent with Nungu et al. (2023), whose thesis emphasises that learners who collaborate and co-create knowledge through online small-group activities are considered important students who achieve success in learning. Students cannot complete the integration and resolution phases of cognitive presence by creating only discussion forum assignments. It is necessary to implement a continuous process of critical thinking and encourage participants to link ideas and concepts to the realities of the real world. This conclusion coincides with previous research showing that teaching presence plays an important role in the development of discourse to cultivate cognitive presence (Garrison, 2017).

6.0 SUGGESTION FOR FUTURE RESEARCH

Group work is an important learning incentive. Furthermore, this study showed that students perceived group work as beneficial, in accordance with previous studies on the experiences of students working in groups regardless of the course type, whether in a traditional classroom or in an online environment (Hammar, 2014; Riaz et al., 2022). Furthermore, the interactions of learners depend on the degrees and methods of facilitators of discussions by teachers. Therefore, future research may also be needed to study factors affecting students, faculty, and teacher experiences in mixed learning groups. This will influence their participation in mixed learning courses by different instructors and their teaching, as well as their social and cognitive presence. In addition, the study suggests that several datasets and methods are used to measure empirical evidence of teacher, social and cognitive presence, and student satisfaction with learning outcomes.

CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest in this article. Each author contributed by dividing it into sections using colour coding. The contributions of each author were as follows: Author 1 conceived and designed the study and conducted an extensive literature review. Author 2 conducted refinement of the manuscript. Author 3 interpreting the study's findings. Author 4 reviewed the manuscript and played a significant role in drafting

the initial manuscript. Author 5 conducted data collection and analysis. Author 6 actively participated in manuscript revisions. All authors critically reviewed and approved the final version of the manuscript, demonstrating their collective commitment to the accuracy and integrity of the research presented.

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REFERENCES

- Aderibigbe, S.A. (2021). Can online discussions facilitate deep learning for students in general education? *Heliyon*, 7(3),1-6.10.1016/j.heliyon.2021.e06414.
- Beckmann, J. & Weber, P. (2015). Cognitive presence in virtual collaborative learning: assessing and improving critical thinking in online discussion forums. *International Conference e-Learning 2015*.
- Carroll, N., Lang, M., & Connolly, C. (2024). An extended community of inquiry framework supporting students in online and digital education. *Innovations in Education and Teaching International*, 1–17. 10.1080/14703297.2024.2326658.
- Choukaier, D. (2024). Enhancing English as a Foreign Language (EFL) instruction through digital teaching platforms: Analyzing the impact of Microsoft Teams, Zoom, And Google Meet on communication and participation. *Educational Administration: Theory and Practice*, 30(6), 2404–2418. 10.53555/kuey.v30i6.5748.
- Davidson, C.N. & Katopodis, C. (2020). *8 ways to improve group work online*. Inside Higher Education.<https://www.insidehighered.com/advice/2020/10/28/advice-how-successfully-guide-students-group-work-online-opinion>.
- Donelan, H., & Kear, K. (2024). Online group projects in higher education: persistent challenges and implications for practice. *J Comput High Educ*,36, 435–468. 10.1007/s12528-023-09360-7.
- ElSayad, G. (2023). Higher education students' learning perception in the blended learning community of inquiry. *J. Comput. Educ.* 10.1007/s40692-023-00290-y.
- Garrison, D. R., & Cleveland-Innes, M. (2021). Facilitating Cognitive presence in online learning: interaction is not enough. *American Journal of Distance Education*, 35(2), 108-120.
- Garrison, D. R., & Kanuka, H. (2021). Blended learning: Uncovering its transformative potential in higher education. *Internet and Higher Education*, 3(2-3), 95-105.
- Garrison, D. R., Cleveland-Innes, M., & Shing Fung, T. (2010). Exploring causal relationships among teaching, cognitive and social presence: Student perceptions. *The Community of Inquiry Framework*, 13, 31-36. 10.1016/j.iheduc.2009.10.002
- Garrison, D.R. (2017). *E-learning in the 21st century: A community of inquiry framework for research and practice* (3rd ed.). Routledge/Taylor and Francis
- Hammar Chiriac, E. (2014). Group Work as an incentive for learning - students' experiences of group work. *Front Psychol*, 5(5),558. 10.3389/fpsyg.2014.00558.
- Jackson, S.L. (2015). *Research methods and statistics-a critical thinking approach* (5th Ed.). Cengage Learning.
- Jitendra Singh, J., Singh, L., & Matthees, B. (2022). Establishing social, cognitive, and teaching presence in online learning—a panacea in COVID-19 pandemic, post vaccine and post pandemic times. *Journal of Educational Technology Systems*, 51(1),568–585. DOI: 10.1177/00472395221095169.
- Kilis, S., & Yildirim, Z. (2019). Posting patterns of students' social presence, cognitive presence, and teaching presence in online learning. *Online Learning*, 23(2), 179-195. DOI:10.24059/olj.v23i2.1460.

- Lim, S.M. Exploring group work during mandarin classes using Tuckman's Model. *INSIGHT Journal*, 142-156.
- Meda, L. & ElSayary, A. (2021). Establishing Social, cognitive and teacher presences during emergency remote teaching: Reflections of certified online instructors in the United Arab Emirates. *Contemporary Educational Technology*, 13(4), 318. 10.30935/cedtech/11073.
- Moorhouse, B. L., & Kohnke, L. (2021). Thriving or surviving emergency remote teaching necessitated by COVID-19: University Teachers' Perspectives. *The Asia-Pacific Education Researcher*, 30(3). 10.1007/s40299-021-00567-9.
- Novitasari, N.F. (2019). Collaborative learning in ESP speaking classroom: Learners' perceptions and experiences. *International Seminar on Language, Education, and Culture, KnE Social Sciences*, 309–319. 10.18502/kss.v3i10.3912.
- Nungu, L., Mukama, E. & Nsabayezu, E. (2023). Online collaborative learning and cognitive presence in Mathematics and Science education. Case study of University of Rwanda, College Of Education. *Educ Inf Technol*. 10.1007/s10639-023-11607-w.
- Olesova, L., Sadaf, A., Kumar, S., Ozogul, G., Zhu, M., Moore, R.L., Miller, C. & Phillips, T.M (2022). Cognitive presence in online courses: design and facilitation of collaborative learning. 10.13140/RG.2.2.25730.56008.
- Pool, J., Reitsma, G., & van den Berg, D. (2017). Revised community of inquiry framework: Examining learning presence in a blended mode of delivery. *Online Learning*, 21(3), 153-165. DOI: 10.24059/olj.v%vi%i.866.
- Rahmat, N.H. (2020). Conflict resolution strategies in class discussions. *International Journal of Education*, 12(3), 49---66. 10.5296/ije.v12i3.16914.
- Riaz, A., Zaman, K., Safdar, T., Shahbal, S., Raja Alsolami, A., Mohammad Alfi, E.A., & Alamrani, A.H. (2022). Effects of online learning experience, cognitive presence and Psychological Well-Being Among University And College Students During Pandemic In Pakistan and KSA. *Journal of Positive School Psychology 2022*, 6(10), 1370-1386. 10.5281/zenodo.7343162.
- Su, F., Zou, D., Wang, L., & Kohnke, L. (2023). Student engagement and teaching presence in blended learning and emergency remote teaching. *J. Comput. Educ*. 10.1007/s40692-023-00263-1.
- Turk, M., Heddy, B.C., & Danielson, R. W. (2022). Teaching and social presences supporting basic needs satisfaction in online learning environments: How can presences and basic needs happily meet online. *Computers & Education* 180(3–4). DOI:10.1016/j.compedu.2022.104432.
- Wang, Y. & Liu, Q. (2019). Effects of online teaching presence on students' interactions and collaborative knowledge construction. *Journal of Computer Assisted Learning*, 36, 370-382. 10.1111/jcal.12408.
- Woo, L. J., Archambault, L., & Borup, J. (2023). Exploring the evolution of field experiences in P-12 online settings: A systematic review of studies from 2007-2022. *Journal of Research on Technology in Education*, 1–17. <https://doi.org/10.1080/15391523.2023.2237612>.
- Zhong, Q., Wang, Y., Lv, W., Xu, J., & Zhang, Y. (2022). Self-Regulation, Teaching presence, and social presence: Predictors of students' learning engagement and persistence in blended synchronous learning. *Sustainability* 14, 5619. 10.3390/su14095619.

A MINI EXPLORATION ON THE FACTORS OF PERSONAL BANKRUPTCY AMONG MALAYSIAN'S YOUTH

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ABSTRACT

This paper exploring factors influencing the occurrence of personal bankruptcy among Malaysian youth. As this paper is a mini project, we only have two informants as part of our method in getting data in exploring the topic. Therefore, this study utilizes a very simple approach in exploring the topic about personal bankruptcy among youth in Malaysia. Several key factors being identified as the contributor to personal bankruptcy including socioeconomic background, educational attainment, employment status, financial literacy, and access to credit. Findings in this study also stressed the importance of financial education and its potential positive impact on individuals' financial well-being and bankruptcy prevention. Youth behaviour and attitude also being emphasizes in financial decision-making and bankruptcy outcomes, aligning with previous quantitative studies. With the findings from the informants, this study shall able to highlight the complex interplay of these factors in determining the likelihood of personal bankruptcy among young Malaysians. It is very important to those individual youth to measure their readiness to accept or respect their values or practices at the debt level to avoid bankruptcy. This study provides valuable insights into the factors contributing to personal bankruptcy in Malaysia, emphasizing the critical role of financial management, lending practices, behaviour and attitude, and financial education. In a possible way, a policy implication has also been highlighted as the need for targeted interventions to enhance financial education, promote responsible lending practices, and support economic opportunities for youth. By addressing the factor, this study found that it is very crucial to mitigate the impact of personal bankruptcy and fostering financial resilience among Malaysian youth. By elucidating these dynamics, this study contributes to a deeper understanding of the multifaceted challenges faced by young Malaysians in managing personal finances and navigating the complexities of modern financial systems.

Keywords: Personal Bankruptcy, Youth, Malaysia, Financial Literacy, Socioeconomic Factors

1.0 INTRODUCTION

Personal bankruptcy is a significant issue in Malaysia, with many individuals facing financial distress and insolvency. Understanding the factors contributing to personal bankruptcy is crucial for developing effective strategies to address this problem. Personal bankruptcy is a concerning issue because it reflects the well-being of the population, which in turn directly influences the growth of the country. Personal bankruptcy may also cause micro-macroeconomics issues. According to the statistic reported in the website of

Malaysian Department of Insolvency (MDI), the number of bankruptcies keep increasing until the year of 2018. The increasing number, shows that something shall be done in order to reduce the increasing value. However, when the government started changing the threshold of bankruptcy value from RM50,000 to RM100,000, the number of bankruptcies shows a decreasing movement until now, year 2023. Even the statistic of bankruptcies shows decreasing value, bankrupt cases keep existing and this become one of the issues.

As data reported from the website of Malaysian Department of Insolvency (MDI)(May 2023), they have deal with 261,445 cases of bankruptcy which include the personal bankruptcy. This is not a simple figure that shall be ignored by the policymaker. The impact of bankruptcy not only on the current situation of that individual, but it may give impact on the future of that individual.

MDI also reported that many cases of bankruptcies in Malaysia were dragged down by personal loans, with other reasons including vehicle hire purchase, business loans and outstanding credit card repayment (Azmi et.al, 2019; Nor et.al, 2018; Hassan et al., 2021). Also, being reported, age numbers of bankrupts between 25 – 44 years old is quite high. Personal bankruptcy or consumer bankruptcy also had been reported keep increasing in other countries such as US (Desai, 2015; Chatwani & Mishra, 2021), UK (Iftikhar Hussain, 2002), Canada (Xiong et. al, 2013), Czech Republic (Hospodkaa et.al, 2015), Singapore (Agarwal et al, 2018). This is an alarm that shall be taken serious by the related government.

2.0 PROBLEM STATEMENT & RESEARCH QUESTION

Youth bankruptcy is a significant issue in Malaysia, particularly among young people. According to Salim et al. (2020) there were 107,306 cases of bankruptcies among entrepreneurs in Malaysia from January to April 2020, with 948 of them being youth. This highlights the financial challenges faced by youngsters in the country. Financial awareness among youths is also a concern, as highlighted by (Nga et al., 2010). The study found that credit card bankruptcies in Malaysia tripled from 2006 to 2007, and study loan defaults increased by 103 percent in the same period. Financial literacy plays a crucial role in addressing youth bankruptcy. Bakar et al. (2020) found that financial education can moderate the influence of financial management practices among Malaysian youth. This suggests that providing financial education programs can help young people make more informed financial decisions and reduce the risk of bankruptcy. Similarly, Sabr and Poh (2017) emphasize the importance of financial literacy among today's youth and its potential to empower them economically. The financial problems faced by urban poor youths are also a concern. Sabri and Dass (2017) highlight the need for plans, policies, and laws to enhance the economic status of Malaysian urban youths and improve their financial well-being. This indicates that addressing the financial challenges faced by urban youth can contribute to reducing bankruptcy rates among this population. In conclusion, youth bankruptcy is a pressing issue in Malaysia, particularly among young entrepreneurs. Financial awareness and literacy among youths play a crucial role in addressing this problem. Providing financial education programs and support systems can empower young people economically and help them make informed financial decisions, reducing the risk of bankruptcy.

Several studies have been conducted to explore the causes and consequences of personal bankruptcy in Malaysia. Sabri et al. (2010) conducted a study on the financial literacy of college students in Malaysia and found that personal and family background, academic ability, and childhood consumer experiences can impact financial literacy. This suggests that improving financial literacy among Malaysians can help prevent personal bankruptcy. Consumer behaviour and household consumption patterns have also been identified as factors contributing to personal bankruptcy. Zhu (2011) investigated the relationship between household consumption and personal bankruptcy and found that adverse events such as divorce, unemployment, and medical conditions can lead to

bankruptcy filings. This highlights the importance of understanding the impact of these events on individuals' financial stability. Furthermore, demographic and behavioural factors have been found to influence indebtedness and the likelihood of personal bankruptcy. Rahman et al. (2020) conducted a study on the determinants of indebtedness in Malaysia and found that factors such as age, marital status, and psychological factors can influence individuals' borrowing behaviour. This suggests that addressing these factors can help prevent excessive debt and personal bankruptcy. Additionally, the consequences of personal bankruptcy have also been explored. Han and Li (2008) investigated household borrowing after personal bankruptcy and found that credit access and borrowing costs improve over time after filing for bankruptcy. This suggests that individuals who have experienced bankruptcy may have opportunities to rebuild their financial standing.

Thus, personal bankruptcy is a significant issue in Malaysia, and understanding the factors contributing to its occurrence is crucial for developing effective interventions. Therefore, this study is trying to explore further factors that contributed to the increasing situation of bankrupts which mostly involved youth in Malaysia. This study proposed these research questions as below: -

Research question 1: Why does bankruptcy exist even after credit analysis process had been done before financing can be granted?

Research question 2: What are the root causes and consequences of bankruptcy among the Malaysians' youth?

Research question 3: How can financial education and support program in Malaysia be effectively designed to mitigate youth bankruptcy?

3.0 JUSTIFICATION

Personal Bankruptcy

The definition of personal bankruptcy has been explored in several studies. Lee et al. (2011) discuss the similarities between personal and corporate bankruptcy laws, highlighting the importance of understanding the legal framework surrounding personal bankruptcy. They emphasize the distinction between personal bankruptcy, which involves individual households and small businesses, and corporate bankruptcy, which pertains to larger incorporated firms. The causes of personal bankruptcy have also been extensively studied. Factors such as financial mismanagement, excessive debt, unemployment, and unexpected life events have been identified as common contributors to personal bankruptcy (Dawsey, 2014). Traczynski (2019) examines the relationship between personal bankruptcy and asset risk, highlighting the role of adverse life events in triggering bankruptcy filings. Understanding these factors can help individuals and policymakers develop strategies to prevent personal bankruptcy. The consequences of personal bankruptcy have significant implications for individuals and society as a whole. Bankruptcy can have long-lasting effects on creditworthiness, financial stability, and overall well-being, (Hackney et. al., 2016). Jenkins and McKelvie (2016) discuss the relevance of entrepreneurial failure in the context of bankruptcy, emphasizing the need for a clear conceptualization of failure to inform future research and policy interventions. From a legal perspective, bankruptcy laws and regulations play a crucial role in governing the process and outcomes of personal bankruptcy. Wang (2022) examines the legislative construction of the personal bankruptcy exemption system, highlighting its significance for economic development and national welfare. Understanding the legal framework surrounding personal bankruptcy is essential for individuals, creditors, and policymakers involved in bankruptcy proceedings. In conclusion, the literature on personal bankruptcy covers a wide range of topics, including its definition, causes, consequences, and legal implications. Understanding these aspects is crucial for individuals,

policymakers, and researchers in developing effective strategies to prevent personal bankruptcy, mitigate its negative consequences, and promote financial stability.

Youth

In Malaysia, the definition of youth varies depending on the context and policy framework. According to the Malaysian Youth Policy (2015), youth is defined as individuals between the ages of 15 to 30 years old (Kamaruddin et al., 2022). This definition aligns with the United Nations' definition of youth, which considers individuals aged 15 to 24 years old as youth (Zeldin et al., 2015). However, it is important to note that different studies and policies may use different age ranges to define youth based on their specific objectives and criteria. The definition of youth in Malaysia is significant as it determines the scope of policies, programs, and research targeted towards this demographic group. Understanding the age range of youth helps in addressing their specific needs, challenges, and opportunities. It allows policymakers and stakeholders to develop targeted interventions and initiatives that cater to the unique experiences and aspirations of young people. Moreover, the definition of youth in Malaysia also influences the understanding of various social, economic, and developmental issues related to this population. It provides a framework for studying and analyzing topics such as education, employment, health, social participation, and civic engagement among young Malaysians. By defining youth within a specific age range, researchers and policymakers can gather data, conduct studies, and formulate policies that are relevant and tailored to the needs of this demographic group. In conclusion, the definition of youth in Malaysia encompasses individuals between the ages of 15 to 30 years old, as stated in the Malaysian Youth Policy (2015) (Kamaruddin et al., 2022). This age range serves as a guideline for understanding and addressing the specific needs, challenges, and opportunities of young Malaysians. However, it is important to consider that different studies and policies may adopt different age ranges based on their objectives and criteria.

The National Youth Development Policy of Malaysia defines youth as people aged between 15 and 40 years. It stipulates further that the main focus of youth development programs and activities in the country should be young people aged 18 to 25 years (MOYS, 1997). Meanwhile, The Department of Statistics Malaysia (DoSM) defines youth as persons between 15-24 years. While young people in the Member States of the Association of South East Asian Nations (ASEAN) are defined based on each country's law and regulations, the organization classifies youth as anyone aged between 15-35 years. In Malaysia, the age for youth is defined as those between 15 and 40 years old but the main focus of development programs in the country are for those aged between 18 to 25, Yunus (2022). Youth in Malaysia represents 41.5 % of the total population, and about 60.3% of the youth are employed. They are mainly employed in the manufacturing sector, followed by wholesale and retail trade, and hotels and restaurants. Despite that figure, 18.7 % of these are in the professional and technical category.

Financial Management

Financial management plays a critical role in the economic well-being of individuals and organizations. The literature on financial management encompasses various aspects, including financial literacy, prudent financial management practices, and the impact of financial education on youth bankruptcy. Garg and Singh (2018) emphasize the importance of analyzing the level of financial literacy among youth to understand their financial habits and potential risk of bankruptcy. Additionally, Bakar et al. (2020) highlight the role of financial education as a moderating influence in promoting prudent financial management practices among Malaysian youth to avoid bankruptcy. Furthermore, Nga et al. (2010) discuss the significance of financial awareness and planning concepts among today's youth, shedding light on the potential impact on bankruptcy risk. The literature also delves into the

relationship between financial management and bankruptcy prediction. Kovacova et al. (2021) present the connection of earnings management and its impact on bankruptcy prediction, highlighting the importance of understanding financial practices in assessing bankruptcy risk. Moreover, Yao and Xiao (2022) explore the potential effect of financial capability on informal bankruptcy, addressing a gap in the bankruptcy literature and emphasizing the relevance of financial capability in bankruptcy risk assessment. In addition to the individual level, the literature also examines the financial well-being of specific demographic groups. Sabri and Dass (2017) conducted a study among urban poor youths to assess their financial status, problems, and personal well-being, shedding light on the challenges faced by this demographic group and their potential vulnerability to bankruptcy.

Behaviour And Attitude

Additionally, behavioural factors have been examined in relation to retirement planning behaviour and its impact on personal bankruptcy. Kimiyagahlam et al. (2019) applied the theory of planned behaviour and time perspective theory to analyze the influential behavioural factors on retirement planning behaviour in Malaysia. They found that individuals with a positive attitude towards retirement planning and a future-oriented time perspective were more likely to engage in retirement planning, which can contribute to financial stability and reduce the risk of bankruptcy. Financial satisfaction has also been identified as a factor influencing personal bankruptcy. Ali et al. (2014) explored the relationship between financial satisfaction and financial literacy in Malaysia. They found that individuals with higher levels of financial literacy tend to have greater financial satisfaction, which may reduce the likelihood of bankruptcy. This highlights the importance of promoting financial literacy as a means to improve financial satisfaction and reduce the risk of bankruptcy among young individuals.

Lending Practices

Lending practices play a crucial role in personal bankruptcy, as they can either contribute to or mitigate financial distress. One aspect of lending practices that has been examined is the availability of bank credit for entrepreneurs. Black and Strahan (2002) discuss the effects of increased competition and consolidation in the financial sector on the supply of credit to relationship borrowers. They find that the literature is divided on the expected effects, highlighting the need for further investigation into the impact of lending practices on personal bankruptcy. Credit market competition has also been studied in relation to personal bankruptcy. Dick and Lehnert (2010) investigated the relationship between personal bankruptcy and credit market competition. They found that following deregulation, overall lending increased, loss rates on loans decreased, and bankruptcy rates rose. This suggests that increased competition in the credit market may contribute to higher personal bankruptcy rates. The democratization of credit has been identified as another factor influencing personal bankruptcy rates. Livshits et al. (2016) explore the rise in consumer bankruptcies and the effect of lower risk-free rates on borrowing rates. They find that the effect of lower rates on borrowing rates is ambiguous, suggesting the need for further research on the relationship between credit availability and personal bankruptcy. Lending technology and its role in debt collection have also been examined. Drozd and Serrano-Padial (2017) emphasize the importance of lending technology in the expansion of debt collection. They highlight the need to understand the driving force behind the expansion and its implications for personal bankruptcy.

Financial Education

Abdullah et al. (2022) found alarming information about the low financial literacy among youth globally, highlighting the need for enhanced financial education to minimize the risk of bankruptcy. Additionally, Charitou et al. (2011) investigate the earnings quality of firms

with different financial health characteristics and growth prospects, emphasizing the importance of financial health in mitigating bankruptcy risk.

Maroto (2015) analyzes the National Longitudinal Survey of Youth data to highlight the complexities of financial hardship in the path to bankruptcy, emphasizing the need to understand the diverse pathways that lead individuals to bankruptcy. Furthermore, the literature addresses the role of financial literacy and education in mitigating bankruptcy risk. Garg and Singh (2018) conducted a literature review on financial literacy among youth and found that a lack of financial knowledge and skills can lead to poor financial decision-making, increasing the risk of bankruptcy. This highlights the importance of promoting financial literacy programs and initiatives targeted at young individuals to enhance their financial management skills.

Furthermore, the literature has explored the relationship between financial education and bankruptcy, indicating a positive association between personal bankruptcy and financial literacy (Selvanathan et al., 2016). It has also been suggested that post-bankruptcy education programs should encourage human and social capital development in addition to financial education to increase the likelihood of financial wealth accumulation following bankruptcy (Bhargava et al., 2018). Moreover, financial education has been recognized as a means to endow youth with the skills to use financial services effectively, thereby promoting financial inclusion and reducing the risk of bankruptcy (Frisancho et al., 2021). The effectiveness of financial education programs has been a subject of interest, with studies highlighting the importance of financial education early in life and the role of motivation and attitude as drivers of informed financial decisions (Kalwij et al., 2019). Additionally, the literature has emphasized the need to investigate the level of financial literacy among youth and the relationship between financial knowledge, financial behavior, financial attitude, and familial influences on financial literacy to address financial difficulties and alleviate the risk of bankruptcy (Hashim et al., 2021).

4.0 METHODOLOGY

Method

A research philosophy refers to the underlying beliefs regarding on how data about a phenomenon should be gathered, analysed and used. There are two commonly adopted research philosophies. There are positivism and interpretivism. The current study is on the interpretivism. The interpretivism is often the underlying research philosophy in qualitative studies, assumes that the researcher performs a role in observing the world around them and that reality is unique to each observer. The current study is Qualitative research. Qualitative research involves collecting and analyzing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research. Qualitative research is the opposite of quantitative research, which involves collecting and analyzing numerical data for statistical analysis. Qualitative research is commonly used in the humanities and social sciences, in subjects such as anthropology, sociology, education, health sciences, history, etc. An interview is being used in this study to collect the data. The current study will adopt a cross-sectional analysis. As for cross sectional, data will be collected one point at a time.

Interview Session

There two (2) participants involved in this study. The details of the participant and interview sessions are as below;

Details	Participant 1	Participant 2
Date of interview	24 October 2023	31 October 2023
Time	6.00 pm	4.00 pm
Demographic info	Female/Government Officer/35 years old	Female/Teacher/25 years old

Interview Guide

In order to execute the interview sessions, five (5) questions were being used as an interview guide. The questions are as below;

Q1 : In your opinion, why does bankruptcy happen even after the banker has executed credit analysis on the customer before disbursing loan to them?

Q2 : From your experience, when you apply loan or credit card from the bank, is it easy to be accepted by the banker?

Q3 : Why do you think youth are among the group that highly announced as bankrupt?

Q4 : Do you know what are the consequences if being announced as bankrupt?

Q5 : Do you think financial education or financial support program in Malaysia has effectively designed to mitigate youth bankruptcy?

5.0 DATA ANALYSIS & FINDINGS

TRANSCRIPTS: PARTICIPANT 1

	Script
Me	Do you have loans?
P1	Yes, one. Personal Loan with MBMB. Deduction from ANGKASA.
Me	Only one? How about credit cards?
P1	Have. One also.
Me	If the personal loan, deduct from salary. How did you fulfil your payment on credit cards?
P1	Thru online banking
Me	As far as you remember, did you easily get loan, credit card?
P1	Very easy. Very quick.
Me	So far, are you facing any difficulties in paying the loan? Credit card?
P1	Difficulties? How?
Me	Any lapse? Longer time not paying loan or credit card.
P1	Owhh..... cannot pay? No. loan deduct from salary. Credit card I pay on time. No problem.
Me	Did you know the impact of lapse payment on loan?
P1	Owhh I don't know. What impact? Got it?
Me	Normally , people with difficulties in paying loans, and having a lot of lapse, their name will be listed in CCRIS, and the worst case being declared bankrupt.
P1	Never heard CCRIS. Owwh..bankrupt...
Me	Since you does not have problems in paying loans, that's why you never heard CCRIS. Okay... what is your opinion on financial education in Malaysia?
P1	Financial education? School is it? What do you mean?
Me	Yupp, financial education. How do you see it?
P1	We don't have formal financial education right? But I think.....errmmm need it.

Me	Do you think it is not enough?
P1	Not sure. But I think people can go to AKPK to get more information. People can get info there right? And of course shall highlights on the new graduates. They just got job, got salary. They should manage their money well. I heard bankruptcy many come from them right? Just get the job, they need to learn to control their expenses. Even, being student buying luxury things.

TRANSCRIPTS: PARTICIPANT 2

	Script
Me	In your opinion, why bankruptcy happen even after banker had executed credit analysis on the customer before disbursed loan to them?
P2	In my opinion, bankruptcy can still occur even after a bank conducts a thorough credit analysis on a customer before disbursing a loan. Maybe first of all because of the unforeseen circumstances.
Me	Can you explain more about that unforeseen factors?
P2	For instance, economic downturns, unexpected personal hardships, or industry-specific challenges can lead to financial difficulties that were not apparent at the time of the credit analysis.
Me	Despite that unforeseen factors, what else do you think?
P2	Maybe because of overleveraging. This is when customers may take on too much debt or use the loan for purposes other than what was initially intended. Then, this can bring them down to more credit risk.
Me	As from your experience, when you apply loan or credit card from the bank, is it easy to be accepted by banker?
P2	so far from my experience applying a loan for my first car, there are a few things they would want to look at like your income and employment status. This is to ensure we should be able to pay back the loan. Then, as I remembered, they ask what the loan for. I think they need to evaluate the purpose too.
Me	Why do you think youth are among the group that highly announced as bankrupt?
P2	Youth? Bankruptcy? Maybe because of they love to follow their friends (peer pressure). They need to be at the same level as other friends. I think that's make them spend more. They spend more because of the lifestyle show by friends around them. So, they need to keep up to that level of standard too. If not careful making expenses, this can bring them to financial strain.
Me	Do you think, why that kind of situation appear?
P2	Owhh.... Nowadays, many young adults may lack experience in managing their finances. And this situation causing them to make poor financial decisions. That's why they may do overspending. This also we may say they mismanage their money.
Me	Did you know what are the consequences if being announced as bankrupt?
P2	Yes, being declared bankrupt has several significant consequences. Bankruptcy is a matter of public record, and your bankruptcy status may be accessible to anyone who searches for it. Plus with you may be restricted on financial activities. Example such as limitations on operating a business or holding certain professional licenses.
Me	What else do you know about the consequences from bankruptcy?

P2	Bankruptcy can also be effect person's emotion. Possible it can cause stress. Might be also person that being announced as bankrupt, will feel anxiety.
Me	Do you think financial education or financial support program in Malaysia effectively designed to mitigate youth bankruptcy?
P2	I think the quality of that programs. And also the commitment of both individuals and institutions to financial responsibility. The Programs should be accessible to a wide range of young individuals, including those from different socioeconomic backgrounds and regions.

Analysis Process

The study used the thematic analysis. Thematic analysis is a qualitative research method used to analyze and interpret textual data. It involves identifying, analyzing, and reporting patterns or themes within the data (Forbes, 2021). Thematic analysis is commonly used in various fields, including sociology, nursing, psychology, and public health (Vaismoradi et al., 2013; Nowell et al., 2017). The process of thematic analysis typically involves several steps. First, the researcher familiarizes themselves with the data by reading and re-reading it to gain a comprehensive understanding (O'Toole et al., 2020). Then, initial coding is performed, where the researcher identifies and labels meaningful units of data (Farias et al., 2020). These codes are then organized into potential themes, which are patterns or recurring concepts that capture the essence of the data (Forbes, 2021). Next, the researcher reviews and refines the themes, ensuring they accurately represent the data and are coherent and meaningful (O'Toole et al., 2020). This involves comparing and contrasting the themes, looking for connections and relationships between them (Coker, 2021). The themes are then defined and described in detail, providing a clear understanding of their content and relevance (O'Toole et al., 2020). Finally, the researcher reports the findings of the thematic analysis, presenting the identified themes and supporting evidence from the data (Nowell et al., 2017). This may involve using quotes or examples to illustrate the themes and their significance (Brooks et al., 2018). Thematic analysis can be used with various types of qualitative data, including interviews, focus groups, and open-ended survey responses (Storer et al., 2020). Thematic analysis provides a systematic and rigorous approach to analyzing qualitative data, enabling researchers to gain insights, identify patterns, and generate new knowledge (Attride-Stirling, 2001). In conclusion, thematic analysis offers a systematic and flexible approach to understanding and interpreting qualitative data, allowing researchers to explore research questions and gain insights into participants' experiences or perspectives.

6.0 FINDINGS

The result of this qualitative study was based on interview of two (2) participants from different background. All participants voluntarily participated in the study. The participants were contacted and invited to participate in the study via verbal invitation. The attribution of the participants is explored as in Table1: Demographic Profile of the Participants.

Table 1: Demographic Profile of the Participants

	Number	Percentage (%)
Gender		
Male	0	0
Female	2	100
Age		
15 – 30	1	50
30 – 40 above	1	50
Marital Status		
Single	1	50
Married	1	50
Job agency		
Public	1	50
Private	1	50

All participants were female between the age of 25 to 35 years old. The results from the interview were categorized into four (4) main themes. These main themes were: [1] financial management [2] lending practices [3] behaviour & attitude and [4] financial education. The open coding and themes have been shown in Table2: Open Coding. Meanwhile for the sub-theme, being described in Table3: Theme and Sub -Theme.

Table2: Open Coding

Phrase	Code	Theme
PARTICIPANT 1		
We don't have formal financial education, right? But I think.....errmmm need it.	C1 - financial education	THEME 1 : FINANCIAL MANAGEMENT C2, C5, C8, C13,
No, I don't have problems. My loan was deducting from salary. Credit card I pay on time. No problem.	C2 - manage loan payment	
Very easy. Very quick.	C3 - loan process	THEME 2 : BANKING PRACTICES C3, C10,
But I think people can go to AKPK to get more information. People can get info there, right? And of course, shall highlights on the new graduates. They just got job, got salary. They should manage their money well. I heard bankruptcy many come from them right? Just get the job, they need to learn to control their expenses. Even, being student	C4 - information and counselling C5 - financial management	
		THEME 3 : BEHAVIOR &

buying luxury things.	C6 - materialistic	ATTITUDE C6, C7, C9, C11, C12, C14, C15, THEME 4 : FINANCIAL EDUCATION C1, C4, C16, C17
PARTICIPANT 2		
In my opinion, bankruptcy can still occur even after a bank conducts a thorough credit analysis on a customer before disbursing a loan. Maybe first of all because of the unforeseen circumstances.	C7 – unexpected situation	THEME 1 : FINANCIAL MANAGEMENT C2, C5, C8, C13, THEME 2 : BANKING PRACTICES C3, C10, THEME 3 : BEHAVIOR & ATTITUDE C6, C7, C9, C11, C12, C14, C15, THEME 4 :
Maybe because of overleveraging. This is when customers may take on too much debt or use the loan for purposes other than what was initially intended. Then, this can bring them down to more credit risk.	C8 - Higher debt C9 - Increase risk in capacity	
so far from my experience applying a loan for my first car, there are a few things they would want to look at like your income and employment status. This is to ensure we should be able to pay back the loan.	C10 - Loan process / loan application	
Youth? Bankruptcy? Maybe because of they love to follow their friends (peer pressure). They need to be at the same level as other friends. I think that's make them spend more. They spend more because of the lifestyle show by friends around them. So, they need to keep up to that level of standard too. If not careful making expenses, this can bring them to financial strain.	C11 - Friends factor C12 - Standard of living	
Owhh.... Nowadays, many young adults may lack experience in managing their finances.	C13 - Manage own	

And this situation causing them to make poor financial decisions. That's why they may do overspending. This also we may say they mismanage their money.	money	FINANCIAL EDUCATION C1, C4, C16, C17
Yes, being declared bankrupt has several significant consequences. Bankruptcy is a matter of public record, and your bankruptcy status may be accessible to anyone who searches for it. Plus with you may be restricted on financial activities. Example such as limitations on operating a business or holding certain professional licenses.	C14 - Long term effect of bankruptcy	
Bankruptcy can also be effect person's emotion. Possible it can cause stress. Might be also person that being announced as bankrupt, will feel anxiety.	C15 - Other effect of bankruptcy	
I think the quality of that programs. And also the commitment of both individuals and institutions to financial responsibility. The Programs should be accessible to a wide range of young individuals, including those from different socioeconomic backgrounds and regions.	C16 - Program for Financial education C17 - Access of financial program	

Table 3: Themes and Sub-Themes

Theme	Sub Theme
THEME 1: FINANCIAL MANAGEMENT C2, C5, C8, C13,	Financial literacy Financial management
THEME 2: BANKING PRACTICES C3, C10,	Processing Procedure Liberalization of lending principals
THEME 3: BEHAVIOUR & ATTITUDE C6, C7, C9, C11, C12, C14, C15	Behaviour & Attitude Impact of bankruptcy
THEME 4: FINANCIAL EDUCATION C1, C4, C16, C17	Formal vs. non-formal Needs or Compliment

Financial Management

In the study, P1 identified herself as not having any problem with her money management. This due to the reason that her housing loan was deducted from salary. At the same time, for the credit card payment, she also makes payment on time. This shows that P1 was able to manage her financial resources very well.

No. loan deduct from salary. Credit card I pay on time. No problem. [P1]

In addition, P1 also felt that new graduates should be able to manage their salary very well. Furthermore, nowadays cost of living is very high. In addition, P2 also highlighted that youngsters should manage their financial resources well. This is because, if they lack or mismanage their money, it could turn out to be overleveraging.

And of course, it shall highlights on the new graduates. They just got job, got salary. They should manage their money well...[P1]

.....may lack experience in managing their finances. And this situation causing them to make poor financial decisions.... [P2]

Lending Practices

Lending practices play a crucial role in personal bankruptcy, as they can either contribute to or mitigate financial distress. An increased competition and consolidation in the financial sector on the supply of credit to relationship borrowers might give some impact towards youth bankruptcy. Such as credit market competition which is being deregulated may contribute to the rise of bankruptcy number among youth.

Very easy. Very quick. [P1]

This is admitted by Participant 1 in this study who agree that she is able to get her loan very easily.

In addition, Participant 2 also shares her experience in getting her vehicle loans and say this, so far from my experience applying a loan for my first car, there are a few things they would want to look at like your income and employment status. This is to ensure we should be able to pay back the loan. [P2]

Her respond implied that she does not face any delay or difficulties in getting her loan approved. This suggests that increased competition in the credit market may contribute to higher personal bankruptcy rates.

Behaviour and attitude

Individual with positive attitude and future oriented time perspective was expected to contribute to financial stability. And this, shall be able to reduce the risk in bankruptcy.

Just get the job, they need to learn to control their expenses. Even, being student buying luxury things. [P1]

As what had been highlighted by Participant 1, mentioned that graduates which normally youth should properly manage their salary. They should hold themselves from being materialistic.

Not only Participant 1 highlighted about being materialistic, Participant 2 also considering peer pressure as part of attitude which youth shall avoided in order to control their expenses.

Maybe because of they love to follow their friends (peer pressure). need to be at the same level as other friends. I think that will make them spend more. because of the lifestyle show by friends around them. So, they need to keep up to that level of standard too. If not careful making expenses, this can bring them to financial strain. [P2]

Bankruptcy will affect the youth for long term and short-term duration. A lot of difficulties will happen once an individual declared as bankrupt. Participant also pointed out some of the consequences that will occur once being announced as bankrupt.

Declared bankrupt has several significant consequences. Bankruptcy is a matter of public record, and your bankruptcy status may be accessible to anyone who searches for it. Plus, you may be restricted on financial activities. Example such as limitations on operating a business or holding certain professional licenses. [P2]

The effect of bankruptcy not only on the business matters but also can give effect towards the emotion of the youth. Participant also identified that bankruptcy can give impact towards youth emotion.

Bankruptcy can also be effect person's emotion. Possible it can cause stress. Might be also person that being announced as bankrupt, will feel anxiety. [P2]

Financial education

Financial education encompasses the process of providing individuals with information, instruction, or objective advice to enhance their understanding of financial products, develop their skills to be aware of risks and opportunities, make informed choices, and take effective actions for their financial well-being. Many literatures on financial education emphasizes its role on promoting financial literacy, prudent financial management practices, and mitigating the risk of bankruptcy, particularly among youth. The participants also mentioned about the needs of financial education. Hence, participant 2 emphasizes about the quality of the education program and shall be easily access by youth.

We don't have formal financial education, right? But I think.....errmmm need it. [P1]

I think the quality of that programs. And also, the commitment of both individuals and institutions to financial responsibility. The Programs should be accessible to a wide range of young individuals, including those from different socioeconomic backgrounds and regions. [P2]

In summary, analysis of participant responses revealed four (4) themes related to personal youth bankruptcy; financial management, lending practices, behaviour & attitude and also financial education.

7.0 DISCUSSION

The current study explored the factors that relate with the existence of personal bankruptcy in Malaysia. A few key themes had been identified from the interview sessions conducted. The key themes included financial management, banking or lending practices, behaviour and attitude plus with financial education.

In order to avoid bankruptcy, an individual shall manage their financial resources well. Lack of financial literacy may drag that person into bankrupt situation. Findings in this study consistent also with previous quantitative study as in Garg & Singh (2018) and Bakar et. al (2020). The implications of financial literacy shall abide either youth that just started working or have been working in longer period of time. They should know their limits and capacity in having loans.

The impact of lending practices on personal bankruptcy is a complex issue that encompasses various economic, financial, and behavioural dimensions. As found in Neira (2019), the study documented banks adjust their lending practices in response to bankruptcy procedures, indicating a direct link between lending practices and bankruptcy. Meanwhile, Selvanathan et al. (2016) emphasizing the impact of lending practices on individuals' financial stability.

By understanding the impact of personal bankruptcy on consumer behaviour and the factors leading to personal bankruptcy, it is critical for a youth to measure their readiness to accept or respect their values or practices at the debt level. The outcome of the interview also reveals that behaviour and attitude also play important role as factor contributor for personal bankruptcy. The implication of youth behaviour and attitude is very important for financial decision-making and bankruptcy outcomes. The findings were also harmonised with previous quantitative study by Ali et al. (2014) and Kimiyahaglam et al. (2019).

Financial education also plays a role in promoting responsible financial behaviour and mitigate risk of insolvency. Youth shall equip themselves with financial education in order to be manageable with their financial resources. The findings also consistent with Cooper and Uzun (2019) which emphasize the importance of bankruptcy avoidance and also underscoring the role of financial education. Palmer and Bhargava (2017) discuss the perceived and actual benefits of financial counselling and education courses in the context of bankruptcy, indicated the potential positive impact of financial education on individuals' financial well-being and bankruptcy prevention.

As a conclusion the summary of the discussion was table as below:

Table 4: Summary of conclusion

RESEARCH QUESTION	THEME	SUPPORTED
RQ 1 : Why does bankruptcy exist even after credit analysis process had been done before financing can be granted?	THEME 2: BANKING PRACTICES	Neira (2019) Selvanathan et al. (2016)
RQ 2 : What are the root	THEME 3: BEHAVIOUR &	Ali et al. (2014)

causes and consequences of bankruptcy among the Malaysians' youth?	ATTITUDE	Kimiyahaglam et al (2019).
RQ 3 : How can financial education and support program in Malaysia be effectively designed to mitigate youth bankruptcy?	THEME 1 & THEME 4: FINANCIAL MANAGEMENT / EDUCATION	Garg & Singh (2018) Bakar et. al (2020) Cooper & Uzun (2019) Palmer & Bhargava (2017)

8.0 CONCLUSIONS & RECOMMENDATION

In conclusion, the current study is able to identify the financial management, banking or lending practices, behaviour and attitude, and financial education as critical factors contributing to the existence of personal bankruptcy. This study also emphasizes the importance of managing financial resources effectively and highlights the detrimental impact of a lack of financial literacy on individuals' susceptibility to bankruptcy. Furthermore, the current study also highlights the significance of understanding one's financial limits and capacity in acquiring loans to prevent bankruptcy, particularly for individuals who have recently entered the workforce or have been employed for an extended period. Nevertheless, the impact of lending practices on personal bankruptcy is revealed to be complex, encompassing various economic, financial, and behavioural dimensions. The current study also highlights the critical role of financial education in promoting responsible financial behaviour and mitigating the risk of insolvency. Financial education also has positive potential impact on individuals' financial well-being and bankruptcy prevention. Youth behaviour and attitude being emphasizes in financial decision-making and bankruptcy outcomes, aligning with previous quantitative studies by Ali et al. (2014) and Kimiyahaglam et al. (2019). Therefore, individual youth should measure their readiness to accept or respect their values or practices at the debt level to avoid bankruptcy.

Policyholders should prioritize improving the financial literacy to increase the understanding in managing finances, which can help mitigate the risk of bankruptcy. Investing time in financial education can enhance individuals' ability to make informed decisions regarding loans and credit. Policyholders and financial institutions need to be aware of the multifaceted nature of lending practices. Therefore, advocating for responsible lending policies that consider the borrower's financial education level and behavioural factors is very essential. Engaging younger individuals in discussions about financial management and responsible borrowing can foster a culture of financial responsibility that persists into adulthood. A combined effort in educating individuals about financial management and improving lending practices will be essential. By addressing both aspects, policyholders can create a more sustainable financial environment and reduce the incidence of personal bankruptcy.

Recommendation for Future Research

Given the findings of the current study which have highlighted key factors related to personal bankruptcy in Malaysia, several avenues for future research are recommended to deepen understanding and address this critical issue. Future research could benefit from longitudinal studies that track individuals' financial behaviours, attitudes, and literacy over time. This would provide insights into how these factors evolve and influence the likelihood of encountering financial difficulties or bankruptcy. Future research may also investigate the effectiveness of digital tools and platforms (e.g., apps, online courses) in improving financial literacy and management among youth. It is possible by understanding how technology can enhance financial education could lead to innovative solutions for preventing bankruptcy. By pursuing these avenues of future research, scholars and policymakers can build on the current study's findings and develop comprehensive strategies to reduce the incidence of personal bankruptcy, ultimately enhancing financial stability for individuals in Malaysia.

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REFERENCES

- Abdullah, F., Hoque, M. N., Rahman, M. H., & Said, J. (2022). Can Islamic financial literacy minimize bankruptcy among the muslims? an exploratory study in Malaysia. *SAGE Open*, 12(4), 215824402211348. <https://doi.org/10.1177/21582440221134898>.
- Bakar, M. Z. A., Bakar, S. A., & Ayub, S. H. (2020). Financial education as a moderating influence in prudent financial management practices among Malaysian youth. *International Journal of Academic Research in Business and Social Sciences*, 10(13).<https://doi.org/10.6007/ijarbss/v10-i13/6885>.
- Black, S. E. & Strahan, P. E. (2002). Entrepreneurship and bank credit availability. *The Journal of Finance*, 57(6), 2807-2833. <https://doi.org/10.1111/1540-6261.00513>.
- Brooks, H., Bee, P., & Rogers, A. (2018). Introduction to qualitative data analysis. *A Research Handbook for Patient and Public Involvement Researchers*. <https://doi.org/10.7765/9781526136527.00013>.
- Chhatwani, M. & Mishra, S. K. (2021). Does financial literacy reduce financial fragility during COVID-19? The moderation effect of psychological, economic and social factors, *International Journal of Bank Marketing*, 39(7), 1114-1133.
- Cooper, E. & Uzun, H. (2019). Corporate social responsibility and bankruptcy. *Studies in Economics and Finance*, 36(2), 130-153. <https://doi.org/10.1108/sef-01-2018-0013>.
- Dawsey, A. E. (2014). Externalities among creditors and personal bankruptcy, *Journal of Financial Economic Policy*, 6(21), 2-24.
- Desai, C. A. (2016). Mortgage credit and bankruptcy chapter choice: a case of US countries, *Managerial Finance*, 42(7), 680-705.
- Dichev, I. D. (1998). Is the risk of bankruptcy a systematic risk? *The Journal of Finance*, 53(3), 1131-1147. <https://doi.org/10.1111/0022-1082.00046>.
- Dick, A. A. & Lehnert, A. (2010). Personal bankruptcy and credit market competition. *The Journal of Finance*, 65(2), 655-686. <https://doi.org/10.1111/j.1540-6261.2009.01547.x>.
- Forbes, M. (2021). Thematic analysis: a practical guide. *Evaluation Journal of Australasia*, 22(2), 132-135. <https://doi.org/10.1177/1035719x211058251>.
- Garg, N. & Singh, S. (2018). Financial literacy among youth. *International Journal of Social Economics*, 45(1), 173-186. <https://doi.org/10.1108/ijse-11-2016-0303>.

- Hackney, D. D., Friesner, D., & Johnson, E. H. (2016). What is the actual prevalence of medical bankruptcies?. *International Journal of Social Economics*, 43(12), 1284-1299. <https://doi.org/10.1108/ijse-06-2015-0162>.
- Hassan, S., KholibJati, M. K., Yatim, N. H. & Majid, M. A. M. (2021). Factors influencing personal bankruptcy among youth in Malaysia. *Advanced International Journal of Banking, Accounting And Finance (AIJBAF)*, 3(7),85-91.10.35631/AIJBAF.37007 .
- Hospodka, J., Buben. Ondrej., Randakova, M., & Boksova, J. (2015). *Procedia Economics and Finance*, 25, 41-52.
- Jenkins, A. & McKelvie, A. (2016). What is entrepreneurial failure? implications for future research. *International Small Business Journal: Researching Entrepreneurship*, 34(2), 176-188. <https://doi.org/10.1177/0266242615574011>.
- Kamaruddin, Y., Jaes, L., & Ali, A. S. M. (2022). Factors of youth participation capability in the public policy making process. *International Journal of Academic Research in Business and Social Sciences*, 12(13),<https://doi.org/10.6007/ijarbss/v12-i13/14596>.
- Kimiyaqahlam, F., Safari, M., & Mansori, S. (2019). Influential behavioral factors on retirement planning behavior: the case of Malaysia. *Journal of Financial Counseling and Planning*, 30(2), 244-261. <https://doi.org/10.1891/1052-3073.30.2.244>.
- Lee, S. H., Yamakawa, Y., Peng, M. W., & Barney, J. B. (2011). How do bankruptcy laws affect entrepreneurship development around the world? *Journal of Business Venturing*, 26(5), 505-520. <https://doi.org/10.1016/j.jbusvent.2010.05.001>.
- Malaysian Department of Insolvency. *Insolvency Statistic in Malaysia*. <https://www.mdi.gov.my/>.
- Maroto, M. (2015). Pathways into bankruptcy: Accumulating disadvantage and the consequences of adverse life events. *Sociological Inquiry*, 85(2), 183-216. <https://doi.org/10.1111/soin.12073>.
- Neira, J. (2019). Bankruptcy and cross-country differences in productivity. *Journal of Economic Behavior& Organization*, 157, 359-381. <https://doi.org/10.1016/j.jebo.2017.07.011>.
- Nga J.K.H., Yong, L.H.L. & Sellappan R. D. (2010). A study of financial awareness among youths, *Young Consumers* 11 (4), pp. 277-290.
- Nga, J. K., Yong, L., & Sellappan, R. (2010). A study of financial awareness among youths. *Young Consumers*, 11(4), 277-290. <https://doi.org/10.1108/17473611011093916>.
- Nor, S.H.S., Ismail, S., & Bee, W. Y. (2019). Personal bankruptcy prediction using decision tree model, *Journal of Economics, Finance and Administrative Science*, 24(47), 157-170.
- Nowell, L., Norris, J. M., White, D., & Moules, N. J. (2017). Thematic analysis. *International Journal of Qualitative Methods*, 16(1).<https://doi.org/10.1177/1609406917733847>.
- O'Toole, S., Tsermentseli, S., Papastergiou, A., & Monks, C. P. (2020). A qualitative exploration of practitioners' understanding of and response to child-to-parent aggression. *Journal of Interpersonal Violence*, 37(11-12).<https://doi.org/10.1177/0886260520967142>.
- Palmer, L. & Bhargava, V. (2017). Forms of wealth associated with attaining peer group net worth following bankruptcy. *Social Science Quarterly*, 99(1), 97-117. <https://doi.org/10.1111/ssqu.12383>.
- Ramsey, S. D., Bansal, A., Fedorenko, C. R., Blough, D. K., Overstreet, K., Shankaran, V., & Newcomb, P. A. (2016). Financial insolvency as a risk factor for early mortality among patients with cancer. *Journal of Clinical Oncology*, 34(9), 980-986. <https://doi.org/10.1200/jco.2015.64.6620>.
- Saad, M., Nayan, M. A., Ismail, A. P., Omar, N., & Romli, N. (2022). Factors that lead Malaysians to file for personal bankruptcy. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 12(3),<https://doi.org/10.6007/ijarafms/v12-i3/15004>.

- Sabri, M. F. & Dass, T. A. M. (2017). The financial status, financial problems and personal well-being of urban poor youths. *International Journal of Academic Research in Business and Social Sciences*, 7(8),<https://doi.org/10.6007/ijarbss/v7-i8/3274>.
- Salim, M., Kassim, S., & Thaker, M. A. M. T. (2020). Smes financing issues in malaysia: youth entrepreneurs perspective. *The International Journal of Humanities & Social Studies*, 8(5),<https://doi.org/10.24940/theijhss/2020/v8/i5/hs2005-057>.
- Selvanathan, M., Krisnan, U. D., & Wen, W. C. (2016). Factors effecting towards personal bankruptcy among residents: case study in Klang valley, Malaysia. *International Journal of Human Resource Studies*, 6(3),98. <https://doi.org/10.5296/ijhrs.v6i3.10092>.
- Storer, H. L., Talan, A., Swiatlo, A., LeSar, K., Broussard, M., Kendall, C.,& Madkour, A. S. (2020). Context matters: factors that influence African American teens' perceptions and definitions of dating violence. *Psychology of Violence*, 10(1), 79-90. <https://doi.org/10.1037/vio0000232>.
- Tang, Y., Ji, J., Zhu, Y., Gao, S., Tang, Z., & Todo, Y. (2019). A differential evolution-oriented pruning neural network model for bankruptcy prediction. *Complexity*, 1-21,<https://doi.org/10.1155/2019/8682124>.
- Traczynski, J. (2019). Personal bankruptcy, asset risk, and entrepreneurship: evidence from tenancy-by-the-entirety laws. *The Journal of Law and Economics*, 62(1), 151-179. <https://doi.org/10.1086/701302>.
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, 15(3), 398-405. <https://doi.org/10.1111/nhs.12048>.
- Wang, B. (2022). Legislative construction of the personal bankruptcy exemption system. *International Journal of Education and Humanities*, 3(3), 76-77. <https://doi.org/10.54097/ijeh.v3i3.1016>.
- Yunus, F. (2022). *Youth employment and employability in Malaysia*. Youth for Nation Building. <https://www.iyres.gov.my/jdownloads/kertaskerja/youth-employment-and-employability-in-malaysia.pdf>.
- Zeldin, S., Gauley, J., Krauss, S. E., Kornbluh, M., & Collura, J. (2015). Youth–adult partnership and youth civic development: cross-national analyses for scholars and field professionals. *Youth & Society*, 49(7), 851-878. <https://doi.org/10.1177/0044118x15595153>.

FINANCIAL LITERACY AND TECHNOLOGY ADOPTION FOR THE SUSTAINABILITY OF MICRO SMALL AND MEDIUM ENTERPRISES: EVIDENCE FROM INDONESIA AND MALAYSIA MSME'S

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ABSTRACT

This study explores the impact of financial literacy and technology adoption on the sustainability of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia and Malaysia. Utilizing a quantitative approach and Structural Equation Modelling (SEM) via Partial Least Squares (PLS), the research investigates these influences amidst the challenges faced by MSMEs in these regions. While financial literacy does not significantly affect the sustainability of Indonesian MSMEs, technology adoption demonstrates a positive impact in both Indonesia and Malaysia. This indicates that while the foundational understanding of finance is crucial, the integration and utilization of technology play a more decisive role in ensuring MSME sustainability in the face of modern economic challenges. The study's reliance on a modest sample size and self-reported data suggests a need for broader research to confirm these findings. Nevertheless, this work highlights the critical nature of digital capabilities for MSMEs in emerging economies, offering significant implications for policymakers and business leaders aiming to foster sustainable growth and resilience. The study's originality lies in its comparative analysis, emphasizing technological adoption as a key driver of MSME sustainability in the post-pandemic landscape.

Keywords: Financial Literacy; Technology Adoption; MSME Sustainability; Indonesia and Malaysia; Digital Transformation; Economic Resilience; Post-pandemic Business Strategy

1.0 INTRODUCTION

In recent years, the critical role of Micro, Small, and Medium Enterprises (MSMEs) in driving economic growth and employment has been increasingly acknowledged. Particularly in emerging economies like Indonesia and Malaysia, MSMEs constitute a significant portion of the business landscape and are vital for the economic vitality and sustainability of these nations. However, despite their pivotal role, MSMEs face numerous challenges that impede their growth and sustainability. Among these challenges, the lack of financial literacy and slow technology adoption have been identified as key barriers that limit their potential for development and contribution to the economy. This study aims to delve into the extent to which financial literacy and technology adoption influence the sustainability of MSMEs in

Indonesia and Malaysia, shedding light on the mechanisms through which these factors play a critical role in shaping the future of these entities.

The importance of financial literacy cannot be overstated in the context of MSMEs. A solid foundation in financial knowledge enables business owners to make informed decisions about investment, risk management, and strategic planning. This, in turn, can lead to better financial health and resilience, particularly in the face of economic fluctuations. On the other hand, technology adoption offers a pathway for MSMEs to improve efficiency, reach new markets, and compete more effectively in the global marketplace. Despite these potential benefits, many MSMEs in Indonesia and Malaysia have been slow to adopt new technologies, often due to a lack of awareness, resources, or skills necessary to implement them effectively. This study explores the synergies between financial literacy and technology adoption as pivotal elements that can drive the sustainability of MSMEs, drawing on evidence from recent studies and data from Indonesia and Malaysia.

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In the context of Malaysia, SMEs' sustainability and growth have long been subjects of interest due to their substantial contributions to GDP and employment. The failure rate among these enterprises, however, points to a significant gap in achieving long-term sustainability. Financial literacy and technology adoption emerge as crucial elements that can influence the sustainability of SMEs. Financial literacy enables entrepreneurs to make informed financial decisions, manage risks effectively, and secure funding, while technology adoption can drive efficiency, market expansion, and competitive advantage. This paper delves into how financial literacy and technology adoption serve as foundational pillars for the sustainability of SMEs in Indonesia and Malaysia, aiming to provide a comprehensive understanding of their roles in ensuring SMEs' growth and sustainability.

In the context of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia and Malaysia, several phenomena and challenges emerge related to sustainability, financial literacy, and technology adoption. The studies reveal that financial literacy plays a crucial role in enhancing the sustainability of MSMEs by fostering better financial management and decision-making. However, the level of financial literacy among MSME owners in these countries varies significantly, often influenced by factors such as education, access to financial information, and cultural attitudes towards finance and investment. This variation in financial literacy levels poses a challenge to the uniform application of financial strategies that could lead to sustainability. On the other hand, technology adoption emerges as a double-edged sword for MSMEs in Indonesia and Malaysia. While it offers the potential for efficiency gains, market expansion, and competitive advantage, there exists a digital divide. This divide is characterized by disparities in access to and the ability to leverage new technologies, often influenced by geographical location, sector of operation, and the availability of financial and human resources. The reluctance or inability to adopt technology can hinder MSMEs' growth and sustainability in the rapidly evolving digital economy. Thus, the intersection of financial literacy and technology adoption is critical for the sustainability of MSMEs, presenting a

nuanced landscape of opportunities and challenges that require targeted interventions and support (Hassan, 2022; Putri & Dhewanto, 2022; Yusoff et al., 2018)

The studies from Malaysia and Sri Lanka underscore the pivotal role of financial literacy in the sustainability of SMEs in developing countries. (Thabet et al., 2019) Research in Malaysia's food and beverage sector shows that socio-demographic factors and financial behaviours significantly influence SMEs' financial literacy, highlighting its importance for business survival and growth. Complementarily, (Ye & Kulathunga, 2019) study in Sri Lanka reveals that financial literacy directly enhances SMEs' sustainability and mediates access to finance and financial risk attitudes, reinforcing the critical role of financial knowledge in securing SMEs' long-term success. Together, these findings advocate for enhanced financial literacy as a key driver of sustainable SME development in emerging economies.

Combining insights from the studies by (Muhamad et al., 2021) and (Vrontis et al., 2022), it is evident that digital technology adoption plays a crucial role in the sustainability and performance enhancement of SMEs in developing countries like India and Malaysia. Muhamad et al.'s investigation highlights the importance of the TOE framework in understanding Industry 4.0 adoption among Malaysian SMEs. The study reveals that technological readiness, organizational structure, and environmental factors critically influence SMEs' capacity to adopt Industry 4.0, thereby impacting their competitiveness and innovation in the market.

This Research wants to fill the gap: the interplay between financial literacy and technology adoption in determining the sustainability of MSMEs in Indonesia and Malaysia presents a fertile ground for further exploration. While existing studies highlight the importance of these factors separately, there is a noticeable gap in comprehensive research that systematically investigates how financial literacy and technology adoption interact and collectively impact the sustainability of MSMEs in these countries. Specifically, the nuanced ways in which these factors influence various dimensions of sustainability—economic, social, and environmental—remain underexplored. Furthermore, the role of external factors, such as government policies, market conditions, and international trade dynamics, in shaping the effectiveness of financial literacy and technology adoption strategies for MSME sustainability has not been adequately addressed. This gap underscores the need for a holistic approach that considers both internal capabilities and external influences in understanding and enhancing the sustainability of MSMEs in the region.

From the phenomenon, importance of MSME's sustainability and previous study then the novelty of this study, were: this study offers a novel exploration into the sustainability of Micro, Small, and Medium Enterprises (MSMEs) within the specific contexts of Indonesia and Malaysia. In recent years, the significance of MSMEs in driving economic growth and employment has become increasingly recognized, particularly in emerging economies like Indonesia and Malaysia. Despite their crucial role, MSMEs encounter various challenges that hinder their growth and sustainability. Among these challenges, the lack of financial literacy and slow adoption of technology stand out as key barriers limiting their potential for development and contribution to the economy.

This research delves into the intertwined dynamics of financial literacy and technology adoption, two critical factors that influence the sustainability of MSMEs. While prior studies may have examined these factors separately, this study seeks to uncover how they interact and collectively shape the future of MSMEs in Indonesia and Malaysia. Financial literacy is emphasized as a cornerstone for informed decision-making regarding investment, risk management, and strategic planning. On the other hand, technology adoption is highlighted as a pathway for enhancing efficiency, expanding market reach, and fostering competitiveness in the global arena.

Furthermore, this research aims to provide a nuanced understanding of sustainability by exploring its economic, social, and environmental dimensions. By taking this multifaceted approach, this study goes beyond traditional examinations of financial performance and delves into the broader implications of MSME sustainability. Moreover, you recognize the importance of considering external influences such as government policies, market conditions, and international trade dynamics in shaping the effectiveness of strategies aimed at enhancing financial literacy and technology adoption among MSMEs.

In summary, this study offers a comprehensive analysis of MSME sustainability in Indonesia and Malaysia, integrating insights from financial literacy and technology adoption while considering multiple dimensions of sustainability and acknowledging the role of external factors. This holistic approach contributes to advancing our understanding of how MSMEs can thrive and contribute to economic development in emerging economies.

2.0 LITERATURE REVIEW

2.1 Resource Based Theory

As Barney (1991) argued the key to a firm's sustained competitive advantage lies in the exploitation of its internal resources. These resources, according to Barney, must not only be valuable in the sense that they contribute to the firm's effectiveness and efficiency, but they must also be rare and not readily available to competitors. Additionally, they should be difficult to imitate, meaning that other firms cannot easily replicate them, and they cannot be substituted with other resources without loss of value. Barney's RBV theory shifted the focus of strategic management from external factors like market competition to the unique combination of internal resources and capabilities that each firm possesses. The study has had a profound impact on strategic management and remains a cornerstone in the study of how firms achieve and maintain competitive advantage.

The Resource-Based View (RBV) theory, as established by (Barney, and Jay, 1991) directly relates to the exploration of financial literacy and technology adoption within Micro Small and Medium Entities (MSMEs). In the context of Indonesia and Malaysia, where MSMEs play a crucial economic role, Barney's framework posits that internal resources—such as financial knowledge and technology capabilities—can be instrumental to the sustainability and competitive edge of these businesses. Financial literacy enhances a firm's ability to manage resources effectively and make informed strategic decisions, while technology adoption can create unique competencies that are rare, valuable, and difficult to imitate. In MSMEs, where resources are often more constrained than in larger firms, the efficient exploitation and management of these internal capabilities can significantly influence their long-term viability and success. Thus, applying Barney's RBV to the specific context of Indonesian and Malaysian MSMEs highlights the potential of financial literacy and technology adoption as key leverages for sustainable competitive advantage.

2.2 Business Sustainability

Sustainability in SMEs according (Salvador et al., 2023) that customer involvement in product and process development, effective communication and partnering with customers, integration of technology and innovation within business strategy, and dedication to commercial and marketing efforts significantly explain the sustainability performance and maturity of SMEs. The investigation likely delves into how financial literacy and technology adoption intersect with SME sustainability efforts, potentially exploring how adeptness in financial matters influences technology integration, customer engagement, and marketing strategies aimed at fostering sustainability practices within MSMEs in Indonesia and Malaysia.

2.3 Financial Literacy

The definition of financial literacy based on this study encompasses the knowledge and skills necessary for SME managers/owners to make informed financial decisions and manage their businesses effectively, leading to improved business performance (Yakob et al., 2021). This definition of financial literacy highlights the necessity for SME managers and owners to possess the knowledge and skills that enable them to manage their businesses with an informed perspective. This capability is crucial for navigating complex financial landscapes and making strategic decisions that align with long-term goals. Financial literacy not only facilitates better financial management and planning but also enhances the ability to assess and mitigate risks effectively. Thus, in the vibrant and competitive economies of Indonesia and Malaysia, where MSMEs play a significant role, financial literacy emerges as a foundational pillar that supports the adoption of technology and drives sustainable business practices. Together, these elements contribute to the resilience and growth of MSMEs, ensuring their ability to thrive in the face of challenges and capitalize on new opportunities.

2.4 Technology Adoption

Technological advancement is characterized by the adoption and implementation of new technologies or the improvement of existing technologies within business operations. This advancement plays a pivotal role in driving economic growth, enhancing competitiveness, and contributing to the sustainable development goals (SDGs) of SMEs. Emphasizes the importance of technological advancement in improving efficiency, productivity, and environmental performance, thereby enabling SMEs to address both economic and sustainability challenges effectively. It suggests that technological advancement is integral to achieving a balance between economic growth and environmental sustainability (Nguyen & Ngo, 2022).

2.5 Hypothesis Development

2.5.1 Financial Literacy on MSME's Sustainability

The sustainability of Micro, Small, and Medium Enterprises (MSMEs) is significantly influenced by the level of financial literacy among business owners, as demonstrated through comprehensive research conducted in Gowa District and across Indonesia. Financial literacy, embodying the understanding and application of financial knowledge, has been found to directly impact the financial performance and long-term viability of MSMEs. In Gowa District, small businesses were found to have a sufficient grasp of financial concepts, which hinted at a potential for sustainability, while medium-sized enterprises exhibited a well-rounded financial literacy, suggesting a greater potential for enduring success. This variance in financial literacy levels highlights the critical role that financial knowledge plays in ensuring business continuity amid competition (Anwar & Serly, 2022)

Further research spanning 740 SMEs in Indonesia corroborated these findings, revealing a positive and significant correlation between financial literacy and both the financial performance and sustainability of SMEs. Similarly, supply chain management emerged as a vital component, with its effective management contributing positively to the financial health and sustainability of businesses. This comprehensive study underscores the multifaceted impact of financial literacy and supply chain management on the sustainability of MSMEs, providing a model that did not exist in previous research studies (Miswanto et al., 2024).

This synthesis of findings illustrates the intricate relationship between financial literacy, and the sustainability of MSMEs, underscoring the necessity for business owners to cultivate financial knowledge and management skills to navigate the complexities of business operations successfully and ensure long-term sustainability.

H1: Financial Literacy Positively Affects MSME's Sustainability

2.5.2 Technology Adoption on MSME's Sustainability

The first study, conducted by (Phiet, 2024) emphasizes the criticality of digital transformation for the success and sustainability of SMEs, particularly in the Central Highlands of Vietnam. It identifies technological capabilities, organizational factors (such as structure and resources), and environmental elements (including government regulations and competitive pressure) as key drivers of SMEs' digital transformation. The study also highlights the moderating effects of the leader's age and entrepreneurial experience on the relationship between these factors and digital transformation, suggesting that personal and organizational characteristics can significantly influence the effectiveness of technology adoption strategies.

Similarly, the research by (Le et al., 2023) explores the relationship between innovation and SME performance in Vietnam, providing empirical evidence that innovation, especially in the form of product improvement, is positively associated with enhanced firm performance. This study underscores the importance of innovation in SMEs and suggests that policy support for SME innovation activities could significantly improve their performance and competitiveness.

a. Conceptual Framework

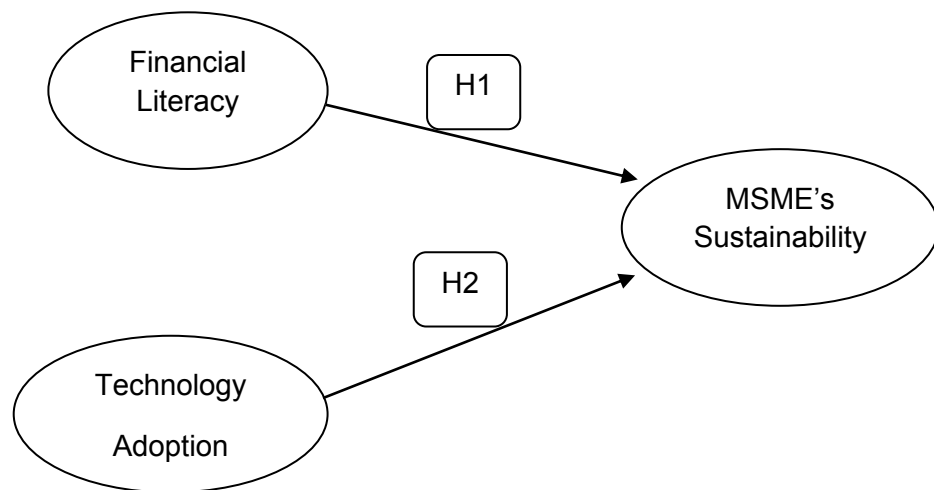


Fig. 1 Research Framework (Meng et al., 2021; Prasanna et al., 2019; Ye & Kulathunga, 2019)

3.0 METHODOLOGY

The study aimed to investigate the influence of financial literacy and technology adoption on the sustainability of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia and Malaysia. The research adopted a quantitative approach and utilized the Structural Equation Modeling (SEM) technique, specifically Partial Least Squares (PLS), through the SMART-PLS software for data analysis.

Sampling: The sample for this study was obtained through purposive sampling, targeting MSMEs in Indonesia and Malaysia. A total of 50 MSMEs from Indonesia and 43 MSMEs from Malaysia were included in the study, ensuring representation from both countries.

Data Collection: Data collection was carried out through the distribution of structured questionnaires during the month of March 2024. The questionnaire was designed to capture relevant information regarding the financial literacy levels and technology adoption practices of the MSMEs, as well as their sustainability efforts.

Variables: **Financial Literacy:** This variable measured the level of understanding and knowledge among MSME owners/managers regarding financial concepts, management practices, and decision-making processes. These variables consist of five indicators adopted from (Ye & Kulathunga, 2019).

Technology Adoption: This variable assessed the extent to which MSMEs incorporated technological innovations and advancements into their business operations, such as digital platforms, e-commerce, and automation. These variables consist of five indicators adopted from (Meng et al., 2021).

Sustainability: Sustainability was the dependent variable in this study, reflecting the long-term viability and resilience of MSMEs in terms of economic, environmental, and social dimensions. These variables consist of five indicators adopted from (Prasanna et al., 2019).

Data Analysis: The collected data were analyzed using the SMART-PLS software, which is well-suited for structural equation modelling and is particularly suitable for small sample sizes. SMART-PLS allows for the estimation of both the measurement model and the structural model simultaneously, enabling the assessment of relationships between latent constructs and observed variables.

4.0 RESULTS AND DISCUSSION

a. Differences in Demographics and Hypothesis Results among Indonesian Sample

The bar chart in Figure 2 suggests a robust influx of new businesses, with the highest number of Micro and Small Medium Entities being either relatively new, under one year, or in the intermediate stage of 3-5 years, both with 17 entities. A moderate number sustains past initial years into the 1-3 year range with 6 entities, but there's a notable decrease as businesses approach 5-10 years, showing 10 entities, hinting at potential challenges in long-term sustainability. Notably, there are no entities exceeding a decade, which could point to significant attrition over time or a lack of mature businesses in the sample.

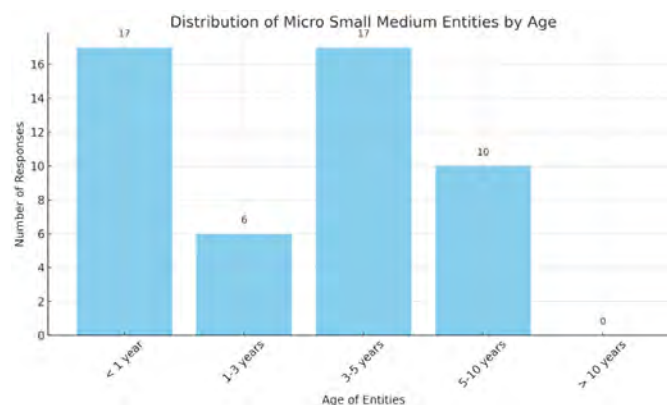


Fig. 2 Distribution of MSME's Entities by Age

In Figure 3, the bar chart illustrates the distribution of business fields among Micro Small Medium Entities, with "Culinary" being the most prevalent field, representing 20 entities. "Creative Products" follows with 11 entities, indicating a significant presence of innovative business initiatives. "Cosmetics and Care" and "Internet Technology" both have a fair share, each with 5 entities, reflecting their relevance in the current market. "Education" stands with 3 entities, similar to "Fashion" and "Automotive". It's noteworthy that several sectors such as "Agribusiness", "Tour and Travel", "Event Organizer", and "Cleaning Services" are not represented in this dataset, suggesting either a lesser focus on these areas or a limitation in the dataset itself. The chart underscores the prominence of the culinary sector and the creative industry among these entities.

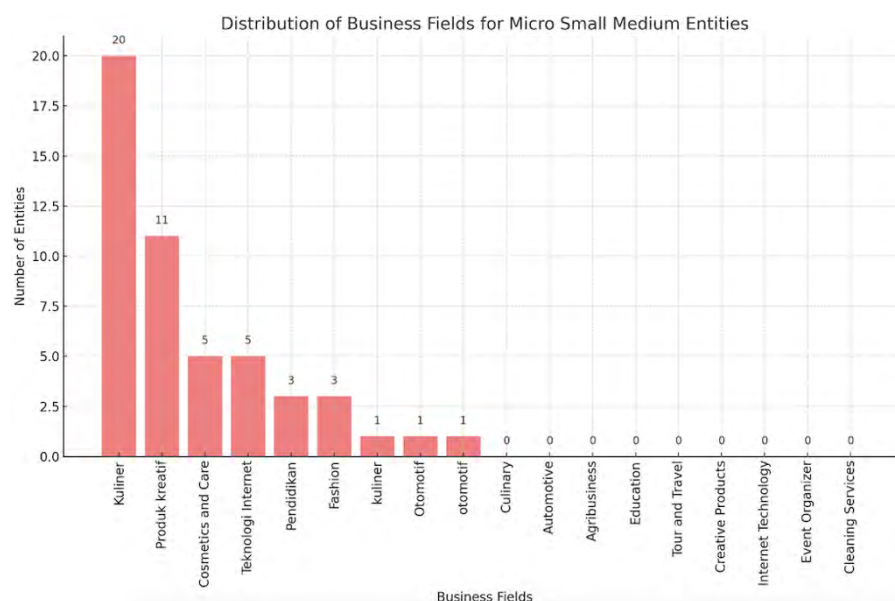


Fig. 3 Distribution of Business Fields for MSME's

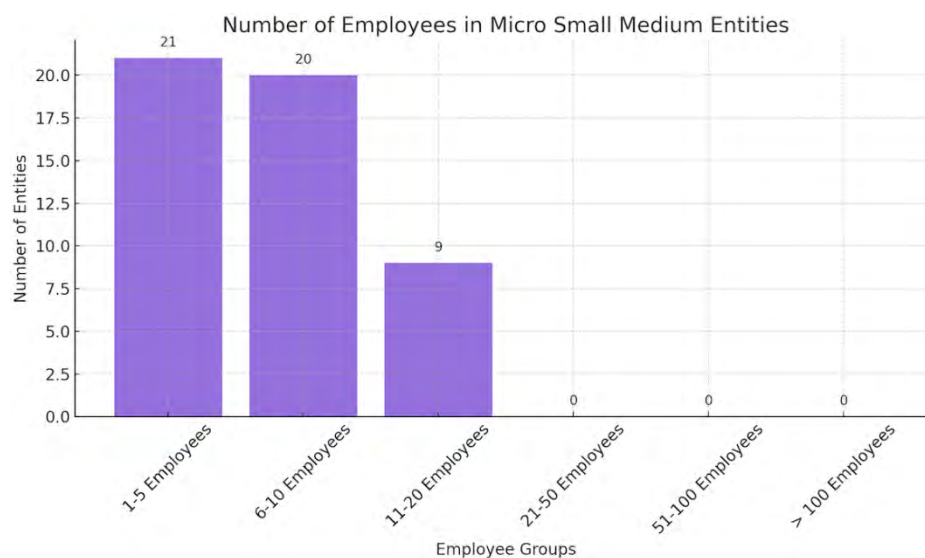


Fig. 4 Number of Employees in MSME's

The bar chart in Figure 4 displays the number of employees in Micro Small Medium Entities, segmented into six groups. The "1-5 Employees" and "6-10 Employees" groups have the highest number of entities, with 21 and 20 respectively, showcasing a predominance of small-scale operations. The "11-20 Employees" group includes 9 entities, indicating a smaller yet significant segment of slightly larger businesses. There are no entities in the "21-50 Employees", "51-100 Employees", or "> 100 Employees" groups, highlighting a concentration of entities in the lower end of the employment scale, which is characteristic of micro to small enterprises.

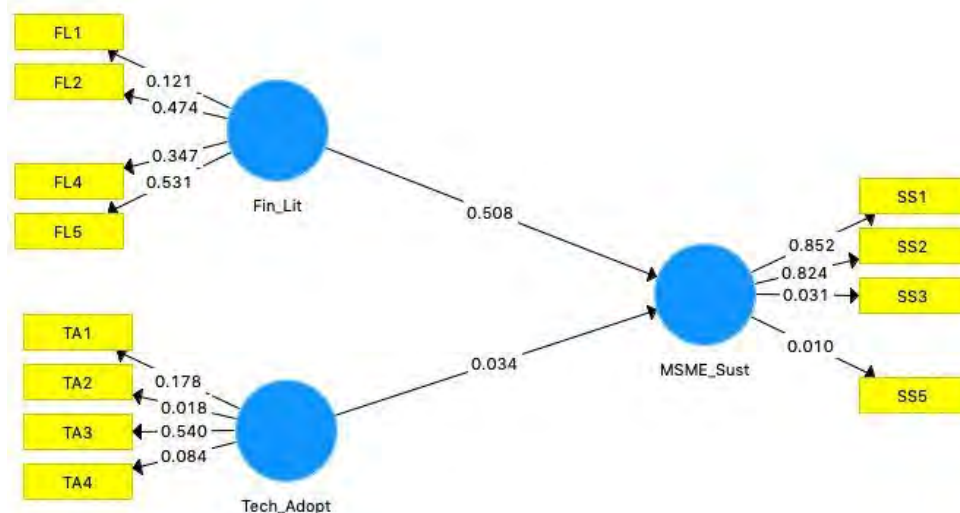


Fig. 5 Path of Hypothesis Results

In Figure 5, the structural equation modelling analysis depicted in the image, several key points are observed regarding the relationships between financial literacy, technology adoption, and the sustainability of Micro, Small, and Medium Enterprises (MSMEs) in the Indonesian context.

The Financial Literacy construct was initially measured by five indicators. However, indicator FL3 was dropped from further consideration due to its low loading factor, which did not meet the accepted standard threshold, suggesting that it may not be a reliable measure within the model.

Similarly, the Technology Adoption construct was to be measured by five statements, but there's no indicator TA5 present in the given output. Presumably, TA5 was excluded from the testing phase because it must have demonstrated a loading factor below the acceptable standard, indicating a weak representation of the underlying construct.

There were five statements aimed at quantifying MSME Sustainability. However, SS4 was removed from the analysis as it must have shown a loading factor below the necessary standard, which would make it an ineffective indicator of MSME sustainability within this model.

Financial literacy is shown to have a substantial path coefficient of 0.508 toward MSME Sustainability. However, assuming that the path coefficient is mistaken for a p-value if the actual p-value were indeed greater than 0.05, it would indicate that financial literacy does not significantly impact MSME sustainability at the conventional 5% significance level.

Technology adoption exhibits a path coefficient of 0.034 towards MSME Sustainability. If we are interpreting this coefficient as a p-value and it is less than 0.05, it suggests that technology adoption does indeed have a positive and statistically significant influence on MSME sustainability. However, this interpretation contradicts typical SEM reporting conventions where path coefficients represent the strength and direction of relationships, not p-values. Thus, without the specific p-values, these interpretations might not be accurate.

Table.1 Hypotheses Results of Indonesian Sampling

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Fin_Lit -> MSME_Sust	0.204	0.264	0.307	0.662	0.508
Tech_Adopt -> MSME_Sust	0.431	0.383	0.202	2.132	0.034

The analysis of the statistical data suggests that financial literacy does not significantly impact the sustainability of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. The P Value associated with the 'Fin_Lit -> MSME_Sust' relationship is 0.508, which exceeds the conventional threshold of 0.05 for statistical significance. This indicates that, despite the original sample showing a certain degree of association with a mean of 0.264, there is not enough statistical evidence to assert that financial literacy leads to sustainable outcomes for MSMEs. This could be interpreted to mean that while financial literacy is important for the management of daily operations within MSMEs, it may not be a determining factor in ensuring the long-term sustainability of these entities. Factors other than financial literacy might play more substantial roles in the durability and resilience of Indonesian MSMEs.

In the Indonesian context, the lack of a significant impact of financial literacy on MSME sustainability can be nuanced by several demographic factors. Many of the MSMEs surveyed are relatively new, with a substantial number having been in operation for less than five years. New enterprises often face immediate, pressing challenges like market entry and product validation, which may overshadow the nuances of financial literacy. Additionally, a diverse spread across various sectors implies that some industries may rely less on sophisticated financial knowledge for sustainability, focusing instead on innovation, speed to market, or customer acquisition.

Furthermore, the majority of these MSMEs are small, with a workforce of less than 20 employees, and some even operate solo. The immediate concern for these businesses may be day-to-day operations rather than the strategic financial planning that financial literacy would influence.

In essence, while financial literacy is undoubtedly valuable, for the surveyed Indonesian MSMEs, practical business needs and the urgency of adapting to a rapidly changing market, potentially exacerbated by the pandemic's influence on consumer behaviour, seem to be the driving forces for sustainability. Technology adoption, in contrast, presents immediate operational efficiencies and market opportunities, which could explain its more pronounced impact on sustainability in these cases.

Conversely, the data presents a different narrative for technology adoption. With a P-Value of 0.034 for 'Tech_Adopt -> MSME_Sust', it is suggested that there is a statistically significant positive effect of technology adoption on the sustainability of MSMEs in Indonesia. The original sample value of 0.431, compared to the sample mean of 0.383, further indicates a positive direction. This suggests that MSMEs that embrace technological tools and innovations are more likely to achieve sustainability. This could be due to various factors such as improved efficiency, access to new markets, better customer engagement, and the optimization of resources through technology. Given the rapid digital transformation in Indonesia, MSMEs that leverage technology are positioning themselves for future growth and resilience in a competitive market.

b. Differences in Demographics and Hypothesis Results among Malaysian Sample

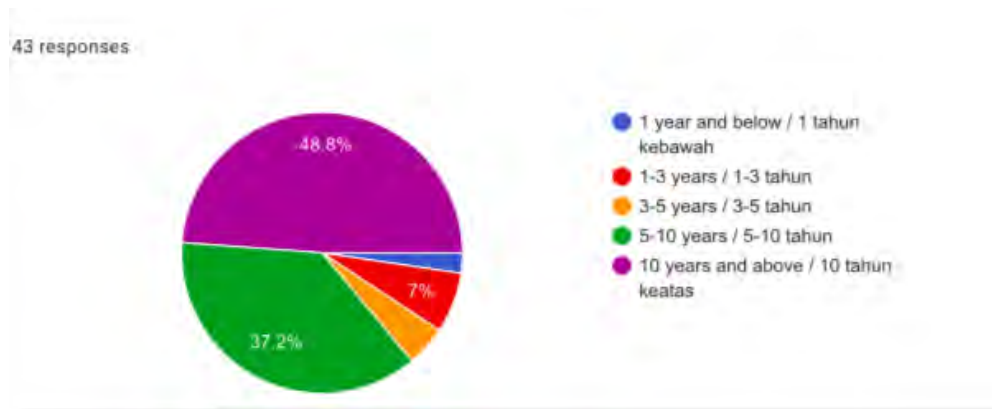


Fig. 6 Year of MSME's Operational

The pie chart in Figure 6 presents data on the operational duration of Micro, Small, and Medium Enterprises (MSMEs) from a survey of 43 respondents. A significant majority, 48.8%, have been in operation for 10 years and above, suggesting a prevalence of well-established enterprises within this sector. The next largest segment, 37.2%, represents enterprises operating between 5 to 10 years, suggesting a stable presence in the market. New businesses or start-ups, those running for 1 to 3 years constitute a smaller proportion, at 7% and the remaining percentage respectively, which may reflect challenges in sustaining business operations over a shorter term, or possibly the dynamic nature of the MSME sector with new businesses continuously entering the market.

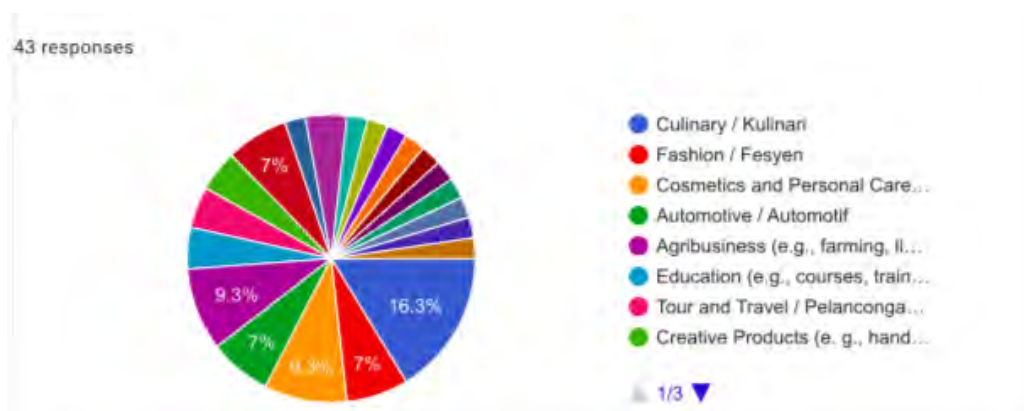


Fig. 7 Sectors of MSME's

In Figure 7, the pie chart illustrates the sector distribution of Micro, Small, and Medium Enterprises (MSMEs) based on a survey with 43 responses. The most noticeable sector is Culinary, making up 16.3% of the businesses, indicating a strong entrepreneurial interest in food-related ventures. Agribusiness Cosmetics and Personal Care are equally represented at 9.3% each, showing a notable presence in the market. These top three sectors highlight the diversity within the MSME landscape. The remaining enterprises are spread across a variety of sectors including fashion, automotive, education, tour and travel, and creative products, each constituting 7% or below. This distribution suggests a vibrant mix of industries within the MSME sector, with a significant portion of enterprises focused on consumer goods and services.

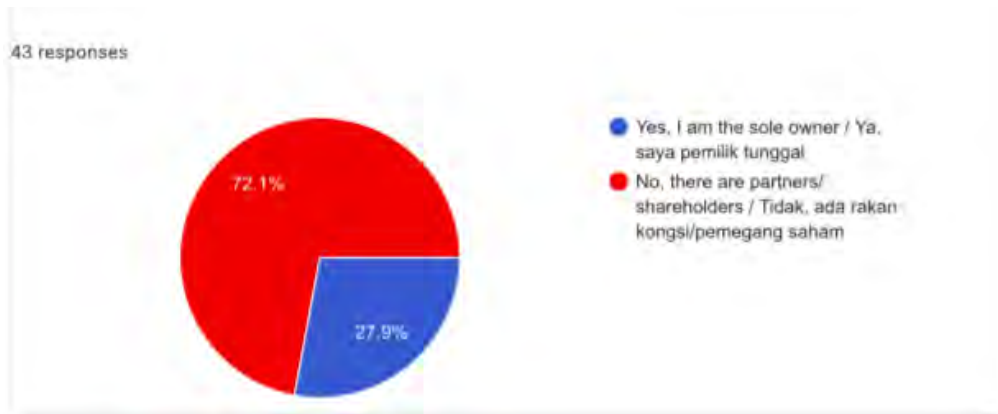


Fig. 8 Ownership of MSMEs

The pie chart in Figure 8 details the ownership structure of 43 Micro, Small, and Medium Enterprises (MSMEs). It shows that a significant majority, 72.1%, of these businesses have a partnership or multiple shareholders, which could indicate a preference for collaborative investment and risk-sharing among MSMEs. Conversely, 27.9% are sole proprietorships, highlighting that more than a quarter of these entrepreneurs have taken on the business venture independently. This suggests a robust entrepreneurial spirit, with a sizable portion of business owners preferring to have complete control and decision-making authority. The chart underscores the diverse approaches to business ownership within the MSME sector.

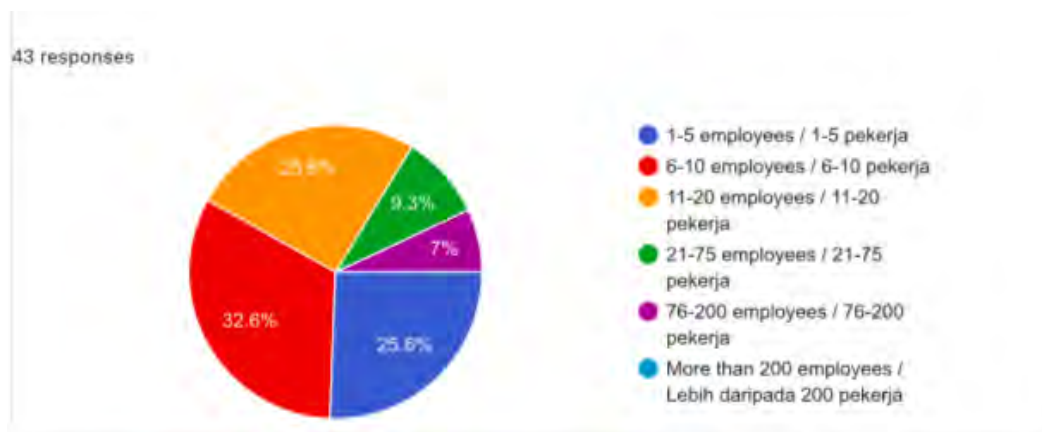


Fig. 9 Numbers of MSME's Employees

The pie chart in Figure 9 provides insight into the employee numbers of 43 Micro, Small, and Medium Enterprises (MSMEs). A significant portion, 32.6%, have a small team of

6-10 employees, suggesting a modest operational scale that allows for a focused management style. Another 25.6% employ 11-20 employees, indicating a slightly larger operation, potentially with more specialized roles and a need for structured management. Interestingly, an equal 25.6% of the enterprises have 1-5 employees, which likely includes many solo entrepreneurs with minimal staff, reflecting the grassroots nature of these businesses. The rest are spread across various larger sizes, but those with 21-75 employees, 76-200 employees, and more than 200 employees represent a smaller fraction, illustrating that the majority of MSMEs in this survey operate with fewer than 20 employees, highlighting the lean nature of these businesses.

In Figure 10, The pie chart depicts the capital value distribution of 43 MSMEs, focusing on capital excluding land and buildings. A notable 60.5% of these enterprises have a capital value ranging from RM 300,000 to RM 1.5 million, indicating that a majority of the businesses surveyed are in the middle range in terms of financial size. This could suggest that these MSMEs have moved beyond the initial startup phase and are potentially in a growth stage. On the other hand, 32.6% of the enterprises operate with a capital of RM 300,000 and below, which likely represents newer or smaller-scale businesses that may be in the early stages of development. The distribution shows a substantial gap between the smaller-scale enterprises and those that have managed to accumulate a higher capital value, reflecting the diverse economic standings within the MSME sector.

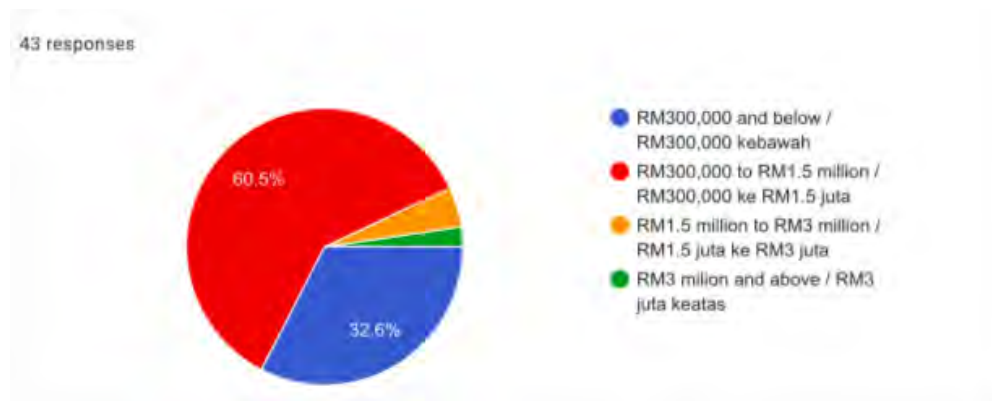


Fig. 10 Capital Owned of MSME's

This pie chart in Figure 11 details the annual gross sales revenue of 43 MSMEs. The majority, at 46.5%, report revenues between RM 300,000 to less than RM 3 million, reflecting a substantial segment of the MSMEs that have achieved a moderate level of sales, possibly indicating stable business operations with a solid customer base. A significant 41.9% of the enterprises earn RM 300,000 or less in annual revenue, which suggests they may be in their initial growth phase, serving niche markets, or operating with a lean business model. These two segments combined represent a clear majority of the MSMEs surveyed, highlighting the commonality of small to moderate sales revenues within this group. The data presents a picture of MSMEs with generally modest revenue figures, which is characteristic of this sector.

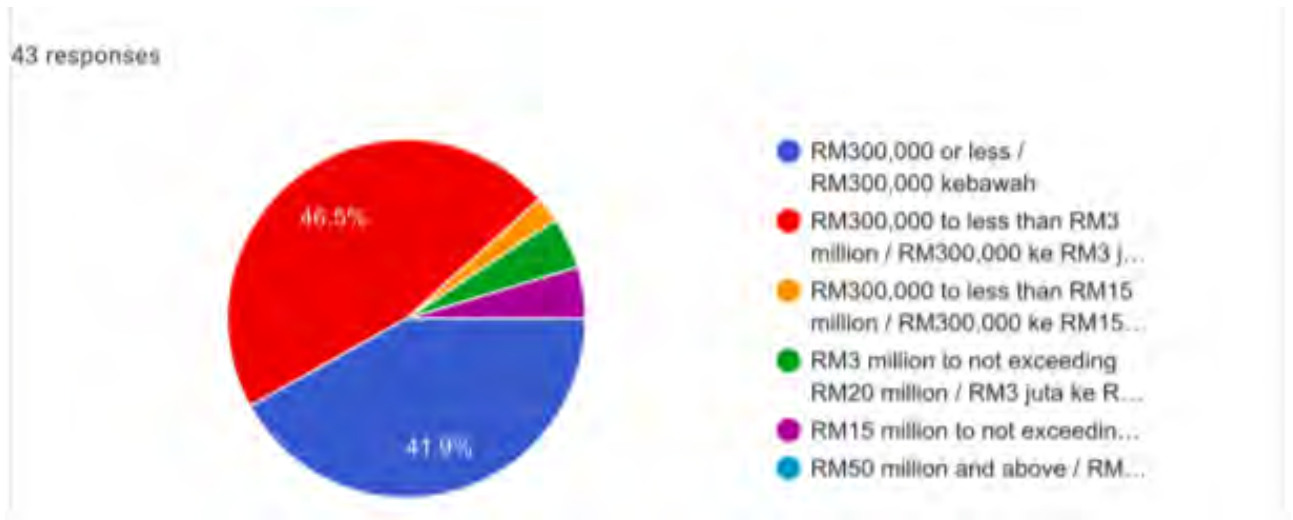


Fig. 11 Gross Revenue of MSME's

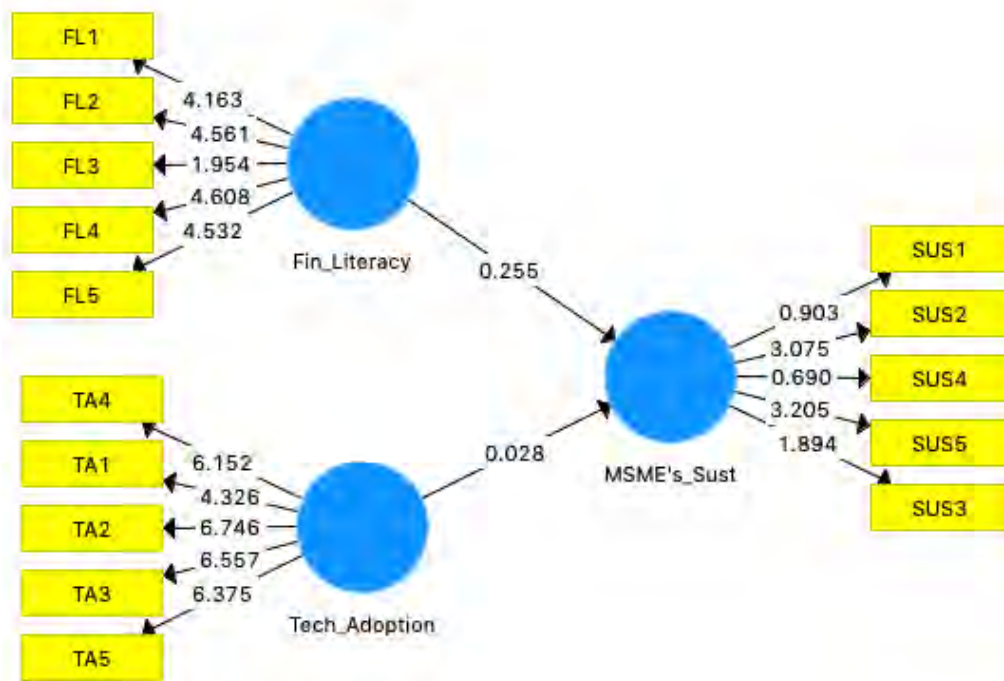


Fig. 12 Path of Hypotheses Results

The structural model diagram in Figure 12 illustrates the relationships between financial literacy, technology adoption, and MSME sustainability, based on 43 MSME respondents in Malaysia. The model includes five indicators for financial literacy (FL1 to FL5), five indicators for technology adoption (TA1 to TA5), and five indicators for MSME sustainability (SUS1 to SUS5).

The p-value for the relationship between financial literacy and MSME sustainability is greater than 0.05, which means we cannot conclude that there's a statistically significant effect of financial literacy on the sustainability of MSMEs in this model. This is despite the positive path coefficient of 0.255, which might have represented a positive association, but not a statistically significant one.

On the other hand, the p-value for the relationship between technology adoption and MSME sustainability is 0.028, which is less than 0.05. This indicates a statistically significant positive effect of technology adoption on the sustainability of MSMEs. This means that, based on the data from the 43 MSME respondents in Malaysia, technology adoption is a predictor of MSME sustainability.

Table.2 Hypotheses Results of Malaysian Sampling

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Fin_Literacy -> MSME's_Sust	0.209	0.246	0.183	1.139	0.255
Tech_Adoption -> MSME's_Sust	0.419	0.410	0.190	2.205	0.028

For financial literacy, the p-value is 0.255, which exceeds the 0.05 threshold, indicating that financial literacy does not have a statistically significant effect on the sustainability of MSMEs. This is corroborated by a lower T-statistic of 1.139, which is not large enough to indicate a significant effect. Despite a positive original sample path coefficient of 0.209, without statistical significance, we cannot confidently assert that financial literacy contributes to the sustainability of these enterprises.

In contrast, technology adoption shows a p-value of 0.028, which is less than the 0.05 threshold, signifying a statistically significant positive effect on MSME sustainability, supported by a higher T-statistic of 2.205. The original sample path coefficient for technology adoption is 0.419, suggesting not only a statistically significant but also a relatively strong positive impact on sustainability.

Considering the context of the COVID-19 pandemic, which has accelerated digitalization across the globe, it is plausible to assume that the positive impact of technology adoption on MSME sustainability is partly due to the rapid shift towards digital business models triggered by the pandemic. Business owners have been compelled to embrace technology for survival as consumer behaviours shifted markedly towards online platforms. The pandemic has likely heightened the awareness and necessity of technology adoption among MSMEs, as those who were quick to adapt would have been better positioned to maintain operations through lockdowns, social distancing measures, and the increased demand for online services. In essence, the pandemic may have catalyzed technological change among Malaysian MSMEs, reinforcing the importance of tech adoption highlighted by the significant p-value in the statistical analysis.

Overall, the analysis suggests that in the current landscape of MSMEs in Malaysia, technology adoption is a more critical factor for business sustainability than financial literacy.

5.0 CONCLUSION

5.1 Research Findings

Based on the survey results from MSMEs in both the Indonesian and Malaysian contexts, the following conclusions can be drawn:

1. **Financial Literacy and MSME Sustainability:** The P value associated with the relationship between financial literacy (Fin_Lit) and MSME sustainability (MSME_Sust) exceeds 0.05, which does not meet the standard criterion for statistical significance. Consequently, there is insufficient statistical evidence to conclude that financial literacy directly contributes to the sustainability of MSMEs in both countries. This may suggest that while financial literacy is important for understanding and managing business finances, other factors play a more decisive role in determining the long-term success and viability of these businesses in the current economic landscape of Indonesia and Malaysia.
2. **Technology Adoption and MSME Sustainability:** Conversely, the P value for the relationship between technology adoption and MSME sustainability is below 0.05 for both Indonesian and Malaysian MSMEs, and the direction is positive. This implies a statistically significant relationship where technology adoption positively impacts MSME sustainability in both regions. This finding reflects the critical role that technological integration and digital capabilities play in enabling MSMEs to adapt to market changes, reach new customers, improve operational efficiency, and remain competitive, especially in a post-pandemic economy where digital transformation has become more pronounced.

5.2 Contribution to Science

1. This research enhances our understanding of the factors influencing MSME sustainability in the Southeast Asian region, specifically in Indonesia and Malaysia, adding a comparative aspect to existing studies.
2. It provides empirical evidence on the role of technology adoption in driving business sustainability, highlighting the importance of digital competencies in the current economic climate.
3. The study may contribute to the field of entrepreneurship by quantifying the impact of digital transformation on small and medium businesses post the COVID-19 pandemic, thereby offering insights into strategic planning and policy-making.
4. It expands the dialogue on financial literacy's role in MSMEs by exploring its relative significance against other factors, which could shape future educational programs and financial support structures for business owners.

5.3 Research Limitations

1. The sample size of MSMEs for each country is relatively small, which could limit the generalizability of the findings across all MSMEs in Indonesia and Malaysia.
2. The study only considers two variables—financial literacy and technology adoption—leaving out other potential factors that could influence MSME sustainability, such as market dynamics, access to capital, regulatory environment, and management practices.
3. P-values provide information on whether an effect exists, but not its size or practical significance, hence the study could be supplemented with effect size measures to better understand the magnitude of the impact.
4. The research is limited to self-reported data, which may introduce biases or inaccuracies in the reporting of financial figures and technology adoption rates.
5. It focuses on the immediate post-pandemic period, which is a time of unusual economic activity; long-term studies would be necessary to understand enduring effects.

ACKNOWLEDGEMENT

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REFERENCES

- Anwar, A., & Serly, S. (2022). Financial literacy on the sustainability of SMEs in GOWA district. *Economics and Business Journal (ECBIS)*, 1(1), 37–46. <https://doi.org/10.47353/ecbis.v1i1.5>.
- Barney, Jay. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Hassan Bazhair, A. (2022). Audit committee attributes and financial performance of Saudi non-financial listed firms. *Cogent Economics & Finance*, 10(1), 2127238. <https://doi.org/10.1080/23322039.2022.2127238>.
- Le, D. V., Le, H. T. T., Pham, T. T., & Vo, L. V. (2023). Innovation and SMEs performance: Evidence from Vietnam. *Applied Economic Analysis*, 31(92), 90–108. <https://doi.org/10.1108/AEA-04-2022-0121>.
- Meng, L., Qamruzzaman, M., & Adow, A. H. E. (2021). Technological adaption and open innovation in SMEs: An strategic assessment for women-owned smes sustainability in Bangladesh. *Sustainability*, 13(5), 2942. <https://doi.org/10.3390/su13052942>.
- Miswanto, M., Tarigan, S. T., Wardhani, S., Khuan, H., Rahmadyanti, E., Jumintono, J., Ranatarisza, M. M., & Machmud, M. (2024). Investigating the influence of financial literacy and supply chain management on the financial performance and sustainability of SMEs. *Uncertain Supply Chain Management*, 12(1), 407–416. <https://doi.org/10.5267/j.uscm.2023.9.011>.
- Muhamad, M. Q. B., Syed Jamal Abdul Nasir Syed Mohamad, & Norzanah Mat Nor. (2021). Technological-Organisational-Environmental (TOE) framework in industry 4.0 adoption among SMEs in Malaysia: An early outlook. *ASEAN Entrepreneurship Journal*, 6(3), 13–19.
- Nguyen, T.-D., & Ngo, T. Q. (2022). The role of technological advancement, supply chain, environmental, social, and governance responsibilities on the sustainable development goals of SMEs in Vietnam. *Economic Research-Ekonomska Istraživanja*, 35(1), 4557–4579. <https://doi.org/10.1080/1331677X.2021.2015611>.
- Phiet, L. T. (2024). Factors influencing SMEs' digital transformation: The case study in Central Highlands in Vietnam. *Journal of System and Management Sciences*, 14(1), 175–187. <https://doi.org/DOI:10.33168/JSMS.2024.0111>.
- Prasanna, R., Jayasundara, J., Naradda Gamage, S. K., Ekanayake, E., Rajapakshe, P., & Abeyrathne, G. (2019). Sustainability of SMEs in the competition: A systemic review on technological challenges and SME performance. *Journal of Open Innovation: Technology, Market, and Complexity*, 5(4), 100. <https://doi.org/10.3390/joitmc5040100>.
- Putri, A. P., & Dhewanto, W. (2022). The effect of entrepreneurial factors on the realization of Sustainable Development Goals (SDG) and sustainability in Indonesia's SMEs. *Binus Business Review*, 13(3), 303–313. <https://doi.org/10.21512/bbr.v13i3.8524>.

- Salvador, R., Sørberg, P. V., Jørgensen, M. S., Schmidt-Kallesøe, L.-L., & Larsen, S. B. (2023). Explaining sustainability performance and maturity in SMEs – Learnings from a 100-participant sustainability innovation project. *Journal of Cleaner Production*, 419, 138248. <https://doi.org/10.1016/j.jclepro.2023.138248>.
- thabet, o. b., fazlin ali, a. a. manaf., & kantakji, m. (2019). Financial literacy among SME'S in Malaysia. *Humanities & Social Sciences Reviews*, 7(2), 376–383. <https://doi.org/10.18510/hssr.2019.7244>.
- Vrontis, D., Chaudhuri, R., & Chatterjee, S. (2022). Adoption of digital technologies by SMEs for sustainability and value creation: Moderating role of entrepreneurial orientation. *Sustainability*, 14(13), 7949. <https://doi.org/10.3390/su14137949>.
- Yakob, S., Yakob, R., B.A.M., H.-S., & Rusli, R. Z. A. (2021). Financial literacy and financial performance of Small and Medium-sized Enterprises. *The South East Asian Journal of Management*, 15(1), 72–96. <https://doi.org/10.21002/seam.v15i1.13117>.
- Ye, J., & Kulathunga, K. (2019). How does financial literacy promote sustainability in SMEs? A developing country perspective. *Sustainability*, 11(10), 2990. <https://doi.org/10.3390/su11102990>.
- Yusoff, T., Wahab, S. A., Latiff, A. S. A., Osman, S. I. W., Zawawi, N. F. M., & Fazal, S. A. (2018). Sustainable Growth in SMEs: A review from the Malaysian perspective. *Journal of Management and Sustainability*, 8(3), 43. <https://doi.org/10.5539/jms.v8n3p43>.

GLOBAL RESEARCH TRENDS OF NON-PERFORMING LOANS: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Non-performing loans (NPLs) remain a significant challenge in financial sectors worldwide. This study aims to explore the scholarly landscape of NPL research from a global perspective between 1970 and 2024 based on publication records retrieved from the Web of Science Core Collection (WoSCC). Using descriptive and bibliometric analyses, this study explores key publication trends, the most productive countries and authors, top-cited articles, and research clusters within NPLs research. The results suggest that the number of publications and citations has risen significantly over the years with the highest number of publications recorded in 2022. The USA dominates the ranking with the highest number of articles published, followed by China, England, Italy, and India. Moreover, the findings from the co-occurrence analysis reveal that previous studies mainly focused on the impacts of macroeconomic and bank-specific determinants on NPLs, with special attention given to the period of financial crisis, credit risk, commercial banks and Islamic banks. Similarly, bank efficiency, stability, and performance are of great interest to researchers and data envelop analysis is employed to obtain efficiency estimates. Lastly, previous studies do not differentiate the NPLs at disaggregated levels. Future researchers can fill this gap by focusing on NPLs at sector or purpose levels. The impacts on NPLs are quantitatively diverse across sectors and purposes.

Keywords: Bibliometric analysis, non-performing loans, NPLs, author keywords, keywords plus

1.0 INTRODUCTION

Financial institutions either conventional or Islamic banks, play a critical role in ensuring the country's macroeconomic stability in all economic sectors. Generally, financial institutions are one of the catalysts for economic development as they act as a mediator by channelling funds between surplus units and deficit units (Mohd Isa et al., 2018). One of the key sources of income for financial firms is loan creation; yet, this activity exposes the institutions to credit risk. The Basel Committee on Banking Supervision defines credit risk as the potential loss of the outstanding loan, either partially or whole, as a result of credit events (Young, 2011). Financial institutions are more likely to experience financial crises as their vulnerability to credit risk increases, and vice versa. Like any other business, banks prioritize competitive strategies, efficiency levels, and risk assessment to increase their revenues (Shafai et al., 2022). However, when debtors fail to make payments, financial institutions often experience high

levels of impaired credit. Non-performing loans (NPLs) are especially important indicators of credit risk because higher credit risk increases the likelihood of default (Akhter, 2023).

This credit risk will lead to a rising amount of the where the borrowers are unable to make their repayment within the given period. NPLs, or bad debt, are the percentage of loan values that are not serviced for three months or more (Ahmad & Ariff, 2008). According to Erdas and Ezanoglu (2022), loans that are not able to be collected when they are due and for which legal proceedings are initiated at the end of the legal process are classified as NPLs. According to statistics from the World Data Bank (2023), Ukraine had the highest non-performing loan (NPL) rate in the world at 31.72% in 2021, while Korea had the lowest rate at 0.23%. The COVID-19 epidemic and related diseases have put a strain on many corporate borrowers (Surin, 2022).

The decline in the quality of banks' loan portfolios was the primary cause of problems in the banking system and financial crises in industrialized economies. High levels of NPLs can hinder the credit flow to businesses and households, which can in turn constrain economic growth. Indeed, the increase in loan defaults highlights the link between macroeconomic and financial shocks. For instance, Goldstein and Turner (1996) discovered that Spain lost 17% of its GDP because of the country's banking crisis, which occurred between 1977 and 1985. This is because NPLs are likely to limit economic growth and undermine economic efficiency (Hou, 2007). Previous studies by Hernando et al. (2020) and Prasetyo (2020) further support this, finding a negative and significant relationship between economic growth and the NPL ratio.

Studying NPLs allows us to better understand their influence on economic activity and employment, as well as develop policies to mitigate those effects. It also can signal weaknesses in the banking system, thereby threatening financial stability. Moreover, understanding the causes of NPLs allows policymakers, regulators, and financial institutions to develop strategies to address them and prevent systemic risks. Although there has been an increased interest in studying the causes of NPLs, there is a lack of bibliometric research on this topic.

Specifically, this study seeks to address the following research questions:

- i. What are the global research trends on NPLs from 1970 to 2024?
- ii. Which country has contributed the most publications over the past 54 years?
- iii. Who are the authors of the most cited articles in the field of NPLs?
- iv. What are the research clusters in NPLs using keywords co-occurrence analysis?

Drawing on the existing literature on NPLs, the objective of this study is to evaluate global research trends in this area using bibliometric analysis. Specifically, the study examines the publication trends of NPLs from 1970 to 2024, identifies the country that has made the greatest contribution in publishing articles, highlights the prolific authors, and analyzes the top cited articles in the field of NPLs. Lastly, the study aims to discover research clusters in NPLs through the analysis of co-occurring author keywords and keywords plus.

2.0 LITERATURE REVIEW

The production of articles related to non-performing loans (NPLs) has evolved significantly over the years. Numerous empirical studies have investigated the factors contributing to NPL using regression and time series analysis. These studies have focused on individual countries or compared groups of countries. In a recent study, Yilmaz (2022) examined the factors affecting NPLs in Turkey using the ARDL-bound testing approach. This study considered both internal factors specific to banks and macroeconomic factors. Similarly,

Bayar (2019) explored the macroeconomic, bank-specific, and institutional factors in emerging market economies using the system GMM dynamic panel data estimator. The findings showed that economic growth, inflation, economic freedom, return on assets and equity, regulatory capital to risk-weighted assets, and noninterest income to total income have a negative relationship with NPLs. On the other hand, Louzis et al. (2012) found that economic growth hurt NPLs in Greece from 2003 to 2009, while unemployment, real lending interest rate, public debt, and bad management had a positive impact. Previous studies have also discussed disaggregated NPLs. For example, Akca (2023) examined which sectors in Turkey have the highest difficulties in repaying loans. The findings showed significant increases in almost all selected sectors during the pre-crisis, crisis, and post-crisis periods.

On the other hand, bibliometric analysis has been widely used in finance to quantitatively assess research trends and outputs. For example, Biancone et al. (2020) conducted a bibliometric analysis of all publications on Scopus between 1980 and 2020 to examine the areas of Islamic banking and finance. Mohamad Shafi and Tan (2023) discussed the evolution of the Islamic capital market using bibliometric analysis on selected publications from the WoSCC database from 2000 to 2021. Tijjani et al. (2020) used bibliometric analysis to provide insight into the growth of Islamic finance literature, extracting data from the WoSCC database covering the period from 1939 to 2019. Khan (2022) employed bibliometric analysis and meta-analysis to examine the link between environmental, social, and governance (ESG) factors and firm performance. The aim was to propose research trends and a future research framework to address gaps identified in the analysis.

It is evident that NPLs are becoming increasingly popular and tend to increase during and after economic downturns. For example, online databases contain numerous published articles on NPLs, with most researchers focusing on examining the factors or determinants that affect NPLs. Additionally, there are also bibliometric analyses from a financial perspective, such as those conducted by Biancone et al. (2020), Mohamad Shafi and Tan (2023), Tijjani et al. (2020), and Khan (2022), who used bibliometric analysis to identify research trends in their respective areas of study. However, the field of NPLs has received relatively little attention in terms of bibliometric analysis, with fewer published articles compared to other areas of financial research. This indicates a gap in the literature when it comes to systematically assessing the research output, trends, and impact of studies related to NPLs. The limited availability of bibliometric analysis in this field presents an opportunity for researchers to fill this gap and contribute to a more comprehensive understanding of the NPLs research landscape.

3.0 DATA AND METHODS

3.1 Data Source and Search Strategy

The search process begins with the identification step. All the data were retrieved from the Web of Science Core Collection (WoSCC) on May 22, 2024. The WoSCC database was selected because it provides researchers with a wide variety of esteemed, global scientific and social science publications. Additionally, it allows researchers to explore long-term developments as it offers data from the mid-1900s, making it a key source for those investigating historical trends (Birkle et al., 2020).

The search terms are "non-performing loan*" OR "non-performing loan*" OR "bad debt*" OR "uncollectible debt*" OR "uncollectable debt" OR "uncollectible loan*" OR "uncollectable loan*" OR "impaired loan*" OR "default loan*" OR "loan default*" OR "delinquent loan*" can be traced in the title, abstract, and keywords (TS). This study focuses on a topic that offers a

broader perspective and greater flexibility to researchers (Bannah, 2023). Moreover, topics are generally more informative and effective for search engine optimization (SEO) purposes, allowing for exploration and adaptation within a subject area (Victor, 2023). Titles certainly play a crucial role in grabbing attention and providing a concise summary of the content (Bannah, 2023). Subsequently, a total of 2,378 publications have been published in the WoSCC over the past 54 years which is from 1970 to May 2024.

The next step is the screening process. The data was further refined considering the type of documents and languages. The analysis was conducted solely on articles written in English, resulting in the removal of 505 publications. Lastly, a total of 1,873 publications were included for bibliometric analysis.

3.2 Methods

The data was analyzed using Microsoft Excel 2019 to construct the descriptive analysis, showing the percentage and frequencies of the publications. Additionally, relevant graphs and charts were constructed using Microsoft Excel. Further, VOSviewer was employed to conduct bibliometric analysis to visualize and analyze citation networks on these publication records. VOSviewer is a powerful tool for handling large datasets with thousands or even millions of records, allowing researchers to efficiently analyze comprehensive bibliometric datasets (Budianto& Dewi, 2023). This can be particularly useful for identifying research trends, interdisciplinary collaborations, and emerging fields.

3.3 Bibliometric Analysis

Bibliometric analysis is a quantitative tool for assessing and analyzing scholarly publications (Wallin, 2005). It involves examining patterns of publication, citation, and co-citation within a specific field of study or across multiple disciplines (Donthu et al., 2021). Bibliometric analysis relies on data from academic databases, citation indexes, and other sources to assess various aspects of scholarly communication (Wallin, 2005).

Furthermore, the use of bibliometric analysis as a technique for assessing research performance is growing and has gained immense popularity in exploring and analyzing large volumes of data (Donthu et al, 2021). Scholars and researchers employ bibliometric analysis for various purposes, including uncovering emerging trends in article and journal performance, collaboration patterns, and research constituents, as well as exploring the intellectual structure of a specific domain in the extant literature (Donthu, et al 2021; Verma & Gustafsson, 2020). Through this analysis, it becomes possible to evaluate unlimited amounts of published articles from numerous numbers of institutions or countries.

3.4 Keywords Co-occurrence Analysis

Co-occurrence analysis examines the counts of co-occurring elements within a collection of units. The approaches for co-occurrence analysis in bibliometrics have matured during the preceding two decades (Zhou et al., 2022). This is because co-occurrence analysis gives important data for mapping and evaluating the potential relationship between two bibliographic items in the same dissertation (Leydesdorff& Vaughan, 2006). Additionally, this analysis allows for the extraction and identification of various components essential to research objectives. These components include theories, methods, contributions, samples, contexts, trending themes, frequently cited topics, and concepts (Klarin, 2024). The effectiveness of co-occurrence analysis can be influenced by the size and quality of the text data used. Generally, larger datasets yield more reliable results. This data has been subjected

to a variety of analyses, and a substantial body of research has been compiled, making it an important topic in information science (White & McCain, 1998; Klarin, 2024).

Author keywords for scientific literature are terms chosen and provided by the authors. These keywords are intended to highlight the main themes or subjects of the research, making it easier for readers and researchers to find relevant articles when searching databases (Lu et al., 2020). These keywords can include terms from the title, abstract, or specific keywords assigned by the authors themselves to describe their research. Previous studies have extensively used author keywords for indexing, information retrieval, bibliometrics, and knowledge organization as many academic databases allow users to search for articles or papers using keywords.

Keywords plus terms are generated using an artificial computer system by WoSCC to identify terms that are closely related to the content of the article but may not have been explicitly mentioned by the authors (Garfield, 1990; Garfield & Sher, 1993). Garfield (1990) claimed that keywords plus phrases can capture an article's substance in greater depth and variety. Similar to author keywords, keyword plus can also be used in bibliometric studies to identify emerging trends, research clusters, or thematic relationships across a body of literature (Zhang et al., 2016). Additionally, keywords plus phrases are derived from the names of articles mentioned by the author of the article being indexed, hence publications with no references or references that are not connected to source items will not have keywords plus. Furthermore, keywords plus may appear in articles with no author keywords, or it may simply include relevant terms that are not specified among the author's keywords.

4.0 RESULTS AND DISCUSSION

4.1 Publications Trends

Figure 1 illustrates the publication trends. Upon examining the figure, it is evident that the number of publications has consistently risen over the years, accompanied by an increase in the number of citations. The earliest record dates back to 1970, with 4 publications and no citations. Subsequently, the number of publications began to rise in the 1990s. The number of publications started to increase in the 1990s. This could be attributed to banking crises, such as the Savings and Loan Crisis in the United States during the late 1980s and early 1990s, as well as the Asian Financial Crisis in the late 1990s. These crises typically resulted in significant increases in non-performing loans (NPLs) as banks faced widespread loan defaults and financial distress (Alnabulsi et al., 2022).

The highest number of published articles was recorded in 2022, with 209 publications. This year also saw the highest number of citations, with 4,477 citations. The COVID-19 pandemic, which began in 2020, had a severe impact on economies worldwide. Lockdowns, supply chain disruptions, and reduced consumer spending led to financial difficulties for businesses and individuals, increasing the risk of loan defaults and NPLs. According to the World Bank (2021), the pandemic was estimated to increase the region's public debt to about 54% of GDP in 2020, accelerating the rise in public debt during the past decade. As the pandemic continued into 2022, there was a greater focus on NPLs as banks and policymakers sought ways to mitigate the economic damage. NPLs can hinder credit availability and economic growth (Alnabulsi et al., 2022). By studying NPLs, economists also seek to understand their impact on economic activity and develop effective strategies to address them. This issue has created opportunities for researchers to analyze NPLs across countries and regions in that year. Consequently, there is a significant demand for comprehensive research and investigation into this matter, particularly in light of the global impact of the pandemic.

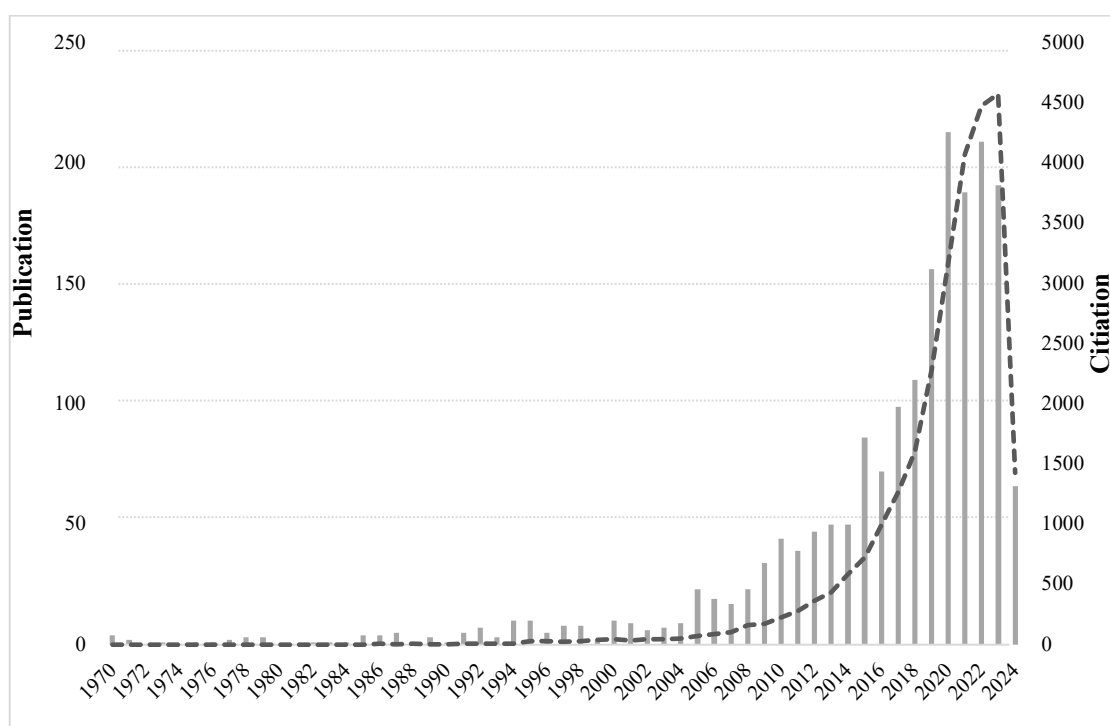


Fig. 1Publication trends

4.2 Geographical Distribution of Publications

Researchers from 114 countries worldwide contributed to the publication of retrieved documents and articles. Table 1 presents the top 10 countries that made the largest contributions to the total output. According to the table, the United States of America (USA) released the highest number of articles, with 402 (21.46%) articles. This was followed by the People's Republic of China and England, with 245 (13.08%) and 186 (9.93%) articles respectively. The USA dominated the number of articles published primarily due to its global financial influence. Being a global financial hub, developments in the US financial sector have implications worldwide (Kose et al., 2017). Thus, analysts, policymakers, and investors around the globe closely follow US financial news and trends, including issues related to NPLs. This further amplifies the interest and coverage of such topics in media and academic circles globally.

Table 1. Top 10 countries contributed to the publications

Rank	Countries	Records	%
1	USA	402	21.46
2	People's Republic of China	245	13.08
3	England	186	9.93
4	Italy	102	5.45
5	India	86	4.59
6	Malaysia	72	3.84
7	Australia	68	3.63
8	Taiwan	63	3.36
9	Germany	59	3.15
10	Vietnam	58	3.10

The overlay visualization of international collaboration among countries with a minimum productivity of 13 documents is shown in Figure 2. The majority of articles produced by the USA were published between 2016 and 2017. For instance, “Sector-specific Analysis of the Non-performing Loan in the US Banking System and their macroeconomic impact” written by Amit Ghosh in 2017, “Non-performing Loans, moral hazard and Regulation of the Chinese Commercial Banking System” in February 2016 and “The Drivers of foreign bank lending in Central and Eastern Europe: The roles of parent, subsidiary and host market traits” that was published in December 2017. The USA frequently collaborated with Canada, the People's Republic of China, and Taiwan. China, represented by the largest yellow node, has the highest number of recently published articles.

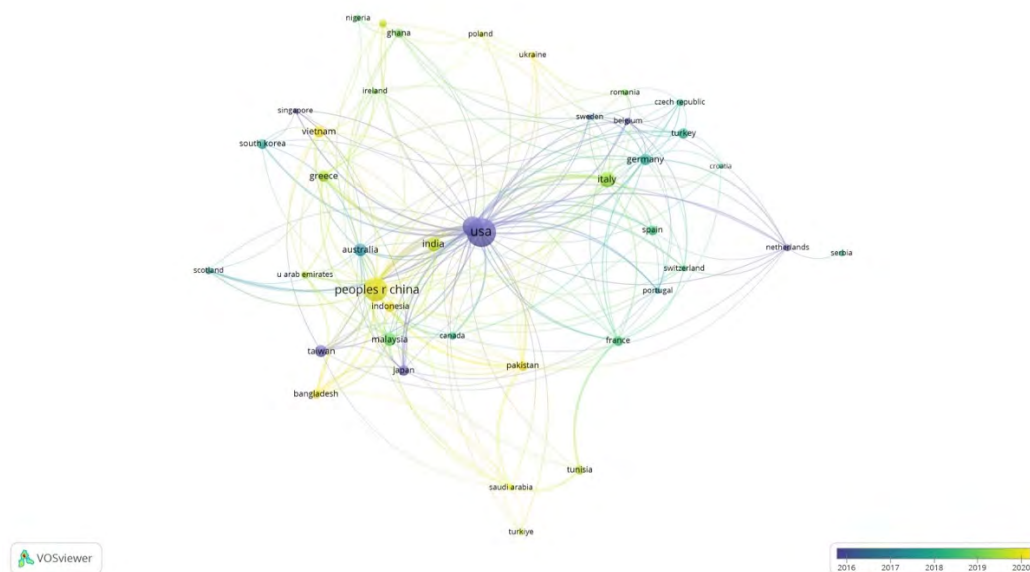


Fig. 2 Overlay visualization map: International collaboration in producing article

4.3 Prolific Authors

The top 10 highly productive authors in publishing articles in the field of NPLS are shown in Table 2. Ghosh S has recorded the highest number of publications, with most of the publications focusing on the country of India. Matousek R and Festic M were also among the top 3, with 11 and 8 documents published, respectively.

Table 2. Top 10 authors in publishing articles

Rank	Authors	Records	%
1	Ghosh S	12	0.641
2	Matousek R	11	0.587
3	Festic M	8	0.427
4	Fukuyama H	7	0.374
5	Hakimi A	7	0.374
6	Ozili PK	7	0.374
7	Sohn SY	7	0.374
8	Wang B	7	0.374
9	Wang SY	7	0.374
10	Ghosh A	6	0.320

4.4 Top Cited Articles

Additionally, the top-cited articles are listed in Table 3. The article that recorded the highest number of documents is "Dynamic DEA: A slacks-based measure approach", published by the International Journal of Management Science in January 2014. It received 638 citations, with an average of 43 citations per year. The non-parametric method, Data Envelopment Analysis (DEA), has been a concern for researchers studying NPLs. According to Cooper et al. (2011), DEA can be defined as a data-oriented approach to evaluate the performance of a set of peer entities called Decision-Making Units (DMUs). DEA is widely used in fields such as economics, finance, healthcare, education, and public policy to benchmark performance, identify best practices, and improve decision-making processes. "Efficiency measures of the Chinese commercial banking system using an additive two-stage DEA" by Wang et al. (2014) is an example of a study that utilizes the DEA approach to evaluate efficiencies of the Chinese commercial banks. Other than that, Nhan et al. (2021) also used DEA in their research titled "Evaluating the Efficiency of Vietnam Banks Using Data Envelopment Analysis" to investigate issues related to the technical efficiency, resource analysis, and business efficiency of banks in Vietnam.

Table 3. The most cited articles

Rank	Title	Authors	Year	Average Citations Per Year	Total Citation
1	Dynamic DEA: A slacks-based measure approach.	Tone and Tsutsui	2010	42.53	638
2	Managerial Ability and Earnings Quality.	Demerjian, Peter R., Lev, Lewis and Sarah E.	2013	38.5	462
3	Macroeconomic and bank-specific determinants of non-performing loans in Greece: A comparative study of mortgage, business and consumer loan portfolios.	Louzis, Vouldis, Angelos T. and Metaxas.	2012	35.54	462
4	Corporate social responsibility in the banking industry: Motives and financial performance.	Meng-Wen, Shen and Chung-Hua	2013	33.08	397
5	An experimental comparison of classification algorithms for imbalanced credit scoring data sets.	Brown, Mues and Christophe	2012	30.23	393
6	Evaluating credit risk and loan performance in online Peer-to-Peer (P2P) lending.	Emekter, Riza, Yanbin, Jirasakuldech and Benjamas.	2015	28.4	284
7	The nature of information in commercial bank loan loss disclosures.	Wahlen and JM	1994	8.48	263
8	The technical efficiency of the Japanese banks: Non-radial directional performance measurement with undesirable output.	Barros, Carlos Pestana, Managi, Shunsuke, Matousek and Roman	2012	20.15	262
9	Efficiency measures of the Chinese commercial banking system using an additive two-stage DEA.	Wang, Huang, Jie and Ying-Nan	2014	23.27	256
10	Banking-industry specific and regional economic determinants of non-performing loans: Evidence from US states.	Amit Ghosh	2015	24.5	245

4.5 Co-occurrence Analysis of Keywords

4.5.1 Authors Keywords

Figure 3 displays the co-occurrence of author keywords visualization maps in NPLs research. As shown in figure, the minimum number of author keyword occurrences was set at 15. Out of the 4,077 keywords, 53 keywords met the threshold with the full counting method. The visualization map of Figure 3(a) shows how often specific key terms occur in the published articles collected. Each term is depicted as a node, its size varying according to its frequency. Due to that, larger nodes indicate higher frequency and each node also be coloured differently to represent their clusters (Bukar et al., 2023).

The co-occurrence analysis yielded six clusters, as presented in Figure 3 and Table 4. The first cluster, represented in red colour, consists of 13 items. The largest node in the cluster is banks, where researchers are focusing on studying the NPLs in the banking sector and their impacts on bank profitability and performance. Another critical issue is financial crisis, as it can significantly impact the rate of NPLs worldwide. NPLs in Ghana have also become more appealing. The related studies in Ghana are Aboagye and Ahenkora (2018), Kwashie et al (2022), Alhassan et al. (2014) and Osei-Assibey and Asenso (2015).

Second cluster (green colour) deals with the banking environment as the largest nodes represent the item of “banking” with 62 occurrences. In this cluster, the research in banking and finance particularly focused in China, is evaluated through Data Envelopment Analysis (DEA) to analyze banking operations and efficiency. Additionally, researchers also consider risk management to provide insights to policymakers on minimizing risks and ensuring financial stability.

Blue cluster as the third cluster focuses on the determinants that influence the fluctuation of the NPLs. Panel data analysis is consistently used in previous studies. Moreover, the use of panel data enables researchers to study how variables change over time within different entities. Instead of focusing on a specific country, the emerging market has been discussed under this cluster.

Next cluster is associated with the yellow colour. The author keywords are related to loan defaults, which will affect individuals' credit scores. The latest issue is linked to the outbreak of Covid-19, during which loans defaults increased due to economic instability. One of the ways to minimize the NPLs is by opting to use peer-to-peer (P2P) lending. P2P lending can be beneficial for borrowers with poor credit scores who want to apply for loans through financial institutions (Milne &Parboteeah, 2016).

Purple cluster indicates the fifth cluster with 6 keywords in the cluster. Under this cluster, the focus is on commercial banks and their association with the bank's profitability and economic growth. Previous studies also highlight the concern of systematic risk, including NPLs, as it can impact financial performance. Dealing with non-performing loans (NPLs) in Vietnam has become increasingly challenging. This is because according to Tran et al., (2022), the research related to Vietnam is unique as the government-owned banks often gained significant influence or control in the country compared to privately-owned banks. This could imply that government-owned banks have a dominant position in terms of market share, influence over interest rates, ability to attract deposits, or other key aspects of banking and finance within Vietnam.

Cluster six (turquoise colour) represents the study in Islamic banking. The recent prominence of G21, G32, G28 likely reflects ongoing research and discussions around financial sector dynamics, regulatory frameworks, and strategies for managing financial risks in a complex and interconnected global economy.

Lastly, Figure 3(b) presents an overlay visualization map based on the annual publications, occurrences, and connections of the author keywords (Rahman et al., 2023). The yellow cluster represents the most recent author keywords used in NPL studies, while the purple cluster represents the author keywords between 2017 and 2018. The overlay clearly shows that the recent author keywords are related to G28 “Covid-19”, “G32”, and “G21”, which occurred in 2022; while “machine learning”, “fintech”, “NPLs”, “Vietnam”, and “financial development” occurred in 2021. In the meantime, the author keywords that appeared between 2014 and 2016 are related to “China”, “loans”, “credit scoring”, and “default”.

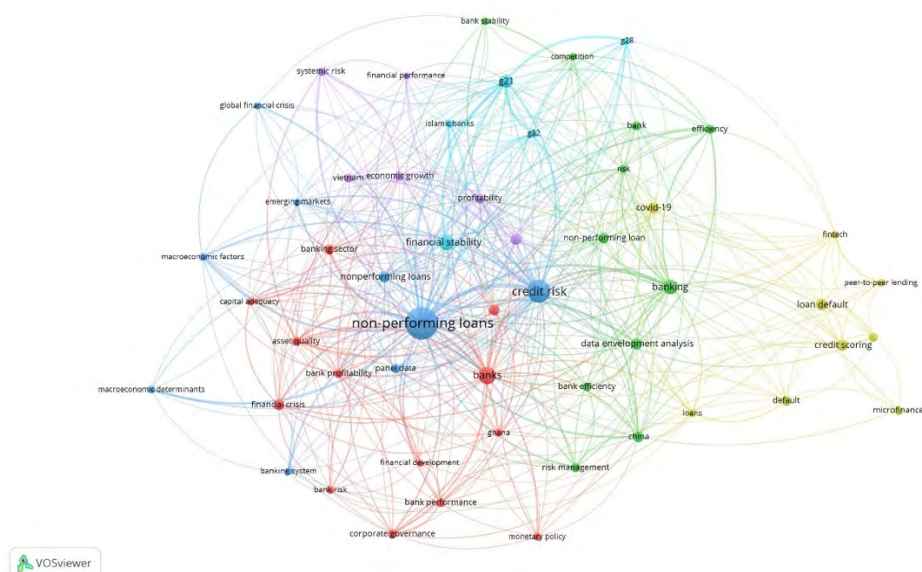


Fig. 3(a) Network Visualization map: Author keywords co-occurrences in NPLs

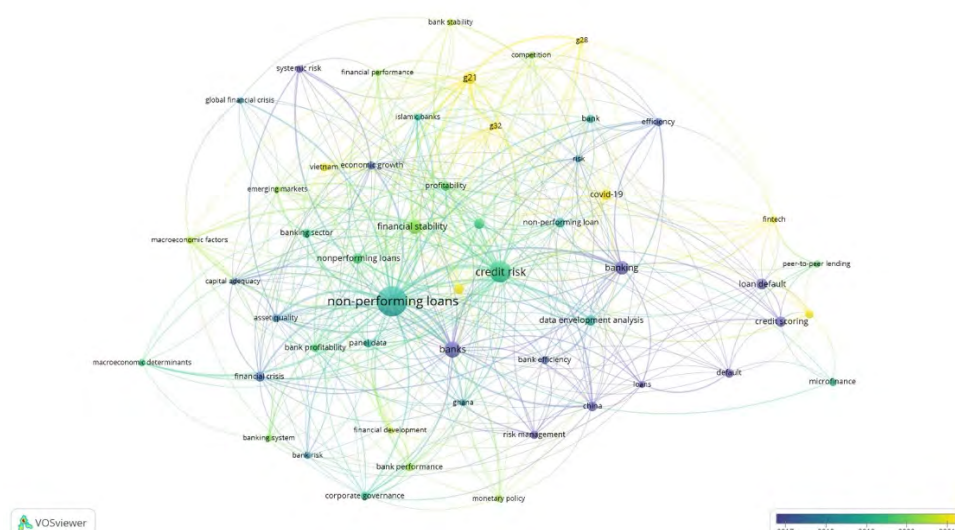


Fig. 3(b) Overlay Visualization map: Author keywords co-occurrences in NPLs

Table 4. Author Keywords Clustering

	Author Keywords	Occurrences	Average Publication Year
Cluster 1 (Red)	Banks	85	2017
	Financial crisis	33	2017
	NPLs	32	2021
	Banking sector	27	2019
	Corporate governance	26	2019
	Asset quality	23	2018
	Bank profitability	22	2020
	Bank performance	21	2020
	Monetary policy	19	2020
	Ghana	19	2018
	Bank risk	19	2018
	Financial development	15	2021
	Capital adequacy	15	2017
Cluster 2 (Green)	Banking	62	2017
	Data envelopment analysis	39	2019
	China	33	2014
	Non-performing loan	31	2019
	Risk management	26	2016
	Bank	24	2019
	Efficiency	23	2017
	Bank efficiency	21	2017
	Bank stability	17	2020
	Competition	17	2020
	Risk	17	2018
Cluster 3 (Blue)	Non-performing loans	303	2019
	Credit risk	155	2019
	Nonperforming loans	38	2020
	Panel data	23	2019
	Macroeconomic factors	19	2020
	Banking system	19	2020
	Macroeconomic determinants	18	2019
	Emerging markets	16	2020
	Global financial crisis	16	2018
Cluster 4 (Yellow)	Loan default	41	2017
	Credit scoring	39	2016
	Covid-19	35	2022
	Default	29	2016
	Machine learning	24	2021
	Microfinance	20	2019
	Peer-to-peer lending	19	2020
	Loans	19	2015
	Fintech	17	2021
Cluster 5 (Purple)	Commercial banks	37	2019
	Profitability	27	2020
	Economic growth	26	2017
	Vietnam	23	2021
	Systemic risk	22	2017
	Financial performance	16	2020
Cluster 6 (Turquoise)	Financial stability	66	2020
	G21	54	2022
	Islamic banks	19	2019
	G32	17	2022
	G28	16	2022

4.5.2 Keywords Plus

Figure 4 illustrates the keywords plus co-occurrence visualization maps. Specifically, Figure 4(a) displays the keywords plus co-occurrence network visualization map while Figure 4(b) illustrates the overlay visualization map of keywords plus co-occurrence. Similar to the author keywords, keywords plus are generated with a minimum of 15 occurrences using the full counting method. Out of 1,797 keywords, 95 keywords meet the threshold. Keywords plus generate a higher number of keywords compared to author keywords, as it helps optimize content for a wider range of search queries (Zhang et al., 2016).

Table 5 and Figure 4 report the items in the 6 clusters of keywords plus. The first cluster highlighted in red contains the largest occurrences, with a total of 29 keywords. This cluster includes keywords plus such as “impact”, “credit”, “growth”, “information”, “crisis”, and “market”. pose a significant challenge to banks and firms, especially during times of economic stress and crisis. This issue not only strains the balance sheets of banks but also hampers the flow of credit to productive sectors, thereby hindering economic growth. Effective monetary policy is crucial for mitigating the risks associated with NPLs and promoting a resilient financial system.

“Efficiency”, “performance”, “ownership”, “profitability”, “industry”, and “models” are some examples of keywords plus connected to the second cluster (green colour). The second cluster deals with Data Envelopment Analysis (DEA). DEA has been used by researchers in the previous studies to assess the efficiency of commercial banks across different countries in handling NPLs. This analysis allows for comparisons across countries, highlighting best practices for improving in loan management strategies in order to increase profitability and productivity growth. Profitability ratios represent measures of a firm or company's return and are used to assess their financial health (Manaf et al., 2021). These keywords are related to cluster two of author keywords, with DEA being selected as the research method. Additionally, instead of focusing solely on China as shown in the author keywords, the authors plus have chosen to focus on countries worldwide.

Cluster three (blue colour) related with the competition among institutions in shaping market dynamics and economic growth. However, alongside competition comes risk-taking and this can influence market power and the overall stability of the financial sector. Subsequently, the keywords plus under this cluster are “economic-growth”, “institution”, “risk-taking”, “market power” and diversification”. Thus, effective supervision by regulatory bodies is crucial to mitigate these risks as well as ensure financial stability of the financial institutions.

Additionally, cluster four (yellow colour) connects with studies that employed time series analysis to track trends in NPLs over periods. The researchers used the regression test to identify a significant relationship between NPLs and financial ratios such as profitability and liquidity ratios. Keywords plus under this cluster include “risk”, “model”, “regression”, “tests”, “prediction”, “bankruptcy”, and “classification”. NPLs pose significant credit risks for bank where high level of NPLs can strain bank's liquidity, potentially leading to financial instability or bankruptcy if not managed effectively.

Purple colour represents cluster five with the highest occurrences of the "determinants" recorded among all the keywords in the six clusters. This is followed by other keywords plus such as “non-performing loans”, “panel-data”, “credit risk”, “business”, “stability”, and “bank-specific determinants”. NPLs in the banking sector can be influenced by a variety of determinants, including bank-specific factors, using panel data analysis. Bank-specific determinants include capital adequacy ratios, asset quality, and management efficiency, which play crucial roles in determining the level of NPLs. Higher levels of NPLs often reflect

increased credit risk stemming from inadequate risk management practices or poor loan underwriting standards (Naili & Lahrichi, 2022). This cluster is associated with cluster three in the author keywords, as it discusses the factors that influence NPLs using panel data analysis. However, the keywords plus outline the bank-specific determinants instead of macroeconomic determinants.

Cluster six (turquoise colour) focuses on “behavior”, “corporate governance”, “management”, “empirical-evidence”, “costs”, and “firm performance”. Cluster six connects to corporate governance where it significantly influences both behavior and management practices within firms, impacting their handling of NPLs and overall financial performance. The ownership structure of a firm plays a crucial role in determining the governance mechanisms that guide decision-making regarding NPLs. By enhancing transparency and accountability, strong governance not only reduces NPLs but also minimizes associated costs and improves the firm's financial performance. These keywords are related to the cluster six of the authors keywords, as financial institutions relate to G21, risk management to G32, and corporate governance to G28.

Based on Figure 4(b), the recent keywords plus cover “financial stability” and “bank-specific determinants” in 2022. This is followed by the keywords plus that occurred in 2021. These keywords include “nonperforming loans”, “non-performing loans”, “empirical-evidence”, “Greece”, “regression”, “stability”, “moral hazard”, “economic-growth”, “diversification”, “corporate governance”, and “business”. On the other hand, the keyword plus of “reform” occurred in 2013 and “choice” and “scale” in 2015.

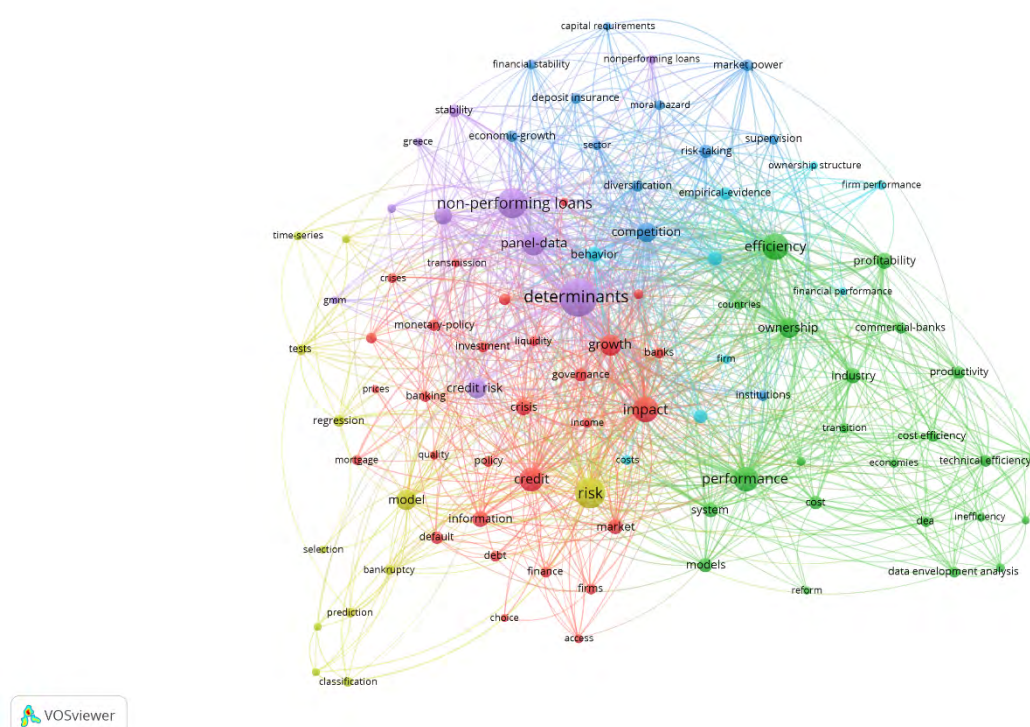


Fig. 4(a) Network Visualization map: Keywords plus co-occurrences in NPLs

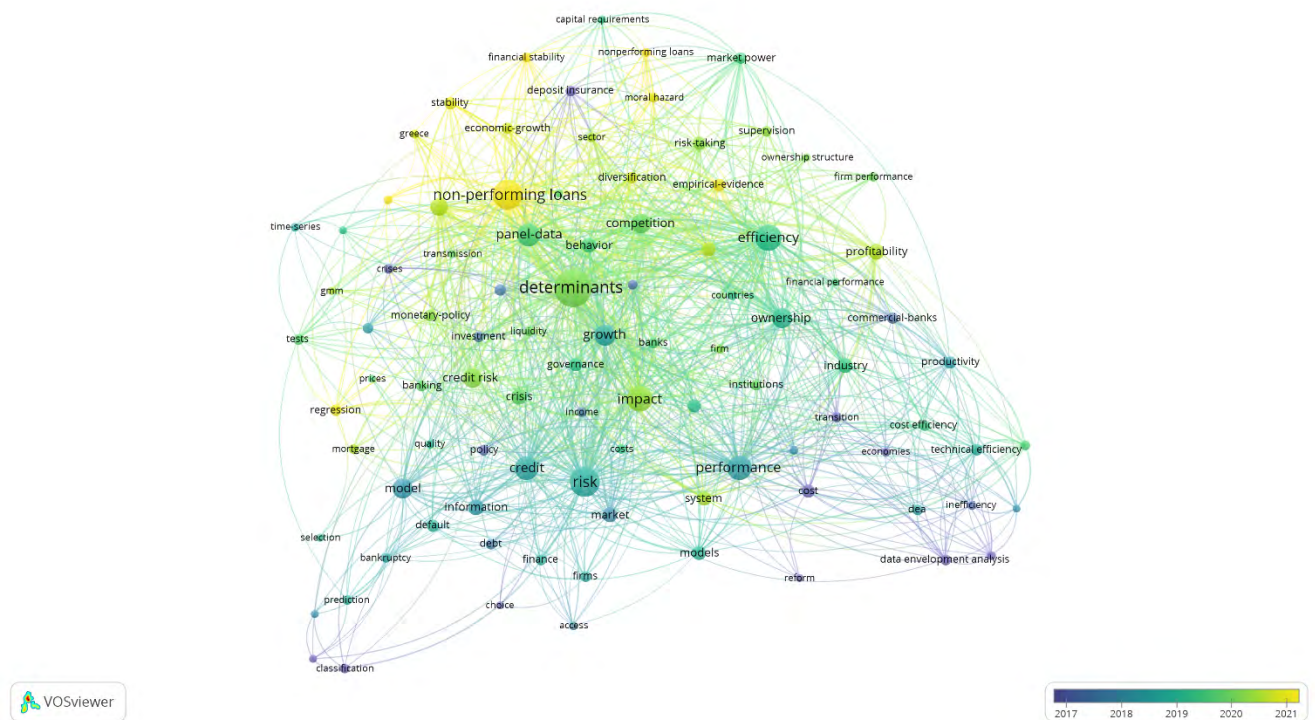


Fig. 4(b) Overlay Visualization map: Keywords plus co-occurrences in NPLs

Table 5. Keywords Plus Clustering

	Keywords Plus	Occurrences	Average Publication Year
Cluster 1 (Red)	Impact	153	2020
	Credit	133	2019
	Growth	104	2019
	Information	59	2018
	Crisis	58	2020
	Market	54	2018
	Governance	42	2019
	Default	38	2019
	Markets	34	2018
	Monetary-policy	32	2020
	Debt	30	2018
	Policy	30	2017
	Earnings management	28	2018
	Banking	27	2020
	Firms	27	2019
	Banks	26	2020
	Finance	26	2019
	Investment	26	2018
	Crises	25	2016
	Mortgage	24	2020
	Financial crisis	24	2017
	Liquidity	23	2020
	Income	22	2018
	Quality	20	2019
	Access	18	2018

	Transmission	17	2020
	Systemic risk	16	2020
	Choice	16	2015
	Prices	15	2020
Cluster 2 (Green)	Efficiency	163	2019
	Performance	141	2018
	Ownership	101	2019
	Profitability	61	2020
	Industry	54	2019
	Models	50	2019
	System	47	2020
	Cost	45	2016
	Productivity	37	2018
	Technical efficiency	34	2019
	Commercial-banks	33	2017
	Cost efficiency	30	2019
	Data envelopment analysis	27	2017
	DEA	26	2018
	Undesirable outputs	23	2020
	Transition	23	2017
	Countries	22	2019
	Loans	20	2018
	Scale	20	2015
	Inefficiency	19	2017
	Economies	19	2016
	Productivity growth	16	2018
	Reform	15	2013
Cluster 3 (Blue)	Competition	94	2020
	Risk-taking	44	2020
	Market power	34	2020
	Economic-growth	33	2021
	Diversification	32	2021
	Institutions	30	2020
	Supervision	27	2020
	Deposit insurance	27	2017
	Moral hazard	25	2021
	Sector	25	2020
	Financial stability	24	2022
Cluster 4 (Yellow)	Capital requirements	16	2019
	Risk	214	2019
	Model	99	2018
	Regression	31	2021
	Tests	30	2020
	Prediction	25	2019
	Bankruptcy	24	2018
	Classification	24	2017
	Time-series	19	2019
	Neural-networks	17	2016
	Cointegration	16	2019
	Selection	16	2019
Cluster 5 (Purple)	Financial ratios	16	2018
	Determinants	338	2020
	Non-performing loans	218	2021
	Panel-data	123	2020
	Credit risk	87	2020
	Business	75	2021
	Stability	37	2021
	Bank-specific determinants	20	2022
	Nonperforming loans	20	2021
	Greece	20	2021
Cluster 6 (Turquoise)	GMM	16	2020
	Behavior	56	2020
	Corporate governance	48	2021

Management	43	2019
Empirical-evidence	36	2021
Costs	23	2019
Firm performance	22	2020
Firm	18	2020
Ownership structure	17	2020
Financial performance	15	2020

4.5.3 Discussion

In sum, four main points emerge from the co-occurrences of the author keywords and keywords plus analysis. First, it is important to note that NPLs has been identified as a critical issue in the current global economy. This is because from the visualization maps, the author keyword and keyword plus with the largest node was NPLs with 303 and 218 occurrences, respectively.

Second, there are numerous studies that focus on the macroeconomic factors that drive NPLs in emerging markets, as evidenced by the high occurrences of “macroeconomic determinants” in the author keywords, and “impact” and “determinants” appearing in the keywords plus. Alternatively, several studies study the bank-specific determinants affecting NPLs, with special attention placed on financial crisis and credit risk. This is shown in the keywords plus of “bank-specific determinants” with 20 occurrences and an average publication year of 2022.

Third, some studies analyse NPLs with a special attention on commercial banks and Islamic banks, exploring their connection to bank efficiency, stability, and performance. The author keywords include “banks” (85 occurrences), “banking” (62 occurrences), “commercial banks” (37 occurrences), and “Islamic banks” (19 occurrences). Moreover, data envelop analysis (DEA) is frequently employed to derive efficiency estimates in the banking sector. This is followed by the author keywords of “data envelopment analysis”, “efficiency”, and “bank efficiency”, while the keyword plus of “efficiency” recorded a relatively higher occurrence of 163 with an average publication year of 2019.

Lastly, although NPLs continue to pose pressing financial risks, there is a lack of studies that explore the different purposes and sectors of NPLs. For instance, future studies should focus on the macroeconomic factors and bank-specific factors on NPLs at disaggregated levels. This is because the impacts on NPLs are quantitatively diverse across sectors and purposes.

5.0 LIMITATIONS OF STUDY

Even though bibliometric analysis is a valuable tool for understanding the trends within scientific literature, it has several limitations that should be aware of. The first limitation arises from the reliance on using the WoSCC database as the sole source of documents. Different databases have varying coverage of journals, conference proceedings, and other scholarly outputs, which means that this database may underrepresent and not reflect the broader research landscape. Furthermore, exclusion criteria were imposed to retrieve the documents, with this study focusing only on the English language and article-type documents. Research published in languages other than English may be excluded, leading to a biased representation of global scholarship. This omission can overlook significant contributions from non-English-speaking countries and researchers. Similarly, bibliometric analyses that are limited to articles overlook other valuable forms of scholarly communication, such as books, book chapters, conference proceedings, patents, and datasets. This can lead to an incomplete picture of research impact and influence within a field.

6.0 CONCLUSION

NPLs has been identified as a critical issue in the current global economy. Although there has been increased interest in examining the causes of NPLs, there is a lack of bibliometric research on NPLs. Therefore, the objective of this study is to examine the global research trends on NPLs through bibliometric analysis. More importantly, this study focuses on the publication trends from 1970 to 2024, the productive countries, the prolific authors, and the top cited articles in the field of NPLs. This study also aims to discover research clusters using co-occurrence analysis of author keywords and keywords plus.

Several findings emerge from this study. First, the bibliometric analysis provides insights into the landscape and evolution of published articles surrounding NPLs. It is evident that the number of publications and the number of citations have consistently risen over the years. Subsequently, NPLs has shown a significant evolution starting in the 1990s.

Second, the USA, China and England emerge as top 3 productive nations in publishing articles on NPLs, reflecting their leadership in researching and addressing critical financial issues. Meanwhile, Ghosh S's prolific record count solidifies his position as a leading author as compared to the authors. The article "Dynamic DEA: A slacks-based measure approach" by Tone and Tsutsui, with its impressive 638 total citations stands as the most cited articles. This article not only informs ongoing discussions but also inspires further exploration and innovation to readers and future researchers.

Third, several main points can be drawn from the co-occurrences analysis of the author keywords and keywords plus. Previous studies primarily focused on the macroeconomic and bank-specific determinants that affect NPLs, with special attention given to the period of financial crisis and credit risk. Moreover, while previous research has focused on NPLs with special attention given to commercial banks and Islamic banks, bank efficiency, researchers are also interested in bank efficiency, stability, and performance. Therefore, data envelopment analysis (DEA) is often used to derive efficiency estimates in the banking sector.

Lastly, previous studies do not differentiate NPLs at disaggregated levels. Future researchers should focus on filling this gap by emphasizing NPLs at the sector or purpose levels, instead of looking at aggregated NPLs in a country. This is because the impacts on NPLs are quantitatively diverse across different sectors and purposes.

CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest or personal relationship in this article. All authors contributed equally to the conception and design of the study.

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REFERENCES

- Aboagye, A. Q., & Ahenkora, E. (2018). Stress testing exposure of banks to sectors of the Ghanaian economy. *Journal of African Business*, 19(1), 27-38.
- Ahmad, N. H., & Ariff, M. (2008). Multi-country study of bank credit risk determinants. *International Journal of banking and Finance*, 5(1), 135-152.
- Akça, T. (2023). Sectoral non-performing loans cycle in Turkey: An empirical analysis. *Sosyoekonomi*, 31(55), 173–194. <https://doi.org/10.17233/sosyoekonomi.2023.01.09>.
- Akhter, N. (2023). Determinants of commercial bank's non-performing loans in Bangladesh: An empirical evidence. *Cogent Economics and Finance*, 11(1). <https://doi.org/10.1080/23322039.2023.2194128>.
- Alnabulsi, K., Kozarević, E., & Hakimi, A. (2022). Assessing the determinants of non-performing loans under financial crisis and health crisis: Evidence from the MENA banks. *Cogent Economics & Finance*, 10(1), 2124665.
- (n.d.). *Bank nonperforming loans to total gross loans (%)*. World Bank Open Data. <https://data.worldbank.org/indicator/FB.AST.NPER.ZS?skipRedirection=true&view=map>
- Bannah, S. (2023, December 18). *A quick guide to selecting an excellent research topic and project title*. AuthorAID. <https://www.authoraid.info/en/>.
- Bayar, Y. (2019). Macroeconomic, institutional and bank-specific determinants of non-performing loans in emerging market economies: A dynamic panel regression analysis. *Journal of Central Banking Theory and Practice*, 8(3), 95–110. <https://doi.org/10.2478/jcbtp-2019-0026>.
- Biancone, P. Pietro, Saiti, B., Petricean, D., & Chmet, F. (2020). The bibliometric analysis of Islamic banking and finance. *Journal of Islamic Accounting and Business Research*, 11(9), 2069–2086. <https://doi.org/10.1108/JIABR-08-2020-0235>.
- Birkle, C., Pendlebury, D. A., Schnell, J., & Adams, J. (2020). Web of Science as a data source for research on scientific and scholarly activity. *Quantitative Science Studies*, 1(1), 363-376.
- Budianto, E. W. H., & Dewi, N. D. T. (2023). *Non Performing Financing (NPF) on islamic and conventional banking: Mapping research topics using VOSviewer bibliometric and library research*.
- Bukar, U. A., Sayeed, M. S., Razak, S. F. A., Yogarayan, S., Amodu, O. A., & Mahmood, R. A. R. (2023). A method for analyzing text using VOSviewer. *MethodsX*, 11, 102339.
- Cooper, W. W., Seiford, L. M., & Zhu, J. (Eds.). (2011). Handbook on data envelopment analysis.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of business research*, 133, 285-296.
- Donthu, N., Kumar, S., Pattnaik, D., & Lim, W. M. (2021). A bibliometric retrospection of marketing from the lens of psychology: *Insights from Psychology & Marketing. Psychology & Marketing*, 38(5), 834–865.
- Erdas, M. L., & Ezanoglu, Z. (2022). How do bank-specific factors impact non-performing loans: Evidence from G20 countries. *Journal of Central Banking Theory and Practice*, 11(2), 97–122. <https://doi.org/10.2478/jcbtp-2022-0015>.
- Garfield, E. U. G. E. N. E. (1990). Current eamments. *Curr. Contents*, 32, 3-7.
- Garfield, E., & Sher, I. H. (1993). Brief communication keywords plusalgorithmic derivative Indexing. *Journal of the American Society for Information Science (1986-1998)*, 44(5), 298.

- Ghosh, A. (2017). Sector-specific analysis of non-performing loans in the US banking system and their macroeconomic impact. *Journal of Economics and Business*, 93, 29-45.
- Goldstein, M., & Turner, P. (1996). Banking crises in emerging economies: origins and policy options. *Trade Currencies and Finance*, 301-363.
- Hernando, A., Miranda, E., Theodora, L. L. A., Kadarusman, Y. B., & Ariyan, G. A. (2020). Dampak faktor makroekonomiterhadapnon performing loan pada kreditproduktif bank umum di Indonesia. *Studi Akuntansi dan Keuangan Indonesia*, 3(1), 1-28.
- Hou, K. (2007). Industry information diffusion and the lead-lag effect in stock returns. *The review of financial studies*, 20(4), 1113-1138.
- Khan, M. A. (2022). ESG disclosure and firm performance: A bibliometric and meta analysis. *Research in International Business and Finance*, 61(April).<https://doi.org/10.1016/j.ribaf.2022.101668>.
- Klarin, A. (2024). How to conduct a bibliometric content analysis: Guidelines and contributions of content co-occurrence or co-word literature reviews. *International Journal of Consumer Studies*, 48(2).
- Kose, M. A., Lakatos, C., Ohnsorge, F., & Stocker, M. (2017). *The global role of the US economy: Linkages, policies and spillovers*.
- Kwashie, A. A., Baidoo, S. T., & Ayesu, E. K. (2022). Investigating the impact of credit risk on financial performance of commercial banks in Ghana. *Cogent Economics & Finance*, 10(1), 2109281.
- Leydesdorff, L., & Vaughan, L. (2006). Co-occurrence matrices and their applications in information science: Extending ACA to the Web environment. *Journal of the American Society for Information Science and technology*, 57(12), 1616-1628.
- Louzis, D. P., Vouldis, A. T., & Metaxas, V. L. (2012). Macroeconomic and bank-specific determinants of non-performing loans in Greece: A comparative study of mortgage, business and consumer loan portfolios. *Journal of banking & finance*, 36(4), 1012-1027.
- Lu, W., Liu, Z., Huang, Y., Bu, Y., Li, X., & Cheng, Q. (2020). How do authors select keywords? A preliminary study of author keyword selection behavior. *Journal of Informetrics*, 14(4).
- Manaf, S. M. A., Amzah, N. F. H., & Salleh, W. N. W. (2021). An investigation of factors affecting financial distress: Analysis among PN17 companies in bursa Malaysia. *Insight Journal*, 8, 182-198.
- Milne, A., & Parboteeah, P. (2016). *The business models and economics of peer-to-peer lending*.
- Mohamad Shafi, R., & Tan, Y. L. (2023). Evolution in Islamic capital market: a bibliometric analysis. *Journal of Islamic Accounting and Business Research*, 14(8), 1474–1495. <https://doi.org/10.1108/JIABR-04-2022-0106>.
- Mohd Isa, M. Y., Voon Choong, Y., Yong Gun Fie, D., & Abdul Rashid, M. Z. H. (2018). Determinants of loan loss provisions of commercial banks in Malaysia. *Journal of Financial Reporting and Accounting*, 16(1), 24–48. <https://doi.org/10.1108/JFRA-03-2015-0044>.
- Naili, M., & Lahrichi, Y. (2022). The determinants of banks' credit risk: Review of the literature and future research agenda. *International Journal of Finance & Economics*, 27(1), 334-360.
- Nhan, D. T. T., Pho, K. H., ANH, D. T. V., & McAleer, M. (2021). Evaluating the efficiency of Vietnam banks using data envelopment analysis. *Annals of Financial Economics*, 16(02), 2150010.
- Osei-Assibey, E., & Asenso, J. K. (2015). Regulatory capital and its effect on credit growth, non-performing loans and bank efficiency: Evidence from Ghana. *Journal of Financial Economic Policy*, 7(4), 401-420.

- Prasetyo, A. S. (2020). Dampak Makroekonomi Terhadap nonperforming loans: Studi kasus bank konvensional di ASEAN. *Competence: Journal of Management Studies*, 14(2), 223-233.
- Rahman, S. U., Faisal, F., & Ali, A. (2023). Financial development and shadow economy: A bibliometric analysis using the Scopus database (1985–2021). *Journal of the Knowledge Economy*, 14(3), 2238–2265. <https://doi.org/10.1007/s13132-022-00980-5>.
- Shafai, N. A. (2022). Determinants of profitability: Evidence of banking sector in Malaysia. *Insight Journal*.
- Surin, T. (2022, November 17). Global banks will see greater divergence in a rocky 2023, says S&P Global. *The Edge Markets*.
<https://www.theedgemarkets.com/article/global-banks-will-see-greater-divergence-rocky2023-says-sp-global>.
- Temesvary, J., & Banai, A. (2017). The drivers of foreign bank lending in Central and Eastern Europe: The roles of parent, subsidiary and host market traits. *Journal of International Money and Finance*, 79, 157-173.
- Tijjani, B., Ashiq, M., Siddique, N., Khan, M. A., & Rasul, A. (2020). A bibliometric analysis of quality research papers in Islamic finance: evidence from Web of Science. *ISRA International Journal of Islamic Finance*, 13(1), 84–101. <https://doi.org/10.1108/IJIF-03-2020-0056>
- Tone, K., & Tsutsui, M. (2010). Dynamic DEA: A slacks-based measure approach. *Omega*, 38(3-4), 145-156.
- Tran, O. K. T., Van Nguyen, D., & Duong, K. D. (2022). How market concentration and liquidity affect non-performing loans: Evidence from Vietnam. *Polish Journal of Management Studies*, 26(1), 325-337.
- Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of Business Research*, 118, 253-261.
- Victor, D. (2023, December 29). *Topics vs keywords*. Boomcycle Digital Marketing.
<https://boomcycle.com/blog/topics-vs-keywords>
- Wallin, J. A. (2005). Bibliometric methods: pitfalls and possibilities. *Basic & clinical pharmacology & toxicology*, 97(5), 261-275.
- Wang, K., Huang, W., Wu, J., & Liu, Y. N. (2014). Efficiency measures of the Chinese commercial banking system using an additive two-stage DEA. *Omega*, 44, 5-20.
- White, H. D., & McCain, K. W. (1998). Visualizing a discipline: An author co-citation analysis of information science, 1972–1995. *Journal of the American society for information science*, 49(4), 327-355.
- World Bank. (2021). MENA economies face rapid accumulation of public debt; strong institutions will be key to recovery.
- Yilmaz Küçük, Ş. (2022). Determinants of Non-Performing Consumer Loans for Turkey: Ardl Bounds Testing Approach. *Business, Management and Economics Engineering*, 20(2), 312–328. <https://doi.org/10.3846/bmee.2022.16936>
- Young, K. (2011). The Basel Committee on Banking Supervision. der.) Hale, Thomas ve Held, David, Handbook of Transnational Governance: Institutions and Innovations, içinde, 39-45

- Zhang, D., Cai, J., Dickinson, D. G., & Kutan, A. M. (2016). Non-performing loans, moral hazard and regulation of the Chinese commercial banking system. *Journal of Banking & finance*, 63, 48-60.
- Zhang, J., Yu, Q., Zheng, F., Long, C., Lu, Z., & Duan, Z. (2016). Comparing keywords plus of WOS and author keywords: A case study of patient adherence research. *Journal of the association for information science and technology*, 67(4), 967-972.
- Zhou, X., Zhou, M., Huang, D., & Cui, L. (2022). A probabilistic model for co-occurrence analysis in bibliometrics. *Journal of Biomedical Informatics*, 128, 104047.

NAVIGATING COMMUNICATION PARADIGMS IN THE DIGITAL AGE: A COMPARATIVE REVIEW

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ABSTRACT

This literature review aims to comprehensively explore the impact of social media on communication paradigms and societal structures in the digital age. The review adopts a qualitative approach, analyzing existing literature to understand the multifaceted implications of social media on various aspects of life and society. Social media platforms, rooted in Web 2.0, have transformed communication by enabling the creation and exchange of user-generated content. The functional building blocks of social media, including sharing, presence, relationships, identity, conversations, and reputation, play a critical role in shaping information dissemination and perception. The rapid adoption of social media has significantly impacted industries such as public relations, journalism, and marketing, necessitating adaptive strategies to address real-time communication demands. The findings of this review have practical implications for policymakers, educators, businesses, and society as a whole. They emphasize the importance of responsible and strategic use of social media in the digital age.

Keywords: Digital Communication, Social Media, Transformation

1.0 INTRODUCTION

The rapid ascent of social media has not only transformed the landscape of communication but has also reshaped societal structures, influencing everything from individual identities to global political dynamics. As digital platforms evolve, they continually redefine the boundaries of communication, privacy, and information dissemination. This section explores the multifaceted impact of social media, providing a comprehensive background that lays the foundation for understanding the intricate dynamics at play in the digital age.

Social media originated as platforms for personal interaction but quickly expanded to encompass a wide array of functionalities that influence various aspects of life and society. According to Kaplan and Haenlein (2010), social media harness the technological and ideological foundations of Web 2.0 to allow not just the creation but also the exchange of user-generated content. This development has shifted communication from traditional linear models to more dynamic and interactive networks where information flows bidirectionally between entities. Kietzmann et al. (2011) describe social media platforms as embodying several functional building blocks, including sharing, presence, relationships, identity, conversations, and reputation. Each of these components plays a critical role in how information is perceived, shared, and manipulated, making social media a complex ecosystem of interaction and influence. The rapid adoption and integration of these platforms into daily life have significantly affected how individuals and organizations communicate, necessitating a deeper inquiry into their societal impacts.

Social media's influence extends across various domains, profoundly affecting industries such as public relations, journalism, and marketing. In public relations, the traditional approach of controlled, one-way communication has been supplanted by a need for more dynamic, interactive strategies that can address the real-time nature of digital media (DiStaso & Bortree, 2012). This shift requires PR professionals to be not only reactive but also proactive in managing reputations in a landscape where public perception can change instantaneously. In journalism, social media have disrupted the gatekeeping role traditionally held by news media. Hermida (2013) discusses how journalists now use these platforms not only as a source of information but also as a means to engage directly with their audience, thus democratizing news dissemination and consumption. This transformation has brought challenges such as the rapid spread of misinformation and the blurring of lines between verified and unverified sources, altering the trust dynamics between the public and media institutions.

The expansion of digital communication has brought with it significant ethical challenges. Issues such as misinformation, privacy breaches, and online harassment have become increasingly prevalent, calling for a reevaluation of ethical standards within digital spaces. Couldry and Hepp (2017) emphasize the need for media practitioners to navigate these challenges with heightened responsibility and ethics, stressing transparency and accountability. The ethical considerations extend beyond professional media practice, affecting every user of social media, as the distinctions between creators, consumers, and distributors of content become increasingly blurred.

Theoretical frameworks such as the Network Society Theory by Castells (2004) and the Public Sphere Theory by Habermas (1991) provide valuable lenses through which to analyze the implications of social media on communication and society. Castells' theory offers insights into how digital networks facilitate the formation of new social structures and behaviours, emphasizing the decentralization of media power and the democratization of information. Meanwhile, Habermas' theory is adapted to explore how social media platforms create new public spaces for discourse, offering new opportunities for public debate and engagement, albeit with challenges such as inclusivity and the quality of discourse.

The profound role of social media in reshaping communication across various domains underscores the need for ongoing research to effectively and ethically navigate the opportunities and challenges presented by this digital communication paradigm. The findings from this comprehensive background analysis will significantly contribute to academic knowledge, practical applications in communication, and the development of nuanced communication strategies that are responsive to the dynamic digital landscape. This background serves as a foundation for exploring the detailed aspects of social media's impact on society, which will be elaborated upon in subsequent sections of this review.

2.0 LITERATURE REVIEW

The literature on digital communication, particularly in the context of social media, is enriched by theoretical and empirical studies that explore its multifaceted impacts. The Network Society Theory (Castells, 2004) posits that digital networks are central to modern social structures, influencing how information is shared and communities are built. This theory is pivotal in understanding the decentralized nature of online interactions as facilitated by social media platforms.

Recent empirical studies have applied this theory to examine the role of social media in political mobilization and public discourse. For instance, Loader and Mercea (2012) investigated how social media platforms like Twitter and Facebook have become tools for political engagement and activism, demonstrating the practical applications of Castells' theory. Their findings highlight how these platforms empower users by providing them with the means to organize, communicate, and influence public policy directly.

Moreover, the concept of the Public Sphere, as revitalized by Habermas (1991), has been instrumental in analyzing online communication. Studies such as those by Papacharissi (2020) explore how virtual public spaces on social media sites serve as arenas for civic engagement and public debate, though they also bring challenges such as echo chambers and polarization.

Further research integrates the Media Richness Theory (Daft & Lengel, 1986), which assesses the capacity of communication media to handle complex messages effectively. Schultz et al. (2017) applied this theory to social media communications, illustrating how different platforms are uniquely suited to various communication needs based on their media richness, thus affecting user engagement and message effectiveness.

These theories and studies underscore the transformative potential and challenges of social media in reshaping communication practices across different sectors and societal functions. They highlight a dynamic field of inquiry where ongoing research continues to adapt traditional theories to new digital realities, providing a robust framework for understanding and navigating the complexities of the digital communication landscape.

Empirical Insights from Recent Research

The dynamic and pervasive nature of social media continues to be a focal point of extensive research across various domains, including mental health, education, business, politics, and ethical governance. This section synthesizes empirical findings from recent studies that exemplify the profound and multifaceted impacts of social media.

Social Media and Mental Health

Recent empirical studies have increasingly highlighted the psychological implications of social media usage. A 2021 study by Thompson et al. delved into the mental health outcomes among teenagers, revealing a significant correlation between excessive social media use and increased symptoms of anxiety and depression. This study underscores the potential mental health risks associated with prolonged engagement on these platforms.

In a subsequent analysis in 2022, Gupta and Kumar conducted a meta-analysis on the effects of social media on self-esteem, revealing mixed outcomes that vary significantly with the types of user engagement. Their findings suggest that while some forms of social media interaction can enhance self-worth, others may contribute to self-esteem issues, indicating a complex and nuanced relationship between social media usage and psychological well-being.

Social Media in Education

The integration of social media into educational settings has opened new avenues for enhancing teaching and learning experiences. Lopez and Lee (2023) demonstrated how social media tools can significantly improve collaborative learning environments in higher education. Their research highlights how these platforms facilitate better student engagement and participation, contributing positively to the educational process.

Further advancing this field, a 2024 study by Sanders et al. explored the use of social media in remote learning settings, noting significant enhancements in communication and resource sharing among students and educators. This study indicates that social media can effectively bridge communication gaps in distance learning, enhancing educational accessibility and engagement.

Business and Marketing Innovations

The business sector has seen transformative changes with the adoption of social media, particularly in marketing strategies. Chang and Park (2020) analyzed the impact of social media marketing on consumer behaviour, emphasizing that targeted content and interactive engagement are crucial for enhancing brand loyalty. Their findings reveal that effective social media marketing strategies can lead to substantial improvements in customer engagement and business outcomes.

Expanding on this theme, Johnson (2023) reviewed the effectiveness of influencer marketing on social media platforms, noting a high return on investment compared to traditional marketing methods. This study reflects the growing importance of influencers in modern marketing strategies, highlighting their ability to reach and engage large audiences effectively.

Political Communication and Social Activism

Social media's role in political communication and social activism has been particularly impactful. Carter's 2021 study on the 2020 U.S. elections shed light on how social media platforms were used to influence voter behaviour through the strategic dissemination of misinformation and targeted campaigns. This study illustrates the powerful and sometimes problematic role of social media in shaping political landscapes.

Kim and Zhao (2022) focused on the empowerment of grassroots movements through social media, with a case study on how #ClimateChange activists utilize platforms like Twitter to mobilize support and raise awareness. Their research highlights the potential of social media as a tool for social change, facilitating widespread engagement and activism.

Regulatory and Ethical Considerations

As the influence of social media grows, so does the need for robust regulatory and ethical frameworks. Benson and Rhodes (2023) provided an overview of evolving regulations aimed at curbing misinformation and protecting user privacy on social media. Their work underscores the ongoing challenges and necessities of creating a safe and accountable digital environment.

A 2024 critical analysis by Fitzgerald highlighted the ethical dilemmas faced by social media managers, emphasizing the urgent need for clear guidelines and ethical training in content management. This study calls attention to the ethical responsibilities of those who curate and manage social media content, stressing the importance of integrity in digital communications.

These empirical insights from recent research elucidate the diverse and profound effects of social media across various sectors. By examining these studies, it becomes evident that while social media offers numerous benefits, it also presents significant challenges that require careful consideration and management. The ongoing scholarly examination of these platforms is crucial for developing effective strategies and policies that harness their potential while mitigating adverse effects.

3.0 METHOD

This study employs a literature review methodology to delve into the dynamics of communication paradigms in the digital age. The rapid rise of social media has transformed how we communicate, impacting various facets of society. Through a meticulous selection process, scholarly journals, books, and online publications relevant to this topic are identified and included in the study.

The literature is then analyzed comprehensively, focusing on key themes and comparing different communication approaches facilitated by digital platforms. This analysis aims to provide a nuanced understanding of the complexities of digital communication and its societal impacts.

The study integrates theoretical frameworks such as the Network Society Theory and the Public Sphere Theory to interpret empirical findings from the literature. By synthesizing these theories with empirical evidence, the study aims to develop a robust theoretical framework that explains the dynamics of digital communication. Findings from the literature analysis are presented systematically, highlighting the comparisons between different communication paradigms in the digital age. This presentation aims to offer insights into the evolving nature of communication in digital spaces.

In conclusion, this study contributes to the academic discourse on digital communication by providing a comprehensive analysis of communication paradigms in the digital age. The findings offer valuable insights for academics, practitioners, and policymakers, emphasizing the need for nuanced strategies to navigate the evolving landscape of digital communication.

4.0 RESULTS AND DISCUSSION

The findings of this review, supported by recent research, underscore the transformative impact of social media on various aspects of society. The discussion below delves into the implications of these findings in more depth, highlighting key insights and potential areas for further research.

Social Media and Mental Health

Social media has become an integral part of modern society, shaping communication paradigms and influencing various aspects of life. One of the key areas where social media has had a significant impact is mental health, particularly among teenagers. Recent studies have highlighted a correlation between excessive social media use and mental health issues such as anxiety and depression.

Thompson et al. (2021) conducted a study that revealed a significant correlation between the amount of time teenagers spend on social media and their symptoms of anxiety and depression. The study found that teenagers who spent more time on social media platforms were more likely to experience feelings of loneliness, inadequacy, and anxiety compared to those who spent less time on these platforms. This suggests that prolonged engagement with social media can have negative effects on mental health, particularly among vulnerable populations such as teenagers.

Similarly, Gupta and Kumar (2022) conducted a meta-analysis on the effects of social media on self-esteem and found that the relationship between social media use and self-esteem is complex and multifaceted. While some forms of social media interaction can enhance self-worth, others may contribute to self-esteem issues, indicating a nuanced relationship between social media usage and psychological well-being.

These findings highlight the need for targeted interventions to promote healthy social media habits and raise awareness about the potential risks of excessive social media use. Parents, educators, and mental health professionals play a crucial role in educating teenagers about responsible social media use and providing them with the necessary tools to navigate digital communication platforms safely.

In addition to targeted interventions, there is also a need for further research to better understand the complex relationship between social media use and mental health. Longitudinal studies that track the mental health outcomes of individuals over time could provide valuable insights into the long-term effects of social media use. Moreover, studies that explore the underlying mechanisms behind the relationship between social media use and mental health could help identify potential intervention strategies.

Overall, while social media offers numerous benefits in terms of communication and connectivity, it is important to recognize its potential impact on mental health and take proactive steps to mitigate any negative effects. By promoting responsible social media use and raising awareness about the potential risks, we can create a safer and healthier digital environment for all users.

Leveraging Social Media in Education

The integration of social media into educational settings has shown promise in enhancing collaborative learning environments and improving distance learning experiences. Recent research has highlighted the positive effects of social media in enriching educational experiences, but further exploration is warranted to optimize its integration and maximize benefits for student engagement and learning outcomes. Lopez and Lee (2023) demonstrated the positive impact of social media tools on collaborative learning environments in higher education. Their study revealed that social media platforms facilitate better student engagement, participation, and knowledge sharing, ultimately contributing to a more dynamic and interactive learning experience. This finding underscores the potential of social media to foster peer-to-peer learning and collaborative problem-solving, which are essential skills in the digital age.

Furthermore, Sanders et al. (2024) explored the use of social media in remote learning settings and found significant enhancements in communication and resource sharing among students and educators. Social media platforms enable seamless communication and collaboration, bridging geographical barriers and facilitating access to educational resources. This has the potential to improve educational accessibility and engagement, particularly for students in remote or underserved areas.

While these findings are promising, there is a need for further research to identify optimal strategies for integrating social media into educational settings and maximizing its benefits. Key areas for exploration include:

1. **Pedagogical Approaches:** Research should investigate how different pedagogical approaches can leverage social media to enhance learning outcomes. This includes exploring the effectiveness of project-based learning,

inquiry-based learning, and other student-centred approaches that integrate social media tools.

2. **Assessment and Feedback:** Studies should examine how social media can be used to facilitate assessment and provide timely feedback to students. This includes exploring the use of social media for formative assessment, peer assessment, and self-assessment, as well as strategies for providing constructive feedback in online learning environments.
3. **Digital Literacy and Online Safety:** Research should focus on promoting digital literacy skills and online safety practices among students and educators. This includes developing curriculum resources and professional development programs that empower users to navigate social media platforms responsibly and ethically.
4. **Inclusivity and Accessibility:** Studies should address issues of inclusivity and accessibility in social media-based learning environments. This includes ensuring that educational materials and activities are accessible to students with diverse learning needs and backgrounds and that social media platforms are designed to accommodate users with disabilities.

In conclusion, while social media holds great potential as a tool for enhancing educational experiences, further research is needed to explore optimal strategies for integration and address challenges related to pedagogy, assessment, digital literacy, and inclusivity. By advancing our understanding of how social media can be effectively leveraged in educational settings, we can unlock new opportunities for student engagement, collaboration, and learning.

Revolutionizing Business and Marketing through Social Media

The rise of social media has revolutionized business and marketing strategies, emphasizing the need for adaptation to align with digital communication trends. Recent research has highlighted the effectiveness of social media marketing and influencer marketing in enhancing brand loyalty and customer engagement, underscoring the importance for businesses to invest in strategies that prioritize targeted content and interactive engagement in the digital age.

Chang and Park (2020) conducted a study analyzing the impact of social media marketing on consumer behaviour. The study emphasized the importance of targeted content and interactive engagement in social media marketing strategies. Businesses that tailor their content to specific audience segments and engage with customers in a meaningful way are more likely to enhance brand loyalty and drive customer engagement.

Similarly, Johnson (2023) reviewed the effectiveness of influencer marketing on social media platforms. The study found that influencer marketing can yield a high return on investment compared to traditional marketing methods. Influencers can reach and engage large audiences effectively, making them valuable partners for businesses looking to expand their reach and increase brand visibility.

These findings suggest that businesses need to adapt their marketing strategies to leverage the power of social media and influencers. Key areas for consideration include:

1. **Targeted Content Creation:** Businesses should create content that is tailored to specific audience segments, taking into account their preferences, interests, and needs. This can help businesses establish a more personal connection with their audience and increase the effectiveness of their marketing efforts.
2. **Interactive Engagement:** Businesses should engage with customers in a two-way dialogue, responding to comments, messages, and feedback in a timely and personalized manner. This can help businesses build trust and credibility with their audience, ultimately leading to increased brand loyalty and customer engagement.
3. **Influencer Partnerships:** Businesses should consider partnering with influencers who align with their brand values and target audience. Collaborating with influencers can help businesses reach new audiences and increase brand awareness, ultimately driving customer engagement and sales.
4. **Data-Driven Decision Making:** Businesses should use data analytics to track the performance of their social media marketing campaigns and make informed decisions about their marketing strategies. By analyzing key metrics such as engagement rates, click-through rates, and conversion rates, businesses can optimize their marketing efforts for maximum impact.

In conclusion, the effectiveness of social media marketing and influencer marketing highlights the importance of adapting marketing strategies to align with digital communication trends. Businesses that prioritize targeted content and interactive engagement are more likely to enhance brand loyalty and customer engagement in the digital age. By leveraging the power of social media and influencers, businesses can reach new audiences, increase brand visibility, and drive business growth.

Empowering Political Communication and Social Activism through Social Media

The influence of social media on political communication and social activism has been profound, offering a platform for individuals and groups to mobilize, organize, and advocate for change. Recent research has highlighted the role of social media in influencing voter behaviour and empowering grassroots movements, but it also underscores the challenges of misinformation and privacy breaches that necessitate regulatory frameworks to ensure the integrity and accountability of digital communication platforms.

Carter (2021) conducted a study on the 2020 U.S. elections, shedding light on how social media platforms were used to influence voter behaviour through the strategic dissemination of misinformation and targeted campaigns. The study illustrates the powerful and sometimes problematic role of social media in shaping political landscapes, emphasizing the need for measures to combat misinformation and ensure the integrity of electoral processes.

Similarly, Kim and Zhao (2022) focused on the empowerment of grassroots movements through social media, highlighting the case of #ClimateChange activists who utilize platforms like Twitter to mobilize support and raise awareness. The study demonstrates the potential of social media as a tool for social change, facilitating widespread engagement and activism among diverse audiences.

These findings suggest that while social media offers unprecedented opportunities for political communication and social activism, it also poses significant challenges that must be addressed. Key considerations for policymakers and stakeholders include:

1. **Misinformation:** Efforts should be made to combat misinformation and disinformation on social media platforms through the implementation of fact-checking mechanisms, algorithmic transparency, and user education initiatives. Platforms should also be held accountable for the content they host and the algorithms they use to promote or suppress information.
2. **Privacy Breaches:** Regulatory frameworks should prioritize user privacy and data protection, ensuring that social media platforms adhere to strict standards for data collection, storage, and usage. Users should have control over their personal information and be informed about how it is being used by social media platforms.
3. **Regulatory Frameworks:** Policymakers should develop and implement regulatory frameworks that promote transparency, accountability, and ethical behaviour in digital communication platforms. This may include legislation that addresses issues such as content moderation, data privacy, and algorithmic transparency.
4. **Digital Literacy:** Efforts should be made to enhance digital literacy among users, empowering them to critically evaluate information on social media and navigate digital communication platforms responsibly. Education initiatives should focus on teaching users how to identify misinformation, protect their privacy, and engage in constructive online discourse.

In conclusion, while social media has the potential to empower political communication and social activism, it also presents challenges that require careful consideration and regulatory intervention. By addressing issues such as misinformation and privacy breaches, policymakers and stakeholders can help ensure that social media remains a force for positive change and democratic engagement.

Navigating Regulatory and Ethical Considerations in Digital Communication

The dynamic nature of social media and digital communication platforms has led to an evolving regulatory landscape and ethical dilemmas for social media managers. Recent research underscores the complexities of digital communication governance and emphasizes the importance of clear guidelines and ethical training to uphold integrity, and accountability, and protect user privacy and rights.

Benson and Rhodes (2023) provided an overview of evolving regulations aimed at curbing misinformation and protecting user privacy on social media. The study highlights the ongoing challenges and necessities of creating a safe and accountable digital environment. As social media platforms continue to evolve, regulatory frameworks must adapt to address emerging issues such as data privacy, content moderation, and algorithmic transparency.

Similarly, Fitzgerald (2024) conducted a critical analysis of the ethical dilemmas faced by social media managers. The study emphasizes the urgent need for clear guidelines and ethical training in content management to ensure integrity in digital communications. Social media managers play a crucial role in curating and managing

content on social media platforms, and ethical considerations are essential in maintaining trust and credibility with users.

These findings suggest that regulatory frameworks and ethical guidelines are essential for governing digital communication platforms effectively. Key considerations for policymakers and stakeholders include:

1. **Data Privacy:** Regulations should prioritize user privacy and data protection, ensuring that social media platforms adhere to strict standards for data collection, storage, and usage. Users should have control over their personal information and be informed about how it is being used by social media platforms.
2. **Content Moderation:** Guidelines for content moderation should be transparent and consistent, ensuring that users are treated fairly and that harmful content is removed promptly. Social media platforms should have clear policies on what constitutes acceptable content and how violations are addressed.
3. **Algorithmic Transparency:** Algorithms used by social media platforms should be transparent and accountable, with clear guidelines on how they are used to promote or suppress information. Users should understand how algorithms affect the content they see and can opt out of algorithmic recommendations.
4. **Ethical Training:** Social media managers should receive ethical training to ensure they understand their responsibilities and obligations in managing digital communications. Training should focus on promoting integrity, transparency, and accountability in content management.

The evolving regulatory landscape and ethical dilemmas in digital communication highlight the need for clear guidelines, ethical training, and robust regulatory frameworks. By addressing these considerations, policymakers and stakeholders can help ensure that social media remains a positive force for communication while protecting user privacy and rights.

Direction for Future Research

1. **Impact of Social Media on Mental Health:** Future research could conduct longitudinal studies to explore the long-term effects of social media use on mental health, particularly among vulnerable populations such as teenagers. Studies could also investigate the underlying mechanisms through which social media use influences mental health outcomes, including the role of user engagement, content exposure, and social comparison processes. Additionally, research could explore the effectiveness of interventions aimed at promoting healthy social media habits and mitigating the negative effects of excessive use.
2. **Optimal Integration of Social Media in Education:** Further research is needed to identify best practices for integrating social media into educational settings to enhance student engagement and learning outcomes. Studies could explore innovative pedagogical approaches that leverage social media tools to create interactive and collaborative learning environments. Additionally, research could investigate the impact of social media integration on educational equity and access, particularly for marginalized populations.
3. **Effective Strategies for Social Media Marketing:** Research could focus on identifying effective strategies for social media marketing, including the use of targeted content and influencer partnerships. Studies could also explore the role of user-generated content and brand advocacy in shaping consumer behaviour on social media platforms. Additionally, research could investigate the impact of

emerging trends such as live streaming and augmented reality on social media marketing effectiveness.

4. **Mitigating Misinformation and Privacy Breaches:** Future research could develop and evaluate strategies to combat misinformation and protect user privacy on social media platforms. This could include the development of automated tools for detecting and flagging false information, as well as interventions aimed at promoting digital literacy and critical thinking skills among social media users. Additionally, research could explore the role of regulatory frameworks in addressing these challenges and promoting responsible social media use.
5. **Ethical Considerations in Digital Communication:** Research could explore the ethical dilemmas faced by social media managers and develop guidelines and ethical training programs to ensure integrity and accountability in digital communications. Studies could also investigate the impact of regulatory frameworks on digital communication governance and user trust. Additionally, research could explore the ethical implications of emerging technologies such as artificial intelligence and virtual reality in shaping digital communication practices.
6. **Cross-Cultural Perspectives on Social Media Use:** Comparative studies could investigate how social media use and its impacts vary across different cultures and societies. Research could explore cultural factors that influence social media behaviour, including cultural norms around privacy, information sharing, and online social interaction. Additionally, research could investigate how social media platforms are used for cultural preservation, identity expression, and social activism in different cultural contexts.

Overall, future research should continue to explore the multifaceted impacts of social media on society and develop strategies to maximize its benefits while mitigating its risks. By addressing these research directions, scholars and practitioners can contribute to a more nuanced understanding of social media's role in modern communication and inform the development of policies and practices that promote responsible and ethical digital communication.

5.0 CONCLUSION

Social media has transformed the landscape of communication, reshaping societal structures, influencing individual identities, and impacting global dynamics. The rapid evolution of social media platforms has redefined the boundaries of communication, privacy, and information dissemination, presenting both opportunities and challenges across various domains.

The empirical insights from recent research highlight the profound and multifaceted impacts of social media. Studies have shown correlations between excessive social media use and mental health issues among teenagers, underscoring the need for targeted interventions and awareness campaigns. In education, social media has shown promise in enhancing collaborative learning environments and bridging communication gaps in remote learning settings, but further research is needed to optimize its integration into educational settings.

Businesses have been revolutionized by social media, with effective strategies such as social media marketing and influencer partnerships leading to enhanced brand loyalty and customer engagement. However, the impact of social media on

political communication and social activism has been mixed, with concerns about misinformation and privacy breaches prompting calls for regulatory frameworks and ethical guidelines to ensure accountability and integrity in digital communication.

Despite its potential, social media also poses challenges. Misinformation, privacy breaches, and ethical dilemmas require ongoing attention and research to develop effective strategies for combating these issues. Cross-cultural perspectives on social media use further highlight the need for context-specific approaches to digital communication governance.

In conclusion, social media has become an integral part of modern communication, influencing how individuals, businesses, and societies interact and engage. By addressing the opportunities and challenges presented by social media, researchers and practitioners can help shape a digital landscape that is inclusive, ethical, and beneficial for all.

Suggestions for Future Research

There are the suggestions for the field of future research:

1. **Longitudinal Studies on Social Media Use and Mental Health:** Conduct longitudinal studies to investigate the long-term effects of social media use on mental health, particularly focusing on specific age groups and vulnerable populations. This research could provide valuable insights into the causal relationships between social media use and mental health outcomes, informing the development of targeted interventions and guidelines for healthy social media use.
2. **Impact of Social Media Integration in Education:** Further research is needed to explore the optimal integration of social media into educational settings, including the development of innovative pedagogical approaches and the assessment of their impact on student engagement and learning outcomes. This research could help educators and policymakers effectively leverage social media to enhance educational experiences and outcomes.
3. **Ethical Considerations in Social Media Management:** Future research could focus on developing and evaluating ethical guidelines and training programs for social media managers. This research could help ensure integrity and accountability in digital communications, promoting responsible social media use and mitigating the risks of misinformation and privacy breaches.
4. **Cross-Cultural Studies on Social Media Behavior:** Comparative studies could investigate how social media use and its impacts vary across different cultures and societies. This research could provide valuable insights into cultural factors that influence social media behaviour and inform the development of culturally sensitive communication strategies.

CO-AUTHOR CONTRIBUTION

That by stating that what is written in this journal does not conflict with personal interests or other interests. Purely to be used as a scientific reference for future research. Author 1 carried out of data and preparation of the literature review and writing up the articles, author 2 wrote the analysis and interpretation of the result and author 3 overlooked the material and comparative data.

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REFERENCES

- Benson, G., & Rhodes, L. (2023). Regulatory responses to misinformation and privacy on social media: Current perspectives. *Technology Law Journal*, 39(2), 101-123.
- Carter, A. (2021). The role of social media in the 2020 U.S. elections: Misinformation and targeted campaigns. *Journal of Political Media Studies*, 12(3), 45-67.
- Castells, M. (2004). *The Network Society: A Cross-cultural Perspective*. Edward Elgar.
- Chang, Y., & Park, J. (2020). The impact of social media marketing strategies on consumer behavior and brand loyalty. *Journal of Marketing Research*, 57(2), 342-356.
- Couldry, N., & Hepp, A. (2017). *The mediated construction of reality*. Polity.
- DiStaso, M. W., & Bortree, D. S. (2012). Multi-method analysis of transparency in social media practices: Survey, interviews and content analysis. *Public Relations Review*, 38(3), 511-514.
- Fitzgerald, A. (2024). Ethical dilemmas in social media management: Training and guidelines for content moderators. *Journal of Business Ethics*, 156(4), 789-805.
- Gupta, S., & Kumar, V. (2022). The effects of social media on self-esteem: A meta-analysis. *Personality and Social Psychology Review*, 26(1), 58-74.
- Habermas, J. (1991). *The structural transformation of the public sphere: An inquiry into a Category of Bourgeois Society*. MIT Press.
- Hermida, A. (2013). Journalism: Reconfiguring journalism research about Twitter, one tweet at a time. *Digital Journalism*, 1(3), 295-313.
- Johnson, D. (2023). Evaluating the effectiveness of influencer marketing on social media platforms. *Marketing Science*, 42(1), 24-40.
- Kaplan, A.M., & Haenlein, M. (2010). Users of the world, unite! : The challenges and opportunities of Social Media. *Business Horizons*, 53(1), 59-68.
- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(3), 241-251.
- Kim, J., & Zhao, H. (2022). Empowering grassroots movements: The use of social media by #ClimateChange activists. *Environmental Communication Journal*, 18(3), 112-130.
- Kitchin, R. (2014). *The data revolution: Big Data, open data, data infrastructures and their consequences*. SAGE.
- Lopez, M., & Lee, S. (2023). Enhancing collaborative learning in higher education through social media tools. *Journal of Educational Technology & Society*, 26(2), 204-219.
- Papacharissi, Z. (2020). *A private sphere: Democracy in a digital age*. Polity.
- Sanders, R., Thompson, L., & Patel, K. (2024). Social media in remote learning: Enhancements in communication and resource sharing. *Journal of Distance Education Technologies*, 22(1), 47-62.

- Thompson, M., Hughes, T., & Smith, P. (2021). Social media use and its impact on mental health among teenagers. *Journal of Adolescent Health, 68*(5), 935-950.
- Topsümer, F., Durmuş, Y., & Yılmaz, B. A. (Eds.). (2023). *Media and communication in the digital age: Changes and dynamics*. Özgür Publications.: <https://doi.org/10.58830/ozgur.pub234>
- Van Dijck, J. (2013). *The culture of connectivity: A critical history of social media*. Oxford University Press.

THE IMPACT OF DIGITAL MARKETING TECHNOLOGY FOR TRANSFORMATION ON SMES: A SYSTEMATIC REVIEW

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ABSTRACT

This comprehensive systematic review delves into the complex landscape of digital marketing adoption within Small and Medium Enterprises (SMEs). By scrutinizing existing literature, it aims to uncover nuanced insights into the multifaceted dynamics surrounding digital marketing strategies in SMEs, emphasizing its impact, challenges, and strategic imperatives for sustainable growth in the digital era. Employing a systematic approach, this review synthesizes various scholarly articles, research reports, and industry insights to unravel the intricate dynamics of digital marketing adoption in SMEs. By meticulously analyzing existing literature, this study seeks to uncover underlying patterns, emerging trends, and critical success factors shaping SMEs' digital marketing endeavors. The findings of this systematic review carry profound practical implications for SMEs navigating the complex terrain of digital marketing. By distilling key insights and best practices, this study equips SMEs with actionable strategies to optimize their digital marketing efforts, enhance customer engagement, and foster sustainable growth amidst evolving market dynamics.

Keywords: Digital marketing, Small and Medium Enterprises (SMEs), Transformation, Data-driven decision-making

1.0 INTRODUCTION

Small and medium-sized businesses (SMEs) drive global economic growth, promote innovation, and generate jobs. However, the digital world has brought enormous changes to SMEs, posing difficulties and possibilities. One notable development is the growing importance of digital marketing in promoting firms and reaching out to specific consumers. According to Kapoor et al. (2019), digital marketing includes a variety of online methods and platforms, such as social media, search engine optimization (SEO), email marketing, and content marketing. Effective use of digital marketing may level the playing field for SMEs, allowing them to compete against larger enterprises.

According to De Vries et al. (2017), introducing digital marketing technologies has transformed how SMEs communicate with clients, sell their products or services, and do

business. Unlike traditional marketing tactics, digital marketing enables SMEs to target specific demographic categories accurately and track campaign results in real time. This degree of accuracy and measurability enables SMEs to improve their marketing efforts, manage resources more efficiently, and generate greater returns on investment (ROI) (Alalwan et al., 2018).

Despite the potential benefits, many SMEs must be more active in implementing digital marketing tactics due to various obstacles and constraints. These include limited financial resources, a need for more skill or understanding of digital marketing tools and tactics, and worries about data protection and security (Kraus et al., 2020). Additionally, Ryan et al. (2020) stated that SMEs in conventional or specialist sectors may view digital marketing as irrelevant or incompatible with their business strategies. However, as consumer behavior shifts to online channels and digital platforms, SMEs must embrace digital marketing to remain competitive and relevant.

Given these conditions, this systematic review aims to assess the available literature on digital marketing technology's impact on SMEs. This paper seeks to provide insights into the effectiveness of digital marketing strategies for SMEs by synthesizing findings from academic research articles, industry reports, and case studies, as well as the barriers to adoption and the strategies they can employ to overcome these challenges. Furthermore, the assessment will look at the role of analytics and data-driven decision-making in improving the efficiency of SMEs' digital marketing activities, the importance of mobile marketing, and remaining current with emerging trends and technology.

2.0 LITERATURE REVIEW

2.1 The significance of digital marketing for SMEs

The literature on digital marketing for Small and Medium Enterprises (SMEs) is extensive and diverse, comprising research from various fields, including marketing, entrepreneurship, and information technology. This section provides a complete review of available studies on the influence of digital marketing technology on SMEs, emphasizing essential issues such as its importance, adoption hurdles, and successful methods.

In the digital era, digital marketing has emerged as an essential tool for SMEs seeking to increase exposure, reach target customers, and drive business success. Chaffey et al. (2019) emphasize the importance of digital marketing in levelling the playing field for SMEs, allowing them to compete with more prominent firms through digital channels such as social media, search engines, and email. Similarly, research by De Vries et al. (2017) and Ryan et al. (2020) emphasize the importance of digital marketing in growing brand awareness, customer engagement, and sales for SMEs in various industries.

Despite the potential benefits, many SMEs need help implementing digital marketing techniques. Financial restrictions, a lack of digital skills and competence, and scepticism about the efficiency of digital marketing are among the most often mentioned impediments (Dwivedi et al., 2019; Alalwan et al., 2018). Furthermore, cultural and organizational barriers may impede the integration of digital marketing into SMEs' existing business processes and practices (Kapoor et al., 2019).

To overcome these obstacles, researchers found a variety of techniques and best practices for SMEs to use digital marketing successfully. These include investing in digital skills training and education for employees (Taiminen & Karjaluo, 2015), using social

media platforms to engage with customers and build brand loyalty (Ngai et al., 2018), and taking a customer-centric approach to digital marketing that focuses on delivering personalized and relevant content (Harrigan et al., 2021).

Furthermore, the importance of analytics and data-driven decision-making has received much attention in the literature on digital marketing for SMEs. Small and medium-sized enterprises (SMEs) may acquire insights into client behaviour, preferences, and purchase habits by leveraging data analytics tools and methodologies, allowing them to modify their marketing strategy appropriately. Nguyen et al. (2020) and Wang et al. (2018) found that evaluating key performance indicators (KPIs) such as website traffic, conversion rates, and customer lifetime value is critical for assessing the efficiency of digital marketing initiatives and optimizing resource allocation.

In addition to analytics, mobile marketing has become an essential component of SMEs' digital marketing plans. With the rise of smartphones and mobile internet usage, SMEs have recognized the need to optimize their websites and content for mobile devices to improve user experience and engagement (Sawang et al., 2019). Barnes et al. (2020) and Li et al. (2018) found that mobile marketing methods such as SMS marketing, mobile applications, and location-based advertising successfully reach and engage mobile-savvy customers.

Furthermore, to remain competitive in the digital marketplace, SMEs must constantly adapt and improve their digital marketing strategies in response to shifting consumer trends and technical breakthroughs. This needs an innovative and experimental culture inside SMEs and a readiness to adopt emerging technologies like artificial intelligence, voice search, and augmented reality (Kraus et al., 2020; Grewal et al., 2019).

2.2 The Role of Analytics and Data-driven Decision Making

In digital marketing for Small and Medium Enterprises (SMEs), analytics and data-driven decision-making have emerged as a critical component for improving marketing effectiveness and optimizing resource allocation. This section explores the use of analytics in digital marketing for SMEs, emphasizing the value of data in understanding consumer behaviour, increasing engagement, and monitoring key performance indicators (KPIs).

Analytics is the process of collecting, analyzing, and interpreting data in order to acquire insights and guide decision-making. In digital marketing, analytics tools and methodologies allow SMEs to analyze and measure numerous metrics linked to their online presence, including website traffic, user engagement, conversion rates, and customer demographics. By using these data, SMEs may acquire a more in-depth understanding of their target audience's preferences, interests, and purchase behaviour, allowing them to adjust their marketing tactics more effectively.

One of the most significant benefits of analytics for SMEs is the ability to analyze and measure the efficacy of digital marketing efforts in real time. Unlike conventional forms of marketing, where calculating ROI may be difficult and time-consuming, digital marketing platforms give SMEs rapid access to various information on campaign efficacy and audience engagement. This allows SMEs to understand which marketing channels and approaches yield the best results and allocate resources appropriately, maximizing the effect of their marketing expenditure (Kannan & Li, 2017).

Furthermore, analytics enables SMEs to segment their target audience more effectively and tailor their marketing efforts to meet individual tastes and demands. By analyzing consumer data such as prior purchase behaviour, browsing history, and demographic information, SMEs can produce highly targeted and relevant marketing messages that personally engage with their target audience. This increases the efficacy of marketing initiatives and develops better consumer connections and brand loyalty (Nguyen et al., 2020).

In addition to campaign optimization and audience segmentation, analytics is critical for measuring and monitoring key performance indicators (KPIs) that indicate digital marketing success. These include website traffic, conversion rates, click-through rates, bounce rates, and customer acquisition expenses. Setting defined KPIs and routinely evaluating performance against these benchmarks allows SMEs to evaluate the efficacy of their digital marketing activities, identify areas for development, and make data-driven decisions to optimize their strategy (Wang et al., 2018).

Furthermore, the emergence of sophisticated analytics technologies such as machine learning and predictive analytics offers enormous potential for SMEs seeking a competitive advantage in the digital economy. To stay ahead of the competition, SMEs may use predictive modelling to foresee future trends, anticipate client wants, and proactively alter their marketing tactics. Furthermore, machine learning algorithms can automate data analysis and pattern detection, allowing SMEs to extract actionable insights more quickly and accurately from big, complex datasets (Kannan & Li, 2017). By leveraging data, SMEs may acquire essential insights into their target audience, assess the efficacy of their marketing activities, and make educated decisions to meet their company objectives in the dynamic and competitive digital world.

3.0 METHODOLOGY

This study uses a descriptive tool to analyze the data. The study is based on secondary data and information related to traditional and Islamic accounting, gathered from various books, journals, newspapers, research papers, and many websites. In this study, the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) tool was pivotal in shaping the methodological approach. PRISMA was a robust framework for establishing and standardizing the search strategy, ensuring a comprehensive and systematic exploration of the relevant literature. By adhering to PRISMA guidelines, the research team could methodically identify and incorporate key components of the review question, enhancing the clarity and coherence of the study's objectives and methodology.

PRISMA is widely recognized for its effectiveness in guiding the systematic review process, particularly in qualitative investigation studies and mixed methods research. Its structured approach facilitates the identification of pertinent studies while promoting transparency and reproducibility in the review process. By utilizing PRISMA, researchers can ensure that all relevant aspects of the research question are adequately addressed, thereby minimizing the risk of bias and enhancing the reliability of the findings.

3.1 Identifying Research Questions

This article examines tactics, challenges, and the applicability of ways to explore opportunities for differentiation in the Islamic and conventional accounting standards. Consequently, the following research questions are formulated to direct the inquiry and guarantee that a variety of literature that focuses on these areas of interest is gathered.

1. How do the multifaceted barriers to digital marketing adoption by Small and Medium Enterprises (SMEs) evolve across diverse industries and geographic contexts, and what novel insights can be gleaned from examining the intersectionality of these barriers?
2. How can Small and Medium Enterprises (SMEs) strategically navigate the multifaceted challenges inherent in digital marketing adoption, including organizational culture, resource constraints, and external market dynamics, to cultivate resilient competitive advantages and sustainable growth trajectories in an ever-evolving digital landscape?
3. How do the intricate dynamics of analytics utilization and data-driven decision-making shape the efficacy of digital marketing strategies for Small and Medium Enterprises (SMEs), and what nuanced methodologies and frameworks can be devised to comprehensively assess the multifaceted impacts of these strategies on SME performance and market positioning?

3.2 Identify related studies

A comprehensive search strategy was employed to identify relevant studies for this systematic review. Databases, including Scopus, were searched using keywords and Boolean operators. The purposed of the authors only using Scopus databased are because Scopus is one of the largest abstracts and citation databases of peer-reviewed literature, covering a broad range of disciplines, including social sciences, business, economics, and technology. Moreover, for studies focusing on interdisciplinary fields such as digital marketing adoption, Scopus offers a rich collection of relevant articles.

Table 1. The leading search item used to issue a published article.

Essential search items used to generate published articles
SMEs" AND "Digital Marketing"
"competitive advantage" or "strategic management"

The keywords used for the search included variations of terms such as "SMEs" AND "Digital Marketing." Additionally, specific terms related to the research objectives, such as "competitive advantage" or "strategic management," were included to ensure a comprehensive search. The search strategy also involved screening the reference lists of relevant articles and consulting experts in the field to identify additional studies that met the inclusion criteria.

Table 2. Comprising and exclusion criteria

Criterion	Comprising	Exception
Period	2019-2024	Articles outside the year
Language	English only	Other languages
Types of articles	Original and peer-reviewed research	Articles that are not peer-reviewed
Study focus	SMEs AND digital marketing only	Other residents

4.0 RESULT

This procedure is continued with a deeper review iteration in which the full-text version of the article is retrieved, thoroughly studied, and validated as relevant using the author's exclusion or inclusion criteria. In the first phase, 304 entries were found in the previously stated databases. After removing the duplicate articles and books (n = 127), 177 unique papers were examined. In a subsequent step, 89 records were excluded based on titles,

keywords, and abstract analysis, leaving 88 articles suitable for a thorough review. Figures 1 through 4 show the findings from the Scopus database.

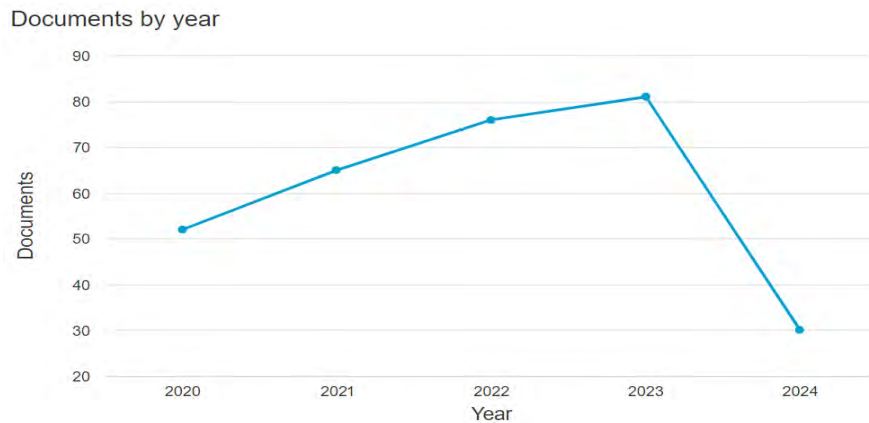


Fig. 1 Document by year

Documents by subject area

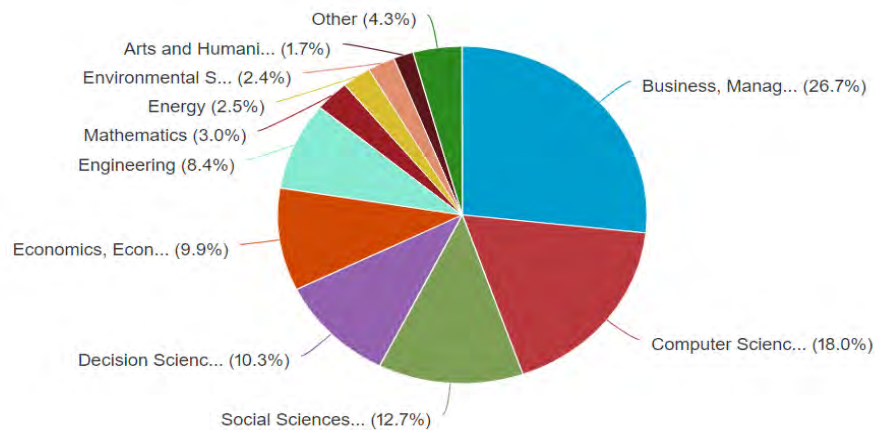


Fig. 2 Document by subject area

Documents per year by source

Compare the document counts for up to 10 sources.

[Compare sources and view CiteScore, SJR, and SNIP data](#)

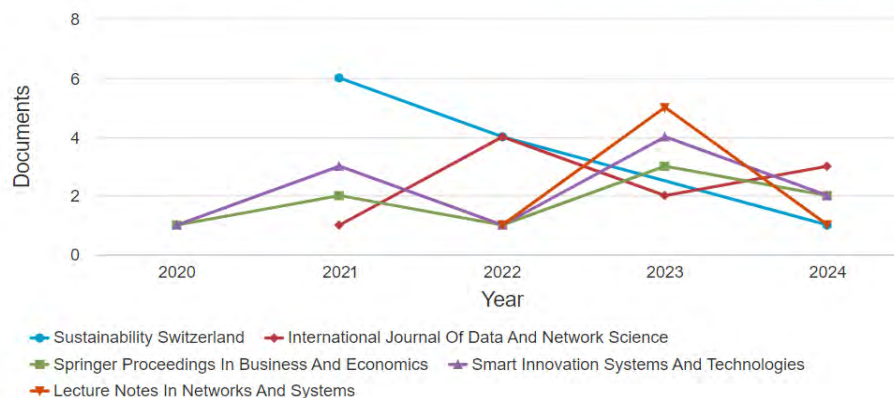


Fig. 3 Documents per year by source

Figure 1 illustrates the number of documents published by year from 2020 to 2024, showing fluctuations over time. Starting at 50 documents in 2020, there is a steady increase, reaching approximately 80 documents in 2022 and peaking at around 85 documents in

2023. While, Figure 2 and 3 show the largest share is dominated by "Business, Management" with 26.7%, followed by "Computer Science" (18.0%), "Social Sciences" (12.7%), and "Decision Sciences" (10.3%). Other notable areas include "Economics" (9.9%) and "Engineering" (8.4%). Smaller segments cover fields like "Mathematics," "Energy," "Environmental Science," "Arts and Humanities," and an "Other" category. The diversity in subject areas indicates an interdisciplinary focus, although business and technology-related fields are the most represented.

5.0 DISCUSSION

The obstacles to Small and Medium Enterprises (SMEs) adopting digital

Small and medium enterprises (SMEs) confront various challenges when adopting digital marketing, which vary based on industry and region (Harrigan et al., 2021). These impediments can take many forms, including financial constraints, limited digital skills, poor infrastructure, and cultural aversion to change (De Vries et al., 2017). In industries such as conventional manufacturing or agriculture, SMEs may need clarification on the suitability of digital marketing methods for their businesses. Similarly, SMEs in rural or undeveloped locations may face challenges such as poor internet connectivity or restricted access to technology resources, limiting their capacity to use digital marketing strategies.

The interconnectedness of these restrictions complicates the digital marketing landscape for SMEs. Cultural influences, such as societal conventions and values, considerably impact SMEs' attitudes toward digitization and readiness to accept new technology (Barnes et al. 2020). In certain areas, there may be scepticism about digital platforms and worries about data privacy and security, which serve as additional barriers. Furthermore, regulatory frameworks and government policies vary by area, affecting SMEs' ability to handle legal difficulties and comply with digital marketing sector laws (Chaffey et al., 2019).

By investigating the intersectionality of these barriers, we may acquire a better understanding of the complex dynamics of SMEs' digital marketing adoption. This method allows academics and practitioners to find similar patterns and trends across sectors and locations while recognizing the contextual elements influencing SMEs' digitization journeys. For example, latest research by Deku et al. (2024), investigated the interaction between cultural norms and technology readiness might give valuable insights into ways to overcome cultural resistance and increase SMEs' adoption of digital marketing.

Furthermore, understanding the changing nature of hurdles to digital marketing adoption enables the development of customized interventions and support systems to assist SMEs in overcoming these obstacles (Kapoor et al., 2019). Policymakers, industry associations, and support organizations can create tailored initiatives to promote digital literacy, provide access to affordable technology solutions, and create an enabling environment for SMEs to thrive in the digital economy by considering the diverse needs and circumstances of SMEs in various industries and regions.

Navigate the multifaceted challenges inherent in digital marketing adoption

To effectively address the obstacles of digital marketing adoption, small and medium enterprises (SMEs) must take a strategic approach considering their organizational culture, resource constraints, and external market dynamics. According to Kraus et al. (2020), SMEs must recognize the critical importance of organizational culture in promoting digital marketing adoption. SMEs may establish an atmosphere that promotes digital transformation by cultivating an innovation culture, embracing change, and encouraging continuous learning. Leadership must be supportive, and workers must actively participate in advancing digital projects and overcoming opposition to change (Li et al., 2018).

Moreover, Ngai et al. (2018) suggest the SMEs must manage resource constraints during their digital marketing journey. While SMEs may need more financial resources from prominent organizations, they may use their agility and flexibility to get the most out of their digital marketing efforts. Prioritizing high-impact areas, such as focused advertising campaigns or user-friendly website design, may assist SMEs in using their limited resources and achieving demonstrable outcomes.

On the other hand, Ryan and Jones (2020) stated that, SMEs must modify their digital marketing strategy to reflect external market dynamics and changing customer behaviours. This demands a detailed awareness of the target audience, market trends, and competitive environment. SMEs may uncover new growth prospects and differentiate themselves in the digital marketplace by performing market research, tracking industry advancements, and staying current on emerging technology.

Furthermore, teamwork and collaboration may be highly beneficial in overcoming resource limits and improving SMEs' digital skills (Taiminen & Karjaluo, 2015). SMEs may boost their digital marketing efforts by developing alliances with other firms, industry groups, or digital marketing services, which provide extra experience, resources, and networks. Activities such as collaborative marketing campaigns or co-branded content may help SMEs increase their reach and substantially influence the digital world.

The intricate dynamics of analytics utilization and data-driven decision-making shape the efficacy of digital marketing strategies for SMEs

In the rapidly changing digital marketing landscape, staying competitive depends on SMEs' ability to constantly learn, adapt, and innovate and SMEs to stay up with the ever-changing dynamics of digital marketing, continuous learning is required (Dwivedi et al., 2019). As new technologies emerge and customer demands shift, SMEs must invest in developing digital skills and expertise within their staff. Employees may be given training programs, workshops, and resources to help them better comprehend digital marketing tools, tactics, and best practices (Taiminen & Karjaluo, 2015). SMEs may enable their staff to adapt to new challenges and embrace growth possibilities in the digital era by cultivating a learning and professional development culture.

Furthermore, small and medium-sized enterprises (SMEs) must be watchful and proactive in monitoring and responding to developing digital trends and technologies (Deku et al. 2024). This entails staying current on industry news, attending conferences and seminars, and networking with peers and industry professionals to acquire insights into the newest advancements and breakthroughs. For example, the emergence of voice search,

artificial intelligence, and augmented reality provides new chances for SMEs to connect with customers in novel ways and distinguish themselves from the competition (Kraus et al., 2020). By adopting innovative technology and experimenting with new ideas, SMEs may remain ahead of the competition in the digital marketplace.

In addition to using new technology, SMEs must be prepared to experiment and take measured risks in their digital marketing efforts. Innovation frequently requires trial and error, and SMEs must be prepared to learn from mistakes and adjust their tactics accordingly. This may entail experimenting with various marketing channels, message approaches, and audience targeting strategies to determine what connects most successfully with their intended audience (Grewal et al., 2019). By adopting an experimentation and iteration approach, SMEs may uncover new potential for development and innovation in the digital space.

Furthermore, teamwork and partnerships may help SMEs become more competitive in digital marketing. Alliances with other firms, industry groups, or digital marketing agencies may provide SMEs with extra resources, experience, and networks to help them improve their digital capabilities (Kannan & Li, 2017). Collaborative activities, such as collaborative marketing campaigns, co-branded content, or shared data projects, may help SMEs reach new audiences, grow their market presence, and increase their digital marketing effect (Grewal et al., 2019).

Finally, being competitive in digital marketing necessitates a proactive and flexible strategy prioritizing ongoing learning, experimentation, and cooperation. SMEs should position themselves for long-term success and growth in the dynamic and competitive digital marketplace by investing in digital skill development, monitoring emerging trends and technologies, embracing innovation, and forming strategic alliances.

6.0 CONCLUSION

The systematic research gave a detailed overview of the influence of digital marketing technologies on transformation in Small and Medium Enterprises (SMEs). The analysis showed that digital marketing is essential in increasing SMEs' exposure, consumer interaction, and overall competitiveness in the digital age. SMEs may use digital platforms and technology to reach target audiences more effectively, assess the efficacy of marketing efforts, and adjust their tactics to changing customer preferences.

Table 3: Summary of the challenges, dynamics, and analytics utilization in relation to Small and Medium Enterprises (SMEs) adopting digital marketing strategies

No	Categories	Key Findings
1	Obstacles to SMEs Adopting Digital	- Financial constraints: Limited budgets for digital transformation. - Technological barriers: Lack of infrastructure, digital tools, and technical expertise. - Skills Gap: Insufficient digital literacy and training among employees. - Cultural resistance: Resistance to change and reluctance in adopting new technologies.

2	Challenges in Digital Marketing Adoption	- Complexity of digital platforms: Navigating a multitude of marketing channels (social media, SEO, email, etc.) is overwhelming. - Resource allocation: Difficulties in balancing time, staff, and budget for effective digital marketing. - Customer engagement: Struggles with creating relevant, engaging content that resonates with target audiences.
3	Analytics Utilization and Data-Driven Decision Making	- Lack of expertise in analytics: SMEs often lack the knowledge or tools to interpret digital marketing data effectively. - Integration challenges: Difficulty integrating analytics tools into existing business systems.

In conclusion, the systematic evaluation emphasizes the revolutionary potential of digital marketing technology for SMEs. By tackling adoption hurdles, utilizing analytics for data-driven decision-making, embracing innovation, and being nimble in response to changing market dynamics, SMEs may seize new chances for development and sustainability in the digital era. Finally, digital marketing should be considered a way to promote enterprises and a strategic requirement for SMEs looking to prosper in an increasingly digitalized and competitive environment. The systematic research gave a detailed overview of the influence of digital marketing technologies on transformation in Small and Medium Enterprises (SMEs). The analysis showed that digital marketing is essential in increasing SMEs' exposure, consumer interaction, and overall competitiveness in the digital age. SMEs may use digital platforms and technology to reach target audiences more effectively, assess the efficacy of marketing efforts, and adjust their tactics to changing customer preferences.

7.0 SUGGESTION FOR FUTURE RESEARCH

Despite the potential benefits, SMEs need help adopting and implementing digital marketing techniques. Financial restrictions, a lack of digital expertise, and doubt about the efficiency of digital marketing are some of the most often stated impediments. However, the literature also identifies techniques and best practices for addressing these problems, including investing in digital skills training, using social media platforms, and adopting data-driven decision-making.

Furthermore, analytics and data-driven decision-making have emerged as essential factors in improving the success of SMEs' digital marketing efforts. By leveraging data insights, SMEs may acquire a better knowledge of their target audience, track the effectiveness of their marketing activities, and make educated decisions to improve their strategy. Furthermore, SMEs must embrace mobile marketing and keep up with evolving trends and technology to remain competitive in today's changing digital marketplace.

CO-AUTHOR CONTRIBUTION

The study conducted does not contain any elements of conflict of interest among all aspects, especially between the principal researcher and the co-researcher, and does not contravene any laws or statutes in force. Author1 carried out the fieldwork, prepared the literature review and overlook the writeup of the whole article. Author2 wrote the research

methodology and did the data entry. Author3 carried out the statistical analysis and interpretation of the results.

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REFERENCES

- Alalwan, A. A., Rana, N. P., Dwivedi, Y. K., & Algharabat, R. (2018). Social media in marketing: A review and analysis of the existing literature. *Telematics and Informatics*, 35(9), 2946-2968.
- Barnes, S. J., Harrigan, P., & Murray, D. W. (2020). Mobile commerce apps: In search of value-added content to generate continued app engagement. *Journal of Retailing and Consumer Services*, 53.
- Chaffey, D., Ellis-Chadwick, F., Mayer, R., & Johnston, K. (2019). *Digital marketing: Strategy, implementation, and practice*. Pearson UK.
- Deku, W.A., Wang, J. & Preko, A.K. (2024). Digital marketing and small and medium-sized enterprises' business performance in emerging markets. *Asia Pacific Journal of Innovation and Entrepreneurship*.
- De Vries, L., Gensler, S., & Leeflang, P. S. (2017). The popularity of brand posts on brand fan pages: An investigation of the effects of social media marketing. *Journal of Interactive Marketing*, 38, 71-82.
- Dwivedi, R., Bali, T., Naguib, R. N., & Naguib, R. N. G. (2019). Understanding the determinants of digital marketing adoption by small and medium-sized enterprises: A systematic review. *Journal of Enterprise Information Management*, 32(2), 252-284.
- Grewal, D., Roggeveen, A. L., Nordfält, J., Spann, M., Stewart, D., & Tuli, K. R. (2019). Opportunities and challenges in multichannel and omnichannel marketing: An agenda for inquiry. *Journal of the Academy of Marketing Science*, 47(4), 616-623.
- Harrigan, P., Evers, U., Miles, M. P., Daly, T., & Ryals, L. (2021). Digital transformation and marketing in SMEs: Evidence from the United Kingdom. *Journal of Business Research*, 131, 667-679.
- Kannan, P. K., & Li, H. (2017). Digital marketing: A framework, review, and research agenda. *International Journal of Research in Marketing*, 34(1), 22-45.
- Kapoor, K. K., Tamilmani, K., Rana, N. P., Patil, P., Dwivedi, Y. K., & Nerur, S. (2019). Advances in social media research: Past, present and future. *Information Systems Frontiers*, 21(3), 531-558.
- Kraus, S., Morschett, D., & Schramm-Klein, H. (2020). Future research topics in international marketing strategy and management. *Journal of International Marketing*, 28(1), 21-44.
- Li, X., Huang, L., Tan, J., & Wei, K. K. (2018). Is mobile marketing effective? A meta-analysis of mobile marketing adoption and the moderating role of culture. *Journal of Retailing and Consumer Services*, 43, 204-214.
- Ngai, E. W., Tao, S. S., & Moon, K. K. (2018). Social media research: Theories, constructs, and conceptual frameworks. *International Journal of Information Management*, 38(1), 33-44.
- Ryan, D., & Jones, C. (2020). *Understanding digital marketing: Marketing strategies for engaging the digital generation*. Kogan Page Publishers.
- Sawang, S., Newton, C., & Jamieson, M. (2019). Marketing mix and customer engagement effects on mobile banking adoption. *Journal of Retailing and Consumer Services*, 46, 54-62.

- Sharma, A. and Sharma, S. (2024). Adoption of digital marketing in tourism SMEs: a review and research agenda. *Management Research Review*, 47(7), 1077-1095.
- Taiminen, H. M., & Karjalainen, H. (2015). The usage of digital marketing channels in SMEs. *Journal of Small Business and Enterprise Development*, 22(4), 633-651.
- Wang, D., Li, X., Feng, Y., Wang, L., & Zhang, Y. (2018). A review of research on mobile commerce website quality. *Journal of Enterprise Information Management*, 31(6), 951-974.

KEFAHAMAN AMALAN SOLAT KALANGAN KOMUNITI ORANG ASLI JAKUN: TAHU BARU AMAL ATAU SUDAH TAHU TIDAK AMAL

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ABSTRAK

Orang Asli Jakun di Bekok menempatkan sejumlah 1,300 penduduk dengan 10 - 15 peratus adalah komuniti muslim. Walaupun mereka telah lama menerima Islam, namun penghayatan agama, khususnya ibadah solat masih tidak sempurna. Malah boleh dikatakan majoritinya tidak pernah solat walaupun asas ilmu agama telah dipelajari melalui pendidikan formal di Sekolah Kebangsaan Kampung Kudong dan aktiviti keagamaan yang dianjurkan di Surau Kampung Kudong. Matlamat kajian adalah untuk mengenalpasti tahap kefahaman orang Asli Jakun tentang amalan solat dan penghayatannya dalam kehidupan seharian. Kajian berbentuk data kualitatif dengan temubual mendapati responden memahami amalan asas solat seperti konsep asas solat dan bilangannya, rakaat dan rukun-rukunnya dan kepentingan solat. Sungguhpun begitu, rata-rata responden mengakui mereka tidak pernah sempurna solat lima waktu dan jika ada pun hanya sebilangan kecil sahaja. Persoalannya di sini adakah pengetahuan itu menjadi punca mereka sedar untuk solat ataukah sememangnya mereka tahu solat tetapi mereka tidak mahu solat. Ringkasnya, komuniti muslim di sini masih jauh dengan amalan fardu ain khususnya ibadah solat, dan tentunya ia memerlukan komitmen pendidik sebagai murabbi untuk membawa mereka menghayati amalan asas Islam dalam kehidupan seharian.

Kata kunci: Solat, Orang Asli Jakun, Fardu Ain

1.0 PENGENALAN

Pendidikan agama di kalangan Orang Asli adalah isu yang berpanjangan sejak sekian lama. Ahmad dan Yaakob (2022) menyatakan bentuk amalan tradisi masih kukuh diamalkan termasuklah di kalangan mereka yang telah beragama Islam. Menurut Don (2014), antara masalah utama golongan Orang Asal adalah berkaitan dengan persoalan akidah dan ibadah. Masih wujud kepercayaan animisme atau supernatural seperti kepercayaan kepada roh sungai dan hutan.

Orang Asli yang dikatakan tidak berminat untuk mempelajari agama Islam adalah salah satu faktor yang menyumbang kepada kegagalan mereka untuk memahami dengan baik agama Islam dan memenuhi tuntutan ajarannya. Mereka mengakui beragama Islam, tetapi tidak beramal pada perlakuannya. Oleh kerana majoriti Orang Asli berasal dari golongan berpendapatan rendah, mereka lebih menyukai aktiviti yang boleh meningkatkan pendapatan. Akibat daripada sikap itu, sesetengah Orang Asli tidak tahu melafazkan kalimah syahadah, tidak tahu mengerjakan solat, dan dengan mudah melanggar prinsip Islam yang telah mereka pelajari (Muhamat et al., 2012; Ismail et al., 2023)

Antara kajian mengenai pendidikan agama dan dakwah bagi masyarakat Orang Asli telah dijalankan iaitu berkaitan pendekatan dakwah guru pembimbing kelas fardu ain muallaf (Ahmad et al., 2022), amalan komunikasi dakwah semasa kelas bimbingan fardu ain Orang Asli muslim (Aini et al., 2019), aktiviti dakwah JAKIM terhadap masyarakat Orang Asli (Mohd Zain & Engku Alwi, 2017), serta kajian mengenai tahap kefahaman dan penghayatan Islam dalam kalangan Orang Asli baru Islam (Don et al., 2016).

Penambahbaikan terhadap kaedah dakwah dan modul yang digunakan perlu disesuaikan dari masa ke masa mengambil kira faktor perkembangan Orang Asli seiring dengan kemajuan negara dan mengambil kira budaya dan adat resam mereka (Junoh et al., 2022). Aini et al. (2019) menyatakan tiga strategi perlu ada didalam proses komunikasi dakwah iaitu autoriti pendakwah, kredibiliti pendakwah dan aplikasi perubahan.

Justeru itu, pemerkasaan pendidikan agama perlu ditangani lebih menyeluruh oleh semua pihak. Majlis Agama Islam Negeri Johor umpamanya telah menempatkan pegawai agama khas di beberapa penempatan Orang Asli, namun jangkauan pendidikan yang luas dan melebar memerlukan penglibatan daripada semua pihak secara berterusan.

Solat sebagai tunggak utama ibadah seorang muslim adalah perlambangan ubudiah hamba kepada Allah yang Maha Esa. Penghayatan ibadah solat di kalangan sasaran masih jauh daripada tahap kesempurnaan. Terlalu berat untuk mengatakan mereka tidak solat, tetapi itulah kenyataan pada kebanyakan penduduk Jakun Islam di kawasan kajian. Didikan dan bimbingan perlu ditingkatkan dari masa ke masa tanpa ada noktahnya.

1.1 Komuniti Asli Jakun Bekok

Orang Asli Jakun di sini mencecah 1,328 orang mendiami enam buah penempatan iaitu Kampung Temban, Kampung Kudong, Kampung Tamok, Kampung Kemidak, Kampung Lenek dan Kampung Selai. Semua perkampungan ini dalam jajaran laluan yang sama selain Kampung Lenek yang terpisah menghala ke Labis (Ahmad dan Yaakob, 2022).

Perkampungan berkelompok diwujudkan sejak tahun 1998 - 2000 bagi memusatkan perkampungan orang asli yang asalnya bertebaran di pinggir gunung dan hutan Taman Negara Selai. Ia memudahkan pembangunan fizikal bagi memenuhi keperluan sosio-ekonomi orang asli seperti rangkaian jalan raya, rumah penginapan, sekolah, balai raya, bekalan elektrik dan air. Sekolah Kebangsaan Kampung Kudong menjadi pemacu pendidikan yang utama kepada penduduk setempat. Tadika KEMAS

Dari sudut sosial, Tok Batin adalah ketua tertinggi yang dihormati dan dipatuhi dalam menguruskan hal ehwal setempat. Selain Tok Batin, Tok Bomoh, Ketua Adat dan Pengerusi Jawatankuasa Kemajuan Kampung (JKKK) mempunyai kedudukan tersendiri dalam komuniti Jakun. Kebanyakan penduduk di sini beragama pagan (kepercayaan warisan nenek moyang), hanya sebahagian kecil yang beragama Islam dan Kristian. Penduduk Islam dianggarkan seramai 150 orang mewakili 15% populasi orang asli di Bekok (temubual

Husnul Hatimah, pegawai khas orang asli Bekok, 1 Julai 2024) dengan sebuah surau kecil dibina di Kampung Kudong.

2.0 ISU KAJIAN

Pendidikan Islam merupakan aspek penting dalam pembangunan masyarakat yang berlandaskan nilai-nilai keagamaan. Biarpun telah lama Islam tersebar di kalangan Orang Asli, namun tahap penghayatan beragama masih rendah. Dalam konteks masyarakat Orang Asli di Bekok, Segamat, keperluan untuk menyampaikan pendidikan agama menjadi semakin kritikal bagi pemerkasaan keimanan dan kefahaman mereka terhadap Islam.

Pada ibadah solat khususnya, tinjauan penyelidik mendapati tidak ramai yang solat lima waktu, bahkan boleh dikatakan kebanyakannya tidak solat seharian. Apabila ditanya kenapa tidak solat, rata-ratanya memberi jawapan 'tidak faham' dan 'tidak yakin' (temubual penyelidik). Malah kewujudan surau adalah sekadar bangunannya, tanpa ada yang mahu solat berjemaah. Hanya sesekali apabila majlis ilmu diadakan, surau ini dibersihkan oleh penganjur. Di sini timbul persoalan utama, adakah golongan sasaran tidak mengetahui kaedah solat, atau adakah mereka tahu tetapi tidak yakin untuk solat lalu mereka tidak menunaikan solat seharian.

Dalam kajian Ismail et.al (2023) di kalangan orang Asli Negeri Pahang mendapati pemahaman dan penguasaan solat pada kedudukan yang agak baik (60 - 89 %) menguasainya. Keberkesanan usaha dakwah oleh institusi kerajaan mahupun bukan kerajaan (Ismail et.al, 2023) menghasilkan input yang bermakna. Namun begitu, keupayaan seperti ini mungkin tidak sampai dan menyeluruh kepada komuniti orang Asli di Bekok.

Jadual 1: Rumusan Penguasaan Fardu Ain Masyarakat Orang Asli Negeri Pahang (Ismail et al., 2023)

Tahap Penguasaan	Menguasai						Jumlah	
	Cemerlang		Sederhana		Dengan Bimbingan		Menguasai	
	Bil	%	Bil	%	Bil	%	Bil	%
Wuduk	120	48.00	57	22.80	47	18.80	224	89.60
Lafaz Niat	108	43.20	42	16.80	58	23.20	208	83.20
Takbiratul Ihram	129	51.60	32	12.80	43	17.20	204	81.60
Doa Iftitah	75	30.00	29	11.60	57	22.80	161	64.40
Al-Fatihah	131	52.40	34	13.60	35	14.00	200	80.00
Surah Pilihan	103	41.20	36	14.40	44	17.60	183	73.20
Bacaan Rukuk	103	41.20	36	14.40	49	19.60	188	75.20
Bacaan Iktidal	114	45.60	38	15.20	53	21.20	205	82.00
Bacaan Sujud	114	45.60	34	13.60	56	22.40	204	81.60
Duduk dua Sujud	94	37.60	32	12.80	49	19.60	175	70.00
Tahiyat	83	33.20	40	16.00	49	19.60	172	68.80
Salam	120	48.00	37	14.80	40	16.00	197	78.80
Qunut	60	24	29	11.6	57	22.80	146	58.40
Amali	100	40	34	13.6	67	26.8	201	80.40
Purata	104	41.54	36	14.57	50	20.11	191	76.23

Sehubungan itu, tiga objektif kajian telah dirangka bagi mengatasi isu yang dinyatakan iaitu bagi mengenalpasti tahap kefahaman konsep asas solat di kalangan komuniti Orang Asli Jakun di Bekok. Seterusnya mengenalpasti tahap penghayatan orang Asli Jakun mengenai tatacara solat yang betul serta mencari pendekatan alternatif yang relevan dalam pendidikan solat kepada orang Asli Jakun di Bekok.

3.0 METODOLOGI KAJIAN

Kajian yang dijalankan adalah berbentuk kualitatif. Data berbentuk kualitatif ini diperolehi melalui kajian lapangan. Sesi temubual telah melibatkan 18 orang penduduk muslim orang Asli Kampung Kudong, Bekok sebagai responden.

4.0 DAPATAN KAJIAN

Beberapa siri pendidikan solat telah diadakan oleh pihak UiTM Cawangan Johor, diantaranya seperti berikut;

- Kem Bestari Solat (Akademi Pengajian Islam Kontemporari (ACIS) 28 September 2022.
- Program SANTUNMali, SIG Orang Asli FSKM, 23 Disember 2022;
- Program Kem Solat, Team CE-SIR, 18 Ogos 2023
- Program Transfer Knowledge di SK Kudong, 24 September 2023
- Program Kem Solat siri 2, Team CE-SIR, 26 Februari 2024
- Program Kem Solat siri 3, Team CE-SIR dan hadiah telekung, 31 Mac 2024

Penglibatan bersama komuniti setempat memberi input bermakna kepada penyelidik, khasnya dalam amalan solat. Hasil temubual mendapati mereka memahami kewajipan solat; pada kadar 10 orang yang sangat faham, lima orang sederhana fahamnya dan tiga orang yang masih kabur, tidak jelas.

4.1 Kaedah Solat

Mengenai kewajipan solat lima waktu, 13 individu memahami kewajipan solat lima waktu, tiga orang yang tidak pasti dan dua orang lagi tidak tahu kefarduan solat lima waktu. Menurut Zam Oriza bin Atan @ Awil (32, temubual 26 Februari 2024) beliau melazimi solat lima waktu setelah mengikuti aktiviti tabligh di Sabah selama sebulan. Beliau juga dipilih oleh pihak Jabatan Kemajuan Islam (JAKIM) berkursus selama sebulan di Kuala Kubu Baru bagi mendalami ilmu Islam.

Selanjutnya mengenai bilangan rakaat solat, lapan orang responden tahu dengan tepat bilangan rakaat solat, lima orang yang tidak tepat, dan empat orang lain tidak tahu bilangan rakaat solat. Roslan Johar (23, temubual 26 Februari 2024) memahami kaedah solat setelah menyertai jemaah tabligh bersama rakannya, Zam Oriza di Sabah. Jika sebelumnya Sdr Roslan tidak pernah memahami kaedah solat dan tidak pernah solat.

Mengenai perbezaan kaedah solat pada waktu siang (Zohor dan Asar) dan solat malam (Maghrib, Isyak dan Subuh) temubual mendapati sepuluh orang memahami perbezaan kaedah solat malam dan siang, sedangkan lapan yang lain teragak-agak menjawab perbezaan solat malam dan siang.

4.2 Bilangan Rakaat Solat

Selanjutnya 12 orang menyatakan tahu dan faham kenapa Islam mewajibkan solat sebagai satu kefarduan dan lapan orang lain yang tidak dapat menjawab dengan tuntas kenapa diwajibkan solat. Menurut Puan Idariah (26, temubual 26 Februari 2024) beliau tidak pernah solat walaupun telah lama menganut Islam kerana beranggapan solat itu untuk mereka yang 'baik-baik' sahaja. Solat adalah hitungan pertama yang dinilai di akhirat kelak. Dalam kes ini, seramai sebelas orang mengetahui solat adalah hitungan Allah yang pertama sedangkan sebahagian lain tidak mengetahui dengan pasti. Menurut seorang responden

yang ditemubual, Puan Tinggal binti Matan @ Amai (45 tahun, 21 September 2023) beliau tidak pernah solat kerana tidak yakin dengan apa yang dipelajarinya. Dia hanya akan solat apabila diadakan majlis tertentu di surau.

5.0 PERBINCANGAN DAN KESIMPULAN

Berdasarkan dapatan kajian dapat disimpulkan bahawa pengetahuan serta kefahaman solat di kalangan komuniti Orang Asli Jakun amat masih lagi rendah. Walaupun terdapat di kalangan mereka mempunyai pengetahuan tentang solat serta kefahaman terhadap tata cara kaedah solat kesedaran namun begitu ibadah Fardhu' Ain ini tidak dilaksanakan. Dalam hal ini, dicadangkan agar pengajaran solat menggunakan pendekatan digital menjadi satu alternatif bagi memenuhi keperluan semasa.

Komuniti orang Asli Jakun di Bekok telah terdedah dengan dunia maya setanding dengan penduduk di perkampungan lain. Kemudahan internet yang dibekalkan kerajaan memudahkan penduduk mencapai maklumat dari pelbagai pihak. Dalam konteks ini, penyelidik menyediakan video pengajaran solat dalam bahasa Jakun yang julung kali seumpamanya di dunia. Tiga video klip panduan solat dihasilkan yang menekankan aspek berikut;

1. Kepentingan solat <https://fb.watch/tlJwMhZrg/>
2. Kaedah wuduk <https://fb.watch/tlGf5TAJB/>
3. Kaedah solat <https://fb.watch/tlIANUqiHg/>

Video klip ini digunakan semasa sesi pembelajaran yang dilangsungkan pada 18 Ogos 2023 dan 26 Februari 2024 pada sasaran yang sama. Ia disebar luas melalui medium Facebook dan Youtube yang boleh digunakan oleh golongan sasaran. Beberapa maklum balas menunjukkan sasaran boleh mengikuti klip video ini dan boleh melaksanakan ibadah solat. Puan Tinggal binti Matan @ Amai (temubual 20 April 2024) mengakui video itu membantu dirinya untuk solat.

Bahan ini juga digunakan dalam sesi pengajaran di SK Kampung Kudong dan mendapat respon positif di kalangan murid yang terlibat. Ustazah Nurul Amalina (temubual 7 Julai 2024) memuji pendekatan ringkas solat dan ia berjaya menarik minat murid sekolah kerana menggunakan bahasa perbualan harian mereka. <https://fb.watch/tllu2pSshv/>

Pendekatan alternatif yang diusahakan ini adalah penting untuk memperkukuhkan kefahaman agama dan pemeraksanaan masyarakat Orang Asli secara keseluruhan. Melalui usaha berterusan dalam penyampaian pendidikan agama yang berkesan, diharapkan komuniti Orang Asli di Bekok, Segamat dapat terus berkembang dalam aspek keagamaan dan kehidupan harian mereka.

6.0 KAJIAN LANJUTAN

Penambahbaikan terhadap kaedah dakwah dan modul yang digunakan perlu disesuaikan dari masa ke masa mengambil kira faktor perkembangan Orang Asli seiring dengan kemajuan negara dan mengambil kira budaya dan adat resam mereka (Junoh et al., 2022)

PENGHARGAAN

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RUJUKAN

- Ahmad, S.N. & Yaakob, A.N. (2022). *Orang asli Jakun Johor*. Johor: Penerbit UTHM.
- Ahmad, R. et al. (2022). Implementation of Da'wah by Teachers Teaching Basic Islamic Knowledge to Converts (KFAM) in Selangor. *Journal of Contemporary Islamic Studies (JCIS)*, 8 (1), 1-9
- Aini, Z. et al. (2019). Strategi Komunikasi Pemujukan Pendakwah dalam Penyampaian Mesej Islam kepada Masyarakat Orang Asli di Selangor. *Journal of Islamic Contemporary*, 4 (1), 12-26
- Aini, Z. et al. (2019). Amalan Komunikasi Dakwah Semasa Kelas Fardu Ain Orang Asli Muslim di Selangor. *International Journal of Law, Government and Communication*, 4 (17), 34-47
- Don, et al. (2016). The Level of Understanding and Appreciation of Islam Among Orang Asli New Muslims in Selangor State, Malaysia, and Its Relationship With Social Well-Being. *International Journal of Humanities, Arts and Social Sciences*, 2(6), 215-220.
- Don, A.G. (2014). Masyarakat Orang Asli Muslim Malaysia: Senario dan Realiti Kefahaman dan Penghayatan Islam. Seminar Antarabangsa Dakwah & Etnik anjuran Pusat Kajian Dakwah Orang Asli dan Peribumi Fakulti Pengajian Islam Universiti Kebangsaan Malaysia dan Pusat Penataran Ilmu dan Bahasa Universiti Malaysia Sabah.
- Ismail et al. (2023). Tahap Penguasaan Asas Fardu Ain Dalam Kalangan Masyarakat Orang Asli di Negeri Pahang. *Al-Hikmah*, 15(2), 55-70.
- Mohd Zain, J. & Engku Alwi, E. A. Z (2017). Dakwah Jabatan Kemajuan Islam Malaysia (JAKIM) Terhadap Masyarakat Orang Asli: Pelaksanaan dan Cabarannya. *Prosiding Bicara Dakwah Kali ke-15: Pengurusan Dakwah Kontemporari. Jabatan Pengajian Dakwah dan Kepimpinan, Fakulti Pengajian Islam, UKM, Bangi, Selangor*, 130-140.
- Muhamat et al. (2012). Dakwah Kepada Golongan Muallaf Orang Asli di Kelantan. *Al-Hikmah*, 4, 87-105.

THE OVERVIEW OF ENVIRONMENT, SOCIAL, AND GOVERNANCE PRACTICES AMONG MALAYSIAN COMPANIES

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ABSTRACT

This article explores Malaysia's burgeoning reputation as a promising hub for ESG investments, propelled by the rising interest of investors, escalating corporate endeavours, and a favourable legal framework that promotes sustainable business practices. This article will also examine the initiatives taken by the Malaysian government to guarantee that Malaysia is on par with global players in terms of ESG practices. The essence of this study is based on articles found in newspapers, companies' websites, and reports issued by the Department of Statistics Malaysia (DOSM), and the Department of Environment Malaysia (DOE). There is a growing interest among both foreign and domestic investors in engaging in Malaysia's green economy by means of ESG investments. This interest stems from the desire to address substantial environmental challenges and generate sustainable returns, considering the escalating market apprehensions around sustainability challenges and risks. By focusing on the unique context of Malaysian companies and their challenges and opportunities, this study could provide valuable insights into the intersection of ESG in the country.

Keywords: Environment, Sustainability, Governance, Malaysian practices, ESG

1.0 INTRODUCTION

The incorporation of environmental, social, and governance considerations into the operations and decision-making procedures of a business is referred to as ESG practices. Determining a company's sustainability and long-term success are factors considered to be crucial. Organizations incorporate ESG practices into their business strategies with the conviction that doing so is advantageous and will contribute to the enhancement of their overall performance (Popov & Makeeva, 2022).

ESG factors demonstrate opportunities and threats, thereby assisting stakeholders and shareholders in general to make informed business decisions (Buniamin, 2020). The practices encompass an organization's social responsibilities towards diverse stakeholders, its environmental footprint, and the efficacy of its governance framework. Organizations that place a high value on ESG practices strive to reduce their ecological impact, foster social fairness and inclusivity, and uphold robust governance systems that guarantee transparency

and responsibility (Miralles-Quirós et al., 2019). In recent years, there has been a growing recognition among investors and stakeholders of the significance of sustainable and responsible business practices, which has led to an increased emphasis on ESG practices. The company endeavors to generate value for all stakeholders and foster a more sustainable and equitable society through the incorporation of ESG practices into its operational framework. The ESG practices are not only important for companies' reputations and social impact but also have financial implications. Companies that prioritize ESG practices can potentially achieve higher financial returns and reduce risks (Chen et al., 2023).

The urgency to study ESG arises from escalating climate change, social inequality, and governance challenges. Companies face increasing pressure from stakeholders to adopt sustainable practices, which can enhance long-term profitability and resilience. Understanding ESG factors is crucial for mitigating risks and driving positive change in today's rapidly evolving global landscape. Hence, the objective of this paper is to address the interest that arises from the intention to tackle significant environmental issues and produce sustainable returns, given the increasing market concerns over sustainability problems and dangers. This study aims to offer significant insights into the convergence of ESG within the unique context of Malaysian companies, addressing their challenges and potential.

The rest of the article is organised as follows: ESG practice worldwide and the effects of ESG are presented in the next section. The ESG practices in Malaysian companies are detailed in the following section. Final remarks and future research directions are presented in the last section. The essence of this conceptual paper is based on articles found in prior research supported by articles from the newspapers, companies' websites, and reports issued by the Department of Statistics Malaysia and the Department of Environment Malaysia. However, this study is only limited to searches in 2022.

2.0 ESG PRACTICE WORLDWIDE, ASIA, AND SOUTHEAST ASIA

ESG practices have gained significant attention worldwide. In recent years, there has been an increased focus on ESG practices globally. This shift in focus is driven by the belief that incorporating ESG factors into capital markets not only promotes sustainability but also brings financial benefits. According to research from Miralles (2019), conducted on commercial banks listed on twenty different stock markets throughout 2002-2015, it has been found that the value relevance of ESG performance is higher for banks from common law countries and after the global monetary crisis.

ESG practices are being adopted by companies worldwide, with a particular focus on Asia and Southeast Asia. Regulatory bodies in various countries have implemented measures to promote ESG adoption among corporate businesses. These measures are aimed at enhancing transparency, accountability, and sustainability in business operations (Ismail et al., 2022). In Norway and Denmark, the government has introduced regulatory amendments and minimum requirements for ESG reporting.

In Asia, the importance of sustainable finance has been recognized by the government and financial institutions have been requested to incorporate ESG factors into their business strategies (Adam & Adhariani, 2018). In Southeast Asia, there is a growing interest in ESG practices and regulations. This is clear in Malaysia, where the Securities Commission has introduced ESG reporting guidelines for listed companies. These guidelines cover areas such as corporate responsibility, environment, workplace, community, and marketplace. Furthermore, Malaysia has also introduced the ESG index, which measures the performance of companies with good ESG practices.

Singapore, a leading global financial hub, has been actively promoting

environmental, social, and governance practices among businesses. The government of Singapore has recognized the importance of sustainable finance and has requested financial institutions to incorporate ESG factors into their business strategies. This includes promoting responsible investing, encouraging transparency, and disclosure of ESG information, and providing support and guidance for companies to adopt sustainable practices. In addition, Singapore has implemented various initiatives and platforms to promote ESG practices (Miralles-Quirós et al., 2019). These initiatives include the launch of the Sustainability Reporting Guidelines by the Singapore Exchange, which encourages listed companies to show their ESG policies and performance, and the introduction of the Green Bond Grant Scheme to facilitate green bond issuances. Another key development is the requirement for SGX-listed firms to provide annual sustainability reports on a comply or explain basis since 2016.

In Japan, the Financial Services Agency has published guidelines for ESG investing, encouraging asset owners and asset managers to incorporate ESG factors into their investment decisions and strategies. In the Asia-Pacific region, including Southeast Asia, there is growing recognition of the importance of ESG practices.

Overall, the practice of ESG is gaining momentum worldwide, with a particular focus on Asia and Southeast Asia. However, it is important to note that the level of ESG disclosure and adoption still varies across regions and countries (Pratama et al., 2022). Asia and Southeast Asia have shown a growing interest in ESG practices and regulations. This growing interest is reflected in Malaysia, where the Securities Commission has introduced ESG reporting guidelines for listed companies.

3.0 THE EFFECTS OF ESG

Since investors are progressively including ESG factors into their mandatory evaluation of commercial and economic models, there has been increasing pressure from stakeholders for companies to adopt sustainable practices and adequately disclose their ESG performance. Prior studies have found that ESG integration has been observed as a catalyst for companies' competitive advantage (e.g., Michelon et al., 2016; Nyuur et al., 2019; Zhao et al., 2019) by generating additional intangible value to ensure sustainable performance (Du et al., 2011; Flammer, 2015; Flammer & Luo, 2017), such as improving a firm's reputation, promoting a social image and improving customer loyalty (Kotler & Lee, 2004). Alongside the benefits of ESG practices, the disclosure of ESG practices contributes to enhancing stakeholder engagement (De Falco et al., 2018).

As a result of the belief that companies with strong ESG practices are more positioned for long-term success and can generate sustainable returns, an increasing number of investors are incorporating ESG considerations into their investment decisions. In addition, regulatory bodies and stock exchanges globally are increasingly mandating increased disclosure and transparency regarding ESG practices. This underscores the criticality of these considerations within the realm of commerce. The ESG practices have financial ramifications in addition to their significance for the reputations and social impact of businesses (Popov & Makeeva, 2022). Potentially achieving greater financial returns and mitigating risks are businesses that prioritise ESG (Miralles-Quirós et al., 2019). Companies can improve their overall corporate performance, recruit socially responsible investors, and enhance their market reputation by incorporating ESG practices into their operations (Pham et al., 2022). ESG practices have evolved into essential components of business strategies, aiding organisations in the enhancement of their overall operational effectiveness, the effective management of opportunities and risks, and the fulfilment of growing investor, stakeholder, and regulatory requirements (Ismail et al., 2022).

Non-compliance with their ESG can have a significant impact on companies in Asia.

Failure to follow ESG practices in Asia can lead to various negative consequences for companies (Annisa & Hartanti, 2021). These consequences may include reputational damage, loss of investor confidence, decreased market value, regulatory penalties, lack of investor trust and interest, resulting in a decline in share prices and market value, and potential legal risks (He et al., 2021; (Miralles-Quirós et al., 2019; Kamaludin et al., 2022). This can result in a loss of customers, investors, and business opportunities. Moreover, non-compliance with ESG regulations can also lead to legal and regulatory consequences. According to Jinga (2022), companies may meet legal action for not adhering to ESG standards. Additionally, non-compliance with ESG standards can negatively affect a company's financial performance disclosure and its effect on the firm's performance (Atan et al., 2016). Non-compliance with ESG practices can also result in potential harm to the environment and society, which may further affect a company's long-term sustainability and social license to operate (Rahman & Alsayegh, 2021).

4.0 THE ESG PRACTICES IN MALAYSIAN COMPANIES

Considering the mounting global demand for corporations to integrate sustainability principles into their operations, Malaysia is not exempted from this prevailing worldwide pattern of adopting initiative-taking measures to enforce obligatory ESG reporting. Currently, voluntarily, ESG reporting is rising, not just for publicly listed companies but also for small and medium-sized enterprises (SMEs). Malaysia is currently accelerating its ESG initiatives in response to the increasing emphasis from foreign and domestic investors (Ismail et al., 2022). Driven by critical needs, the Malaysian government is committed to achieve an emission reduction of 45% by 2030 under its 12th Malaysia Plan. For Malaysian budget 2024, the government has allocated RM2 billion to encourage the transition towards a low-carbon economy. From here, RM900 million has been allocated to the small and medium enterprises for the optimization of resources used, waste reduction, streamlining of supply chain, and promoting workplace safety. To ensure the long term sustainability of ESG programs and initiatives, companies that are engaging with ESG programs are given tax exemptions and deductions up until 2027.

Malaysian companies also acknowledge the significance of incorporating ESG practices into their operational frameworks to secure enduring prosperity, adaptability, and sustainable expansion. The adoption of ESG practices in Malaysian companies is crucial for their overall corporate performance, risk management, stakeholder satisfaction, and long-term sustainable profitability (Halid et al., 2022). The importance of ESG practices in Malaysian companies lies in their ability to contribute to long-term success, resilience, and sustainable growth (Kamaludin et al., 2022). The following initiatives and practices are taken by companies in Malaysia into their operations for long-term success, resilience, and sustainable growth.

1. Transition to low-carbon energy generation

Malaysia's energy generation has historically been heavily dependent on coal, as evidenced by the nation's current renewable energy (RE) capacity of merely 25%. To fulfil the energy requirements in a sustainable manner, Malaysia aims to achieve a 40% contribution from renewable energy sources by the year 2035. Significantly, both public and private sector investors have been diverting their investments from coal-fired power generation to renewable energy (RE) developments, with a specific focus on:

- i) Renewable energy sources, such as solar photovoltaic (PV) and bioenergy, since there is abundant biomass sourced from the palm oil industry and substantial annual solar irradiance.
- ii) IoT-based energy recycling, monitoring, and efficiency solutions are provided by energy efficiency and management.

As of 2022, five (5) lead investors have ventured into solar and biogas operations with a total installed capacity of more than 2,206 MWp with an estimated total investment of USD166 million.

2. Waste management and recovery

The Ministry of Housing and Local Government in Malaysia has implemented policies and roadmaps, such as the proposed implementation of the Extended Producer Responsibility (EPR) principle, to encourage trash reduction activities and aim for a 40% recycling rate by 2025. Although Malaysia's recycling rate of 33% is lower than that of other countries in the region, there is a noticeable increase in interest and investment in managing scheduled trash, e-waste, municipal waste, and sustainable packaging. As of 2022, local governments partnered with corporates such as SK Ecoplant, Berjaya Group, Malakof Corporation, and Blue Planet to promote waste reduction initiatives and proper waste management by waste generators.

3. Flood mitigation and water supply

After significant floods in late 2021 and early 2022, Malaysia suffered financial losses amounting to USD 1.4 billion and interruptions in the water supply due to industrial pollution produced by the downtime of the treatment facility. In response to the increasing severity and frequency of floods in Malaysia, the government is anticipated to initiate six flood mitigation projects, as outlined in the amended Budget 2023. In recent years, investors have shown a growing interest in sustainable and technology-enabled solutions, such as wastewater treatment and monitoring technology, and have been allocating more funds towards these investments. Four (4) main areas have been given priority to tackle the issues namely water treatment, flood mitigation, non-revenue water, and sewage treatment which involve most frequently affected areas in Selangor, Pahang, and Johor. As of 2022, the estimated total contract value for the projects is USD1 billion.

4. Food security

The food exports in Malaysia experienced an annual growth rate of 15%, resulting in a total of USD10.1 billion in 2022. Nevertheless, the value of food imports was far higher, reaching a total of USD17.2 billion. This might be linked to inadequate investments in the agro-food sector in the past and a deficiency in technical innovation. There are significant opportunities to improve the agriculture industry to handle the increasing export volumes and reduce dependence on food imports. This presents opportunities for both international and domestic investors to explore agricultural innovations, such as smart farming, biofertilizers, animal feeds and monitoring technologies. As of 2022, an estimated USD70 million worth of investment has been made in these areas.

5. Reduction of carbon emissions

Malaysia is currently experiencing a process of transformation in its mobility sector. By 2040, the electric vehicle (EV) sector is projected to make up 38% of the overall industry volumes. For this, South Korea is a prominent investor in Malaysia's ecosystem for producing EV batteries and components, hydrogen, fuel cells, and EV charging.

5.0 CONCLUSIONS

The success of ESG in Malaysia depends significantly on effective public and private partnerships. Despite economic uncertainties, ESG continues to be an integral strategy for publicly listed companies. Malaysia can gain valuable insights from the members of a global community in terms of waste management. This includes the implementation of industry

regulations and guidelines as well as the establishment of impactful community education programs. These initiatives aim to promote the adoption of cohesive waste management practices among businesses, households, and communities.

Table 1. Initiatives taken by other countries.

Countries	Initiatives
France	• Adopted a comprehensive Anti-waste Law in 2020 from a linear to a circular economic model. • The first country to ban the destruction of unsold non-food products. • The first country to introduce a mandatory repairability index on electric and electronic products.
Japan	• Introduced the Basic Act for Establishing a Sound Material-Cycle Society in 2000 to ensure the implementation of the 3R (reduce, reuse, and recycle practices). • Incentivised the collection of PET bottles • Unveiled a Green Transformation Basic Policy in December 2022: an investment roadmap costing Y150 trillion of public-private financing over the next 10 years to help various industrial sectors achieve carbon neutrality and contribute to energy transition in Asia.
Australia	• To reduce total waste generated in Australia by 10% per person by 2030. • To achieve an 80% average resource recovery rate from all waste streams following the waste hierarchy by 2030. • To phase out unnecessary plastics by 2025 and halve the amount of organic waste sent to landfills by 2030.
Sweden	• Preparation for reuse, material recycling, and the recycling of non-hazardous construction and demolition waste, except for soil and stone, must amount to at least 70% by weight annually until 2025. • The reusable proportions of packaging placed on the market in Sweden for the first time is to increase by at least 20% from 2022 to 2026 and by at least 30% from 2022 to 2030. • Food waste is to be reduced so that total food waste is reduced by at least 20% in weight per capita from 2022 to 2025.

Source: Ellen Macarthur Foundation, World Economic Forum, Japan Times, Climate Integrate, Australian Government: Department of Climate Change, Energy, the Environment and Water, European Environment Agency.

Moving forward, there is a need for greater emphasis on ESG practices in Malaysian companies. These practices play a crucial role in addressing sustainability issues and meeting the expectations of stakeholders. By integrating ESG principles into their business strategies, Malaysian companies can contribute to long-term value creation, enhance their reputation, and foster trust among investors and society. Furthermore, ESG practices have been found to positively influence a company's financial performance (Ismail et al., 2022). Companies increasingly recognize the profound impact of ESG practices on their long-term success and resilience (Ahmad et al., 2021). Moreover, the newly regulated mandatory ESG practices in Malaysia require companies to follow regulations, leading them to engage in ESG activities and show their ESG practices (Ismail et al., 2022). These regulatory bodies, along with the guidance provided by Bursa Malaysia and the Malaysian Code of Corporate

Governance, are important drivers for ESG adoption in Malaysian companies. Implementing ESG practices is not only beneficial for the company's financial performance but also helps in keeping a positive relationship with stakeholders. In conclusion, there is a growing recognition of the importance of ESG practices in Malaysian companies (Ahmad et al., 2021).

6.0 SUGGESTION FOR FUTURE RESEARCH

The existing literature on corporate governance and environmental, social, and governance (ESG) practices in Malaysia provides valuable insights into the progress and challenges faced by Malaysian companies. However, there are several areas that warrant further research to gain a more comprehensive understanding of this domain.

An area that warrants additional examination is the degree to which Malaysian companies have harmonized their ESG practices with global standards and best practices (Mohamad & Sori, 2011). Although Malaysia has made substantial progress in building a strong corporate governance framework, it is uncertain to what extent this framework is effectively implemented across all industries and firm sizes (Liew, 2007).

Furthermore, further investigation is required to examine the determinants that encourage or hinder the implementation of Environmental, Social, and Governance (ESG) practices among companies in Malaysia. This may involve an analysis of the influence of regulatory measures, institutional support, and cultural influences on shaping corporate behaviour.

Moreover, prospective research endeavours could investigate the correlation between ESG performance and financial outcomes for organizations in Malaysia. Such analysis would yield significant perspectives on the economic justification for sustainability and contribute to the decision-making procedures of company managers.

Another area of interest is the impact of ESG practices on stakeholder engagement and perceptions. Understanding how different stakeholders, such as investors, employees, and local communities, perceive and respond to a company's ESG initiatives could inform more effective stakeholder management strategies.

By addressing these research gaps, future studies can provide valuable insights to policymakers, corporate leaders, and other stakeholders, ultimately supporting the continued advancement of sustainable and responsible business practices in Malaysia

REFERENCES

- Annisa, A N., & Hartanti, D. (2021). *The Impact of environmental, social, and governance performance on firm risk in the ASEAN-5 Countries, 2011-2017*. <https://doi.org/10.2991/assehr.k.210531.078>.
- Atan, R., Razali, F. A., Said, J., & Zainun, S. (2016). Environmental, social and governance (ESG) disclosure and its effect on firm's performance: A comparative study. *International Journal of Economics and Management*, 10((2), 355–375.
- Ahmad, R., Ayob, A., Zainon, S., Probohudono, A. (2021). The Influence of environmental, social and governance reporting on firm value: Malaysian evidence. *IJARBS*, 9(11). <https://doi.org/10.6007/ijarbss/v11-i9/10877>.
- Buniamin, S. (2020). Managers' perceptions on stakeholder power in relation to ESG Reporting. *9th International Economics and Business Management Conference*, (pp.2357- 1330).<https://doi.org/10.15405/epsbs.2020.12.05.15>.

- Chen, R., Liu, Y., Jiang, Y., & Liu, S. (2023). Does ESG Performance promote vitality of capital market? Analysis from the perspective of stock liquidity. *Frontiers in Environmental Science*, 11. <https://doi.org/10.3389/fenvs.2023.1132845>.
- Esposito De Falco, E., Cucari, N., & Carbonara, S. (2018). Shareholder Engagement and co-creation: An analysis of a sample of listed companies. *Sinergie – Italian Journal of Management*, 36(106), 41–59. Doi:10.7433/S106.2018.03.
- Du, S., Bhattacharya, C. B., & Sen, S. (2011). Corporate Social responsibility and competitive advantage: Overcoming the trust barrier. *Management Science*, 57(9), 1528–1545.
- Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science*, 61(11), 2549–2568.
- Flammer, C., & Luo, J. (2017). Corporate social responsibility as an employee governance tool: Evidence from A Quasi-Experiment. *Strategic Management Journal*, 38(2), 163–183.
- Halid, S., Mahmud, R., Suffian, M., Rahman, R. (2022). Does firm's board affects ESG? Malaysian evidence. *IJARAFMS*, 1(12). <https://doi.org/10.6007/ijarafms/v12-i1/11609>.
- He R, Chen X, Chen C, Zhai J, Cui L. (2021). Environmental, social, and governance incidents and bank loan contracts. *Sustainability*, 13(4):1885. <https://doi.org/10.3390/su13041885>.
- Ismail, N., Anridho, N., Isa, M. A. M., Rahman, N. H. A., & Ismail, N. (2022). Corporate sustainability and firms' financial performance: Evidence from Malaysian and Indonesian public listed companies. *International Journal of Economics and Management*, 16(2), 213-224.
- Ismail, A M., Ismail, C R., Sulaiman, S., & Daud, D. (2020). Corporate governance and firm risk: Evidence from Malaysian shariah compliance companies. *Humanities and Social Sciences Letter*, 8(2), 169-193. <https://doi.org/10.18488/journal.73.2020.82.169.193>.
- Kamaludin, K., Ibrahim, I., Sundarasan, S., & Faizal, O. (2022). *ESG In the Boardroom: Evidence from the Malaysian Market*. <https://doi.org/10.1186/s40991-022-00072-2>.
- Kotler, P., & Lee, N. (2004). *Corporate social responsibility: Doing the most good for your company and your cause*. John Wiley & Sons.
- Liew, P. (2007). Corporate governance reforms in Malaysia: The key leading players' perspectives. *Wiley-Blackwell*, 15(5), 724-740. <https://doi.org/10.1111/j.1467-8683.2007.00618.x>.
- Michelon, G., Pilonato, S., Ricceri, F., & Roberts, R. W. (2016). Behind Camouflaging: Traditional and innovative theoretical perspectives in social and environmental accounting research. *Sustainability Accounting, Management and Policy Journal*, 7(1), 2–25. <https://doi.org/10.1108/SAMPJ-12-2015-0121>.
- Miralles-Quirós, M., Miralles-Quirós, J L., & Redondo-Hernández, J. (2019). *The Impact of environmental, social, and governance performance on stock prices: Evidence from The banking industry*. <https://doi.org/10.1002/csr.1759>.
- Mohamad, S., & Sori, Z M. (2011). *Corporate governance from a global perspective*. RELX Group (Netherlands). <https://doi.org/10.2139/ssrn.1817082>.
- Ng, M., Yong, D., & Poon, W C. (2013). The corporate governance landscape of Malaysia: Then and now. *International Journal of Critical Accounting*, 5(2), 187-187. <https://doi.org/10.1504/ijca.2013.055183>.
- Nyuur, R. B., Ofori, D. F., & Amponsah, M. M. (2019). Corporate social responsibility and competitive advantage: A developing country perspective. *Thunderbird International Business Review*, 61(4), 551–564.
- Pham, T.N., Tran, P.P., Le, M.H., Vo ,H.N., Pham, C.D., & Nguyen, H.D. (2022). The effects of ESG Combined score on business performance of enterprises in the transportation industry. *Sustainability*, 14(14). <https://doi.org/10.3390/su14148354>.
- Popov, K., & Makeeva, E. (2022). Relationship between board characteristics, ESG, and corporate performance: A systematic review, 4(16), 5-20. <https://doi.org/10.17323/j.jcfr.2073-0438.16.4.2022.5-20>.
- Rabaya A.J., & Saleh N.M. (2021). The moderating effect of ir framework adoption on the relationship between Environmental, Social, And Governance (ESG) disclosure and a

- firm's competitive advantage. *Environment, Development and Sustainability*.
<https://doi.org/10.1007/s10668-021-01519-5>.
- Zhao, Z., Meng, F., He, Y., & Gu, Z. (2019). The Influence of corporate social responsibility on competitive advantage with multiple mediations from social capital and dynamic capabilities. *Sustainability*, 11(1), 1–16.

THE INFLUENCE OF WORKPLACE ENVIRONMENT AND CONFLICTS TOWARD BANK EMPLOYEES' PERFORMANCE IN MALAYSIA

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ABSTRACT

This paper attempts to determine the potential influence of physical workplace, psychosocial workplace, work-family conflicts, and work-extracurricular conflicts on the performance of bank employees. The research employed a quantitative method with the use of questionnaire as an instrument in data collection. The convenience sampling technique was adapted and the present study gathered 190 usable responses across 19 different banks located in Kuala Lumpur, Malaysia. Results reveal that the psychosocial workplace positively affects staff performance. This implies that factors such as interpersonal connections, job satisfaction, organizational culture, and work-related stress levels can potentially wield substantial determinants of how effectively bank employees perform in their responsibilities. The study shed light on the employees' priorities that play a greater influence in enhancing employee performance than addressing physical challenges or the conflicts arising from the interplay between work and personal life. By highlighting the significance of the elements, the study calls for organizations to prioritize creating a positive and supportive psychosocial workplace for their employees. Future research could build upon these findings by considering additional variables, and exploring the applicability of the results across various industries and cultural contexts. This study provides insight into improving employees' performance in bank sectors. Supportive behaviours of supervisors have an important impact on employees' performance and this research confirms the importance of creating a supportive work environment within the bank industry.

Keywords: Banking Industry, Psychosocial Workplace, Physical Workplace, Work-Extracurricular Conflict, Work-Family Conflict

1.0 INTRODUCTION

In the current workplace environment, companies prioritize the well-being of their staff welfare. The workplace is not a space for completing tasks, however, it serves as a platform for people

to connect, share knowledge, build relationships, engage in mentoring sessions, and collaborate (Harris, 2016; Hua, 2010). Employee performance, motivation, and productivity are crucial for enhancing organizational reputation, which contributes to the company performance. Employers play a pivotal role in motivating staff, efficiently managing resources to yield optimal outcomes that benefit not just companies but also industries and nations. The workplace environment and its surrounding encompassing physical and psychosocial aspects, work-family conflicts, and work-extracurricular conflicts, directly impacts job performance. Donohue et al. (2020) confirms that employee behavior in the workplace is significantly shaped by how well they are effectively carrying their work responsibilities.

Employee performance is intentionally related to various factors, including the psychosocial workplace; which emphasizes interpersonal, communication, and social interactions affecting employee behaviors and development. Changes in these factors become central to discussions on employee performance, reflecting on their health, mood and job motivation. Additionally, work conflicts such as work-family conflict and work-extracurricular conflict are significant considerations for contributing to employee motivation. According to Rosa (2017), work-family conflict refers to stress arising from job responsibilities conflicting with family demands. Meanwhile, work-extracurricular conflict occurs when work demands disrupt the time and resources available for extracurricular activities like volunteering, team building, or community involvement. Conflicts, whether at home or among employees, can have negative implications. However, employees' ability to handle the situation from being worse is crucial.

In a recent study, we investigated the impact of four key factors - physical workplace, psychosocial workplace, work-family conflicts, and work-extracurricular conflicts on employees' performance within an organizational context. Unlike previous research that primarily focused on the workplace environment (Nzewi et al., 2018; Samson et al., 2015), which neglecting considerations of work-family conflicts, our study aimed to comprehensively examine the interplay of these factors. The choice of these specific factors stemmed from their relevance industry-banking. The study was conducted among bank employees in the capital city of Malaysia, Kuala Lumpur. This focus is particularly significant because it sheds light on the various determinants affecting employee performance within a sector crucial to Malaysia's economic landscape. The financial sector has consistently played a pivotal role in driving economic expansion, boasting an impressive average annual growth rate of 7.3% since 2001. In 2010, it contributed 11.7% to the real GDP and constituted 12% of the total GDP. The study acknowledges the existence of numerous unmeasurable variables causing stress among employees, but its specificity to Kuala Lumpur banking employees adds value by confirming the financial sector's significant impact on Malaysia's economic growth. With its robust growth and substantial contribution to the GDP, the financial sector in Malaysia serves as a vital link in fostering commerce and investment, both locally and globally (BNM, 2020).

The current data indicates the substantial growth and heightened demand for the financial sector, establishing it as an indispensable service industry. This indicates a remarkable expansion, emphasizing the sector's increased significance in the economic landscape. Given the present expansion of the financial industry, there is a need to prioritize the well-being of its workforce. This is to ensure that the industry's growth aligns with the fair treatment and support of its employees. In the Malaysian banking landscape, there are currently 26 commercial banks, 16 Islamic banks, and 11 investment banks (BNM, 2021). This diverse composition highlights the complexity and significance of the sector which plays a pivotal role in the community, contributing significantly to the overall economic growth. Past study showed that 22 per cent of workers lose focus on work, 22 per cent of workers feel tired and fatigued, 29 per cent experience fatigue, and 27 per cent of workers experience aches and pains due to too much stress at work (Sa'adin et al., 2018). This showed that the employees are struggling with their problems and may affect their job performance.

Considering this matter, it become imperative to further explore into this issue from the perspective of bank staff. Therefore, the aim of this research is to examine whether physical workplace, psychosocial workplace, work-family conflicts, and work-extracurricular conflicts have impact on employees' productivity, particularly within the banking sector in Malaysia. This study contributes to fill the gap by concentrating on the intricate interplay between various factors and their impact on the performance of bank employees. The study strives to provide a more comprehensive understanding within the realm of organizational performance. The significance of this study holds the potential to yield tangible benefits within the practical context of banking institutions. With a deeper comprehension of the variables used in the study, organizations can be better equipped to devise strategies that foster improved performance outcomes. The remainder of this paper is divided into a few different sections, beginning with the literature review right after this introduction. The methodology section will then be discussed and followed by the findings and discussion. The last section concludes the overall paper.

2.0 UNDERPINNING THEORY AND HYPOTHESES DEVELOPMENT

Employee performance is crucial in a long-term strategy for an organization as it benefits all parties including the company, employees, the industry as well as the country and it's a yardstick to measure a standard of living. The Affective Event Theory was invented that refers to employee reactions on how employees deal with events occurring in their work environment that affect their job performance, organizational commitment and job satisfaction (Cropanzano et al., 2017). It also involves internal influences on employees such as emotions both positive and negative that can affect their job satisfaction. Additionally, all types of jobs can also affect employee emotions including actual job duties, actions of co-workers or managers, stress from work and organizational management.

Meanwhile, Herzberg's Two Factor Theory inspired by Fredrick Herzberg in 1959 was also added to this study. Based on the theory, there are two sets of factors that influence work behaviour and employee performance levels known as motivational factors and hygiene factors. Motivational factors are intrinsic factors that will increase employee job satisfaction such as achievement, recognition, the work itself, responsibility, growth and advancement. Meanwhile, hygiene factors are extrinsic factors related to the context of the job to avoid dissatisfied employees such as interpersonal relationships with peers, supervision, working conditions, salary and personal life (Herzberg *et al.*, 1959). This theory was applied in past studies to explain the relationship between the workplace environment and employee performance (Ann & Blum, 2020).

According to Kuijk (2018), this theory assumes that employees who are satisfied with job performance are referred to as a motivational factor related to opportunities and responsibilities. Meanwhile, temporary appreciation for those who may be dissatisfied with their job was referred to as hygiene factors related to salaries and working conditions that can affect employee performance. Moreover, this theory has explained that there are many intrinsic elements to a work that leads to satisfaction. In the context of the present study, employees' performance was measured from hygiene factors (physical workplace, psychosocial workplace, work-family conflicts and work-extracurricular activities). The hygiene factors were a concern in the present study due to the absence of motivation at work did not lead to dissatisfaction and not reducing their productivity as compared to deficiency of hygiene factors can lead to lack of productivity (Herzberg et al., 1959). Thus, organizations especially banks should motivate employees by understanding the hygiene factors of employees as well as maintaining a democratic approach in management through certain methods that should be applied by the organization.

2.1 Determinants of Job Performance

Prior research on employee performance has provided inconclusive findings as various factors are said to affect their productivity. Prior research has found a positive relationship between physical workplace and job performance (Eberendu et al., 2018; Hansika and Amarathunga, 2016). Based on the study conducted by Hansika and Amarathunga (2016) showed that good office design is important for employee satisfaction, which will affect their level of productivity. Physical work environment and surrounding conditions such as office layout, air quality, temperature, noise, heat, lighting, and colour showed an effect on employees' comfortable at work and affect employee psychological performance (Nidaul Izzah et al., 2019; Puspitasari & Adam, 2019). A healthy physical environment in the workplace should be implemented and practised by banks (Agbozo et al., 2017; Hafeez et al., 2019). Based on previous justification, hence the first hypothesis was postulated:

H1: Physical workplace positively affects the performance of bank employees.

In terms of a psychosocial workplace environment, Williams et al. (2019) relates employee behaviour to psychological phenomena that can affect emotions, mood, psychological symptoms, affective, or cognitive disorders such as attitude, perception, decision making, or behaviours such as effectiveness, absence, motivation. Thus, it becomes a crucial aspect, which every manager needs to consider as the problem with psychosocial workplace can harm employee quality of work. Though it has been identified through aspects related to management quality in firms, interactions between managers and colleagues, work consolidation and family life (López-García et al., 2019; Sundstrup et al., 2018), however, emphasis on this aspect is a must as it can reduce hazard in the workplace and provide a good working environment during working hours to keep them fit and healthy. However, the results from Getachew (2021) study showed that the physical and psychosocial workplace environmental factors did not have a significant effect on employee performance. Based on the previous justification, the following hypothesis is formulated:

H2: Psychosocial workplace positively affects the performance of bank employees.

Work-family conflict can also occur in workplace situations when job demands such as working late, overtime or outstation contrast to family commitments such as cooking for the family or caring for a sick child are brought into family life that begins to affect work performance. Work-family conflict means stress from work and incompatible family demands whenever family responsibilities are more difficult than participating in work responsibilities (Rodrigo, 2017). Additionally, past studies also found that the effect of work-family conflict on worker performance was mediated by work stress in the case of Ari firm-wooden wood craft exporter (Arsania & Supartha, 2020). The findings of the study indicate that employee work-family conflict has a positive and significant effect on employee work stress. Therefore, following past research arguments, the present study attempts to examine the influence of work-family conflicts on employees' performance in Malaysian banking industry. Thus, the following hypothesis was developed:

H3: Work-family conflicts positively affect the performance of bank employees.

Extracurricular activities such as volunteer work, community projects, fundraising, community, and exhibition work are valuable in developing employee talents, soft skills and knowledge such as communication skills, leadership, teamwork and self-esteem (Kumar et al., 2021). It is necessary to understand how extracurricular can increase work productivity, therefore, managers also need to be wary of employees who have activities outside the workplace that benefit and balance their lives that with more outdoor activities are said to reduce staff stress levels, be more innovative and creative and stay positive. This is to ensure employees remain productive, energetic and engaged in jobs that are essential to the success of the organization,

making it a clear priority. Besides, a proper organizational policy is crucial for every employee to support the separation between work and extracurricular activities (Russo & Morandin, 2019). Considering this, the following hypothesis was derived:

H4: Work-extracurricular conflicts positively affect the performance of bank employees.

2.2 Conceptual Framework

Based on previous justification, the present study proposes a conceptual framework as presented in Figure 1.

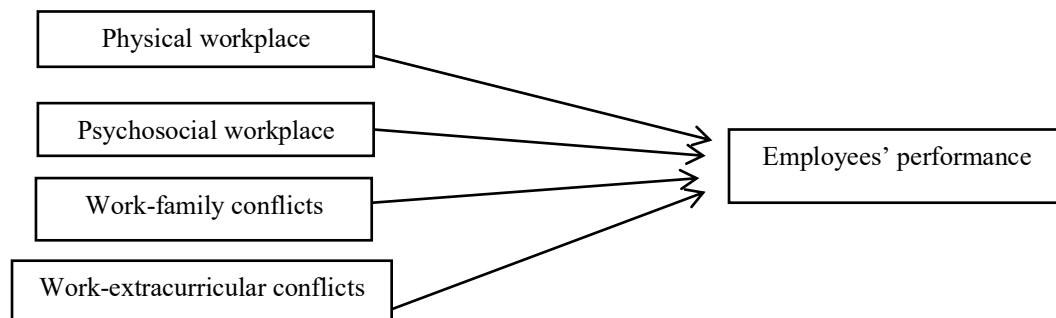


Fig. 1 Conceptual Framework

3.0 METHODOLOGY

The present study opts for a quantitative research method where the data was collected from 19 banks located in Kuala Lumpur, Malaysia. Kuala Lumpur was chosen due to it is the capital of Malaysia and the largest urban area where all nation's central banks are located here. With the usage of the convenience sampling technique under non-probability sampling, 190 respondents represented the employees of those banks were selected for the data analysis. Questionnaires were distributed to bank staff through the Human Resources Department, department heads and bank staff itself. The questionnaire was designed into three parts, Part A related to demographic profile of the respondents, Part B was the questions related to the independent variables (physical workplace, psychosocial workplace, work-family conflict and work-extracurricular conflict) and Part C was related to the dependent variable (employees' performance). Five-point Likert scale was used where 1 indicated "Strongly disagree" and 5 indicated "Strongly agree" for Part B and Part C questions.

Since Smart Partial Least Square (SmartPLS) software was used in data analysis, thus the calculation of sample size should be determined by the power of analysis, with the minimal number of samples determined by the model's complexity (Hair et al. 2017). The present study applied G*Power software to calculate the minimum sample size as advised by Faul *et al.* (2007). The calculation of the minimum sample size for four predictors based on achieving statistical power of 80 per cent with a 5 per cent probability of error is 85 respondents. Therefore, 190 usable responses were deemed reliable since it was over the minimum sample size requirement.

3.1 Data Analysis and Findings

The analysis of data begins with extracting the demographic profile of the respondents using Statistical Package for the Social Sciences (SPSS) software version 26. Table 1 presents 107 (56.3%) of the respondents who were female and 83 (43.7%) were male.

Besides, most of them were between the ages of 21 to 25 years old that equivalent to 79 (41.6%) respondents. In terms of marital status, 98 respondents were married which equivalent to 51.6 per cent. With regards to religion and race, the majority of the respondents were Muslims and Malays with 182 (95.8%).

Table 1. Demographic Profile

Demographic			Frequency	Per cent
1	Gender	Female	107	56.3
		Male	83	43.7
2	Age	21-25	79	41.6
		26-30	36	18.9
		31-35	19	10.0
		36-40	15	7.9
		41 and above	41	21.6
3	Marital Status	Single	98	51.6
		Married	89	46.8
		Others	3	1.6
4	Religion	Muslim	182	95.8
		Buddhist	5	2.6
5	Race	Malay	182	95.8
		Chinese	5	2.6
		Indian	3	1.6

Before analysing the data, the present study conducted procedural and statistical strategies to solve the issue of common method variance (CMV) (Podsakoff et al., 2003). This issue may arise due to the data being collected from a single source, which is from bank employees only. Therefore, the present study conducted procedural remedies where a statement of instructions was stated on the front cover of the questionnaire along with assurances that their personal information and responses would be kept confidential and anonymous. Then, the statement also explains the voluntary responses and no right and wrong answers in answering the questionnaire. With regards to the statistical approach, the present study applied the Harman single factor test where the first factor findings explained must be less than 50 per cent of the overall variance (Podsakoff et al., 2003) to ensure the data is free from bias. The present study derived 32.75 per cent of the unrotated factor analysis for the first factor. Thus, CMV was not an issue for this study.

Since the nature of this study is to predict the relationship between variables, thus Smart PLS software is recommended to test the hypotheses derived in this study (Hair et al., 2019). Furthermore, Smart PLS also provides a comprehensive method for examining all relationships between constructs at the same time by using a measurement model and structural model. The assessments of the measurement model break into internal consistency (reliability), convergent validity (loading and average variance extracted) and discriminant validity for the indicators (Hair et al., 2017). Meanwhile, the structural model indicates the results of the research hypotheses.

Table 2 presents the results of the measurement model. One item needs to be deleted under psychosocial workplace construct (PSY1) due to lower loading <0.708 (Hair et al., 2019). Next, convergent validity was measured based on the value of AVE in the measurement model. The results showed that all values were greater than 0.5, which indicate the construct, shared substantial variance with its respective items (Henseler et al., 2016). With regards to CR, all constructs meet the threshold value of CR >0.7 and thus indicate the reliability of the measurement model at the item. The analysis proceeds with assessing the

discriminant validity based on the HTMT criterion with the threshold value of ≤ 0.85 for different constructs (Kline, 2011). Overall, Table 3 presents HTMT values of all constructs that fulfil the criterion of HTMT.85 and thus confirm the discriminant validity in this model.

Table 2. Measurement Model

Group	Item	Loading	CR	AVE
Physical workplace	PW1	0.811	0.9	0.643
	PW2	0.729		
	PW3	0.824		
	PW4	0.848		
	PW5	0.793		
Psychosocial workplace	PSY2	0.853	0.926	0.716
	PSY3	0.836		
	PSY4	0.832		
	PSY5	0.885		
	PSY6	0.823		
Work-family conflicts	WF1	0.811	0.923	0.751
	WF2	0.877		
	WF3	0.894		
	WF4	0.882		
Work-extracurricular conflicts	WEX1	0.863	0.951	0.828
	WEX2	0.920		
	WEX3	0.939		
	WEX4	0.917		
Employees' performance	EP1	0.811	0.901	0.694
	EP2	0.815		
	EP3	0.845		
	EP4	0.861		

Table 3. Discriminant Validity (Hetero-trait mono-trait (HTMT))

	EP4	PSY	PW	WEX	WF
EP4					
PSY	0.735				
PW	0.599	0.779			
WEX	0.291	0.244	0.173		
WF	0.257	0.180	0.115	0.804	

Next, the assessment of the structural model was decided based on collinearity issues through variance inflation factor (VIF), the explanatory power of the model (R^2), path coefficient (β) and their corresponding t-values, effect size (f^2) and predictive relevance of the model (Q^2) (Hair *et al.*, 2018). Overall, VIF values of all constructs were below 5 denoting the model is free from multicollinearity issues. Then, R^2 values of 0.26, 0.13 and 0.02 indicate substantial, moderate and weak explanatory power of the model (Cohen, 1992). Thus, the results revealed R^2 value of 0.45 representing 45% of the variance in employees' performance (EP) is explained by all of the predictors (PW, PSY, WF and WEX) and thus presented substantial explanatory power of the model. With regards to the effect size (f^2), the values of 0.02, 0.15 and 0.35 present small, medium and large (Cohen, 1992). Table 4 presented the effect of each independent variable on employees' performance. Overall, physical workplace ($f^2 = 0.149$), work-family conflicts ($f^2 = 0.103$) and work-extracurricular conflicts ($f^2 = 0.046$) exert

weak effect on employees' performance. In contrast, psychosocial workplace exerts a strong effect on employees' performance.

The analysis proceeds with assessing the proposed hypothesized relationships. In analysing the hypotheses, the bootstrapping technique with 5000 resamples was used to indicate path coefficient and t-values for all constructs. According to Table 4, it showed that only psychosocial workplace ($\beta = 0.520$, $t = 1.418$) has a positive influence on employees' performance. Hence, H2 was supported. Meanwhile, physical workplace ($\beta = 0.149$, $t = 4.891$), work family conflicts ($\beta = 0.077$, $t = 1.332$) and work extracurricular conflicts ($\beta = 0.046$, $t = 0.626$) did not exert significant effect on employees' performance. Therefore, H1, H3 and H4 were not supported.

Table 4. Structural Model

Hypotheses	Relationship	β	SE	t-value	LL	UL	Decision	f^2
H1	PW > EP4	0.149	0.105	1.418	-0.032	0.314	Not supported	0.149
H2	PSY > EP4	0.520	0.106	4.891	0.337	0.688	Supported	0.520
H3	WF > EP4	0.103	0.077	1.332	-0.031	0.224	Not supported	0.103
H4	WEX > EP4	0.046	0.074	0.626	-0.073	0.171	Not supported	0.046

4.0 DISCUSSION

This study assessed the influence of the determinants of the workplace factors such as psychosocial and physical factors as well as work-family and work-extracurricular conflicts on employees' performance in a bank sector. As expected, psychosocial workplace factors (H2) were related to how the work needs to be carried out (e.g., workload, work methods) and the work context such as relationships and interactions with supervisors (Odebode, 2018). From the results, it was found that psychosocial workplace factors (e.g., clear roles and responsibilities, management support, job demands) have a significant relationship with employee performance. This finding is consistent with Diamantidis and Chatzoglou (2019) that indicated management support is directly (indirectly) related to job performance. Therefore, the mechanism underlying the relationship between psychosocial factors and job performance was supported by the Affective Event Theory. This theory explains work environment characteristics (e.g., job demands) indirectly impact job satisfaction and job performance through the occurrence of certain work events, which provoke employees' emotional reactions. Thus, it can be concluded psychosocial factors such as management support create employees' positive reactions, which lead to higher job performance (Cropanzano et al., 2017).

Surprisingly, the results showed that the physical features of the work environment (e.g., space, temperature, and lighting) did not have a significant impact on employee performance (H1), which is inconsistent with previous studies (Ajegbomogun et al., 2022; Diamantidis and Chatzoglou, 2019) and thus, H3 and H4 were not supported. In other words, work-family and work-extracurricular conflicts did not directly influence employee performance in the bank sector. Although this result is consistent with previous studies, it is not aligned with some studies that proved work-family and work-extracurricular conflicts did not have a significant effect on employee performance (Bhuiyan et al., 2005; Getachew, 2021). One possible explanation could be that employees had other priorities such as gaining income compared to physical environment and work-life or work-extracurricular conflicts. Therefore, they did not care much about other factors such as conflicts in their families when they are doing their work. It is consistent with the study of Asbari et al. (2020) that found female employees were pressured by the need for income; therefore work-family conflicts did not influence their

performance. This insight suggests the importance for organizations to broaden their focus on addressing physical issues or minimizing work-life conflicts. Instead, the organizations should strive to comprehend and harmonize with their employees' priorities to enhance overall performance and well-being. Furthermore, this study examined the direct impact of workplace features, work-family, and work-extracurricular conflicts on employee performance. Therefore, physical work environment, work-family conflicts, and work-extracurricular conflicts probably have an indirect impact on employee performance through mediators such as satisfaction (Idris et al., 2020; Siahaan, 2018). Another explanation could be related to self-assessment performance. The method of measuring performance could play an important role in signifying the effect of work-life and work-extracurricular conflicts as well as physical workplace features on employee performance.

5.0 IMPLICATIONS

From a practical point of view, this study provides insight into improving employees' performance in bank sectors. This research contributes to the further understanding of the relationship between psychosocial factors, particularly management support, and employees' performance in the context of the bank industry. Since it has been found that supportive behaviours of supervisors have an important impact on employees' performance, this research confirms the importance of creating a supportive work environment within the bank industry. Therefore, managers should to the social work environment in bank sectors. Therefore, managers should consider that employees need a positive and cooperative workplace climate (Lehner et al., 2013). This study suggests that employees' priorities play an important role in improving employee performance compared to physical factors or work-life conflicts. Accordingly, some factors like work-life conflict did not have a significant relationship with job performance. From a theoretical point of view, the present study extends the AET in such a way that work environment and features can directly affect employees' performance like workplace psychosocial factors.

6.0 LIMITATIONS AND FUTURE RESEARCH DIRECTION

Our results suffered from several limitations. Firstly, the cross-sectional design prevented causality between physical and psychosocial as well as work-life and work-extracurricular conflicts and employee performance. While we verified potential causal pathways, future research should consider a longitudinal approach to measure performance due to the low accuracy of self-assessment performance. Secondly, the data was collected from one bank sector, which may limit the generalizability of the findings. Future research is recommended to address the limitation by collecting data from several bank sectors. Finally, our research consisted of a geographically homogenous group (i.e., Malaysians). As such, future researchers should conduct this study across heterogeneous settings to provide further evidence of generalizability.

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REFERENCES

Agbozo, G.K., Owusu, I.S., Hoedoafia, M. A., & Atakorah, Y.B. (2017). The effect of work environment on job satisfaction: Evidence from the banking sector in Ghana. *Journal of Human Resource Management*, 5(1), 12-18.

- Ajebomogun, V.O., Ajebomogun, F.O., & Nze, E.D. (2022). Motivational strategies and physical work environment as correlates of job performance of library workers in Colleges of Education, South-West Nigeria. *African Journal of Library, Archives and Information Science*, 32(1), 37-52.
- Ann, S. & Blum, S. C. (2020). Motivating senior employees in the hospitality industry. *International Journal of Contemporary Hospitality Management*, 32(1), 324-346.
- Arsania, I.W.G. & Supartha, I.W.G. (2020). The effect of work family conflict on employee performance with mediation of work stress: Case study on Ari firm-wooden crafts exporter. *Technium Social Sciences Journal*, 13(1), 199-209.
- Asbari, M., Bernarto, I., Pramono, R., Purwanto, A., Hidayat, D., Sopa, A., Alamsyah, V.U., Senjaya, P. Fayzhall, M. & Mustofa. (2020). The effect of work-family conflict on job satisfaction and performance: A study of Indonesian female employees. *International Journal of Advanced Science and Technology*, 29(3), 6724-6748.
- Bhuiyan, S.N., Menguc, B., & Borsboom, R. (2005). Stressors and job outcomes in sales: A triphasic model versus a linear-quadratic-interactive model. *Journal of business research*, 58(2), 141-150.
- BNM.(2020). *Financial sector development*. <https://www.bnm.gov.my/financial-sector-development1>
- BNM.(2021). *List of licensed financial institutions*. <https://www.bnm.gov.my/web/guest/other-financial-institutions>.
- Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin*, 112(1), 155-159.
- Cropanzano, R., Dasborough, M. T., & Weiss, H. M. (2017). Affective events and the development of leader-member exchange. *Academy of Management Review*, 42(2), 233-258.
- Diamantidis, A. D., & Chatzoglou, P. (2019). Factors affecting employee performance: An empirical approach. *International Journal of Productivity and Performance Management*, 68(1), 171-193. <https://doi.org/10.1108/IJPPM-01-2018-0012>
- Donohue, K., Özer, Ö., & Zheng, Y. (2020). Behavioral operations: Past, present, and future. *Manufacturing & Service Operations Management*, 22(1), 191-202.
- Eberendu, A. C., Akpan, E. O. P., Ubani, E. C., & Ahaiwe, J. (2018). A methodology for the categorisation of software projects in Nigeria Based on Performance. *Asian Journal of Research in Computer Science*, 1(4), 1-9.
- Faul, F., Erdfelder, E., Lang, A.G. & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- Fornell, C. & Cha, J. (1994). Partial least squares in Bagozzi (R.P ed.) *Advanced Methods of Marketing Research*. Blackwell.
- Getachew, E. (2021). *The effect of workplace environment on employee performance: The case of Golden Tulipaddis Ababa hotel*. [Doctoral dissertation, St. Mary's university].
- Hafeez, I., Yingjun, Z., Hafeez, S., Mansoor, R., & Rehman, K.U. (2019). Impact of workplace environment on employee performance: Mediating role of employee health, *Business, Management and Education*, 17(2), 173-193.
- Hair, J. F., Thomas, G., Hult, M., Ringle, C. M. & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling* (2nd ed.). Sage.
- Hair, J. F., Risher, J. J., Sarstedt, M. & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM" *European Business Review*, 31(1), 2-24.
- Hansika, W.A.M. & Amarathunga, P.A.B.H. (2016). Impact of office design on employees' productivity: A case study of banking organizations of North Western Province in Sri Lanka. *13th international conference on business management (ICBM), University of Sri Jayewardenepura, Sri Lanka*(pp.622-636).
- Henseler, J., Hubona, G. & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. *Industrial Management & Data Systems*, 116(1), 2-20.

- Herzberg, F., Mausner, B., & Snyderman, B. (1959). *The motivation to work* (2nd ed.). John Wiley & Sons.
- Idris, I., Adi, K R., Soetjipto, B.E., & Supriyanto, A.S. (2020). The mediating role of job satisfaction on compensation, work environment, and employee performance: Evidence from Indonesia. *Entrepreneurship and Sustainability Issues*, 8(2), 735-750.
- Kline, R.B. (2011). *Principles and practice of structural equation modeling*. Guilford Press. <https://www.toolshero.com/psychology/two-factor-theory-herzberg/>.
- Kumar, Y.S., Ramanarayanan, V., Rajesh, R., Francis, S.T.V., Ganesan, S. & Kumar, S.V. (2021). Association of extracurricular activities and burnout among students in a dental teaching institution in India. *Journal of Indian Association Public Health Dentistry*, 19, 294-298.
- Nzewi, H. N., Augustine, A., Mohammed, I., & Godson, O. (2018). Physical work environment and employee performance in selected brewing firms in Anambra State, Nigeria. *Journal of Good Governance and Sustainable Development in Africa*, 4(2), 131-145.
- Lehner, B. S., Jung, J., Stieler-Lorenz, B., Nitzsche, A., Driller, E., Wasem, J. & Pfaff, H. (2013). Psychosocial factors in the information and communication technology sector. *Management Decision*, 51(9), 1878-1892.
- López-García, J.R., García-Herrero, S., Gutiérrez, J.M., & Mariscal, M.A. (2019). Psychosocial and ergonomic conditions at work: Influence on the probability of a workplace accident. *BioMed Research International*, 1-13. <https://doi.org/10.1155/2019/2519020>
- Macdonald, J.L. & Levy, S.R. (2016). Ageism in the workplace: The role of psychosocial factors in predicting job satisfaction, commitment, and engagement, *Journal of Social Issues*, 72(1), 169-190.
- Nidaul Izzah, S.E., Novita Rini, S.A.B. & Poernomo, B. (2019). The influence of non-physical work environment and job characteristics on employee performance at PT. Daliatex Kusuma in Bandung. *International Journal of Social Sciences Perspectives*, 4(1), 22-37.
- Odebode, A.A. (2018). Influence of psychosocial factors on job performance of female teachers in Kwara State, Nigeria. *International Journal of Instruction*, 11(3), 233-248.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903.
- Puspitasari, F.D.A., & Adam, S. (2019). The influence of job stress and motivation to work performance. *Opción*, 21, 102-112.
- Rodrigo, R. (2017). The trouble with 'work-life balance' in neoliberal academia: A systematic and critical review. *Journal of Gender Studies*, 55-73. <https://10.1080/09589236.2021.1933926>
- Rosa, R. (2017). The trouble with 'work-life balance' in neoliberal academia: A systematic and critical review", *Journal of Gender Studies*, 31(1), 55-73.
- Russo, M., and Morandin, G. (2019). Better work-life balance starts with managers. *Harvard Business Review*. <https://hbr.org/2019/08/better-work-life-balance-starts-with-managers>.
- Sa'adin, I., Tambi, A. M. A., Karim, S. F. S. A., and Salim, N. Z. M. (2018). The association between work-related stressors and work performance: A case study among executives of group human capital of Maybank Berhad. *International Journal of Academic Research in Business and Social Sciences*, 8, 497-505.
- Samson, G.N., Waiganjo, M. & Koima, J. (2015). Effect of workplace environment on the performance of commercial banks employees in Nakuru town. *International Journal of Managerial Studies and Research (IJMSR)*, 3(12), 76-89.
- Siahaan, E. (2018). Evaluating the effect of work-family conflict and emotional intelligence in workplace: Review to increase employees' performance. *IOP Conference Series: Earth and Environmental Science*, IOP Publishing, 126 (110), 1-9.
- Sundstrup, E., Hansen, Å.M., Mortensen, E.L., Poulsen, O.M., Clausen, T., Rugulies, R., & Andersen, L. L. (2018). Retrospectively assessed physical work environment during

working life and risk of sickness absence and labour market exit among older workers. *Occupational and environmental medicine*, 75(2), 114-123.

Williams, D.M., Rhodes, R.E., & Conner, M.T. (2019). Conceptualizing and intervening on affective determinants of health behaviour. *Psychology & Health*, 34(11), 1267-1281.

HOW OFFICE DESIGN AFFECTING EMPLOYEES' PRODUCTIVITY? A STUDY ON NATURAL GAS INDUSTRY

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ABSTRACT

In the current modern workplace and office design, organizations recognize the importance of leveraging the work environment, both in terms of aesthetics and functionality, to enhance employee productivity. The arrangement of the office space and the overall office design, which includes workflow play a crucial role in employee satisfaction and makes a positive impact on the well-being of the employees. This study examines the impact of office design on employee productivity in a processed gas industry, specifically considering factors such as furniture availability, environmental noise, ambient temperature, ambient lighting, and space arrangement. Using a quantitative method of purposive sampling, 168 respondents has completed self-administered questionnaires. The collected data was analysed using SmartPLS. The findings indicate that office furniture and ambient temperature positively affects employees' productivity. This suggests that organizations can enhance productivity by paying attention to these specific aspects of office design. This study was limited to the natural gas industry and did not capture the vast array of employees and their perceptions in other sectors. Future studies may want to empirically substantiate our quantitative investigation with a set of qualitative primary data to adequately address the limited external validity of our work also consider other elements of office design.

Keywords: Employees' productivity, Ergonomics, Natural Gas company, Office design, Work environment

1.0 INTRODUCTION

In the modern era, the link between health, well-being, performance and productivity have become a great concern among people who are not only aware on the quality of work but also on how it affects their quality of life. An appropriate physical work environment has a significant influence on the outcome produced by employees, their attitudes that indirectly affecting the organization performance as a whole (Schilleci, 2023). Therefore, it is crucial for employees to have a well-organized and healthy working environment to optimize their efficiency and

productivity. Possible elements to enhance employee productivity are related to office design. The design of the office environment and quality of life are interconnected and can have a long-term impact on employees' health and productivity. The focus towards sustainable design has mutual benefits for both parties, whereas investing on it will reap financial growth in the long-run and create a pleasant workspace. The quality of the office design and physical environment in the office is required to support employees' performance in the organization which can reflect in their health and productivity (Rasheed & Byrd, 2017; Zitars et al., 2021). Though studies associate with physical work environment and workers' productivity have been discovered in past studies (Kaushik et al., 2023; Nurick & Thatcher, 2023), however, the studies have not been extensively explored in the processed gas industry in Malaysia. This highlights a potential area for investigation into how office design affects productivity within this specific industry.

Furthermore, conducting research in the processed gas industry in terms of office design and its impact on productivity is very limited. Most of the studies have focused on other industries such as banking (Hansika & Amarathunga, 2016), construction and design company (Labib et al., 2023) and green certified buildings (Nurick & Thatcher, 2023). Hence, this study is expected to filling the gap in the literature, researchers and industry practitioners to provide a better understanding of how to create work environments that enhance employee performance in this particular sector. In 2021, Malaysia was the second-largest producer of oil and natural gas in Southeast Asia and the fifth-largest exporter of liquefied natural gas (LNG) in the world as it is located on a strategic route for marine energy trade (EIA, 2021). Nearly all of Malaysia's oil comes from offshore fields. Hence, Malaysia's natural gas industry plays an important role in driving the sustainable future for the country.

The major question posed to be answered in this study is: Does workplace environment such as furniture availability, noise from the environment, ambient temperature, ambient lighting, and space arrangement affect employee productivity? The main aim of this research is to examine whether the above selected elements which constitute a good office design may impact employee productivity. Every employee will have different views and needs in terms of their comfort in their room or office space. Some may feel uncomfortable if they have too much empty space around them while some may feel comfortable if they have more light around their workspace. This empirical study can contribute towards getting an answer for the above question which is very critical at the current era where workplace is undergoing a dynamic shift. Furthermore, this study also enriches the existing literatures by focussing on key sectors in Malaysia that contribute to national income that help provide feedback to companies to grow and challenge their performance in the market. In addition, it may also be useful in assisting the processed gas company in Malaysia with suggestions in designing the office workspace to ensure for their employee productivity and performance.

2.0 LITERATURE REVIEW

2.1 Office Design and Productivity

Office design can be considered as one of the most important aspects that directly impacts workers' productivity. It is evidence by past research stated that productivity can increased up to 20 per cent when a pleasant office environment is provided (Clements-Croome, 2015). Therefore, it is crucial to examine the impact of office design towards workers' productivity in the context of natural gas industry. Office design includes all components and elements of a workspace which includes features such as colour choices, layout, lighting elements and connectivity between employees. While organizations have their own way of planning to make the office a productive environment, office design is important for employee

satisfaction and affects their level of productivity (Hansika & Amarathunga, 2016). Furthermore, past study showed that a large number of respondents prefer a personal and tidy workspace which is an effective method to increase motivation, improve their mood and increase comfort levels in the workplace (Sinnappan, 2017). The ergonomic factors as furniture design, ventilation, noise, light, supervisor support, workspace, communication, fire safety measures affect employee productivity (Eberendu et al., 2018; Mutegi et al., 2023).

The ergonomics of furniture that is often used in the office is one of the factors to be considered very suitable and an appropriate design will produce fewer chances of incidents to endanger employees so that they remain comfortable (Altamimi et al., 2023). Additionally, Rasheed et al. (2021) suggest that the relation between Indoor Environmental Quality (IEQ) factors and the time spent in the office are positively correlated. The lesser the time they spend, the lesser they influence IEQ factors. Based on previous justification, the following hypothesis is developed:

H1: Furniture arrangement positively affects employee productivity.

Unpleasant indoor environmental quality (IEQ) will directly affect the productivity of the workers (Franke & Nadler, 2020). Noise is one of the most critical indoor environmental qualities which also known as sensor-measurable IEQ. The present of noise in the office will give a high pressure on the employees to perform their job well. Past studies showed that 91.6 per cent of employees get affected when there is a noise while conducting their works (Oseland & Hodsman, 2018). Noise can be from inside or outside the workplace includes conversations, voice generated from office machines, traffic (Fassoulis & Alexopoulos, 2015). Noise is an important factor in employee productivity as evidenced by Banbury and Berry (1997) who found that a quiet time of 5 minutes was sufficient to reverse some of the effects of background speech disturbance and office noise. Moreover, past studies have found that the noise in the workplace reduces the concentration and productivity of workers (Bergefurt, et al., 2022; Awada et al., 2023). Since workers spent most of their time in indoor office, thus maintaining a good quality of indoor environment such as quite environment is very crucial for the employers. Considering this situation, it is important to examine the relationship between noise and workers' productivity from different office environment such as in natural gas industry. Hence the second hypothesis is developed:

H2: Noise positively affects employee productivity.

Office temperature is another crucial element in indoor environmental quality (IEQ). For example, bad air quality can give many negative effects on employee's health such as breathing problems, headaches, and fatigue that can lead to decreased their work productivity (Qabbal et al., 2022). The temperature, air quality and humidity level are ambient elements that should be taken into consideration to ensure a comfortable working environment. The indoor atmosphere of the office must clean with sufficient air humidity level to ensure the safety of the working environment. Employees are more comfortable and productive if they have control on their room temperature, while hot room temperature will affect the body to sweat and certainly reduce their concentration in managing their jobs (Arminas et al., 2021). Malaysia is one of the Southeast Asia countries that always suffering from the heat wave (Li et al., 2022). Therefore, maintaining a good temperature can avoid from uncomfortable situation that may affects workers' productivity. Considering this matter, the following hypothesis is developed:

H3: Ambient temperature positively affects employee productivity.

Lighting also contributes to providing comfort to employees in the workplace where the type of lighting either natural or artificial; affects employee performance (Akhtar et al., 2014). According to Mewomo et al. (2023), natural lighting is considered the ideal light source for interior spaces due to its ability to offer the best brightness for human vision while maintaining a comfortable environment without causing any strain on the eyes, while Liu et al., (2023) claims that lighting quality is especially important when there is a lack of external light to provide a better experience to employees. According to Amble (2005), the appropriate lighting and enough daylight in the offices can reduced staffs' absenteeism by 15 per cent and increased productivity between 2.8 and 20 per cent. Furthermore, past study also confirmed that lighting levels also can directly affect employees' health as well as indoor workplace environment (Kaushik et al., 2023). Considering the importance of lighting in measuring employees' productivity, this study attempts to measure the influence of ambient lighting towards employees' productivity in the natural gas industry. Hence, the fourth hypothesis is developed:

H4: Ambient lighting positively employee productivity.

Office layout refers to the spatial arrangement and organization of physical items within a workplace. It consists of the strategic placement of furniture, equipment, and other components to foster a functional working environment. Aduwo et al. (2021) suggested that workplaces with biophilic designs are good because they incorporate natural elements into the design of the space and are considered as sustainability extensions that have a significant influence on employee productivity. Moreover, research also shows that internal nature factors such as indoor plants, inanimate objects, and window views can contribute to employees' health and motivation, while external nature factors contribute to economic, environmental and social sustainability through its impact on employees' restoration and stress (Sadick & Kamardeen, 2020). Furthermore, Moslehian et al. (2023) also found that an increase in the physical design of the workplace can result in an increase in employee performance from five to ten percent. In particular, a large body of past literature indicates that how office space affects not only the comfort of employees but their health and productivity (Rasheed & Byrd, 2017; Voordt & Jensen, 2023). Furthermore, it is supported by Tsai (2023) indicate that the benefits of appropriate office space for employee and organizational success. Based on the previous justification, the following hypothesis is developed:

H5: Spatial arrangement positively affects employee productivity.

While workplaces have their own way of planning to make the office a productive environment, office design is important for employee satisfaction which in turn affects their level of productivity (Hansika & Amarathunga, 2016). According to Wong et al. (2017) and Wu et al. (2023), workplace factors are important because employees productive in a conducive environment supports physical, mental, and emotional stability. Hence this study aims to examine how employee productivity may be impacted by office design in terms of the five elements discussed in past studies. Figure 1 presents the conceptual framework for this study. Five factors that consist of furniture arrangement, noise, temperature, lighting and spatial will be measured towards workers' productivity in the natural gas industry.

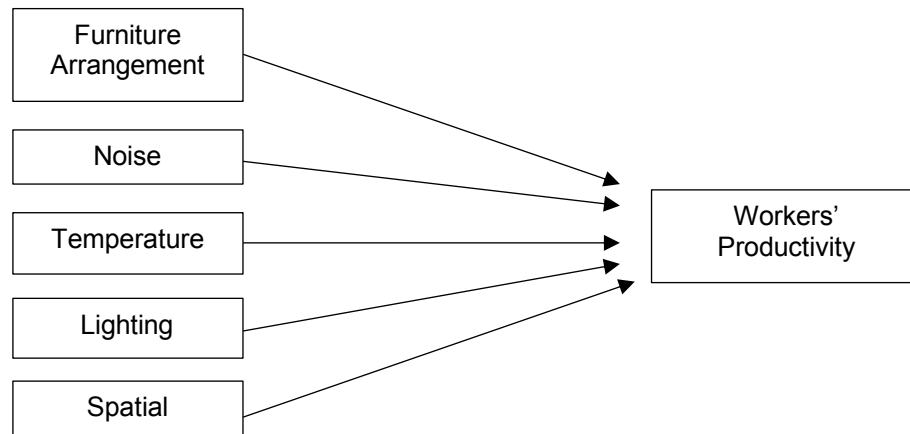


Fig. 1 Conceptual Framework

3.0 METHODOLOGY

Quantitative research method was conducted on a natural gas company which aims to examine the employee productivity due to office design. This established processed gas company with more than fifty years of experience manufactures and distributes industrial, specialty and medical gases. Besides that, this company also provides a big range of related services which include installation of gas equipment, pipelines and associated engineering services located at Selangor, Malaysia. Since the company is one of the well-established organizations in the gas sector, it can be used to benchmark staff productivity and office design.

The independent variables (IV) in this study are furniture availability, noise from the environment, ambient temperature, ambient lighting and space arrangement, while the dependent variable (DV) is employees' productivity. All the questions were adapted from Olabode, Adesanya & Bakare (2017). There were three sections in the questionnaire, where Section A had demographic questions, Section B had questions on dependent variable and Section C had questions on the five independent variables. Section B and C had questions using five-point Likert scale, ranging from 1- strongly disagree to 5- strongly agree. The questionnaire consisted of 24 items, with six sections, with four items for each variable namely furniture (4 items), noise (4 items), ambient temperature (4 items), ambient lighting (4 items), spatial arrangement (4 items) and for productivity (4 items).

The participants consisted of administrative staff who received a self-administered questionnaire. Using a purposive sampling method, a total of 168 questionnaires were distributed, but only 150 of them were considered usable for analysis. To determine the sample size, the study relied on the GPower software (Faul et al., 2007). The software was utilized to calculate the required sample size based on five predictor variables (furniture availability, environmental noise, ambient temperature, ambient lighting, and space arrangement) in relation to the dependent variable (productivity). The objective was to achieve a statistical power of 80 percent with a 5 percent probability of error. According to the GPower software, 92 responses were needed to meet these criteria. Thus, 150 respondents are appropriate for data analysis procedure.

4.0 DATA ANALYSIS AND FINDINGS

4.1 Respondents' Profile

Data was analysed using the Partial Least Square-Structural Equation Modelling (PLS-SEM) technique using SmartPLS 3.0 software to validate measurements and test the hypotheses. The reporting of the output followed the recommendations of Hair et al. (2014) and Ramayah et al. (2016). Respondents' demographics were summarised using descriptive statistics. Other statistical testing includes item loadings, convergent validity, reliability of measure and discriminate validity.

Table 1 presents the demographic profile including gender, age, marital status, education, income, and working experience of the respondents. Majority (55%) of the respondents were women, with 49% were 30 years old and below. More than half of the participants (55%) held a bachelor's degree, while 32 percent possessed STPM/ Diploma certificates. In terms of monthly income, the 39% earned between RM2501-RM5000. With regards to work experience, most employees (30%) had a tenure of 3 to 5 years. Overall, the majority (71%) of the employees had less than 5 years of experience.

Table 1. Respondents' Demographic Profile

Characteristics	Percentage (%)
Gender	
Male	45
Female	55
Age	
21-25	26
26-30	23
31-35	23
26-40	17
41 and above	11
Qualification	
STPM/Diploma	32
Bachelor's degree	55
Master's degree	12
Ph.D.	1
Marital Status	
Single	38
Married	55
Others	7
Monthly Income	
RM1,000-RM2,500	30
RM2,501-RM5,000	39
RM5,000 and above	31
Working Experience	
Less than 6 months	13
6 months - 2 years	28
3 - 5 years	30
6 years - 8 years	13
9 years and above	16

4.2 Measurement Model

To assess convergent validity, the loadings of the indicators were first examined (Hair et al., 2014) and this needs to be 0.70 or higher. Furthermore, for the average variance extracted (AVE), each construct must meet the minimum requirement of AVE to exceed 0.50 (Fornell & Larcker, 1981). Then we can conclude that convergent validity was achieved and explained. Next, the composite reliability (CR) and Cronbach's Alpha were used to assess the reliability of the measures. The values of CR must be between 0.70 and 0.90 (Nunnally, 1978; Hair et al., 2017). As presented in Table 2, all factor loadings are above the recommended threshold of 0.50, ranging from 0.55 to 0.89. Additionally, the CR scores for the factors exceeded 0.7, demonstrating good construct reliability.

Table 2. Measurement Model

Construct	Indicator	Loading	CR	AVE
Furniture	Fur 1	0.55	0.834	0.564
	Fur 2	0.695		
	Fur 3	0.868		
	Fur 4	0.848		
Noise	Nois 1	0.697	0.766	0.526
	Nois 2	0.612		
	Nois 4	0.846		
Temperature	Temp 1	0.831	0.803	0.671
	Temp 3	0.806		
Lighting	Ligt 1	0.89	0.777	0.546
	Ligt 3	0.734		
	Ligt 4	0.553		
Spatial	Spa 1	0.726	0.85	0.588
	Spa 2	0.835		
	Spa 3	0.823		
	Spa 4	0.672		
Productivity	Prod 1	0.817	0.88	0.651
	Prod 2	0.64		
	Prod 3	0.879		
	Prod 4	0.869		

Note: Noise 3, Temp 2, Temp 4, Light 2 were deleted due to low loadings.

Discriminant validity was assessed using Fornell and Larcker (1981) criterion where the square root of AVE for each construct must be larger than the correlation between the construct and other constructs in the model. Table 3 indicates that all constructs exhibit satisfactory discriminant validity, where the square root of the AVE is greater than the correlations among the latent variables.

Table 3: Discriminant Validity using Fornell and Larcker Criterion

	1	2	3	4	5	6
1. Furniture	0.751					
2. Lighting	0.286	0.739				
3. Noise	0.309	0.359	0.725			
4. Productivity	0.601	0.41	0.353	0.807		
5. Spatial	0.36	0.629	0.391	0.424	0.767	
6. Temperature	0.416	0.487	0.36	0.577	0.401	0.819

The cross-loading matrix explains that all items are loaded higher on the construct they were measuring than on any other construct in the model. Therefore, based on the results in Table 2 and 3, the reflective measurement model can be said to have met internal consistency, convergent and discriminant validity.

To evaluate the structural model, bootstrapping was used with resampling of 500, suitable for exploratory purposes (Sapuan & Zeni, 2021). The structural model measurement was assessed by examining the standard path coefficient assessment which indicates whether the direction of the relationship is either positive or negative, where t-value assesses whether the relationship is significant based on t-statistics ($t > 1.645$). Table 4 indicates the path estimation and the hypothesis testing, which are calculated for the hypothesized relationship for the main model.

Table 4: Hypothesis Testing

Hypo.	Relationship	Std. Beta	Std. Error	t-value	Decision
H ₁	Furniture ->Prod	0.398	0.061	6.492	Supported
H ₂	Noise ->Prod	0.055	0.058	0.96	Not Supported
H ₃	Temperature ->Prod	0.325	0.072	4.499	Supported
H ₄	Lighting ->Prod	0.061	0.085	0.719	Not Supported
H ₅	Spatial ->Prod	0.09	0.076	1.18	Not Supported

Note: * $p < 0.05$

The findings reveal a significant positive relationship between furniture and employees' productivity; H₁ ($\beta = 0.398$, $p < .05$), and temperature and employees' productivity; H₃ ($\beta = 0.325$, $p < .05$). Therefore, Hypotheses H₁, and H₃ are supported. However, this study failed to support H₂, H₄ and H₅, indicating no significant relationship between noise and productivity ($\beta = 0.055$), lighting and productivity ($\beta = 0.061$), and spatial arrangement and productivity ($\beta = 0.09$). In conclusion, two of the hypotheses (H₁ and H₃) are statistically significant and the model explains 51.0 percent of the variance of employees' productivity.

To summarize, the model explains 51.0 percent of the variance in employees' productivity. The path diagram and the coefficient of determination (R^2) displayed in Figure 1 illustrate the overall relationship between office design and employee productivity. In conclusion, the study establishes significant connections between furniture, temperature, and employee productivity. However, no substantial relationships were found between noise, lighting, spatial arrangement, and productivity. The model explains 51 percent of the variance in employee productivity concerning office design.

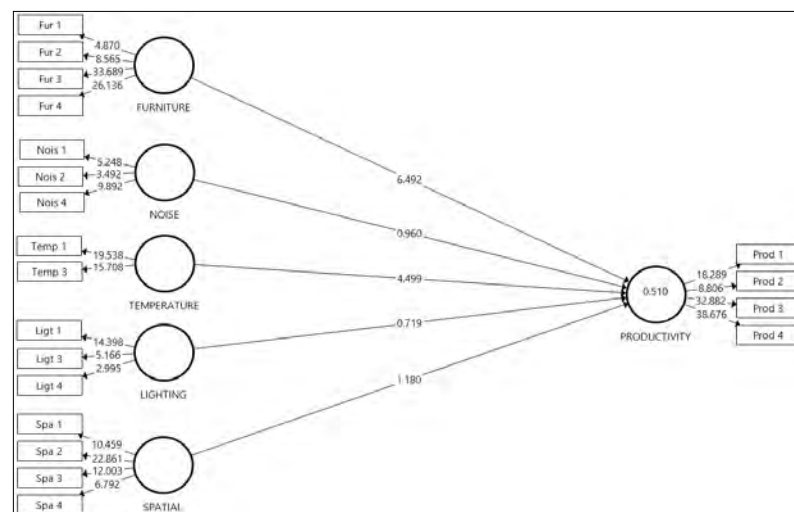


Fig 2: Path Diagram

Through hypothesis testing, reliability analysis, inferential, and regression analysis, it was determined that among the five independent variables, only two variables had a significant impact on employee productivity. Specifically, the availability of furniture and ambient temperature were found to have a positive and significant effect on employees' productivity.

5.0 DISCUSSION

This study aims to examine the influence of office design on employee productivity in a processed gas industry with regards to workplace environment such as furniture availability, noise from the environment, ambient temperature, ambient lighting and space arrangement. Better physical office environment guarantees optimum conditions for the development of the employees' productivity. The study by Voordt and Jensen (2023) show a proper office environment helps in reducing the number of absenteeism which in turn affects their actions, abilities and performance. On the contrary, a poorly designed office can result in increased production costs for the company. As the company expands and grows larger, there may be diseconomies of scale due to reduced efficiency and productivity. This, in turn, can lead to higher turnover rates, escalated recruitment and training expenses, and a decline in institutional knowledge, all of which contribute to higher production costs.

Based on the studied variables, the results reveal interesting conclusions. Findings show that from the five independent variables, two variables had a positive and significant effect on employees' productivity. Furniture availability which has been discussed widely appears to be an important factor which facilitates employee productivity. Furniture availability shows a significant relationship on employee productivity. Past Research conducted by Altamimi et al. (2023) demonstrates that providing employees with comfortable and appropriate furniture can enhance their performance and overall work efficiency. This, in turn, leads to increased employee morale, greater job satisfaction, and higher levels of engagement. This conforms to a study in the case of Sri Lanka by Hansika and Amrathunga (2016) on banking sector, which found that most of the time top management do not recognize the importance of good office design and environment and on the contrary, they believe that the only motivator to retain employees is money. But if the furniture that is available in the office is comfortable and suits the taste of majority of the employees; the staff will perform better. But sometimes, some of the employees' might find that they need better furniture to suit their everyday work activity. This can be improved by assessing through the furniture condition and function for the employees to increase their productivity (Mutegi et al., 2023).

Ambient temperature or the temperature at the office is also one the most influential factors to affect productivity among staff. The result shows a positive and significant relationship between temperature and employee productivity. This is supported by a study done by Qabbal et al. (2022) who found that air quality is important for those who spend most of their time in the office. Offices with low temperatures will irritate staff who will dry out their skin and feel cold or shiver, decreasing the performance ability. While high temperatures will make them uncomfortable to work longer in the office, especially those who work with computers that carry high heat. In addition, the weather in Malaysia is erratic sometimes hot, temperature should be an important factor to be emphasized by all companies for the benefit of the employees for their performance improvement. The findings is aligned with the past study that confirmed the temperature and noise levels have a significant impact on productivity (Arminas et al., 2021).

The other three factors had no significant relationship with employee productivity. Ambient noise, ambient lighting, and space arrangement show insignificant relationship with employee. Poor noise conditions adversely affect employee comfort, creating an uncomfortable and unpleasant work environment. The presence of excessive noise can hinder employees' ability to concentrate on their tasks and disrupt effective communication among colleagues, resulting

in misunderstandings and miscommunication. To maintain a conducive work environment and promote productivity, it is essential to plan and design workspaces that minimize the impact of sound waves and avoid noisy disturbances. Excessive noise levels can be distracting and hinder concentration, leading to decreased productivity. Implementing sound-absorbing materials, providing quiet zones, or utilizing white noise machines can help mitigate the negative effects of noise and create a more conducive work environment. By addressing noise issues, businesses can help employees maintain focus, enhance productivity, and foster a more comfortable and productive workplace.

In contrast, ambient noise showed a positive relationship with employee productivity but it was not significant. Noise from the environment does not necessarily affect performance and increase productivity. As shown by Appel-Meulenbroek, et al. (2022), an employee would like to work in a quiet workspace to be able to concentrate on the task. Yet, without it, employees still may concentrate on their jobs because environmental noise is not a major factor in productivity and some employees can work in a cheerful and happy state without being too quiet. However, one company in Indonesia showed noise effects staff productivity compared to room temperature factor (Arminas et al., 2021). The insignificant findings in this study may be because of the nature of the industry chosen which is natural gas industry where the workplace is always surrounded with the noise and thus, not affecting the employees' productivity.

Similarly, ambient lighting was not supported in this study. The lighting in the office should also be emphasized along with the seating arrangement for any inconvenience in the work environment as productivity greatly affects the growth of the company. Results of the study are consistent with theory of the person-environment fit and the diseconomies of scale. This finding support by Mewomo et al. (2023), which suggests that ambient lighting does significantly influence productivity. Instead, there are instances where outdoor and natural light can offer more comfort to employees compared to indoor lighting, and it may even replace the need for artificial ambient lighting. The inconsistent findings may be due to most of the lightings in the office have standardized level that are suitable for all people in the organization. Thus, this factor is not a crucial element that should be taken into consideration by the employees.

In the current competitive and challenging business environment, the significance of physical office space remains crucial. Despite advancements in technology and the rise of remote work options, physical office spaces offer numerous advantages that contribute to the success and growth of businesses as physical office spaces foster face-to-face interactions, promotes team building, enabling seamless collaboration and helps reinforce the company's culture. While current study has examined the relationship of this space arrangement with employee productivity. The study's findings revealed that the arrangement of space did not have a significant impact on employee productivity. Their performance appeared to be minimally influenced by this factor. However, the company's administrative staff expressed a preference for a more open environment, where they could interact and engage with each other instead of working alone in closed rooms. The closed-room setting was associated with feelings of boredom and a decline in morale, which in turn directly affected staff performance.

However, according to Aduwo et al. (2021), the inclusion of natural elements in the workspace has a significant impact on employees' health and motivation. This integration creates a more comfortable environment for employees, ultimately leading to increased productivity. The presence of natural elements fosters a sense of well-being and engagement, thereby enhancing the overall work experience and positively influencing employees' performance.

6.0 CONCLUSION AND LIMITATIONS OF THE STUDY

This study yields two primary findings. Firstly, it highlights the crucial impact of office design on employee productivity. Secondly, it emphasizes the significance of suitable furniture and workspace temperature, as essential components of office design, specifically in a processed gas company, in facilitating better performance and increased productivity. Organizations nowadays are all aware of the importance of employee comfort in the workplace and its working conditions such as health risks and hazards. Most of them are constantly looking into new ways to improve their office design not only to be competitive but also to retain talents, especially the skilled and efficient employees'. With the increased competition, office design has become one of the tools to attract and retain employees' in the organizations. This shows that the management of the company should focus on the effective arrangement of the furniture and room temperature in their office arrangements in order to improve and enhance their employees' productivity. These are crucial element for employees to work efficiently and achieve their key performance indicators (KPI) as stipulated in their appraisal. Employees who are satisfied with their work environment will always perform better and hence contribute more to the organizational growth. The conventional office design and workspace has to be changed to keep with the changing workspace.

However, it is important to recognize that the impact of office design on employee productivity extends beyond just furniture availability and ambient temperature. The overall work environment plays a crucial role in shaping employee satisfaction, engagement, and performance. One key aspect of office design is the layout and arrangement of the workspace. A well-designed floor plan can facilitate collaboration, communication, and efficient workflow. Open office layouts, for example, promote interaction and teamwork, while also providing flexibility and adaptability. On the other hand, some employees may benefit from designated quiet areas or private spaces for focused work. By considering the specific needs and preferences of employees, organizations can create an office design that caters to different work styles and enhances productivity.

In addition to the physical layout, the aesthetic elements of the office environment also contribute to employee well-being and productivity. Natural lighting, for instance, has been shown to have positive effects on mood, energy levels, and overall job satisfaction. Incorporating elements of biophilic design, such as plants and natural materials, can create a more visually appealing and calming atmosphere, reducing stress and increasing productivity. Providing employees with the necessary tools and resources, such as ergonomic furniture, up-to-date technology, and efficient communication systems, can streamline work processes and enhance productivity. It is important to note that office design is not a one-size-fits-all solution. Different industries and organizations may have unique requirements and considerations. Conducting studies, like the study in processed gas industry, helps shed light on the specific factors that influence productivity within a particular context. In addition to that, office design has a substantial impact on employee productivity. By considering factors such as furniture availability, ambient temperature, noise levels, lighting, and space arrangement, organizations can create work environments that promote employee satisfaction, well-being, and ultimately, higher levels of productivity. At the same time, more studies should be done on other organizations to capture to what extent office design will enhance employees' creativity and productivity and other external factor i.e., would also be tested to find the best result. Certainly, there's no denying that extended and comprehensive training programs, along with incentives and acknowledgments, can enhance performance and inspire individuals to put in greater effort (Zainon et al., 2020).

On the other hand, the study did not find a significant relationship between employee productivity and ambient noise, ambient lighting, and space arrangement. While these factors show a positive relationship with productivity, they are not considered major factors in this particular processed gas industry. However, it is worth noting that noise conditions should be

managed to ensure employee comfort, and lighting should be adequate to avoid eyestrain and headaches. The findings of your study are consistent with the theory of person-environment fit and the concept of diseconomies of scale. It is also important to consider the specific context of the processed gas industry when interpreting these results.

The results of this study are very useful because the impact of office design and the development of the work environment can improve the level of employee performance. Hence organizations need to prioritize office planning to create a conducive office design and environment for employees' job satisfaction and employee performance which both contribute to an organization's productivity and also nation building. The results reveal interesting conclusions regarding the influence of office design on employee productivity in the processed gas industry. It is also important for policymakers to know the critical factors that will motivate administrative employees to be more productive. Overall, our study can guide organizations to prioritize office planning in creating a conducive office design and environment that contribute to an organization's productivity and also nation building.

Some potential limitations of the study examining the influence of office design on employee productivity in the processed gas industry are: (1) the study focuses specifically on the processed gas industry, which may limit the generalizability of the findings to other industries. Different industries may have unique characteristics and work environments that could impact the relationship between office design and employee productivity; (2) the study focuses on internal factors related to office design, but external factors such as organizational culture, leadership, or industry-specific challenges may also impact employee productivity. These factors were not accounted for in the study could also influence employee productivity. Therefore, it is important to consider these limitations when interpreting the findings of the study and to encourage further research to address these limitations and provide a more robust understanding of the topic.

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REFERENCES

- Aduwo, E. B., Akinwale, O. O., & Okpanachi, P. O. (2021, March). Assessing workers' productivity through biophilic design as a measure of sustainability in selected office buildings in Lagos State, Nigeria. *In IOP Conference Series: Earth and Environmental Science*, 665(1), 012047.
- Akhtar, N. (2014). Interior Design and its impact on of employees' productivity in telecom sector, Pakistan. *Journal of Asian Business Strategy*, 4(6), 74.
- Altamimi, S., Iranmanesh, A., & Denerel, S. B. (2023). Exploring the spatial dimensions of social sustainability in the workplace through the lens of interior architects in Jordan. *Buildings*, 13(6), 1448.
- Amble, B. (2005). *Poor workplace design damages productivity*. <http://www.management-issues.com/2006/8/24/research/poor-workplacedesigndamagesproductivity.asp>
- Appel-Meulenbroek, R., Kemperman, A., van de Water, A., Weijs-Perrée, M., & Verhaegh, J. (2022). How to attract employees back to the office? A stated choice study on hybrid working preferences. *Journal of Environmental Psychology*, 81, 101784.
- Arminas, Nurwahidah, A. & Ahdan, M. (2021). Effect of noise and room temperature on employee productivity in mechanical maintenance workshop PT. Semen Bosowa Maros. *Journal of Physics: Conference Series*, 1803, 1-8.

- Awada, M., Becerik-Gerber, B., Liu, R., Seyedrezaei, M., Lu, Z., Xenakis, M., & Narayanan, S. (2023). Ten questions concerning the impact of environmental stress on office workers. *Building and Environment*, 229, 109964.
- Banbury, S., & Berry, D. C. (1997). Habituation and dishabituation to speech and office noise. *Journal of Experimental Psychology: Applied*, 3(3), 181.
- Bergefurt, L., Weijs-Perrée, M., Appel-Meulenbroek, R., & Arentze, T. (2022). The physical office workplace as a resource for mental health-A systematic scoping review. *Building and Environment*, 207.
- Clements-Croome, D. (2015). Creative and productive workplaces: A review. *Intelligent Buildings International*, 7(4), 164-183. 10.1080/17508975.2015.1019698.
- Eberendu, A. C., Akpan, E. O. P., Ubani, E. C., & Ahaiwe, J. (2018). A methodology for the categorisation of software projects in Nigeria based on performance. *Asian Journal of Research in Computer Science*, 1-9.
- EIA, (2021). *Independent statistics and analysis. Country analysis executive summary: Malaysia. US Energy Information Administration.* <https://www.eia.gov/international/analysis/country/MYS>.
- Faul, F., Erdfelder, E., Lang, A.-G. & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175-191.
- Fornell, C., & Larcker, D. F., 1981. *Structural equation models with unobservable variables and measurement error: Algebra and Statistics*.
- Franke, M. & Nadler, C. (2020). Towards a holistic approach for assessing the impact of IEQ on satisfaction, health, and productivity. *Building Research and Information*, 49(4), 1-28. 10.1080/09613218.2020.1788917.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: A comparative evaluation of composite-based structural equation modelling methods. *Journal of the Academy of Marketing Science*, 45(5), 616-632.
- Hansika, W. A., & Amarathunga, P. A. B. H. (2016, December). Impact of office design on employees' productivity; A case study of banking organizations of North Western Province in Sri Lanka. In University of Sri Jayewardenepura, Sri Lanka, *13th international conference on business management (ICBM)*.
- Kaushik, A., Arif, M., Ebohon, O. J., Arsalan, H., Rana, M. Q. & Obi, L. (2023). Effect of indoor environmental quality on visual comfort and productivity in office buildings. *Journal of Engineering, Design and Technology*, 21(6), 1746-1766. 10.1108/JEDT-09-2021-0474
- Labib, Z., Nabil, K., & Amin, K. (2023). A spatial design guideline for supporting creativity at architectural firms. *HBRC Journal*, 19(1), 63-85.
- Li, X. -X., Yuan, C. & Hang, J. (2022). Heat wave trends in Southeast Asia: Comparison of results from observation and reanalysis data. *Geophysical Research Letters*. 10.1029/2021GL097151.
- Liu, F., Chang-Richards, A., Kevin, I., Wang, K., & Dirks, K. N. (2023). Effects of indoor environment factors on productivity of university workplaces: A structural equation model. *Building and Environment*, 233.
- Moslehian, A. S., Roös, P. B., Gaekwad, J. S., & Van Galen, L. (2023). Potential risks and beneficial impacts of using indoor plants in the biophilic design of healthcare facilities: A scoping review. *Building and Environment*.
- Mutegi, T. M., Joshua, P. M., & Kinyua, J. M. (2023). Workplace safety and employee productivity of manufacturing firms in Kenya. *Cogent Business & Management*, 10(2).
- Nunnally, J. C. (1978). An overview of psychological measurement. *Clinical Diagnosis of Mental Disorders*, 97-146.
- Nurick, S. & Thatcher, A. (2023). Examining the impact of indoor environmental quality on individual productivity of knowledge workers in green certified buildings. *Journal of Corporate Real Estate*, 25(4), 307-324. 10.1108/JCRE-11-2022-0036
- Oseland, N. & Hodsman, P. (2018). A psychoacoustical approach to resolving office noise distraction. *Journal of Corporate Real Estate*, 20(4), 260-280. <https://doi.org/10.1108/JCRE-08-2017-0021>.

- Qabbal, L., Younsi, Z., & Naji, H. (2022). An indoor air quality and thermal comfort appraisal in a retrofitted university building via low-cost smart sensor. *Indoor and Built Environment*, 31(3), 586-606.
- Rasheed, E. O., & Byrd, H. (2017). Can Self-evaluation measure the effect of IEQ on productivity? A review of literature. *Facilities*.
- Rasheed, E. O., Khoshbakht, M., & Baird, G. (2021). Time spent in the office and workers' productivity, comfort and health: A perception study. *Building and Environment*, 195, 107747.
- Sadick, A. M., & Kamardeen, I. (2020). Enhancing employees' performance and well-being with nature exposure embedded office workplace design. *Journal of Building Engineering*.
- Sapuan, N. M., & Zeni, N. A. M. (2021). The Determinants of Waqf Sustainability in Malaysia: A PLS-SEM Analysis. *International Journal of Business and Society*, 22(1), 102-118.
- Schilleci, P. (2023). Exploring the impact of the physical work environment on service employees: An analysis of literature. *Journal of Facilities Management*, 21(5), 717-732. 10.1108/JFM-09-2021-0099,.
- Sinnappan, T. (2017). *Working environment and its influence on employees' performance: A case study of an oil and gas vendor company in Malaysia*. [Master thesis, Universiti Tunku Abdul Rahman]. <http://eprints.utar.edu.my/2623/1/Final.pdf>
- Tsai, H. Y. (2023). Do you feel like being proactive day? How daily cyberloafing influences creativity and proactive behavior: the moderating roles of work environment. *Computers in Human Behavior*, 138.
- Voordt, T. V. D., & Jensen, P. A. (2023). The impact of healthy workplaces on employee satisfaction, productivity and costs. *Journal of Corporate Real Estate*, 25(1), 29-49.
- Wong, P. Y., Bandar, N. F. A., & Saili, J. (2017). Workplace factors and work-life balance among employees in selected services sector. *International Journal of Business and Society*, 18(S4), 677-684.
- Wu, K., Wang, S., Ding, T., & Li, Y. (2023). The direct effect of exercise on the mental health of scientific and technological professionals and the mediating effects of stress, resilience, and social support. *Frontiers in Public Health*, 11, 1074418.
- Zainon, S., Ismail, R.F., Raja Ahmad, R.A., Mohamad Shafi, R., Mismam, F.N., Md Nawli, S. & Kadir, J.M.A (2020). Factors of human resource management practices affecting organizational performance. *International Journal of Organizational Leadership*, 9(4), 184-197.
- Zitars, J., Spadafore, B., Coulombe, S., Riemer, M., Dreyer, B. C., & Whitney, S. (2021). Understanding the psycho-environmental potential functions of a green building to promote employee health, wellbeing and productivity: A theoretical perspective. *Building and Environment*, 205, 108-268.

A MULTI-DIMENSIONAL FRAMEWORK FOR DEVELOPING ASSESSMENT TOOLS TO MEASURE SUSTAINABILITY FOR COUNTY-LEVEL RURAL E-COMMERCE ECOSYSTEMS

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ABSTRACT

The sustainability of County-level Rural E-commerce Ecosystems (CREES) is vital for advancing rural industrial revitalization goals in China. Although rural e-commerce plays a significant role in promoting rural development, it often faces sustainability challenges linked to poverty alleviation initiatives, which can undermine its effectiveness. This study introduces a novel framework, the Sustainability of Rural E-commerce Ecosystems Model (SREEM), designed to assess the sustainability of CREES. Utilizing a Modified Delphi-AHP technique, the framework integrates theories from rural e-commerce ecosystems, sustainable development, and rural revitalization practices. It identifies three key dimensions of sustainability; Robustness, Niche Creation, and Endogenous Development Capacity that are critical to the health of rural e-commerce ecosystems. The Modified Delphi method, involving three rounds of expert consultations, was used to refine the SREEM Index system. The validity of the framework was further confirmed through the Analytical Hierarchy Process (AHP) and MATLAB, resulting in a comprehensive four-level SREEM hierarchy.

Keywords: China, County-level ecosystems, Rural e-commerce, SREEM (Sustainability Rural E-commerce Model), Sustainability

1.0 INTRODUCTION

Rural e-commerce in China has rapidly transformed the economic landscape, providing new opportunities for poverty alleviation and economic development in previously underserved regions. Since traditional methods are inadequate for success (Wan Nur et al., 2023), the Chinese government has significantly invested in promoting e-commerce to enhance rural economic development. Despite these investments and initial successes, the sustainability of County-level Rural E-commerce Ecosystems (CCREE) remains a critical concern. Current development models are government-driven and top-down, raising questions about their long-term viability and capacity for self-sustaining growth.

Previous studies have highlighted the immediate economic benefits of rural e-commerce initiatives, such as increased household incomes and employment opportunities (Cui et al., 2017; Jha et al., 2016). However, there is an urgent need for a comprehensive assessment

tool that effectively evaluates the sustainability of China's County-level Rural E-commerce Ecosystems Sustainability (CCRESS). Existing tools and frameworks often fall short of capturing the multifaceted nature of sustainability, which encompasses dimensions such as robustness, niche creation, and endogenous development capacity.

Current assessment tools frequently focus on isolated aspects of sustainability or rely on fragmented theoretical foundations, lacking the holistic approach necessary for a comprehensive evaluation of CCRESS. For example, while some tools may address economic stability or environmental impacts individually (Mei & Jiang, 2020; Li-yuan et al., 2020), they fail to integrate these aspects into a unified framework that reflects the interactions between different dimensions (Li-yuan et al., 2020; Sheng & Zhongbing, 2015; Chenghao, 2019; Yuehuan et. al., 2020).

This research aims to develop a comprehensive framework for assessing the sustainability of China's County-Level Rural E-commerce Ecosystem (CCREE). Rather than directly evaluating the sustainability of the ecosystems, the study focuses on designing an assessment tool that can help identify new pathways for development. By leveraging opportunities from initiatives like "County Commercial System Construction" and "Digital Commerce for Agricultural Development," the framework aims to promote high-quality, sustainable growth in rural e-commerce. This multi-dimensional assessment framework will provide insights to guide future efforts in enhancing the sustainability and resilience of rural e-commerce ecosystems in China.

2.0 LITERATURE REVIEW

2.1 Development of County-level Rural E-commerce Ecosystem

The development of the CCREE is rooted in the County-level Rural E-commerce Public Service System (CREPSS) (Jie et al., 2020). This system is structured around the concept of *one centre, five systems*, and operates based on enterprise-led, government-driven, market-oriented, and win-win cooperation (Yang et al., 2022). The key components of CREPSS include the following:

- Rural E-commerce Public Service Center (REPSC) is the central hub connecting various resources within the CCREE.
- Rural E-commerce Training System (RETS) - Focuses on enhancing the skills and capabilities of rural entrepreneurs and stakeholders.
- Agricultural Products E-commerce Supply Chain Management System (APESCMS) - Ensures efficient management and distribution of agricultural products.
- Rural E-commerce Marketing System (REMS) - Promotes effective marketing strategies to boost product awareness and engage consumers in rural areas.
- Rural E-commerce Logistics Service Sites System (RELSS) - Optimizes logistics to enhance service delivery.
- Rural E-commerce Service Sites System (RESSS) - Ensures the provision of necessary services to facilitate rural e-commerce operations.

Under the guidance of national government initiatives, local governments are actively involved in constructing and expanding the support infrastructure for rural e-commerce. This includes the gradual implementation of supervision and security systems to enhance operational efficiency. Consequently, a three-tier public service network has emerged for e-commerce, functioning at the county, township (town), and village levels (Zhaoying & Yihuan, 2022).

2.2 Understanding the Concept of CCREE and CCREES

This study defines the County-level Rural E-commerce Ecosystem (CCREE) as a top-down initiative spearheaded by the Chinese government. Its primary objectives include enhancing county-level e-commerce infrastructure, establishing a county-level service network for rural e-commerce, and cultivating local e-commerce development capabilities (Liu & Ai, 2019).

The goal of CCREE is to provide a wide array of e-commerce services accessible to residents in both urban and rural areas, encompassing the sale of industrial and agricultural products, agricultural materials e-commerce, and various convenience services. This initiative aims to create an integrated county-level e-commerce ecosystem that includes consumption, marketing, logistics, packaging, finance, and training. The ecosystem leverages e-commerce platforms and internet technologies to connect a diverse range of stakeholders, including operators, online merchants, new retail systems, suppliers of agricultural products, producers of agriculture-related goods, e-commerce platforms, providers of agriculture-related services, governments, farmers, consumers, and other participants, all linked through specific interest relationships.

Ecosystem health is intrinsically linked to sustainability (Costanza, 1992). Sustainability, in a nutshell, refers to the concept of development that fulfils the present needs without compromising the needs of the future generation (Raja Adzrin, 2023; Armstrong, 2020). A healthy ecosystem features an optimized internal structure, effective external functions, relative stability, and sustainability (Jian, 2011). Iansiti and Levien (2002) proposed "health" as a comprehensive metric for assessing the effectiveness of business ecosystems.

The CCREE is a top-down initiative launched by both central and local governments. It exists outside the realm of natural ecosystems and is distinct from endogenous commercial ecosystems. Its formation is supported by the establishment of a comprehensive CREPSS. The primary objectives of CCREE are to facilitate e-commerce development and achieve poverty reduction.

This research defines CCREES as an ideal state of CCREE, characterized by a stable public service system that effectively fulfils its functions. The ecosystem exhibits strong diversity among its participants, fostering an agglomeration effect in the rural e-commerce industry. CCREES possesses the capacity for endogenous development, self-adjustment, and adaptability, enabling it to withstand external changes and threats. Moreover, it meets the current and future social needs of various stakeholders within the CCREE, ensuring sustained value growth and the sustainable, healthy, and high-quality development of the ecosystem.

2.3 Conceptual Framework

A sustainable rural e-commerce ecosystem in China requires endogenous development capacity, enabling it to thrive through internal resources and capabilities rather than relying solely on external support. Assessing sustainable development typically involves creating an index system that utilizes mathematical methods to establish measurable indicators based on the ecosystem's characteristics and functions.

For CCREE, a comprehensive and multi-dimensional index system is crucial for evaluating sustainability. This system aims to assess the ecosystem's sustainable state, identify weaknesses, and guide improvements toward high-quality development and rural revitalization.

Drawing on theories of Rural Revitalization Strategy (Liu, 2019), Rural E-commerce Ecosystems (Zhang et al., 2023; More, 1993), and Rural E-commerce Ecosystem Sustainability (Zang et al., 2023), this study introduces the Sustainability of Rural E-commerce Ecosystem Model (SREEM). SREEM evaluates CCREE sustainability through three key dimensions:

- Robustness - The ability of the system to withstand and recover from disturbances.
- Niche Creation - The capacity to develop and occupy unique market spaces.
- Endogenous Development Capacity - The ability to leverage local resources and talent for internal growth.

This framework provides a clear and actionable assessment of CCREE sustainability, supporting the optimization of rural e-commerce and contributing to overall rural development as shown in **Fig. 1**.

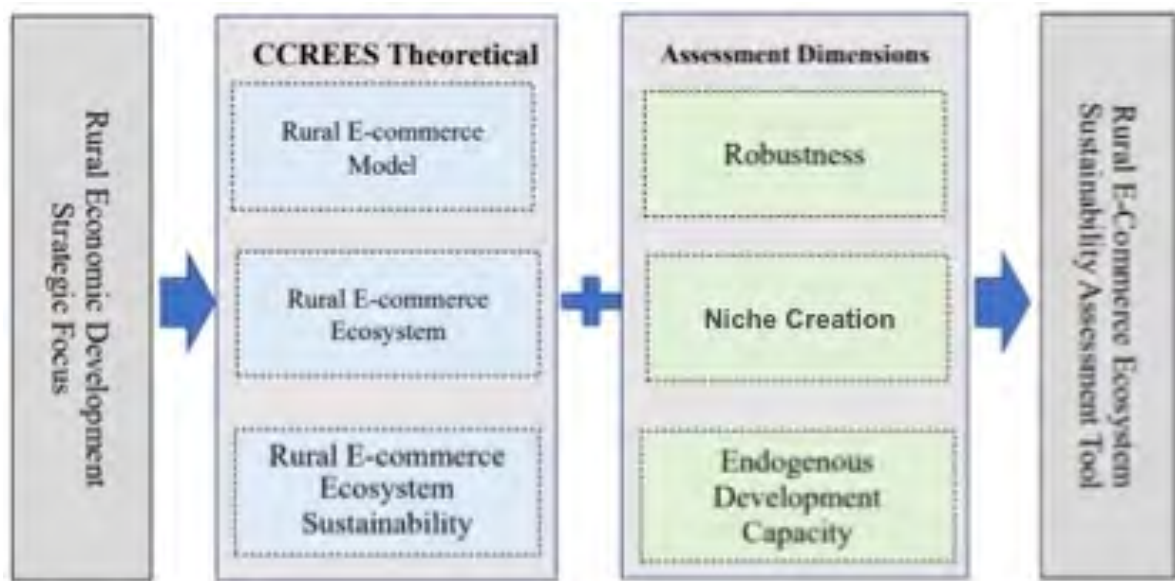


Fig. 1 SREEM Framework

3.0 METHODOLOGY

3.1 Research Design

The sustainability assessment tool for CCREE poses a multi-criteria decision-making challenge, requiring the development of a robust assessment framework with carefully selected indicators. The Analytic Hierarchy Process (AHP) serves as an effective multi-criteria decision-making tool, providing a methodology for calibrating a numeric scale to measure both quantitative and qualitative performances (Vaidya & Kumar, 2006). However, AHP is rarely used in isolation; it is often integrated with or complements other methodologies (Forman & Gass, 2001).

The Modified Delphi and AHP techniques are widely recognized in academic discourse as effective multi-criteria decision-making tools (Khan et al., 2022). This study employs a combined approach utilizing the Delphi technique alongside AHP (Delphi-AHP) to develop an assessment tool for CCREES (Hsu & Lin, 2013). The study unfolds in three stages as follows (**Fig. 2**):

- Modified Delphi Method – This stage involves screening relevant indicators for the SREEM.
- AHP Method – The relative weights of the evaluation indicators across each layer of the SREEM are determined, culminating in a comprehensive assessment framework.
- Application of SREEM – Finally, the SREEM is applied to evaluate CCREEs, focusing on a sample of 72 National Rural E-commerce Comprehensive Demonstration Project counties in Hunan Province, China.

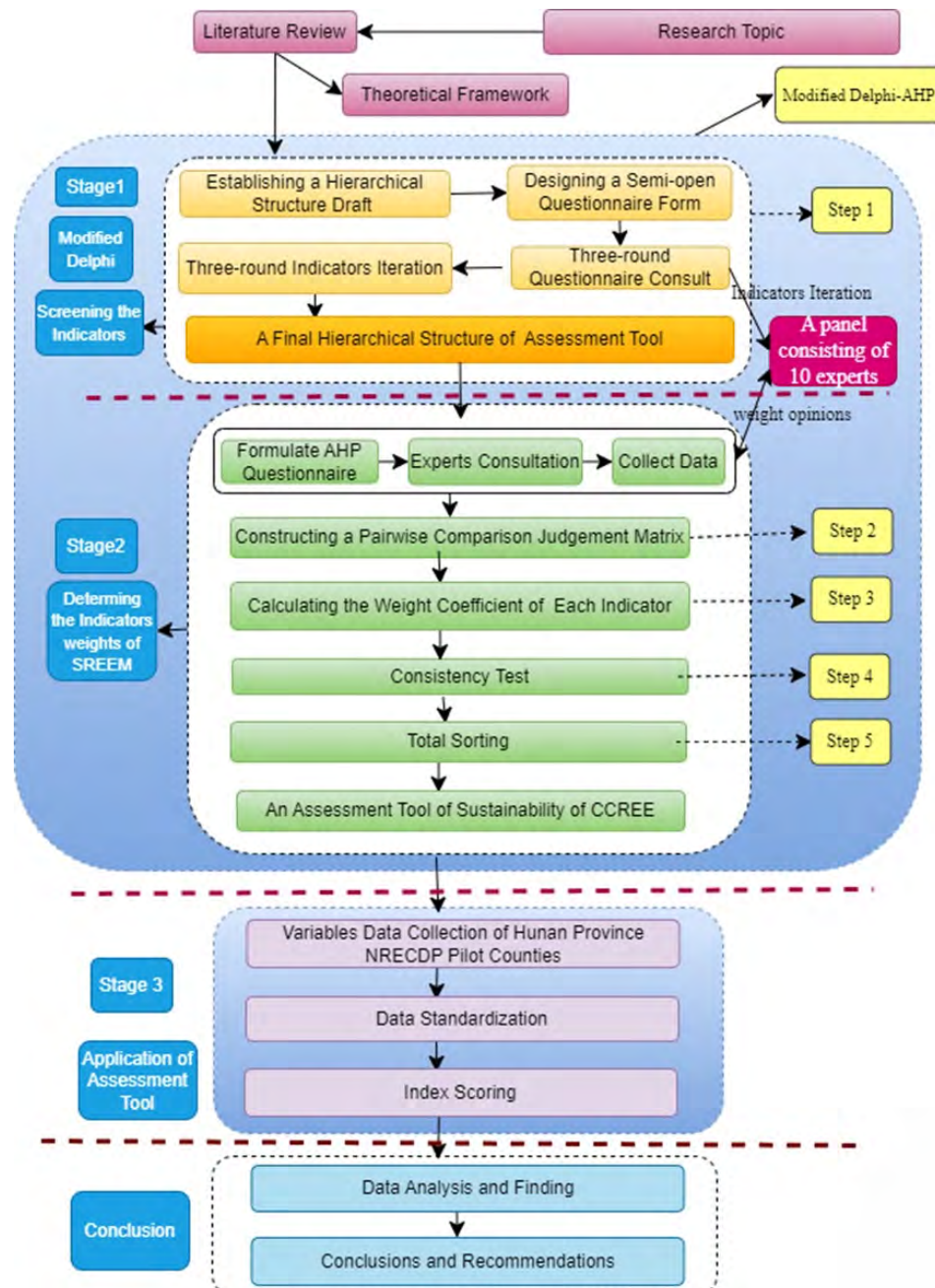


Fig. 2. Research Design

3.2 Development of Assessment Tool

3.2.1 Stage I: Constructing a Hierarchical Model of the SREEM Draft

The SREEM must reflect the structural robustness of the CCREE. The CCREE is organized through the Rural E-commerce Public Service System (REPSS), which includes the Rural E-commerce Public Service Centre (REPSC), Agricultural Products E-commerce Supply Chain Management System (APESCMS), Rural E-commerce Service Sites System (RESSS), and Rural E-commerce Training System (RETS). Thus, the SREEM should demonstrate the CCREE's ability to sustain its organizational structure, functional vitality, and resilience under pressure, ensuring the delivery of high-quality services for current and future generations. This requires consideration of the sustainability and predictability of the CCREE structure, as well as the survival rate of the core population, which significantly impacts robustness.

3.2.2 Indicators Source of the SREEM

The index system for the SREEM was developed through a comprehensive approach, drawing from three key sources:

- **Ecosystem Health Evaluation Index System**
Building on the foundational work of Iansiti and Levien (2002), who identified three critical factors influencing business ecosystem health—Robustness, Productivity, and Niche Creation—this study incorporates these dimensions into the SREEM. By integrating these elements with the functions and structure of the County-level Rural E-commerce Ecosystem (CCREE), the index system reflects the essential characteristics that contribute to ecosystem vitality.
- **Performance Evaluation Index System of NRECDP**
To improve the operational effectiveness of the NRECDP, the Chinese government established a performance evaluation index system. This system, assessed by a third party across all NRECDP counties, comprises three dimensions: fostering rural e-commerce's endogenous development capability, organizational implementation, and work performance. Selected indicators from these dimensions have been integrated into the SREEM to ensure alignment with the objectives and framework of the CCREE.
- **Publicly Available Research Reports**
The index system also derives insights from research reports on the County Digital Rural Index, which encompasses four dimensions: Rural Digital Infrastructure Index, Rural Economic Digital Index, Rural Governance Digital Index, and Rural Life Digital Index (Lai et al., 2024). The "Digital Rural Index," measured across 1,880 counties in China (Digital Village Project Team, 2020), includes relevant indices such as Digital Infrastructure, Digital Production, Digital Supply Chain Management, Digital Marketing, Digital Finance, and Digital Consumption, all closely related to the Endogenous Development Capacity of the CCREE.

This research adheres to six principles of index system construction and draws upon three key sources of indicator content, all while thoroughly considering the conceptual framework of CCREES. The focus is on the dimensions of robustness, niche creation, and endogenous development capacity. By synthesizing these three sources, the index system for the SREEM is robust and multifaceted, providing a comprehensive framework for assessing the sustainability of the CCREE.

3.2.3 Stage II: Screening Indicators of the SREEM via the Modified Delphi Method

- **Formation of a Panel of Experts for Evaluating Rural E-Commerce Indicators**
Following recommendations from the Delphi literature, a panel of ten experts was formed, selected for their expertise in CREE. These experts were invited to evaluate the practicality of the proposed indicators in the SREEM draft developed in Stage 1. Selection criteria included familiarity with rural e-commerce, practical experience, industry influence, and diverse backgrounds (academia, e-commerce, government, rural e-commerce services). Unrelated experts were excluded. The panel comprised three senior academics/researchers, three e-commerce experts, three government representatives, and one rural e-commerce service expert, covering all dimensions of the CCREE.
- **Implementation of the Modified Delphi Questionnaire Process**
This study used a three-round expert survey, conducted via email and WeChat over two months, to refine the SREEM indicators. A semi-structured questionnaire was developed based on the SREEM draft, allowing experts to select indicators and suggest additional ones. The questionnaire was sent to ten industry experts, who provided feedback. In the first round, all ten experts responded, offering valuable input on the framework, leading to significant revisions. These changes resulted in the second SREEM draft, with three main indicators, ten sub-indicators, twenty-six sub-sub-indicators, and thirty-seven detailed indicators. A second questionnaire, reflecting the updated draft, was sent to the same experts. Their feedback showed strong approval of the changes, resolving issues like overlap and redundancy. A third round of surveys was then conducted, with only minor adjustments suggested. As the third round revealed minimal changes, a fourth round was unnecessary. The final SREEM, presented in Table 1, includes three dimensions, eight criteria, twenty-three indicators, and thirty-five variables.

3.2.4 Stage III: Application of the Assessment Tools

- **Implementation of AHP**
To determine the weight of each indicator in SREEM, the AHP method will be used for weight surveys at various levels, and MATLAB software will be utilized to calculate the weight coefficients, resulting in the final assessment tool for CCREEs. This process will be conducted in the upcoming phase of the study. The study utilizes 72 NRECDP pilot counties in Hunan Province as samples to apply the SREEM model for assessing CCREEs. Continuous data covering from 2017 to 2021 will be collected across thirty-five variables (organized into four-level indicators) for each of the seventy-two counties, resulting in a total of 12,600 data points. All data will be quantitative, sourced from official government departments, websites, and publicly available research. After data collection, Excel will be used for cleaning, standardization, index calculation, and statistical analysis, resulting in CREEs assessment results for the seventy-two counties. The sustainability assessment results will be analysed comprehensively, covering three perspectives: longitudinal (2017-2021), cross-sectional (72 counties), and same-level indicators (total, first-level, second-level, and third-level indicators), providing a full view of CREEs development in Hunan Province. This entire process will be implemented during the next phase of the study.

4.0 RESULT AND ANALYSIS

4.1 SREEM Structure

As shown in Table 1, The hierarchical structure is the result of the findings from the Delphi process used in the study. Through several rounds of questionnaires with the expert panel, the indicators for SREEM were identified, organized, and classified. As a result of this process, the final SREEM structure comprises three dimensions, eight criteria, twenty-three indicators, and thirty-five variables.

4.1.1 Robustness (A)

Robustness is evaluated through the organizational structure of CCREE, focusing on the Survival Rate, Ecosystem Structure Persistence, and Predictability.

- **Survival Rate (A1)** is measured by the Survival Rate of the Core Population (A11) evaluated using REPSC.
- **Ecosystem Structure Persistence (A2)** is assessed through three components: RETS (A21), RESSS (A22), and RELS (A23), all part of CREPSS.
- **Predictability (A3)** is evaluated based on the Predictability of the REPSC (A31) and the E-commerce Industry (A32), assessing the adaptability of CCREE's core populations to environmental changes and threats.

4.1.2 Niche Creation (B)

Niche Creation evaluates CCREE's activity level, focusing on Population Variety (B1) and Value Creation Capability (B2) for the ecosystem.

- **Population Variety (B1)** is measured through factors like Emerging Online Merchants (B111), Provincial-Level Leading Enterprises (B112), Farmers' Cooperatives (B113), Family Farms (B114), and other agricultural operators.
- **Value Creation (B2)** includes the value of Agricultural Products Sold to Cities (B21) (Duan et al., 2024) and the value of Industrial Products Sold to Rural Areas (B22).

4.1.3 Endogenous Development Capacity (C)

This dimension focuses on CCREE's alignment with digital rural development and high-quality rural revitalization goals. It draws on indicators from the NRECDP performance evaluation tool and the County Digital Rural Index (Guo & Chen, 2022). The capacity is evaluated through three key areas:

- **Rural E-commerce Infrastructure (C1)** includes indicators such as County Rural Digital Infrastructure (C11), Public Warehousing and Distribution Facilities (C12), and Cold Chain Logistics for Agricultural Products (C13) (ZJU, 2021).
- **Prosperous Industry (C2)** is driven by consumer demand for quality agricultural products, assessed through Characteristic Agricultural Products (C21), Agricultural Product Brands (C22), Geographical Indication Products (C23), Industrial Base (C24), E-commerce Industry Clustering (C25), and Digital Production (C26).
- **Rural E-commerce Service Ability (C3)** is measured through indicators from the County Digital Rural Index, including Digital Consumption Service (C31), Digital Life Service (C32), Digital Marketing Service (C33), Supply Chain Service (C34), and Digital Financial Services (C35).

Table 1. The SREEM Index System

First level indicators	Second level indicators	Third level indicators	Fourth level indicator
A Robustness	A1 Survival Rate	A11 Survival Rate of Core Populations	A111 Put into Use REPSC
			A112 Annual Incubating Enterprise Network for Business Management
	A2 Persistence of Ecosystem Structure	A21 Persistence of Rural E-commerce Training System (RETS)	A211 Annual Investment in Rural E-commerce Training (10,000 ¥)
		A22 Persistence of Rural E-commerce Service Sites System (RESSS)	A221 Village-level E-commerce Service Site Coverage (%)
			A222 The Proportion of Sustainable Operation Sites in the Total Village Sites in the County (%)
		A23 Persistence of Rural E-commerce Logistics System) (RELS)	A231 The Coverage Rate of the Village-level Logistics Sites (%)
			A232 Unified Warehouse Co-allocation Logistics Enterprises from County to Village
	A3 Predictability	A31 Predictability of (Rural E-commerce Public Service Centre) REPSC	A311 Annual Investment Amount (10,000 ¥)
			A312 Continuously Operated by Professional Third-party Enterprise
		A32 Predictability of the E-commerce Industry	A321 Annual Government Support for the E-commerce Industry (10,000 ¥)
			A322 Number of Annual Training for E-commerce Practitioners (person-time)
B Niche Creation	B1 Variety	B11 Key Population Variety	B111 Total Number of New Online Merchants (per 10,000 people)
			B112 Number of Leading Enterprises above the Provincial Level (per 10,000 people)
			B113 Farmers' Cooperatives (per 10,000 people)
			B114 Family Farm (per 10,000 people)
	B2 Value Creation	B21 Value Creation of Agricultural Products Sold to the City	B211 Cumulative Number of Individual Agricultural Products Added
		B22 Value Creation of Industrial Products Sold to the Rural	B221 Number of Packages Received
C Endogenous Development Capacity	C1 Rural E-commerce Infrastructure	C11 County Rural Digital Infrastructure	C111 Digital Infrastructure Index
		C12 Rural E-commerce Public Warehousing and Distribution Facilities	C121 Local Green Warehouses Used to Store Agricultural Produce

First level indicators	Second level indicators	Third level indicators	Fourth level indicator
		C13 Cold Chain Logistics Facilities for Agricultural Products Preservation	C131 Agricultural Product Supply Chain Cold Chain Logistics Construction Project Award (10,000 ¥)
	C2 Prosperous Industry	C21 Characteristic Agricultural Products	C211 Hometown of Chinese Specialties
			C212 SC License
		C22 Characteristic Agricultural Product Brand	C221 Number of “Two Products”
		C23 Geographical Indication Product	C231 Geographical Indications
		C24 Characteristic Industrial Base	C241 National OVOP Demonstration Villages and Towns
			C242 National Rural Characteristic Industry 100-million-yuan (¥) town (township)
			C243 National Rural Characteristic Industry 100-million-yuan (¥)
		C25 E-commerce Industry Agglomeration	C251 Live Streaming Base
			C252 E-commerce Industrial Park
		C26 Digital Production	C261 Digital Production Index
	C3 Rural E-commerce Serviceability	C31 Digital Consumption Service	C311 Digital Consumption Index
		C32 Digital Life Service	C321 Digital Life Services Index
		C33 Digital Marketing Service	C331 Digital Marketing Index
		C34 Supply Chain Service	C341 Digital Supply Chain Index
		C35 Digital Financial Services	C351 Digital Financial Index

4.2 Determining Weights of All-level Indicators in the SREEM

4.2.1 Constructing the Pairwise Comparison Judgment Matrix

Saaty's scale and expert surveys were utilized to construct pairwise comparison judgment matrices. During matrix construction, indicator weights, and qualitative assignments were derived from expert input. The judgment matrices were developed based on the hierarchical structure of the SREEM. The same ten experts involved in the Modified Delphi method were invited to participate in the survey, rating the importance of each indicator within the SREEM. The expert survey was administered through the questionnaire Star platform (<https://www.wjx.cn/vm/OtT3WYe.aspx>). Using the relative scores provided by the experts for each indicator, a synthetic judgment matrix was generated for each level by applying the geometric mean aggregation method. This approach effectively synthesized expert opinions. The eigenvectors and eigenvalues for each judgment matrix were calculated using MATLAB's geometric mean method.

The goal layer matrix is denoted as $A^{(k)} = (a_{ij}^{(k)})$ for $k = 1, 2, \dots, 10$. To obtain the pairwise comparison matrix $A = (a_{ij})$, first compute the geometric mean of $(a_{ij}^{(k)})$ using the following formula (Eq. (1)).

$$a_{ij} = \prod_{k=1}^s (a_{ij}^{(k)})^{\lambda_k}$$

(1)

where λ_k represents the weighting factor assigned to the k -th expert.

4.2.2 Calculating the Weight of Each Index

In this study, the judgment matrix is solved using MATLAB software to compute its eigenvectors and eigenvalues. Each column of the judgment matrix A is normalized as shown in Eq. (2).

$$a_{ij}^* = \frac{a_{ij}}{\sum_{k=1}^n a_{kj}} \quad \text{for } i, j = 1, 2, \dots, n.$$

(2)

Subsequently, the row-wise summation is performed, denoted in Eq. (3).

$$W_i = \sum_{j=1}^n a_{ij}^*.$$

(3)

To obtain the weight vector W , normalize W_i as follows (Eq. (4))

$$W_i = \frac{W_i}{\sum_{j=1}^n W_j} \quad \text{for } i, j = 1, 2, \dots, n.$$

(4)

Next, calculate the maximum eigenvalue $\lambda_{\max}$ using the formula (Eq. 5)

$$\lambda_{\max} = \sum_{i=1}^n \frac{(AW)_i}{nW_i},$$

(5)

Where $(AW)_i$ represents the i -th component of the matrix-vector product AW . The relationship $AW = \lambda_{\max}W$ is then satisfied (Khan et al., 2022).

4.2.3 Calculation of Combined Weights and Consistency Check for Each Layer

To determine the aggregated weights of elements within a given tier relative to the overall objective and their interdependencies with elements in the preceding layer, the ranking outcomes of all elements within the same tier are utilized. This involves calculating the weight values for the significance of each element in the current tier to the elements in the higher tier. Simultaneously, a consistency check is performed using the consistency verification method described earlier. MATLAB software is employed to compute the hierarchical single rankings and consistency test results, providing the weight coefficients for indicators at each level.

The formula for calculating the weight of the j -th indicator in the second tier relative to the i -th indicator in the first tier (Ye & Liu, 2023) is as follows:

$$W_{ij} = W_i \times b_{ij}$$

$$RI = \sum W \times RI_i, CR = CI / RI = CI < 0.1$$

(6)

Here, W_{ij} represents the weight of the j -th indicator at the second level to the i -th indicator at the first level (Ye & Liu, 2023). CI denotes the Consistency Index, RI is the calculated Random Index (as shown in Table 2), and CR refers to the Consistency Ratio.

Table 2. Random Consistency Index (RI) (Fuyang et al., 2014)

Order of matrix	1	2	3	4	5	6	7
RI	0	0	0.515	0.893	1.119	1.249	1.345
Order of matrix	8	9	10	11	12	13	14
RI	1.420	1.462	1.487	1.516	1.541	1.558	1.580

Due to space limitations, the specific computational procedures are not presented in this paper. However, Table 3 provides a comprehensive summary of the weight coefficients for the indicators at each level. This summary marks the culmination of the development process for the CCREES assessment tool.

Table 3. Weights of the Indicators in the SREEM

First-level Indicators	Second-level Indicators	Third-level Indicators	Fourth-level Indicator
A 0.4133	A1 0.2062	A11 0.2062	A111 0.1250
			A112 0.0812
	A2 0.1185	A21 0.0359	A211 0.0359
		A22 0.0188	A221 0.0040
			A222 0.0148
		A23 0.0639	A231 0.0389
	A3 0.0887		A232 0.0250
		A31 0.0562	A311 0.0265
			A312 0.0298
		A32 0.0324	A321 0.0221
			A322 0.0103
B 0.1829	B1 0.0984	B11 0.0984	B111 0.0275
			B112 0.0397
			B113 0.0203
			B114 0.0110
	B2 0.0845	B21 0.0689	B211 0.0689
		B22 0.0155	B221 0.0155
C 0.4038	C1 0.0977	C11 0.0237	C111 0.0237
		C12 0.0414	C121 0.0414
		C13 0.0326	C131 0.0326
	C2 0.1949	C21 0.0401	C211 0.0201
			C212 0.0201
		C22 0.0466	C221 0.0466
		C23 0.0246	C231 0.0246
		C24 0.0334	C241 0.0100
			C242 0.0126
			C243 0.0108
		C25 0.0379	C251 0.0174
			C252 0.0206
	C3 0.1112	C26 0.0122	C261 0.0122
		C31 0.0245	C311 0.0245
		C32 0.0199	C321 0.0199

5.0 SUGGESTION FOR FUTURE RESEARCH

Future research may extend the application of the SREEM Index System to regions beyond Hunan, facilitating comparative analyses of rural e-commerce ecosystems across various parts of China. Furthermore, investigating the long-term sustainability and resilience of CREES under differing socio-economic and environmental conditions could yield critical insights. Incorporating qualitative methodologies, such as community feedback and case studies of local enterprises, would further enrich the evaluation process, offering a more holistic understanding of the effectiveness and adaptability of rural e-commerce ecosystems in diverse contexts.

6.0 CONCLUSION

This study introduces the conceptual framework of County-level Rural E-commerce Ecosystem Sustainability (CCREES) and develops an associated assessment tool, the Sustainability of Rural E-commerce Ecosystem Model (SREEM). The CCREE is defined as the rural e-commerce ecosystem established through government-led initiatives in China, specifically, the National Rural E-commerce Comprehensive Demonstration Project (NRECDP), organized under the County-level Rural E-commerce Public Service System (CREPSS) framework. CREPSS comprises six modules: the Rural E-commerce Public Service Centre (REPSC), Rural E-commerce Training System (RETS), Rural E-commerce Service Sites System (RESSS), Rural E-commerce Logistics Service Sites (RELS), Rural E-commerce Marketing System (REMS), and Agricultural Products E-commerce Supply Chain Management System (APESCMS).

The NRECDP focuses on nurturing the county-level rural e-commerce ecosystem by facilitating the circulation of downstream industrial products and providing services for agricultural products. Its objectives include cultivating endogenous development capabilities, fostering population aggregation, enhancing niche creation, promoting high-quality development, and achieving rural revitalization goals. CCREES embodies the ideal state of the CCREE, characterized by a stable organizational structure, an active ecological population, strong value creation capabilities, comprehensive e-commerce infrastructure, a thriving industry, robust service capabilities, efficient product circulation, and resilience to environmental changes.

SREEM is developed based on six fundamental principles and refined through Modified Delphi research involving ten authoritative experts. The resulting framework consists of three primary indicators, eight secondary indicators, twenty-three tertiary indicators, and thirty-five quaternary indicators. Using the AHP method, the same experts conducted a weight survey to determine the final weight coefficients for each indicator in SREEM.

This study contributes to the academic field by establishing a theoretical framework and an assessment tool for CCREES, thereby enhancing our understanding of the developmental dynamics of exogenous rural e-commerce ecosystems. Additionally, it facilitates practical applications by evaluating CCREES, providing insights for the advancement of rural e-commerce, and fostering rural revitalization through enhanced robustness, niche creation, and the augmentation of endogenous development capabilities.

CO-AUTHOR CONTRIBUTION

The authors declare that there are no conflicts of interest regarding this article. Author 1 conducted the fieldwork, compiled the literature review, provided the data, and performed the statistical analysis. Author 2 was responsible for writing the entire manuscript. Author 3 interpreted the results.

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REFERENCES

- Bisheng, Z. (2018). *A Study on the Performance Evaluation of Government*
- Chenghao, L. (2019). Rural revitalization: A study on the dilemma and countermeasures between the energization from e-commerce and external supply of local government. *Journal of Northwest A&F University (Social Science Edition)*, 19(04), 122-130.
- Costanza, R., & Mageau, M. (1999). What is a healthy ecosystem? *Aquatic ecology*, 33(1), 105-115.
- Creswell, J. W., Clark, V. L. P., Gutmann, M. L., & Hanson, W. E. (2003). Advanced Mixed. *Handbook of mixed methods in social & behavioral research*, 209.
- Cui, M., Pan, S. L., Newell, S., & Cui, L. (2017). Strategy, resource orchestration, and e-commerce enabled social innovation in Rural China. *The Journal of Strategic Information Systems*, 26(1), 3-21.
- Denscombe, M. (2017). *EBOOK: The good research guide: For small-scale social research projects*. McGraw-Hill Education .
- Digital Village Project Team. (2020). The measurement of the "Digital Rural Index" across 1,880 counties in China.
- Do-Hyun, H., & Yang, T. (2019). The Experience and Revelation from the Saemaeul Movement in South Korea. *Journal of Nanjing Agricultural University (Social Sciences Edition)*, 19(04), 20-27+156.
- Forman, E. H., & Gass, S. I. (2001). The analytic hierarchy process—an exposition. *Operations research*, 49(4), 469-486.
- Governance in China's High-tech Zones* [Doctoral, Huazhong University of Science & Technology].
- Hammersley, M. (1997). Qualitative data archiving: some reflections on its prospects and problems. *Sociology*, 31(1), 131-142.
- Hongtao, T., & Shengnan, L. (2020). Research on the mechanism of digital economy empowering High-quality rural economy. *Science and Technology Think Tank*, (9), 13-18
- Hsu, P. F., & Lin, F. L. (2013). Developing a decision model for brand naming using the Delphi method and analytic hierarchy process. *Asia Pacific Journal of Marketing and Logistics*, 25(2), 187-199.
- Iansiti, M., & Levien, R. (2002a). Keystones and dominators: Framing the operational dynamics of business ecosystems. *The operational dynamics of business ecosystems*, 3-19.
- Jha, S. K., Pinsonneault, A., & Dubé, L. (2016). The evolution of an ICT platform-enabled ecosystem for poverty alleviation. *MIS Quarterly*, 40(2), 431-446.
- Jiang, Y., Shi, W., & Sun, J. (2013). *The Research of health assessment of e-business ecosystem*. WHICEB,
- Khan, M. R., Alam, M. J., Tabassum, N., & Khan, N. A. (2022). A Systematic review of the Delphi-AHP method in analyzing challenges to public-sector project procurement and the supply chain: A developing country's perspective. *Sustainability*, 14(21), 14215.
- Lai, X., Chen, Y., & Li, J. (2024). The development of the Rural digital infrastructure index, rural economic digital index, rural governance digital index, and rural life digital index.
- Li-yuan, Z., Zhen-Miao, L., & Jun, W. (2020). User perception model of e-business ecosystem. *Information Systems Journal*, 38(08), 145-152.
- Lihua, H., Hu, G., & Lu, X. (2009). E-business ecosystem and its evolutionary path: The case of the Alibaba group in China. *Pacific Asia Journal of the Association for Information Systems*, 1(4), 3.
- Maxwell, J. A. (2008). Designing a qualitative study (Vol. 2). In *The SAGE handbook of applied social research methods*.
- Mei, Y., & Jiang, Y. (2020). The mechanism between rural e-commerce industry agglomeration and regional economic development in the context of rural revitalization: A multi-case study based on the life cycle theory of industrial clusters. *Chin. Rural Econ*, 6, 56-74.

- Ming, S. (2018). *Rural revitalization and rural e-commerce development*. Chemical Industry Press.
- Moore, J. F. (1993). Predators and prey: a new ecology of competition. *Harvard Business Review*, 71(3), 75-86.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE.
- Raja Adzrin, R. A, Lau P. P. & Nurul A. A. (2023). Examining ESG disclosure practices and firm performance in the food and beverages industry: a content analysis approach. *Insight Journal*, 10(2), 80-96.
- Rossmann, G. B., & Wilson, B. L. (1985). Numbers and words: Combining quantitative and qualitative methods in a single large-scale evaluation study. *Evaluation Review*, 9(5), 627-643.
- Sheng, W., & Zhongbing, D. (2015). The Agricultural products electric commercial ecological system: A Theoretical researching framework. *China Rural Observation*, (4), 39-48.
- Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches* (Vol. 46). Sage.
- Vaidya, O. S., & Kumar, S. (2006). Analytic hierarchy process: An overview of applications. *European Journal of Operational Research*, 169(1), 1-29.
- Wan Nur A. W. W. N, Rahimah M. N & Syahrul A. A. (2023). Board's impact on the firms' strategic change. *Insight Journal*, 10(2), 174 – 184.
- Yang, J., Xu, C., Fang, Z., & Shi, Y. (2022). Spatial distribution characteristics and driving factors of rural revitalization model villages in the Yangtze River Delta. *Land*, 11(11), 1935.
- Yuehuan, T., Yang, Q., Li, Q., & Zhu, B. (2020). The development of e-commerce and the increase of farmers' income: An examination based on the policies of e-commerce in rural areas. *Chinese Rural Economy*, (6), 75-94.
- Yueju, W. (2020). *Multi-scale assessment of sustainable well-being in China* [Doctoral dissertation, Lanzhou University].
- Zang, Y., Hu, S., Zhou, B.-b., Lv, L., & Sui, X. (2023). Entrepreneurship and the formation mechanism of Taobao Villages: Implications for sustainable development in rural areas. *Journal of Rural Studies*, 100.
- Zang, Y., Hu, S., Zhou, B.-b., Lv, L., & Sui, X. (2023). Entrepreneurship and the formation mechanism of Taobao Villages: Implications for sustainable development in rural areas. *Journal of Rural Studies*, 100.
- Zhaoying, N., & Yihuan, W. (2022). The supply dilemma and innovation path of rural E-commerce system. *Research of Agricultural Modernization*, 43(01), 59-68.

INTERNAL CONTROL GOVERNANCE AND AIS: UNDERSTANDING AND RESOLVING USER DILEMMAS

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ABSTRACT

This study aims to explore the dilemmas faced by users of Accounting Information Systems (AIS) in the context of internal control governance (ICG) within an organization. The study on user's dilemma in AIS and corporate governance internal control (CGIC) can help to understand how organization could un-anxiously unburden the hostile requirements. Thus, this will further give a balance understanding and a guide for establishing elastic and manageable internal control policies for AIS and its users. The systematic literature review (SLR) applies conventional principles after identifying and evaluating all the related data and information to include in this research study. These research study pragmatically derive and deployed the premise of existing literature to identify the concepts of user dilemmas in AIS. This was done by focusing on the key areas in AIS, ICG, IT governance (ITG), corporate governance (CG) and users' dilemmas in AIS. Through formulating research question and developing the approach, this research systematically and explicitly extracted the data gathered and those selected data then served as the primary filters for inclusion. The findings reveal that AIS users frequently encounter dilemmas in executing their roles and responsibilities, particularly ethical and process-related dilemmas, within the broader context of internal control governance. This study is important as it ventures into a very scanty research environment the like of user's dilemma in AIS and CG internal control. The entrance of this research, set a new domain to explore and research as there are few or limited work done in this research area.

Keywords: Accounting Information System (AIS), Corporate Governance, Internal Control & Users Dilemma

1.0 INTRODUCTION

The secret to a successful organization's financial forecast in today's dynamic environment is a balance of several elements in accounting information aspects. This accounting information aspect includes but not limited to CG policy, strategy, internal control policy on data security, and AIS tool. Corporate governance is the influential/ dominant factor that plans the control mechanism for deployment of AIS tools through many policies embedded in the IT of the organization. Corporate governance is in a constant state of stroll on how corporate governance policy could boost or facilitate users' effectiveness in performing their day-to-day task with leverage liveness to initiate, optimize limited time and resources hinged on accuracy of deployed data (Kasasbeh, 2017). These policies are not limited to how tasks are performed

but extend to different environment and circumstances in which these tasks are performed while upholding integrity of data & information security.

The complexity and ambiguity of governance or corporate governance revolves around the new mode in which organization incorporate or deploy their policies. This research follows in the trend of other emerging literature in examining the balance in organization internal control policy on data security. These policy serves as a hybrid characteristic derived from processes that blend with complex and challenging corporate governances' policy in organizations. Corporate governance is binary structure with policies, rules and practical processes use in pioneering the affairs of an organization (Tucci, 2021). In the same context, Internal controls governance are policies or practices used by an organization to guarantee that it meets its strategic goals, makes efficient use of its resources, and relies on accurate information when making management decisions.

Regardless of the environment and circumstance on which AIS and AIS users might operate in, financial reports and data extract from AIS are sacrosanct to accuracy, credibility, objectivity, and integrity (Ali et al.,2017). This mechanism and its functionality will pioneer a high level of trust in corporate governance by focusing on its fundamentals and principles as an organization. Nonetheless, for AIS users to fully harvest the proficiency of their office and daily task, there are sets of guidelines and rule in which they must operate in. Users operate within a secure environment known as internal control which is bind by rules and regulations of corporate governance policy implemented through the IT team. Thus, this research seeks to explore the internal control governance mechanism that cause dilemma to AIS users by identifying the factors that influence AIS user's dilemma in internal control governance in AIS within business organization. Similarly, to identify the mechanism in internal control governance obligatory for AIS users and to identify the dilemma in internal control governance that affect AIS user's performance.

However, the more complex the policies are, the more AIS users such as accountant, account manager, etc. are faced with complex and time-consuming approach for manoeuvring through the tough internal control mechanism in deploying their daily task (Tucci, 2021). AIS users are within the crossroad of indecision (dilemma) either to circumvent the process or abide by the rules. Thus, there is a need to explore more on the dilemma that AIS users face while using the AIS tool within the boundary and rules of corporate governance policy for data security. The tendency to subvert ethical standard of the profession or the stringent and tight internal control rules is the sole decision of the user. AIS user will often face this dilemma when completing a given task within a given period of time for organization with tight deadline for departmental reporting. AIS user may struggle in these circumstances when the corporate governance policy and internal control elements or policy meet at the crossroad of indecision where user is face with the choice either to undermine the process or to abide by the rule. AIS user decision or judgement, will largely depend on ensuring that all accounting activities can be handled effectively while upholding integrity that is in-line with our universal human right of choice and abiding by internal control governance and policies.

The structure of this research begins with a discussion of the literature on the concepts of internal control governance and Accounting Information Systems (AIS). This is followed by a detailed explanation of the methodology, a presentation and analysis of the findings, and concludes with a final summary and conclusion.

2.0 LITERATURE REVIEW

2.1 Corporate Governance

The word "governance" has undergone some changes in colloquial expressions because of its frequent use in so many languages. According to McGrath & Whitty (2015), the term

“governance” has many definitions, ranging from the specialized to the general. The term “governance” typically refers to a set of regulations under which many entities carry out various tasks to ensure the effective operation of various departments (McGrath & Whitty, 2015). Examining different definition of what is corporate government, the definition cited by Investopedia on their financial website, describes corporate governance as the classification of relationships, well-defined by structures and processes. In summary, corporate governance is a binding structure with policies, rules and practical processes use in pioneering the affairs of an organization which are refer to as organizing policy on which corporate governance derived its function as policy maker.

2.2 Corporate Governance Policy

Corporate governance policy provides a framework for an effective governance of IT to assist those at the highest level of organizations to understand and fulfil their legal, regulatory, and ethical obligations in respect of their organizations’ use of IT (ISO/IEC 38500:2008). Corporate governance policy serves to safeguard and boost the shareholders’ interests by setting strategic direction, appointing and monitoring management to achieve set goals. Policy is an essential element for the success of any business. When this key governance mechanism is missing, it can lead to ineffective or total failure of a business (Walker, 2009). According to Alie (2015), in terms of the guidelines, processes, roles, and responsibilities assigned during the decision-making process, the governance structure establishes the foundation for project management. The project governance keeps the project under control, enabling it to proceed smoothly and as planned (McGrath & Whitty 2015). Good corporate governance comprises a framework that are put in place to get the utmost value for all shareholders legally, ethically, and sustainably (Mrabure et al., 2020).

The role of governance in every organization is to plan policies and regulate action or inaction of every department for credible profitability. According to Tucci (2021), governance includes not just the institutions that control and run an organization, but also the procedures that hold the organization and its members accountable for their actions. Governance includes administration, compliance, risk management, and ethics. They predicate an effective company leadership and management on sound corporate governance (Tucci, 2021). The boards of directors are the primary authorities in charge of overseeing corporate governance. Shareholders are ultimately responsible for selecting directors and auditors, as well as establishing a successful governance framework (Lynn & Suraj 2019). Besides reporting on shareholder stewardship, the board defines strategic goals, providing leadership to accomplish those goals, managing the company’s administration, and managing the company’s finances. Corporate governance is mostly concerned with how a company’s board of directors decides on the general rules that will guide the company’s actions (Littlewood, 2020). By creating a systematic rules and policy in segregation of duties of each employee, it’s helped an organization to operate effectively and efficiently. Furthermore, corporate governance putting IT governance in place to align with organization goals which was designed to be a useful tool and to bridge the critical gap between technological issues, business risks, and control requirements.

2.3 IT Governance

ISO 38500 defines IT Governance as *“The system by which the current and future use of ICT is directed and controlled. It involves evaluating and directing the plans for the use of ICT to support the organization and monitoring this use to achieve plans. It includes the strategy and policies for using ICT within an organization.”* (Calder, 2019).

IT governance is a subset of corporate governance that consists of leadership and organizational structures and processes that ensure that an organization’s IT supports and enhances the organization’s strategies and goals. IT governance relies on the structure of relationships and processes to guide and control an organization to achieve organizational

goals through value creation while balancing the risks and rewards of IT and its processes (Sarah, 2019). Governance in general is a set of responsibilities and practices exercised by the Board and Senior Management to provide strategic direction that guaranteeing the achievement of goals and objectives. When organization goals and objectives are achieved, the board can ascertain appropriate risk management to ensure organization resources are used dutifully. The policy of governance vested on through IT governance with the overall objectives to understand the issues and the strategic importance of IT. In general, controls are the policies, procedures, practices, and organizational structures that are designed to provide reasonable assurance that business objectives will be achieved. By this, the organization is able to ensure that undesired events will be prevented, detected and corrected (Kirkpatrick, 2019).

2.4 Accounting Information System (AIS)

With the growing innovation and threat to information security in the cosmopolitan IT world, AIS is gaining an indisputable solid presence and dominance. These create vacuum that must be close for the current business practices to thrive for much faster decision-making process, as many organizations must manage their day-to-day receivables and payable cash flow (Trabulsi, 2018). According to Romney and Steinbart (2006), *"One basic function of an AIS is to provide information useful for decision making. In order to be useful, the information must be reliable, which means: (a) it provides an accurate, complete, and timely picture of the organization's activities. (b) it is available when needed (c) The information and the system that produces it is protected from loss, compromise, and theft"*

Financial and economic challenges can be managed and controlled more effectively if AIS is incorporated into IT systems (Trabulsi, 2018). The development of a more resilient corporate culture in the face of ongoing environmental change will be aided by increasing AIS investment, educating employees, and improving product and internal process quality. Improved corporate performance reduced organizational and financial barriers; and increased access to capital markets are all results of innovation (Shazalina et al., 2015). AIS effectively detects, collects, saves, manages, and delivers accounting data as an integral component of corporate processes (Ndagijimana, 2016). The accounting component of an AIS enables businesses to send data and information to internal and external partners, as well as to administer procedures such as asset protection and individual actions. AIS is very important in making sure that an organization utilizes the capital provided by investor, to run a smooth business that generate profit and build confidence and support to attract more investors through utmost service delivery (Trabulsi, 2018). Businesses and government agencies are interested in AIS, but policy and governance challenges can be both a road map to success and a roadblock.

2.5 Accounting Information System Component

The sole purpose of this AIS system, which is illustrated in Figure 1 below, is to facilitate reporting and decision-making on the part of organization to investors, regulators, and other parties. When it comes to investing, buying, engaging business with contractors, and hiring employees, practically every facet of AIS has ethical repercussions. As a result, the information extracted from AIS for the purposes of decision-making is not independent from the corporate governance but rather interconnected with it. The mechanisms of "Control" that exist within an organization will be the primary focus of this study.

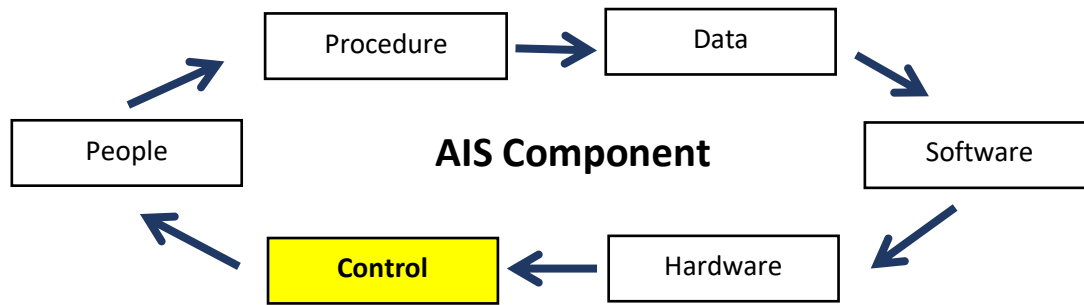


Fig. 1 AIS Primary Component (Source: *Introduction to Accounting Information Systems (AIS)* by Fontinelle (2021))

Control mechanisms that aid in the execution of management direction include rules and processes. They are accountable for a variety of responsibilities, such as job separation, asset security, operational performance evaluations, approvals, authorizations, verifications, and reconciliations (Ndagijimana, 2016). The aforementioned procedures should be followed by management and personnel to ensure internal control mechanism function as design with balance policy that has relatively flexibility to avoid time constraint (Trabulsi, 2018). In this situation, the corporation may stipulate that only one worker per shift is permitted to operate a cash drawer (Gordon, 2022). One person per cash drawer is the proper control action in this situation. An AIS must be set with internal controls to restrict computer access to authorized users, who may or may not be workers. In addition, it must prevent restricted-access users from illegally accessing files.

2.6 Internal Control in Accounting Information System

Internal control in accounting information systems (AIS) refers to the policies and procedures that are put in place to safeguard financial information and assets, prevent fraud, and ensure compliance with laws and regulations (Romney et al., 2021). These controls are designed to help organizations achieve their financial and operational goals by minimizing errors and mismanagement, and promoting efficiency and effectiveness.

Accounting information systems contribute to the improvement of a company's internal control structure. When it comes to developing internal control systems, the COSO framework is a good example. In the field of internal control, this framework is widely accepted as the gold standard, and it has been included in the policies and regulations that govern the practice of internal control in organization. The control environment, information communication, monitoring, risk assessment, and control actions are all elements of the COSO framework. According to Kirkpatrick (2019), the goal of the control environment is to make sure that all of the organization's processes meet the standards of the industry. This may aid the efficient functioning of the organization for profitable business profile. According to David, (2018), if a company can show that all of its business procedures adhere to industry standards, it may be able to reduce its legal exposure. Additionally, the control environment may improve a company's compliance with regulatory compliance criteria. Risk assessment and management, also known as enterprise risk management, assumes that risk is an inherent part of corporate operations (Li et al., 2020). However, these risks may sometimes result in undesirable results for a business. As a result, organizations typically adopt risk management strategies to help them identify risks and reduce or eliminate those deemed to be a threat to the organization's health (Kirkpatrick, 2019).

Risk management and control responsibilities are interdependent. Essentially, they are internal controls intended to guarantee that business processes are managed in a way that allows an organization to fulfil its business objectives without incurring extra risks (Li et al., 2020). Compliance with legal duties, ethical ideals, and established industry standards is ensured through the standardized management of internal and external communications

(David, 2018). Characteristically, firms in the private sector create privacy policies that dictate how customer data may be used. At least one internal auditor is tasked with verifying that workers adhere to authorized internal controls (Ann, 2019). Typically, an external auditor will assess the regulatory compliance of publicly traded companies and audit findings are regularly reported to the board of directors (Ann, 2019) to portray the transparency of internal control governance.

2.7 Users Dilemma

The root connotation of ethics is to understand how human behaviour affects the well-being of others within the organization (Ron & Rahul 2010). Nonetheless, user is face with two pragmatic dilemmas of choices. In many ways, both choices posed a tremendous stress for users while performing their daily task. This dilemma faced by users are dilemma associated with ethics of the profession and the process that users have to go through to undertake their daily task which are ethical dilemma and process dilemma. These dilemmas are complicated and laborious in nature as it deals with both internal control in AIS, internal control in IT and internal control in corporate governance policy. And also, time consuming in practical term for user who has to face all this complication with high expectation for work performance from the organization governing body 'corporate governance', board of directors' as-well-as shareholders, regulators and etc.

2.7.1 Ethical dilemma

Is the indecision of options where users is faced with the choice to choose either to perform their task within the bound of ethical judgment or human judgement. In the other hand, the stringent internal control governance thus place user within the confined of the AIS tool and IT governances that rule on CG policy (Iwejor, 2017). The crossroad of indecision where an ethical issue infringes on universal human rights. This concern refers to the organization's expectations about the deployment and utilization of AIS tools within a permissible time-frame by AIS users and other business professionals (Alles, 2020). It is significant to understand that, internal control governance is one of the major elements on which corporate governance policy is hinge upon for operational dependency. According to Tucci (2021) governance comprises policies that hold both the organization and its members accountable for their acts as well as the institutions that govern and manage an organization. Administration, compliance, risk management, and ethics are all parts of governance or CG incapsulate into these three cores; Governance, Risk management & Compliance (GRC).

2.7.2 Process dilemma

Every organization policy is centred on ensuring efficiency, security of information and ensure all data used in every work process is secured. By-passing certain internal control in an organization is tantamount to fraud and brings along penalty or punishment. Users with deadline in work schedule will be stressed out when he/she is faced with any glitch or breakdown of the internal control set-up. It is informative to know that internal control governance is the sole duty of IT governance in any organization. Certain work cannot be cried out in most case of server breakdown or glitch. Financial reporting in any organization depends largely on the data retrieve from the AIS and once there is a glitch within the timebound of this reporting users is faced with the dilemma in reporting any financial information outside the boundary of the AIS system as it stores and carries all historical data in order to generate financial reporting. Interaction of CG amongst AIS user is neither simple nor predictable as there are structural and operational challenges to deal with in their daily task (Ron & Rahul, 2010). In order to protect the assets of an organization within the purview of corporate governance policy, it is crucial to understand that internal control in AIS and internal control governance are all components of IT governance (Sarah, 2019). Thus, most complex governance polices creates complications for different hierarchy through the IT department to AIS users (Romney, 2006).

The diagram shown in figure 2 is the proposed framework that this research will adopt as it shows and demonstrate dilemma faced by AIS users in Internal control governance within an organization while using AIS tools. The deployment of complicated and tight internal control systems generates extra complications for AIS users which tremendously have impact on user performance and productivity. Vahideh (2013) argued that organizations face a number of trade-offs in mandating internal control, including for trade-offs between efficiency and flexibility, and trade-off between specialization and adaptability. This trade-off theory balances the need for strong controls with the need for flexibility and efficiency, as well as the factors that influence this trade-off.

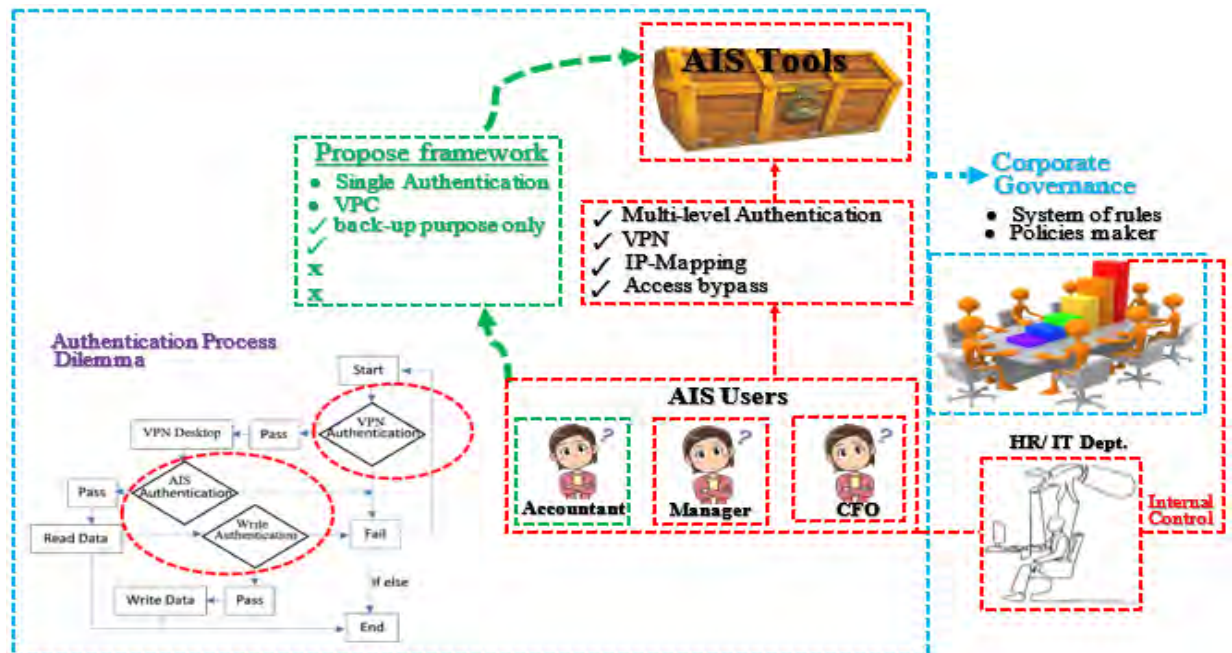


Fig. 2 Corporate Governance Internal Control Proposed Framework

3.0 METHODOLOGY

The systematic literature selection process formed the foundation of this research, ensuring that only high-quality and relevant sources were included for analysis. The systematic literature review (SLR) process for this research began with defining the key areas of focus. An extensive search across academic databases like Scopus, Web of Science, and Google Scholar was conducted using relevant keywords. The screening process involved an initial review of titles and abstracts, followed by a full-text analysis to ensure alignment with the research objectives. Data was then extracted based on authors, findings, methodologies, and theoretical frameworks, which were categorized by themes such as AIS, governance, and user dilemma. This step was critical to ensuring that the study incorporated a diverse range of perspectives and insights, drawing from various disciplines such as management, business, accounting, and information systems. In order to maintain the relevance and rigor of the literature review, specific criteria were established to guide the selection of sources. Table 1 represents the step-by-step process of conducting the systematic literature review for this research.

Table 1: Step-by-step process SLR

SLR Step	Description
1. Define Focus Areas	Key areas include Accounting Information Systems (AIS), internal control governance, IT governance, corporate governance, and users' dilemmas.
2. Establish Criteria	Inclusion: Peer-reviewed journals, authoritative books, studies within the last decade, and relevant to AIS and governance. Exclusion: Non-peer-reviewed or irrelevant studies.
3. Search for Literature	Extensive searches conducted across databases such as Scopus, Web of Science, and Google Scholar using keywords related to AIS, governance, and users' dilemmas.
4. Screening Process	Initial screening of titles and abstracts, followed by full-text analysis to ensure studies align with research objectives.
5. Data Extraction	Data extracted based on authors, key findings, methodologies, and frameworks. Focus on themes like AIS, internal control governance, corporate governance, IT governance, and users' challenges.
6. Analyse and Synthesize	Studies categorized by themes; findings compared to identify trends, gaps, and perspectives on AIS and governance-related issues.

Upon identifying the key focus areas for this research, the subsequent steps involved establishing the inclusion and exclusion criteria, followed by a comprehensive literature search. Table 2 provides an overview of the established criteria and a summary of references related to users' dilemmas in internal control governance within Accounting Information Systems (AIS). The key areas of interest identified are discussed.

Accounting Information Systems (AIS)

The research prioritized literature that addressed both the theoretical foundations and practical applications of AIS, including studies on how AIS supports financial reporting, decision-making, and internal control processes. Key sources included journal articles such as *Australasian Accounting, Business and Finance Journal* and *Journal of International Review of Management and Marketing*.

Internal Control Governance

Sources related to internal control governance within AIS were carefully selected to explore the mechanisms and frameworks used to manage and monitor accounting systems. References such as Romney et al. (2021) and Li et al. (2020) were instrumental in providing insights into the challenges and solutions in governance structures.

Corporate Governance and IT Governance

The literature on corporate and IT governance, including works by McGrath & Whitty (2015), Walker (2009), and Calder (2019), contributed to understanding the broader governance issues that intersect with AIS. These studies, drawn from sources like the *International Journal of Managing Projects in Business* and *Handbook of TechTarget*,

provided context for how governance policies influence the implementation and operation of AIS.

Users' Dilemmas

Addressing the users' dilemmas required selecting literature that focused on the challenges faced by AIS users in ensuring effective internal control. Studies such as Ron and Rahul (2010) and Alles (2020) were pivotal in exploring the complexities users encounter, such as conflicts between operational efficiency and control requirements. This research employs a literature review as its primary methodology to explore the concept of users' dilemmas in internal control governance within Accounting Information Systems (AIS).

Table 2: Summary of references for user's dilemma on internal control governance in AIS

Criteria	References	Sources
Corporate Governance	McGrath & Whitty (2015), Kasasbeh (2017), Lynn (2019), Tucci (2021), OECD (2014)	International Journal of Managing Projects in Business, Journal of International Business Research Vol. 10, Magazine Article of Harvard Business Review, Handbook of TechTarget, Book of Risk Management and Corporate Governance.
Corporate Governance Policy	Walker (2009), Alie (2015), McGrath (2015), Mrabure et al.,(2020), Littlewood (2020), Tucci (2021)	Book of A review of corporate governance in UK banks and other financial industry entities, Paper of Project Management Institute, International Journal of Managing Projects in Business, Vol. 8, Journal of Beijing Law Review, Vol.20, International Encyclopaedia of Human Geography, 2 nd Edition, Handbook of TechTarget, Magazine Article of Harvard Business Review
IT Governance	Walker (2009), Calder (2019), Kirkpatrick (2019), Sarah (2019), Mahanti (2021)	Book of A review of corporate governance in UK banks and other financial industry entities, Book publication of IT governance Publishing ISO/IEC 38500: A pocket guide, second edition doi ISBN13:9781787781696, Blog of Kirkpatrickprice.com, Article of IT Leadership, Journal of Data Governance and Compliance.

AIS	Shazalina et al. (2015), Ndagijimana (2016), Ali et al. (2017), Trabulsi (2018), Marshall (2021)	Journal of Procedia Economics and Finance, Vol.31, Research paper of The Use Of Accounting Information System In Evaluating The Company , Australasian Accounting, Business and Finance Journal 11, Journal of International Review of Management and Marketing, Book of Accounting Information Systems, 15th Global Edition.
AIS Component	Ndagijimana (2016), Trabulsi (2018), Fontinelle (2021), Jason Gordon (2022), Tucci (2021),	Article of International Review of Management and Marketing, Articles of Professional Education, Article of The Business Professor, Handbook of TechTarget, Magazine Article of Harvard Business Review.
ICG in AIS	Romney et al., (2021), Li et al. (2020). Kirkpatrick (2019), Ann (2019), David (2018),	Journal of Accounting Literature, Vol. 42, Blog of Kirkpatrickprice.com, Book of Accounting Information System 15th ed,
Users Dilemma	Ron & Rahul (2010), Almasarwah (2015), Iwejor (2017), Alles (2020), Vahideh (2013)	International Journal of Digital. International Journal of Digital Accounting Research, Vol. 20. Journal of Business and Economics, Walden Dissertation and Doctoral Studies, Strategic Management Journal.

4.0 FINDING

The findings, based on key areas identified in the literature, reveal that users of Accounting Information Systems (AIS) frequently encounter dilemmas in fulfilling their roles and responsibilities. This underscores the critical role of corporate governance in fostering positive outcomes that enhance organizational performance and productivity, aligning with the organization's goals. Tucci (2021) and the OECD (2014) suggest that corporate governance extends beyond administrative policies of governance, risk management, and compliance (GRC), as well as ethics, which hold both the organization and its members accountable.

It also encompasses the institutions that govern and manage the organization. However, interactions between corporate governance and AIS users are neither simple nor predictable, as structural and operational challenges create daily dilemmas (Ron & Rahul, 2010). The organization relies on GRC as the foundation upon which all employees must align their daily tasks, ensuring that these tasks contribute to the achievement of organizational goals. As discussed in the literature on the key areas of user's dilemma, there are two main dilemmas faced by the AIS users in dealing with their daily tasks that are the process dilemma and ethical dilemma.

4.1 The Process Dilemma

The process dilemmas faced by users of Accounting Information Systems (AIS) primarily involve technical and access-related challenges. Multi-level authentication requires users to provide unique identification for each process, which can complicate workflows. Additionally, VPN authentication is necessary for accessing AIS tools, adding another layer of complexity as users must rely on IT-generated credentials. Access issues also arise when a higher-ranking user takes control of the system, disrupting the workflow of the initial user. Conflicts between IP mapping on user laptops and the developer's accounting software can further impede progress. Moreover, firewalls, designed to enhance security, may block users from completing tasks if they detect access from an unfamiliar location or suspicious files, necessitating IT intervention and causing delays. Antivirus scans can slow down AIS tools, consuming valuable memory. Lastly, login limitations restrict users from accessing the system on multiple devices, particularly if their access configurations differ, leading to further inefficiencies. These dilemmas reflect the tension between maintaining security and ensuring smooth, efficient system operations.

4.2 The Ethical Dilemma

The ethical dilemmas faced by users of Accounting Information Systems (AIS) arise from several organizational challenges. First, users must navigate complex internal controls across AIS, IT systems, and corporate governance policies. Second, regulatory compliance poses a significant challenge, often leading to "compliance fatigue" due to the intricate and numerous regulations that require detailed reporting and procedural adherence. Third, AIS users must balance the need for robust controls with the necessity for operational flexibility and efficiency, as dictated by ethical codes of conduct. Access limitations based on organizational hierarchy and roles can restrict users from accessing essential data, potentially hindering their performance. Finally, during audits, if users are not granted appropriate access beforehand, their ability to retrieve and handle data may be impaired, resulting in inefficiencies and challenges during the audit process.

These ethical dilemmas highlight the tension between control, access, and efficiency within the organization's policies and regulatory frameworks. Table 3 represents the summary of the user's dilemma in internal control governance and AIS.

Table 3: The summary of user's dilemma on internal control governance in AIS.

Process Dilemma	Description	Ethical Dilemma	Description
Multi-Level Authentication	AIS users require a unique identification access for each process while using AIS tools.	Organisation Policies	Users have to deals with both internal control in AIS, internal control in IT and internal control in corporate governance policy.
VPN Connection Activity	AIS users only able to access AIS tools via VPN authentication by using their unique identification access created by IT staff.	Rules and regulation of organisation and regulatory bodies	User may experience "compliance fatigue" as a result of numerous regulations being imposed, many of which have complex reporting and procedural requirements.
Access-By-Pass	While user using AIS tools, control is taken	Ethical codes of conduct	AIS users to balances the need for strong controls

	by other user with higher access.		with the need for flexibility and efficiency
IP Mapping	IP mapping in user laptop is conflicting with IP mapping of developer accounting software.	Limitation to user's access based on ranking & roles	Access limitation will often be the case when the parameters has been set. If set if data that is lock from, he/she due to hierarchy and task deployment.
Firewall	Firewall limits access to computer systems of user once detects different location access point or any file on the computer. Thereby user can not complete the task as it will be referred to IT which cause delay.	Inability to retrieve in-hand data as posted in AIS during audit	During audit, a different user may deploy to handle task related to queries. If he/she is not allowed or granted access prior to the audit, the task becomes inefficient on the user & tax audit encompass random queries.
Antivirus scanning	AIS tools become slow as memory being used		
Limited users to login at one given time	Limit user should user seek to use different laptop that isn't configured to his or her level and access		

5.0 CONCLUSION

For Accounting Information Systems (AIS) and corporate governance (CG) to coexist sustainably, their relationship must be mutually beneficial. This research upholds that AIS is crucial for governance due to its ability to trace information back to its source. This process not only helps in controlling the inequalities in different organization, but also leverage on the goes further helping control organizational inequalities. The study emphasizes the importance of identifying discrepancies that may arise after a company adopts AIS bookkeeping procedures according to corporate governance guidelines for internal control and data security. AIS enables accurate, credible, objective, and integrity-driven financial reporting, fostering an organizational culture of trust by adhering to corporate governance principles. Regardless of the operational environment, the accuracy and reliability of data extracted from AIS are vital for effective decision-making by management, investors, shareholders, and directors.

AIS and financial information systems provide valuable data for managers and stakeholders to make informed decisions. These systems collect, store, analyse, and report accounting and financial data within the organization and to external regulators. Executives utilize AIS data to execute plans, while managers rely on accurate information for sound decision-making. However, internal control governance issues can vary between companies, affecting AIS effectiveness. Without robust internal controls, AIS security breaches can occur, compromising data integrity. Ethical concerns arise due to the human element in AIS usage, highlighting the need for ethical behaviour at every stage of AIS deployment. Proper internal control and adherence to ethical standards ensure the reliability of AIS records, based on

historical data. This report underscores the importance of clear roles and responsibilities to enhance internal management efficiency and reduce unethical practices.

The methodology tolls the line of a systematic literature review by applying a conformist philosophy after identifying and evaluating all related data and information to include in this research. The findings reveal that AIS users constantly come across dilemmas in executing their roles and responsibilities, predominantly ethical and process-related dilemmas, within the broader context of internal control governance (ICG).

6.0 SIGNIFICANT AND FUTURE RESEARCH

The significant of this study is enormous as it ventures into a very scanty research environment the like of user's dilemma in AIS and CG internal control. The entrance of this research, set a new domain for researchers and academia to explore as there are few or limited work done in this research subdivisions and related topic. Thus, future study should answer the big question, can organization policy on internal control governance be devoid of users' dilemma? focus on the pros and cons of users' dilemma to an organization.

CO-AUTHORS CONTRIBUTION

As co-authors, we guided the student through the research and writing process, supervising the conceptualization, methodology, and systematic literature review (SLR), which focused on AIS, internal control governance (ICG), corporate governance (CG), and users' dilemmas in AIS. In addition, we provided feedback during the manuscript review, helping the student prepare the paper for publication.

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REFERENCES

- Ali U., Ali H. G., & Cemil K. (2017). Impact of the accounting information system on corporate governance: Evidence from Turkish Non-listed companies *Australasian Accounting, Business and Finance Journal*, 11(1), 9-27. doi:<http://dx.doi.org/10.14453/aabfj.v11i1.3>.
- Alie, S. S. (2015, October 10). *Project governance*. PMI@Global Congress. Orlando: Project Management Institute. <https://www.pmi.org/learning/library/project-governance-critical-success-9945>.
- Alles, M. (2020). AIS-ethics as an ethical domain: A response to Guragai, Hunt, Neri and Taylor (2017) and Dillard and Yuthas. *International Journal of Digital Accounting Research*, 20, 1-29. doi:https://doi.org/10.4192/1577-8517-v20_1.
- Almasarwah, A. (2015). *Earnings Management and its relationship with corporate governance mechanism in Jordanian insdustrial firms*. https://repository.lboro.ac.uk/articles/Earnings_management_and_its_relationship_with_corporate_governance_mechanisms_in_Jordanian_industrial_firms/9496322/files/17122898.pdf.
- Calder, A. (2019). *ISO/IEC 38500: A pocket guide*. IT Governance Publishing.
- Chima, I., I. (2017). *Scholarworks internal controls: Identifying control elements and implementation dynamics facing retail companies*. <https://scholarworks.waldenu.edu/dissertations>.

- Fontinelle, A. (2021). *Introduction to Accounting Information Systems (AIS)*. <https://www.investopedia.com/articles/professionaleducation/11/accounting-information-systems.asp>.
- Gordon, J. (2022, April 7). *Internal Controls (Accounting) - Explained*. The Business Professor: https://thebusinessprofessor.com/en_US/accounting-taxation-and-reporting-managerial-amp-financial-accounting-amp-reporting/internal-controls-definition.
- ISO/IEC 38500:2008. *Corporate governance of information technology*. Australia: International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).
- Kirkpatrick, J. (2019). *5 Components of Internal Control - COSO: C.R.I.M.E.*. KirkpatrickPrice. <https://kirkpatrickprice.com/video/5-components-internal-control/>.
- Kasasbeh, F. I. (2017). Impact of corporate governance on the effectiveness of accounting information system in Jordanian Industrial companies. *International Business Research*, Vol. 10(10), 2,8. <http://ibr.ccsenet.org>.
- Mrabure, K. O., Abhulimhen-Iyoha, A., Mrabure, K. O., & Abhulimhen-Iyoha, A. (2020). Corporate governance and protection of stakeholders rights and interests. *Beijing Law Review*, 11(1)(292–308). doi:<https://doi.org/10.4236/BLR.2020.111020>.
- Littlewood, D. (2020). Corporate responsibilities. *International Encyclopedia of Human Geography*, 403–410. <https://doi.org/10.1016/B978-0-08-102295-5.10035-6>.
- Lynn, S. P., & Suraj, S. (2019). *A Guide to the big ideas and debates in corporate governance*. Harvard Business Review. <https://hbr.org/2019/10/a-guide-to-the-big-ideas-and-debates-in-corporate-governance>.
- Marshall, B. R., & P. J. (2021). *Accounting information system* (15th ed.). Pearson.
- McGrath, S. K., & Whitty, S. J. (2015). Redefining governance: from confusion to certainty and clarity. *International Journal of Managing Projects in Business*, 8(4), 755-787. <https://doi.org/10.1108/IJMPB-10-2014-0071>.
- Ndagijimana, S. R. (2016). *The use of accounting information system in evaluating the company*. Kigali, Rwanda: Academia. https://www.academia.edu/28045310/THE_USE_OF_ACCOUNTING_INFORMATION_SYSTEM_IN_EVALUATING_THE_COMPANY.
- OECD. (2014). *Risk management and corporate governance, corporate governance*. OECD.
- Romney & Steinbart. (2006). *Sideshare*. <https://www.slideshare.net/sharingslide4u/ais-romney-2006-slides-07-is-control1>.
- Adner, R., & Kapoor, R. (2010). Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations. *Strategic Management Journal*, 31(3), 306–333. doi:10.1002/smj.821.
- Sarah, K. W. (2019). *What is COBIT? A framework for alignment and governance*. <https://www.cio.com/article/228151/what-is-cobit-a-framework-for-alignment-and-governance.html>.
- Shazalina Mohamed Shuhidan, Nor Azam Mastuki, & Wan Mohd Nazif Wan Mohd Nori. (2015). Accounting Information system and decision useful information fit towards cost conscious strategy in Malaysian Higher Education Institutions. In Elsevier (Ed.), *Procedia Economics and Finance*. 31, 885-895.
- Trabulsi, R. U. (2018). *The Impact of Accounting Information systems on organizational performance: The Context of Saudi's SMEs*. *International Review of Management and Marketing*. R <https://www.econjournals.com/index.php/irmm/article/view/6221>.
- Tucci, L. (2021). *What is risk management and why is it important?* <https://www.techtarget.com/searchsecurity/definition/What-is-risk-management-and-why-is-it-important>.
- Walker, D. (2009). A review of corporate governance in UK banks and other financial industry entities. http://www.hm-treasury.gov.uk/walker_review_submissions.htm.

THE GREEN INNOVATION AND ESG PERFORMANCE: THE MODERATING ROLE OF SUSTAINABILITY STRATEGY IN THE NEW GENERATION OF INFORMATION TECHNOLOGY IN CHINA

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ABSTRACT

In light of growing environmental and social concerns worldwide, environmental, social, and governance (ESG) disclosure is an issue of transparency and shows a firm's commitment to sustainable development. This study examines the relationship between green innovation, sustainability strategy, and ESG performance, focusing on the moderating role of sustainability strategies. Using a sample of 381 new-generation information technology firms in China from 2018 to 2023, our results suggest the following: (1) Strong evidence of a positive relationship between green innovation and ESG performance. (2) The sustainability strategies significantly improve the performance of ESG. 3) The sustainability strategies positively strengthen the correlation between green innovation and ESG performance. This research also contributes to stakeholders' consideration of investing in green innovation and setting up long-term sustainability strategies in their firms to improve ESG performance.

Keywords: New-generation Information Technology Industries, Green Innovation, Sustainability Strategy, ESG performance

1.0 INTRODUCTION

With global climate change and resource constraints becoming increasingly prominent problems, corporate sustainable development and ESG performance have received more and more attention (Jahanshahi & Brem, 2017). China has followed a new development philosophy

over the last five years, driven by transforming China into a cyber and manufacturing power. It has also taken advantage of the opportunities presented by the latest wave of scientific and technological revolution and industrial transformation, and it has furthered the integrated development of digital, networked, and intelligent technologies (Shen et al., 2023).

The China State Council places a high value on green development in order to incentivise businesses to adopt green innovation and sustainability strategies, as well as cloud computing, artificial intelligence, the Internet of Things, chain blocks, and 5G (Zeng et al., 2023). They have made several strategic deployments, focusing on key areas and weak links with accurate

strength, and they are actively pushing the development of new information technology breakthroughs in our nation (Li et al., 2023).

ESG performance is a crucial indicator for measuring the sustainable ability of firms (Ahmad et al., 2023). It comprehensively assesses firms' performance in the areas of environmental protection, social responsibility and corporate governance, focusing not only on economic benefits but also on firms' positive impact on society and their contribution to sustainable development. Excellent ESG performance helps firms improve their brand image, attract investors and consumers, and stand out in increasingly fierce market competition (Ahmad et al., 2023; Tang & Loang, 2024).

Green innovation focuses on technological innovation and emphasises integrating environmental protection elements in product design, production process and marketing to reduce the environmental impact (Zheng et al., 2022). The sustainability strategy is committed to realising the coordinated advancement of the economic, social, and environmental fields to guarantee the harmonious coexistence of the development of human society and the natural environment (Wang et al., 2022). Green innovation and sustainability strategy have become essential concepts leading the trend of The Times, which coincides with firms' practice of ESG.

New generation information technology refers to the emerging technologies of big data, the Internet of Things, cloud computing, and artificial intelligence. It is the vertical modernisation of information technology and the horizontal penetration and integration of information technology. In 2022, China's new generation of information technology industry scaled more than 6 trillion yuan¹. The industry chain will gradually improve as the technology matures for the future 5G network, Internet of Things, cloud computing, integrated chips and artificial intelligence segmentation. A new generation of information technology is expected to enter a high-speed development phase in 2023-2028, with an annual average growth rate of 19%. By 2028, the market size in China for this new generation of information technology is expected to exceed 17 trillion yuan².

The development of strategic emerging industries has become a significant strategy for major countries to take the lead in a new round of economic, scientific and technological development (Al-Hiyari et al., 2023). The new generation of information technology, as one of the strategic emerging industries, has grown into a critical, strategic, and leading sector that supports the excellent growth of the national economy. The sustainable development of the entire industry depends significantly on the implementation of green innovation and sustainability strategies (Wu et al., 2024). However, a systematic theoretical framework and empirical support are lacking from the few studies on the effects of sustainability strategy and green innovation on the ESG performance of IT firms.

This study fills this research gap by analysing 381 new-generation IT firms in China between 2018 and 2023 and using the data as a foundation for a comprehensive examination

¹ Resource from: National Bureau of Statistics, <https://www.stats.gov.cn>

² Resource from: Prospective Industry Research Institute, <https://bg.qianzhan.com/report/detail/2005131811234955.html?v=title>

of the definition and traits of green innovation and sustainability strategies. With an emphasis on the moderating role of sustainability strategy, regression analysis is then utilised to investigate the impact of the ESG performance mechanism and path.

After introducing the research background, significance, and purpose in the introduction section, this study will be conducted according to the following framework and structure: firstly, in the theoretical review, summarise the theories and research progress of green innovation and sustainability strategy and ESG performance; secondly, introduce methods and data sources; then use statistical methods and analysis models to discuss the impact of green innovation and sustainability strategy on ESG performance; lastly, in the conclusion and outlook section, summarise the research results and offer targeted optimisation strategies and recommendations, as well as future research direction and application prospects.

2.0 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Theoretical Framework

2.1.1 Resource-based View (RBV) Theory

RBV theory emphasises the uniqueness of firm resources and capabilities and how those resources and capabilities translate into competitive advantage (Barney, 2001; Ferreira et al., 2023; Galbreath, 2005). Green innovation and sustainability strategies have become essential for firms to gain a competitive edge in the modern business climate (Chen & Liang, 2023). By adopting advanced green technology and developing environmentally friendly products and services, firms can not only meet the needs of society for sustainable development but also reduce operating costs and improve resource utilisation efficiency to create a win-win scenario of social and economic benefits.

However, firms must have a particular resource and capacity base to implement a green innovation and sustainability strategy successfully. It covers many aspects, including capital, technology, talent, and brand. For example, firms need to invest much money in the research development and promotion of green technologies. At the same time, to enable the smooth implementation of the plan, it is essential to foster a workforce that is innovative and environmentally conscious.

2.1.2 Upper Echelon Theory

The upper echelon theory focuses on the influence of elements such as values and leadership style on organisational performance and also emphasises management's ability to make strategic decisions (Hambrick, 2007; Jahanshahi & Brem, 2017). When driving green innovation and sustainability strategies, the management team's insight, attitude and implementation impact firms' strategy execution and ESG performance. A good leadership team can develop forward-looking strategies, stimulate employee creativity, strengthen team cohesion and make the right decisions in a complex market environment (Syuhada & Jasni, 2021). When promoting green innovation and sustainable development, the management team must clarify green strategies, promote technological innovation, optimise resource allocation and collaborate with external stakeholders to improve ESG performance and gain social and market recognition.

In summary, the RBV theory and the upper echelon theory represent a paradigm for a comprehensive understanding of the implementation of green innovations and firms' sustainability strategies and their impact on ESG performance. Firms need to understand their resource and capability base as well as their strategic decision-making skills, as well as combine management leadership skills to develop and implement practical green innovation and sustainability strategies to achieve sustainable development goals.

2.2 Hypotheses Development

This study also creatively proposes two potential factors for improving ESG performance: green innovation and sustainability strategy, based on the previous analysis (Ren et al., 2023; Xu et al., 2021).

2.2.1 Green Innovation and ESG Performance

Xu et al. (2021) have emphasised the importance of green innovation in various aspects of business operations, including product research and development, production, marketing and other important links. This approach highlights the importance of technological and model advances aimed at achieving efficient resource use, reducing pollution and promoting sustainable development. In the field of information technology, green innovations have become an essential factor for firms to increase their competitive advantage and secure long-term growth.

Green innovation embodies corporate social responsibility and advocates for green development strategies that enable sustainable progress (Chen & Liang, 2023). It creates economic, environmental and social value and promotes harmony and unity between economic and social benefits. Optimising production processes, reducing environmental damage and improving employee well-being not only improves environmental and social outcomes but also creates a robust governance structure and culture, thereby increasing governance performance (He et al., 2020).

To take advantage of green innovations, firms must develop innovative spirit and ability. This requires the creation of a more scientific, democratic and transparent governance framework. Through green innovation, firms can refine decision-making mechanisms, strengthen internal oversight, and ultimately improve corporate governance. Critical components in measuring firms' ESG performance include environmental protection and sustainable development, which are the focus of green innovation. They are inherently positively correlated with each other (Ren et al., 2023).

The following research hypotheses are put forth in light of the analysis above:

H1: Firms can improve ESG performance by implementing green innovation.

2.2.2 Sustainability Strategies and ESG Performance

The sustainability strategy is the central focus of the firm's long-term development and includes economic, ecological and social goals for sustainable development (Zhou et al., 2022). It requires firms to pay attention to environmental protection and social responsibility while pursuing economic benefits and realising harmonious coexistence with nature and society.

A sustainability strategy reflects a firm's future-oriented and long-term vision (Galbreath et al., 2023). The formulation and implementation of sustainability strategies by firms can help adapt to changes in the external environment, exploit market opportunities and achieve sustainable development goals in the context of increasingly severe global environmental problems and growing attention to social responsibility (Zhou et al., 2022).

Firms can increase their contribution to society, minimise pollution to the environment, and optimise resource allocation by creating and implementing sustainability strategies. A sustainability strategy also aids businesses in building a positive reputation and brand image. (Ahmad et al., 2023), enhance market competitiveness, and achieve sustainable development (Ilyas & Osiyevskyy, 2022).

Thus, the following research hypotheses are put forth in this paper:

H2: Firms can enhance their ESG performance by formulating and implementing sustainability strategies.

2.2.3 Synergistic Effect of Green Innovation and Sustainability Strategy

Green innovation promotes the efficient use of resources and environmental improvement through technological and model innovation (Xu et al., 2021). While the sustainability strategy is a broader framework that supports firms in achieving balanced development in the three dimensions of economy, environment and society (Zhou et al., 2022). The two echo each other in terms of goals and jointly promote the development of information technology firms in a greener and more sustainable direction.

When firms simultaneously implement green innovation and sustainability strategies, synergies are reflected in many aspects. Firstly, green innovation can provide specific implementation paths and technical support for sustainability strategies, making sustainability strategies more operable and realisable (Ilyas & Osiyevskyy, 2022). Secondly, the sustainability strategy provides clear goals and guidance for green innovation, making green innovation better aligned with the long-term development direction of firms. Finally, the two work together to promote the formation of a more environmentally friendly and sustainable business model and culture and enhance the overall competitiveness of the enterprise.

In light of this, the research hypotheses presented in this paper are as follows:

H3: Sustainability strategy has a moderating effect on green innovation and ESG Performance.

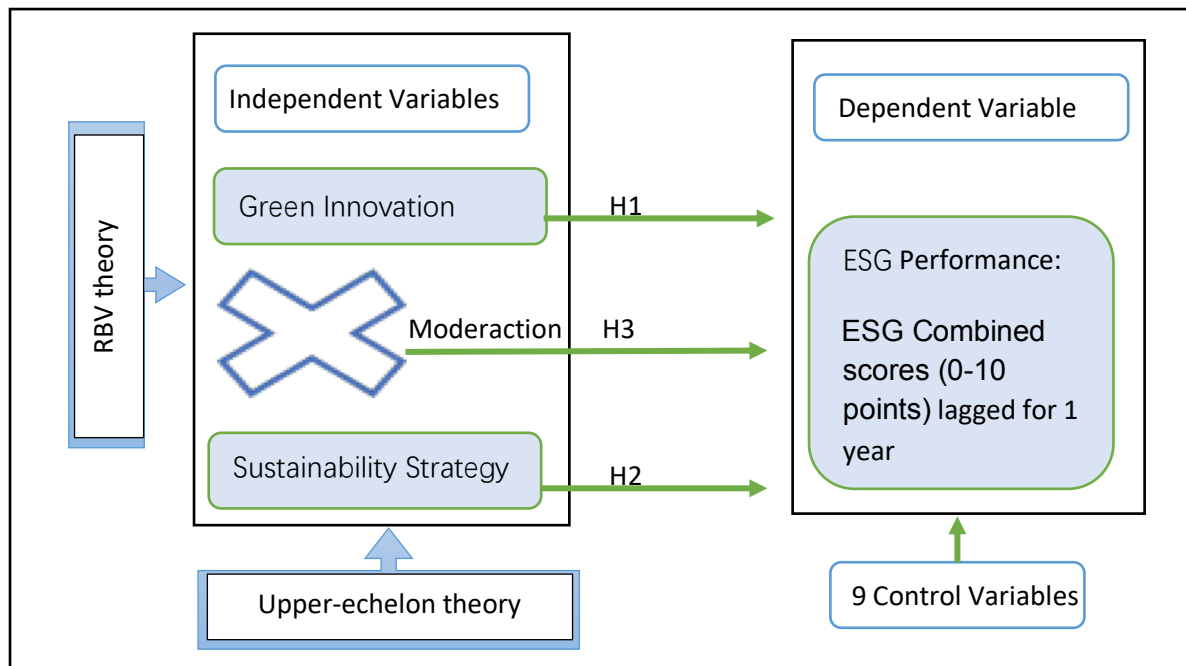


Fig. 1 The Conceptual Framework of Study

This research builds the theoretical framework of previous studies by combining RBV and upper-echelon theories. It is predicated on the idea that sustainability strategy and green innovation both greatly enhance a firm's ESG performance; in addition, the use of sustainability strategy as a moderating variable strengthens the relationship between green innovation and ESG performance. Fig. 1 depicts the conceptual theoretical framework.

3.0 RESEARCH METHODOLOGY

3.1 Data and Sample

In this study, using the secondary data of the Wind database, 381 new-generation information technology firms belonging to China's strategic emerging industries are taken as the research sample, and 2018-2023 as the research period. Wind is China's leading domestic provider of financial data and ESG ratings. Its ESG rating services leverage professional teams and scientifically constructed rating models to analyse corporate ESG performance (Liu & Lyu, 2022). In order to ensure the accuracy and dependability of the data, we consult pertinent data and reports published by reputable research institutions. We also obtain public information through a variety of channels, such as firm annual reports and social responsibility reports.

The data collection and statistical analysis in this work, which included regression, correlation, and descriptive statistics, were conducted using STATA software. After excluding samples of ST and *ST³ stocks and firms with severely insufficient data, the data were 1% and 99%, respectively, to avoid the impact of extreme values for individual firms in a given year. We have used three different types of tests to evaluate the validity and reliability of the models: (1) data diagnostics, which include skewness and kurtosis; (2) variable diagnostics,

³ "Special Treatment": Indicates financial risks or issues with a stock, subjecting it to trading restrictions. *ST: Variant of ST, indicating prolonged or severe issues with the stock, leading to stricter trading restrictions.

which include collinearity and the variance inflation factor (VIF) test; and (3) model diagnostics, which include autocorrelation heteroscedasticity and the Breusch–Pagan and Koenker tests.

3.2 Variable definition

In this study, ESG performance as a dependent variable is measured by the Wind's ESG rating combined scores for Chinese listed firms, which lagged for one year, in line with previous studies in the area suggested (Cai et al., 2023; Zhang & Zhang, 2024). The ESG combined score is normalised to range between 0 and 10 and comprehensively evaluates a firm's performance in four dimensions: environment, society, governance, and controversy.

Green innovation(GI) was introduced as an independent variable. Following Xu and Cui (2020), GI was calculated by taking the logarithm of the total number of firm green patent applications increased by one (Li et al., 2023). Meanwhile, sustainability strategy (SS) was introduced as an independent and moderating variable assessed by content analysis (Awang et al., 2023). The binary approach measures the existence of a sustainability strategy in its vision and mission, 1 for its existence and 0 for its absence (Rahman et al., 2021).

In order to accurately assess the impact of sustainability strategy and green innovation on ESG performance and to mitigate the impact of missing important variables, a number of control variables were included to account for potential bias in the estimates, including return on total assets (ROA), R&D expenses (RD), Total inventories to total assets (INVINT), the dual role of CEO and Chairman (DUAL), whether Big 4 auditors conducted the external audit (BIG 4), leverage ratio (LEV), firm size (SIZE), firm age (AGE), growth (GRW), aligning with previous studies (Qureshi et al., 2021; Shahrin et al., 2024; Shahzad & Sharfman, 2017). Furthermore, we controlled for fixed effects of both firm and year.

3.3 Empirical Research Model

As the effects of sustainability and green innovation on ESG performance take time to materialise, future gains could result from them (Junius et al., 2020). Finally, the following panel data model was developed to evaluate the impact of green innovation and sustainability strategy on ESG performance:

$$ESGC_{it} = \beta_0 + \beta_1 GI_{it-1} + \beta_2 SS_{it-1} + \sum \beta_k Controls_{i,t,k} + \omega_j + \delta_t + \varepsilon_{it} \quad (\text{model 1})$$

$$ESGC_{it} = \beta_0 + \beta_1 GI_{it-1} * SS_{it-1} + \sum \beta_k Controls_{i,t,k} + \omega_j + \delta_t + \varepsilon_{it} \quad (\text{model 2})$$

Here, the symbols for *i* and *t* denote firm and year, respectively. Control variables at the firm level, *i*, *t*, and *k*, have the potential to impact ESG performance. Firm-fixed effects are represented by ω_j , while year-fixed effects are represented by δ_t . ε_{it} represents the error term, and β_0 is the constant term.

For a detailed overview of these variables and their roles in this study, **Table 1** summarises them and their corresponding meanings.

Table 1. The Variables Summaries

Type of variable	Name of variable	ABV	Variable description
Dependent variable	ESG Combine score	ESGC	Measure ESG Combined scores (0-10 points)
Independent variables	Green innovation	GI	The natural logarithm of the total number of firm green patent applications incremented by one.
Moderating variables	Sustainability Strategy	SS	Value of 1 if the firm incorporates sustainability strategy in its vision and mission, 0 otherwise
Control variables	Return on total assets	ROA	The ratio of net income to total assets
	R&D expenses	RD	The ratio of Research and development expenses to total revenues
	Total inventories to total assets	INVINT	The ratio of the total inventories to total assets
	Dual role of CEO and chairman	DUAL	Take 1 if the CEO and chairman are the same person; 0 otherwise.
	Big four	BIG4	A dummy variable that takes a value of 1 if Big 4 auditors conducted the firm's external audit and 0 otherwise
	Leverage	LEV	The ratio of total liabilities to total assets
	Firm Size	SIZE	Natural logarithm of total assets
	Growth	GRW	The annual change in total revenue
	Firm Age	AGE	Firm's age since its IPO (year)

Source: author's calculation.

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Statistic

The descriptive statistics for each variable are displayed in Table 2. The ESG combined score (ESGC) has a mean value of 6.266, ranging from 4 to 9.07 from 2019 to 2023. It suggests that the new generation of IT industries has reasonable ESG performance. To prevent variable skewness, this study's calculation of green innovation (GI) is based on the log of one plus the total number of two types of green patents from 2018 to 2022. This metric allows us to utilise the sample with no patents for certain firms to the fullest.

Table 2. Descriptive Statistics

Variables	Obs	Min	Max	Mean	Std.Dev.	Skew.	Kurt.
ESGC	1905	4	9.07	6.266	.771	.595	3.365
GI	1905	0	6.27	.817	1.218	1.434	4.361
ROA (%)	1905	-23.72	20.411	3.168	6.914	-1.413	7.315
RD (%)	1905	6.227	36.16	8.184	6.227	1.993	8.142

INVINT (%)	1905	0	57.77	12.643	8.349	1.08	4.865
LEV (%)	1905	2.974	87.751	38.015	17.681	.1	2.126
SIZE	1905	19.51	26.83	22.342	1.172	.635	3.579
GRW (%)	1905	-28.085	89.542	11.651	19.56	1.357	6.072
AGE	1905	-23.72	20.411	11.467	6.488	.859	3.071
Frequencies				YES	NO	%YES	%NO
SS	1905	0	1	563	1342	29.6	29.6
DUAL	1905	0	1	711	1194	37.3	37.3
BIG4	1905	0	1	76	1829	3.99	3.99

Notes: ESGC is the ESG combined score of the four dimensions; GI is the natural logarithm of the total number of firm green patent applications incremented by one; ROA is the ratio of net income to the total asset; RD is the ratio of research and development expenses to total revenues; INVINT is the ratio of the total inventories to total assets; LEV is the ratio of total liabilities divided by total assets; SIZE is the natural logarithm of total assets; GRW is the annual change in total revenue; AGE is the firm's age since its IPO, SS is dummy value of 1 if the firm incorporates sustainability strategy in their vision and mission, 0 otherwise; DUAL is a dummy variable that takes a value of 1 If the chairman and CEO are the same people, and 0 otherwise; BIG4 is a dummy variable that takes a value of 1 if the firm is audited by one of the Big Four auditors and 0 otherwise.

Furthermore, 29.6% represent the values of sustainability strategy (SS); this suggests that not more than one-third of the sample firms developed and implemented sustainability strategies to pursue their sustainable initiatives. 37.3% represent the percentage of the dual role of chairman and CEO (DUAL), and only 3.99% of the information technology firms were audited by one of the Big Four auditors (BIG 4).

The control variables of return on total assets (ROA), research and development expenses to total revenues (RD), total inventories to total assets (INVINT), leverage (LEV), firms' size (SIZE), growth (GRW) and age (AGE) have mean values of 3.168%, 8.184%, 12.643%, 38%, 22.342, 11.7% and 11.467, respectively. Additionally, Table 2's Skewness and Kurtosis statistics do not indicate a severe problem with non-normality because every value is below the recommended ± 10 threshold. (Zahid et al., 2020).

4.2 Correlation Matrix

Table 3 reports Pearson's correlation matrix for checking whether and how two variables are associated or vary. The correlation coefficient between ESGC and other variables ranged from -0.311 to 0.525, showing different degrees of correlation. The bivariate statistics show that green innovation (GI), sustainability strategy (SS), return on total assets (ROA), development expenses to total revenues (RD), total inventories to total assets (INVINT), audited by one of the Big Four auditors (BIG 4), firms' size (SIZE) and growth (GRW) have a significant positive correlation with the ESG combined score (ESGC). In contrast, the dual role of chairman and CEO (DUAL) correlates significantly negatively with ESGC. Besides, leverage (LEV) and age (AGE) have an insignificant correlation with ESGC.

Table 3. Pearson's correlation matrix

	ESGC	GI	SS	ROA	RD	INVINT	DUAL	BIG 4	LEV	FSIZE	GRW	AGE
ESGC	1											
GI	0.212***	1										
SS	0.449***	0.131***	1									
ROA	0.187***	0.102***	0.147***	1								
RD	0.170***	0.013	-0.007	0.046**	1							
INVINT	0.088***	-0.008	0.061***	0.043*	-0.082***	1						
DUAL	-0.084***	-0.019	-0.069***	-0.046**	0.119***	-0.070***	1					
BIG 4	0.206***	0.112***	0.138***	0.106***	-0.032	0.02	-0.102***	1				
LEV	0.004	0.126***	0.134***	-0.242***	-0.323***	0.230***	-0.068***	0.065***	1			
SIZE	0.269***	0.189***	0.526***	0.131***	-0.195***	0.006	-0.092***	0.275***	0.438***	1		
GRW	0.120***	0.088***	0.073***	0.458***	-0.004	0.102***	0.050**	0.046**	0.077***	0.198***	1	
AGE	0.007	-0.064***	0.302***	-0.100***	-0.169***	0.029	-0.189***	0.053**	0.226***	0.400***	-0.156***	1

Notes: ESGC is the ESG combined score of the four dimensions; GI is the natural logarithm of the total number of firm green patent applications incremented by one; ROA is the ratio of net income to the total asset; RD is the ratio of research and development expenses to total revenues; INVINT is the ratio of the total inventories to total assets; LEV is the ratio of total liabilities divided by total assets; SIZE is the natural logarithm of total assets; GRW is the annual change in total revenue; AGE is the firm's age since its IPO, SS is dummy value of 1 if the firm incorporates sustainability strategy in their vision and mission, 0 otherwise; DUAL is a dummy variable that takes a value of 1 If the chairman and CEO are the same people, and 0 otherwise; BIG4 is a dummy variable that takes a value of 1 if the firm is audited by one of the Big Four auditors and 0 otherwise.

4.3 Multiple Regression Results

Table 4. Multiple Regression Results of ESGC

	Model 1		Model 2	
	Coefficient	t-statistic	Coefficient	t-statistic
GI	0.043**	(2.326)		
SS	0.412***	(3.995)		
GI*SS			0.106***	(3.299)
ROA	0.558**	(2.114)	0.564**	(2.117)
RD	0.009*	(1.345)	0.010*	(1.493)
INVINT	0.006*	(1.436)	0.005*	(1.314)
DUAL	0.986***	(3.245)	1.110***	(2.954)
BIG 4	-0.103**	(-1.768)	-0.110**	(-1.906)
LEV	-0.004**	(-1.821)	-0.004**	(-1.859)
SIZE	0.122*	(1.543)	0.178**	(2.198)
GRW	-0.002**	(-2.127)	-0.002**	(-2.177)
AGE	-0.122***	(-3.507)	-0.114***	(-3.295)
Constant	4.924***	(2.806)	3.712**	
Firm effect	Yes		Yes	
Year effect	Yes		Yes	
R squared (%)	11.4		9.7	
F-statistic	6.964	(0.0000)***	6.525	(0.0000)***
Multicollinearity (VIF)	4.45		4.62	
Heteroskedasticity	49414.66	(0.0000)***	46915.11	(0.0000)***
Serial Correlation	17.058	(0.0000)***	17.058	(0.0000)***
Total observation	1905		1905	

Notes: ***, **, and * represent significance at 1, 5, and 10 per cent levels, respectively (using a one-tailed test) ESGC is the ESG combined score of the four dimensions; GI is the natural logarithm of the total number of firm green patent applications incremented by one; ROA is the ratio of net income to total asset; RD is the ratio of research and development expenses to total revenues; INVINT is the ratio of the total inventories to total assets; LEV is the ratio of total liabilities divided by total assets; SIZE is the natural logarithm of total assets; GRW is the annual change in total revenue; AGE is the firm's age since its IPO, SS is dummy value of 1 if the firm incorporates sustainability strategy in their vision and mission, 0 otherwise; DUAL is a dummy variable that takes a value of 1 If the chairman and CEO are the same person and 0 otherwise; BIG4 is a dummy variable that takes a value of 1 if the firm is audited by one of the Big Four auditors and 0 otherwise.

Table 4 presents the regression results of ESG combined scores for two different models. For Model 1, we first estimated the impact of green innovation (GI) and sustainability strategy (SS) on ESG performance lagged for one year, with return on total assets (ROA), research and development expenses to total revenues (RD), total inventories to total assets (INVINT), Dual role of chairman and CEO (DUAL), Big four (BIG4), leverage (LEV), firm size (SIZE), growth (GRW), and firm age (AGE) as control variables. The result shows that green innovation (GI) has a statistically significant positive coefficient of 0.043 at the 5% level, according to the results. Higher ESG performance is linked to better green innovation, supporting Hypothesis 1.

According to the RBV theory, green innovation, as a strategic resource, is unique and challenging for firms to replicate (Li et al., 2023). As a result, firms may gain a different market position and performance advantage when they excel in environmental protection and green innovation than their competitors. In this case, the positive coefficient relationship between green innovation (GI) and ESG performance supports the assumption of a resource-based

perspective. It means that firms' investment and efforts in green innovation can help improve their ESG performance.

Likewise, a sustainability strategy has a positive significant coefficient of 0.412 at the 1% level. This means that there is a significant positive correlation between a firm's implementation of a sustainability strategy and its ESG performance. This result supports Hypothesis 2, which states that a sustainability strategy has a significant impact on improving ESG performance. When executives integrate sustainability into their strategic decisions and commit to achieving higher levels of ESG performance, they are more likely to understand better and recognise a firm's ESG values, high school theory suggests (Hambrick, 2007; Jahanshahi & Brem, 2017).

Therefore, top management must be actively involved in the development and implementation of sustainability strategies. Furthermore, the results of this study are consistent with previous studies (Ahmad, Palaniappan, et al., 2023; Coelho et al., 2023; Zhao et al., 2018), Further strengthen understanding of the importance of sustainability strategies in improving ESG performance. This also shows that in the current business environment, more and more firms are aware and actively adopting sustainability strategies to achieve long-term business success and social responsibility.

For Model 2, we estimate the moderation of sustainability strategy (SS) in the relationship between green innovation (GI) and ESG performance. Statistics show that sustainability strategies have a significantly positive moderating effect on this relationship. In particular, after introducing sustainability strategy (SS) as a moderating variable in the regression model, the significant positive correlation between green innovation (GI) and ESG combination score (ESGC) increased from $\beta = 0.043^{**}$ in Model 1 to $\beta = 0.106^{***}$ in Model 2. This suggests that the adoption of sustainability strategies not only strengthens the positive impact of green innovations on ESG performance but also significantly increases the statistical significance of this relationship.

This result supports Hypothesis 3: sustainability strategies positively mediate the relationship between green innovation and ESG performance. That is, when firms adopt sustainability strategies, the positive impact of green innovation on ESG performance is even more pronounced. Implementing a sustainability strategy is often accompanied by a shift in the firm's culture and values (Dash & Mohanty, 2023). When firms implement sustainability strategies, they will pay more attention to environmental protection, social responsibility and firm governance, which are highly consistent with the goals of green innovation, so that the results of green innovation are more significant and lasting.

For the control variables In models 1 and 2, return on total assets, R & D expense ratio, inventory ratio, chairman and CEO, and firm size positively impact ESG performance. The improvement of ROA indicates strong profitability, which is conducive to investing in sustainable development projects, thus improving ESG performance. This shows that R&D investment may have a positive impact on ESG performance. The DUAL structure helps focus and efficient decision-making, drives firm governance and sustainability, and thus improves ESG scores. In addition, large-scale firms are more likely to implement and report on sustainability plans due to their resource and capacity strengths.

At the same time, the model also found that audit by one of the Big Four (BIG4), leverage (LEV), growth (GRW), and firm age (AGE) showed a significant negative correlation with the ESG composite score (ESGC). Firms audited by the Big Four accounting firms (BIG 4) may be more cautious in ESG disclosure due to strict audit standards, resulting in lower ratings. A high debt ratio (LEV) means limited financial resources and may affect sustainability inputs, reducing ESG performance. Firms with fast annual revenue growth rates (GRW) may neglect

environmental and social responsibility in response to market expansion, leading to a decline in ESG scores. Older age (AGE) firms may lack the flexibility to adapt to the new sustainability requirements, so their ESG performance is relatively low.

Overall, the R-squared values of models 1 and 2 were 11.4% and 9.7%, respectively, indicating that these models can explain a large part of the variance of TBQ with a good fit. The F statistic was 6.964 (model 1, p-value 0.0000) and 6.525 (model 2, p-value 0.0000), respectively, meaning that both models were significant overall. Furthermore, the multicollinearity (VIF) values were 4.45 (Model 1) and 4.62 (Model 2), both within the acceptable range, indicating that the model does not have a severe multicollinearity issue.

In conclusion, the regression results in Table 4 support hypotheses 1,2 and 3, showing the critical role of green innovation and sustainability strategies in improving firm ESG performance. Enterprises should achieve higher ESG performance and long-term competitive advantage through collaborative green innovation and sustainability strategies. At the same time, the support and participation of senior management is crucial in promoting the sustainable development of the enterprise, and firms should thoroughly consider this in the strategy formulation and implementation process. The results verify the theoretical hypothesis and provide valuable guidance for business management practice.

5.0 CONCLUSION

In pursuing the “dual carbon” goal and high-quality economic development, studying the relationship between green innovation, sustainability strategy, and ESG performance is significant. Based on the RBV theory and the upper-echelon theory, this study examines the impact of green innovation on the ESG performance of the new generation of the information technology industry and analyses the moderating role of a sustainability strategy.

First, the empirical results show a significant relationship between ESG performance and green innovation. This shows how firms can achieve their sustainability goals by investing in green innovations that can significantly improve their ESG performance.

Second, the results show that sustainability strategies have a positive impact on ESG performance. When firms develop and implement sustainability strategies, they not only help improve their ESG performance but also build a better reputation and competitive advantage in the market.

Third, sustainability strategies strengthen the positive correlation between green innovation and ESG performance. This could have something to do with the level of integration of the leadership team with ESG values. For the successful implementation of sustainability strategies and the pursuit of green innovations, the approval and support of top management is essential.

These results confirm the importance of the RBV and upper-echelon theory in explaining organisational sustainability and performance improvement. The RBV theory emphasises the importance of the firm's resources and capabilities (Barney, 2001; Ferreira et al., 2023; Galbreath, 2005)., while the upper-echelon theory states that the values and perceptions of top managers have a significant impact on strategic choices and firm performance (Hambrick, 2007; Jahanshahi & Brem, 2017). The combination of these two theories provides a more comprehensive understanding of how firms can achieve sustainable development and long-term success through green innovation and sustainability strategies.

When formulating corporate strategies and business decisions, firms should pay attention to green innovations and integrate them into their long-term development plans. Green innovation can improve firms' ESG performance and help them gain long-term competitive

advantages in the highly competitive market (Li et al., 2023). The crucial role of top management in promoting corporate sustainability was also highlighted. Their recognition and support are essential for the successful implementation of sustainability strategies and the realisation of green innovations.

The study not only confirms the positive moderating effect of sustainability strategy on the relationship between green innovation and ESG performance but also highlights the crucial role of top management in promoting sustainable corporate development. Firms should focus on the synergy of green innovation and sustainability strategies to achieve higher ESG performance and long-term competitive advantage. Specifically, top management needs to drive a sustainability strategy, provide the necessary resources and support, and see green innovation as a core component of the firm's long-term growth.

6.0 SUGGESTION FOR FUTURE RESEARCH

There are still some limitations to this study. First, the research sample is limited to new-generation information technology listed firms in China's strategic emerging industries and can be further expanded to other industries or regions. Secondly, this study mainly focuses on the moderating effect of sustainability strategy on green innovation and ESG performance, and the impact of other influencing factors, such as industry characteristics of this moderating effect, can be further studied in the future.

In addition, with the continuous improvement of ESG disclosure standards and evaluation systems, future research can further focus on the impact of changes in these standards and systems on ESG performance. By expanding the scope of research and paying attention to the latest ESG standards, future research will be able to more comprehensively reveal the mechanism and impact of green innovation and sustainability strategies in different contexts and provide more in-depth theoretical and practical guidance for firms to achieve sustainable development.

CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest in this article. Author1 carried out the fieldwork, prepared the literature review and overlooked the write-up of the whole article. Author 2 wrote the research methodology and did the data entry. Author3 carried out the statistical analysis and interpretation of the results. Author 4 carried out the conclusion and guided the write-up.

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REFERENCES

Ahmad, R. A. R., Palaniappan, T., & Azmi, N. A. (2023). Environmental, Social, and Governance (ESG) disclosure and firms financial indicators: Analysis of semiconductor industry. *Insight Journal*, 10(1), 221–241.

- Ahmad, R. A. R., Peei, L. P., & Azmi, N. A. (2023). Examining ESG disclosure practices and firm performance in the food and beverages industry: A content analysis approach. *Insight Journal*, 10(2), 80–96.
- Al-Hiyari, A., Ismail, A. I., Kolsi, M. C., & Kehinde, O. H. (2023). Environmental, social and governance performance (ESG) and firm investment efficiency in emerging markets: the interaction effect of board cultural diversity. *Corporate Governance*, 23(3), 650–673. <https://doi.org/10.1108/CG-03-2022-0133>.
- Awang, N., Razali, F. A., & Talib, S. L. A. (2023). Do firms with standalone risk management committee have better performance than those with combined committee? *Gading Journal for Social Sciences*, 26(1), 38–45.
- Barney, J. (2001). Is the resource-based 'View' a useful perspective for strategic management research? Yes. *Academy of Management Review*, 26(1), 41–56.
- Cai, C., Tu, Y., & Li, Z. (2023). Enterprise digital transformation and ESG performance. *Finance Research Letters*, 58(1), 1–7. <https://doi.org/10.1016/j.frl.2023.104692>.
- Chen, Z., & Liang, M. (2023). How do external and internal factors drive green innovation practices under the influence of big data analytics capability: Evidence from China. *Journal of Cleaner Production*, 40(4), 1–14. <https://doi.org/10.1016/j.jclepro.2023.136862>
- Coelho, R., Jayantilal, S., & Ferreira, J. J. (2023). The impact of social responsibility on corporate financial performance: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, 30(4), 1535–1560. <https://doi.org/10.1002/csr.2446>.
- Dash, A., & Mohanty, S. K. (2023). The mediating effect of a firm's corporate reputation and sustainability practices in translating CSR into competitive performance in Indian ESG firms. *Society and Business Review*, 1(1), 1–19. <https://doi.org/10.1108/SBR-02-2023-0045>.
- Ferreira, J. J., Lopes, J. M., Gomes, S., & Rammal, H. G. (2023). Industry 4.0 implementation: Environmental and social sustainability in manufacturing multinational enterprises. *Journal of Cleaner Production*, 404(1), 1–13. <https://doi.org/10.1016/j.jclepro.2023.136841>.
- Galbreath, J. (2005). Which resources matter the most to firm success? An exploratory study of resource-based theory. *Technovation*, 25(9), 979–987. <https://doi.org/10.1016/j.technovation.2004.02.008>.
- Galbreath, J., Chang, C. Y., & Tisch, D. (2023). The impact of a proactive environmental strategy on environmentally sustainable practices in service firms: The moderating effect of information use value. *Business Strategy and the Environment*, 3(1), 1–15. <https://doi.org/10.1002/bse.3428>.
- Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review*, 32(2), 334–343. <https://doi.org/10.5465/AMR.2007.24345254>.
- He, F., Ma, Y., & Zhang, X. (2020). How does economic policy uncertainty affect corporate innovation?—Evidence from China listed firms. *International Review of Economics and Finance*, 67, 225–239. <https://doi.org/10.1016/j.iref.2020.01.006>.
- Ilyas, I. M., & Osiyevskyy, O. (2022). Exploring the impact of sustainable value proposition on firm performance. *European Management Journal*, 40(5), 729–740. <https://doi.org/10.1016/j.emj.2021.09.009>.
- Jahanshahi, A. A., & Brem, A. (2017). Sustainability in SMEs: Top management teams behavioural integration as a source of innovativeness. *Sustainability*, 9(10), 1–16. <https://doi.org/10.3390/su9101899>.
- Junius, D., Adisurjo, A., Rijanto, Y. A., & Adelina, Y. E. (2020). The Impact of ESG Performance to Firm Performance. *Jurnal Aplikasi Akuntansi*, 5(1), 21–41.
- Li, J., Lian, G., & Xu, A. (2023). How do ESG affect the spillover of green innovation among peer firms? Mechanism discussion and performance study. *Journal of Business Research*, 158(12), 1–10. <https://doi.org/10.1016/j.jbusres.2023.113648>.
- Liu, H., & Lyu, C. (2022). Can ESG Ratings Stimulate Corporate Green Innovation? Evidence from China. *Sustainability*, 14(19), 1–20. <https://doi.org/10.3390/su141912516>.

- Qureshi, M. A., Akbar, M., Akbar, A., & Poulova, P. (2021). Do ESG endeavours assist firms in achieving superior financial performance? A case of 100 best corporate citizens. *SAGE Open*, 11(2), 1–18. <https://doi.org/10.1177/21582440211021598>.
- Rahman, H. U., Zahid, M., & Muhammad, A. (2021). Connecting integrated management system with corporate sustainability and firm performance: from the Malaysian real estate and construction industry perspective. *Environment, Development and Sustainability*, 24(2), 2387–2411. <https://doi.org/10.1007/s10668-021-01538-2>.
- Ren, X., Zeng, G., & Zhao, Y. (2023). Digital finance and corporate ESG performance: Empirical evidence from listed firms in China. *Pacific Basin Finance Journal*, 79(1), 1–18. <https://doi.org/10.1016/j.pacfin.2023.102019>.
- Shahrin, N. S. B., Ramasamy, S., & Yen, Y. Y. (2024). Effect on Environmental, Social and Governance (ESG) Criteria on the Firm Profitability of Listed Companies in Malaysia. *WSEAS Transactions on Business and Economics*, 21(1), 239–247. <https://doi.org/10.37394/23207.2024.21.22>.
- Shahzad, A. M., & Sharfman, M. P. (2017). Corporate social performance and financial performance: sample-selection issues. *Business and Society*, 56(6), 889–918. <https://doi.org/10.1177/0007650315590399>.
- Shen, H., Lin, H., Han, W., & Wu, H. (2023). ESG in China: A review of practice and research, and future research avenues. *China Journal of Accounting Research*, 1(1), 1–25. <https://doi.org/10.1016/j.cjar.2023.100325>.
- Syuhada, N., & Jasni, B. (2021). *Environmental social governance performance and financial performance: strategic resources and capabilities perspectives*.
- Tang, H., & Loang, O. K. (2024). Does ESG Performance Improve the Financial Performance of Enterprises in China? The Mediating Role of Financial Constraints. In *Artificial Intelligence (AI) and Customer Social Responsibility (CSR)*, 263–289. <https://doi.org/10.1007/978-3-031-50939-1>.
- Wang, N., Li, D., Cui, D., & Ma, X. (2022). Environmental, social, governance disclosure and corporate sustainable growth: Evidence from China. *Frontiers in Environmental Science*, 10(1), 1–13. <https://doi.org/10.3389/fenvs.2022.1015764>.
- Wu, L., Wang, C., Ren, H., & Zhang, W. (2024). How does executive green cognition affect enterprise green technology innovation? The mediating effect of ESG performance. *Heliyon*, 10(14), e34287. <https://doi.org/10.1016/j.heliyon.2024.e34287>.
- Xu, J., Liu, F., & Shang, Y. (2021). R&D investment, ESG performance and green innovation performance: evidence from China. *Green Innovation Performance*, 50(3), 737–756. <https://doi.org/10.1108/K-12-2019-0793>.
- Zahid, M., Rahman, H. U., Khan, M., Ali, W., & Shad, F. (2020). Addressing endogeneity by proposing novel instrumental variables in the nexus of sustainability reporting and firm financial performance: A step-by-step procedure for non-experts. *Business Strategy and the Environment*, 29(8), 3086–3103. <https://doi.org/10.1002/bse.2559>.
- Zeng, G., Guo, H., & Geng, C. (2023). Mechanism analysis of influencing factors on financing efficiency of strategic emerging industries under the “dual carbon” background: evidence from China. *Environmental Science and Pollution Research*, 30(4), 10079–10098. <https://doi.org/10.1007/s11356-022-22820-4>.
- Zhang, Y., & Zhang, X. (2024). Top management team functional diversity and ESG performance. *Finance Research Letters*, 63(27), 105362. <https://doi.org/10.1016/j.frl.2024.105362>.
- Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation firms. *Sustainability*, 10(8), 1–18. <https://doi.org/10.3390/su10082607>.
- Zheng, Y., Peng, J., Wei, X., & Zhang, J. (2022). Low-Carbon Transition of Enterprises and Financial Market Stability: From the Perspective of Stock Price Crash Risk. *Emerging Markets Finance and Trade*, 58(15), 4361–4374. <https://doi.org/10.1080/1540496X.2022.2103403>.

Zhou, G., Liu, L., & Luo, S. (2022). Sustainable development, ESG performance and firm market value: Mediating effect of financial performance. *Business Strategy and the Environment*, 31(7), 3371–3387. <https://doi.org/10.1002/bse.3089>.

THE METHODOLOGY OF DELIVERING FATWAS AND RULING ANSWERS: A CONTEMPORARY PERSPECTIVE IN MALAYSIA

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ABSTRACT

The way fatwas are delivered in modern Malaysia is crucial for guiding Muslims effectively in today's world. Without appropriate and effective delivery methods, fatwas and legal rulings are feared to be unable to achieve objectives and may even tarnish the image of Islam and religious scholars. This paper which is based on qualitative research, looks at different aspects of this process. It starts by explaining how fatwas are viewed in Islam and then looks at how they are practiced in Malaysia, distinguishing between official and unofficial fatwas. The paper stresses the importance of considering society and the law when issuing fatwas. In understanding the reality of the questioner and society, the paper emphasizes the need to adapt fatwas to local customs and culture. It suggests moving away from blindly following old interpretations and instead encourages scholars to address modern challenges through thoughtful interpretation. The paper also emphasizes the importance of making fatwas easy to understand and not burdensome, in line with Islam's focus on practicality. It suggests that fatwas should be presented clearly and logically, supported by strong arguments and evidence, to gain credibility and acceptance. Lastly, the paper discusses using modern technology like online platforms and mobile apps to reach more people with fatwas. It mentions the role of social media and multimedia in helping people engage with religious rulings. In conclusion, the paper highlights the need for a systematic and relevant approach to issuing fatwas in Malaysia. By focusing on clarity, relevance, and accessibility, Islamic scholars can ensure that fatwas continue to guide Muslims in navigating modern life while staying true to Shariah ruling.

Keywords: Contemporary, Fatwa, Malaysia, Methodology, Ruling Answer

1.0 INTRODUCTION

Any work or action can be successful if it has a methodology that is systematic and effective. This also applies to the field of fatwas or the issuance of ruling answers, where authority figures like muftis decide the presentation style and how it affects the continuity of religious activities within the Islamic community. The history of Islamic law has shown that the manner in which the Prophet Muhammad SAW imparted Islamic teachings was not only effective and successful in achieving its objectives, but it also helped teach a society that was uneducated to become the most noble of communities. However, with the change of times, the process of delivering fatwas requires new pertinent approaches that take into account the facts while maintaining the fundamental discipline.

2.0 ISLAMIC PERSPECTIVE ON THE FATWA

Al-Qaradawi (1988) and al-Zuhaili (1996) define fatwa as any official response to any religious query, whether it be one of a person or a group. The Arabic term *fatawa* is derived from *fata-yafu-fatwan*. *Futyan* and *fatwa* are two terms used for *al-ifta'*, which is the act of issuing a fatwa by a mufti about a legal matter or a legal interest issued by a jurist (Ibn Manzur, 1956; Hasan, 1997). Those who bear the title of mujtahid can obtain an authorized definition of fatwa issuance from scholars such as al-Baidawi (685H) and al-Badakhshi (1953).

The mufti's authority and the persuasiveness of the argument supported by Islamic evidence using particular inference techniques are taken into consideration when evaluating the strength of a fatwa (Bar, 2005). Therefore, a fatwa is not considered authentic if it is delivered by an unqualified person, based only on personal preferences or ideas, or if it conflicts with Islamic evidence. Another term that is used to define a fatwa is '*mustafti*', which describes both the act of answering (referred to as '*istifta'*') and the person who is inquiring. (Othman, 1996).

'Fatwa' appears eleven times in nine different verses throughout the Quran. Various meanings and intentions underpin these usage (Rahman, 2001). To put it another way, the meaning of each varies according on the verse's usage and context. In the first instance, the term is used to signify asking for clarification or a ruling responses that will have legal implications. The second usage relates to asking for clarification and elucidation that is not related to legal matters, and the third usage gives the Prophet Muhammad SAW instructions not to ask for a fatwa from non-believers and to ask for a fatwa from them with the goal of undermining and challenging their beliefs.

3.0 THE PRACTICE OF FATWA IN MALAYSIA

There are two main types of fatwas that are commonly used in Malaysia, official and unauthorized fatwas. In more depth, though, fatwas can also be divided into three categories: the mufti's opinions, public fatwas, and unpublished fatwas. Published fatwas are official fatwas that have been decided upon by the mufti or mufti committee with the sultan's or ruler's approval. Publication through government gazettes is subject to permission by the State Executive Council and State Legal Adviser in certain other states. A fatwa that is published becomes enforceable against all Muslims in the state in which it is published (Buang, 2000).

Conversely, answers to queries without any consensus for publication are referred to as unpublished fatwas. Its non-recognition by any court makes it very challenging to apply and enforce. Not every matter presented to the mufti or fatwa committee is published to become legislation. However, a fatwa is regarded as a government document and is governed by applicable laws when it is formally obtained through letters or inquiry. As a result, some of these fatwas are private and should not be shared with the wider public. This group comprises the National Fatwa Council deliberations, which are considered private despite their lack of legal standing (Buang, 2004).

The first and second categories of fatwas deal with significant societal challenges for which no Islamic reference book offers a definitive solution. The comments expressed by the mufti, whether in writing or verbally, based on their personal beliefs during religious Q&A sessions in person, through the media, or over the phone, fall into the third group. Since the fatwa is based solely on the mufti's personal opinion and does not involve committee meetings, it does not bind any particular Muslim. Oral fatwas of this kind are not official. As a result, these fatwas may be released for public use. For instance, the State Mufti of

Kelantan's Collection of Fatwas, which appeared in the Pengasuh magazine circa 1920s (Buang, 2004).

In conclusion, even though the Islamic tradition regards the practice of muftis providing religious legal advice as 'fatwa', the definition of this term has changed over time in tandem with regional traditions and shifts in social mores.

4.0 METHODOLOGY OF DELIVERING FATWAS AND RULING ANSWERS FROM A CONTEMPORARY PERSPECTIVE IN MALAYSIA

Modern Muslims face problems and conflict, divided between remaining faithful and surrendering to wants. People live in a materialistic world, valuing self-interest, and the majority are somewhat disconnected from religious doctrine. Therefore, it is the obligation of Islamic scholars, especially those involved in issuing fatwas, to provide explanations and facilitate religious activities for the community while preserving the agreed-upon core principles of Shariah ('Uqlah, 1991).

Regarding the historical trajectory of fatwa practices since the time of the Prophet Muhammad SAW, the process of issuing fatwas has played an important part in the formation of Islamic law. As a result, the practice of fatwa in this era demands more organized, disciplined, and systematic methodological direction to build rules that are accurate and effective for adoption by society (Rahman, 2003).

In general, the methodology in question is separated into two major parts: the method of issuing and the method of delivery. The technique of issuance is studied and elaborated on in books and publications about inference procedures, whereas the method of delivery is detailed in fatwas, muftis, and Islamic history. This article focuses on how to offer legal responses or the best methods for providing fatwas to the public. In essence, the delivery method is another topic of discussion on the principles of Islamic jurisprudence (*Usul al-Fiqh*) that receives less attention than other branches of discussion.

Based on the analysis of suggestions from classical and contemporary scholars who are experts in the field of fatwa (al-Qaradawi, 1988; al-Harrani, 1380H; al-Mughni, n.d.; Majid, 2000; Rahman, 2003; Razak, 2013), the writer elaborates on the method of delivering fatwas based on current realities in Malaysia, as follows:

4.1 Understanding the Reality of the Questioner (*Mustafti*) and Society

Understanding the intended reality entails understanding the question, the questioner's cultural background, the sociological environment, and an assessment of their current living conditions (Majid, 2000). To go deeper, the importance of comprehending the actuality of the question and the questioner is derived from various instances recounted in the sayings of the Prophet Muhammad SAW. Among them, Abu Hurairah RA recounted a Hadith that states:

"Once a man came to Prophet Muhammad SAW asking about the ruling on being intimate with his wife while he was fasting, and the Prophet SAW permitted him to do so. Conversely, Prophet Muhammad SAW prohibited another man from doing the same..."

(Narrated by Abu Daud)

This happened because the first man who asked Prophet Muhammad was elderly and frail, whereas the second man was younger. The example above demonstrates how Prophet Muhammad fully grasped the topic by responding differently to the identical question based on the questioners' diverse backgrounds. The answers provided were appropriate and reasonable for each questioner's standpoint. This depiction clearly shows that the

questioner's background effects their interpretation of the question and the legal response to be provided (Zameno, 2008). As a result, for issues questioned directly, a mufti must carefully analyze the questioner's background in terms of age, social rank, and other criteria.

A mufti should also consider societal realities. When a ruling question is posed to the mufti in writing or when the issue goes viral across the community, it might be assumed that the questioner is representing not just themselves but also a group of community members who are experiencing the same difficulty. Therefore, muftis must be sensitive to the Islamic understanding of the Muslim population in this country.

Malaysia's Malay community has represented the Islamic community since Islam arrived in the Malay realm. In terms of theology, Malay society traditionally follows the teachings of Ash'ariyyah or Ahl al-Sunnah wal Jama'ah, adheres to the Shafi'i school of fiqh, and practices sufism based on al-Ghazali's teachings as well as some sufi organizations (Abdullah, 1992). Most Malaysian states, with the exception of Perlis, acknowledge this reality in their fatwa enactments. State muftis and fatwa committees will consider the Shafi'i school as the primary reference before accepting opinions from other schools if there is a conflict with public interest in their particular states (Kasan, 2008).

Regarding the Malay community's lifestyle or culture, it has distinct characteristics that distinguish it from Muslim cultures elsewhere, such as dress style, social interactions, customs, family relationships, language, literature, arts, and so on (Hamid, 1985). The primary explanation for these qualities, as mentioned, is because the Malay population lives in locations with a mild climate, resulting in individuals with kind souls as compared to those living in hot climes such as the Middle East (Ibn Khaldun, n.d.). Therefore, fatwas should be given in accordance with local customs, using a delicate and moderate approach.

Fatwas to be issued should take into account not only the special demands of Malay-Muslim society, but also the sensitivities of Malaysian society in general. The provisions of the Malaysian Constitution acknowledge that Malay-Muslims in Malaysia live in a multicultural society with diverse cultural and religious roots. This condition also implies that, although being the majority, the Malay community's absolute authority is limited to Malay customs and Islamic religion (Ibrahim & Joned, 1999). It is critical to realize that the author does not intend that Islamic law must accommodate the requests of minority communities, but rather that appropriate consideration of cultural sensitivities should be prioritized before issuing any fatwa.

The following explanation demonstrates that the reality of Malaysia's Islamic community plays a critical role in deciding judicial replies or fatwas. A broad review has also shown the existence of legal concerns that are truly current and local in Malaysia, which were not present in the past or in classical fiqh works. Therefore, it becomes the duty of muftis to do their best efforts in discovering the finest ruling solutions to the issues given properly, without violating the principles defined by Shariah (Rahman, 2008).

4.2 Free from 'Asabiyyah and Taqlid

Muslims should uphold the intellectual values established by classical scholars who founded their separate schools of fiqh. This is because history has shown that their wisdom and care in issuing fatwas surpasses that of modern experts (Rahman, 2004). However, fatwas undergo revisions depending on particular factors. Fatwas are *ijtihadiyyah* in nature, which means they are fundamentally relative to time, location, and situation. This is because rules are predicated on the presence of Allah. When the '*illah*' changes, the law changes to reflect the reality of the '*illah*' (al-Zuhaili, 1986).

In this regard, society should understand that the way to respect and honor the contributions of past fuqaha and imams of schools of thought is to use their methods and principles of *ijtihad* and legal research as very useful reference materials (al-Qaradawi, 1996). With this approach, discussions on fiqh rules are no longer static, but fluid, meeting contemporary interests based on established Islamic approaches.

The history of Islamic ruling law also shows that a ruling can vary dependent on local circumstances. The clearest example is when Imam al-Shafi'i's fiqh evolved in response to local reality. The introduction of new perspectives during his time in Egypt demonstrates a review of past thoughts or opinions held while in Iraq. Imam al-Shafi'i reassessed these ideas based on variances in place, time, and customs, as well as the finding of a hadith that he was previously ignorant of (Ali, 2008).

The rapid advancement of the modern world emphasizes the significance of legal scholars engaging in *ijtihad* and breaking free from blind allegiance. This is because, as previously said, numerous new cases are appearing in earlier publications, necessitating extensive research to settle (al-Qasimi, 1986). According to al-Qaradawi (1996), fulfilling this need does not necessarily require one to attain the status of a *Mujtahid Mutlaq*, but it is sufficient to meet certain requirements such as the ability to understand evidence and perform *istinbat*, the capability to perform *tarjih* (evaluation) among various opinions using specific methods and methodologies compiled by Islamic ruling scholars, and possessing expertise and qualifications to engage in partial *ijtihad* on new issues.

To meet the necessity for current *ijtihad*, most modern scholars advise that it should be conducted collectively, also known as collective *ijtihad* or *ijtihad Jama'i*. This technique allows experts from diverse fields to collaborate and share information in tackling current difficulties. (Rahman, 2004). The author highlights that the concept of being free of attachment or blind allegiance is limited to legal scholars who are experts, not the ordinary population. The general population should subscribe to or follow (*taqlid*) any school of thinking of a mujtahid imam, regardless of whether they stick to a single mujtahid or switch between different mujtahids. (Al-Buthi, 1985)

4.3 Convenient and Non-Burdensome

Islam is a religion that is simple, practical, and relevant throughout history. In line with this reality, those involved in the practice of issuing fatwas are encouraged to adopt an approach of facilitating and easing, rather than complicating and burdening, so that people can fulfill their religious responsibilities easily and in accordance with Shariah's objectives (al-Qaradawi, 1996).

The author's use of the term 'not burdensome' suggests that it is neither narrow nor burdensome. There are numerous verses in the Quran and hadiths that stress this point. Among them is the utterance of Allah SWT, which means:

"No hardship in the religion".
(Al-Hajj (22): 78)

"Allah intends ease for you, not hardship".
(Al-Baqarah (2): 185)

Meanwhile, the hadiths of the Prophet Muhammad SAW extensively discuss this issue. Among them is a statement of the Prophet Muhammad SAW that means:

"Give glad tidings and do not make people run away from you; make things easy and do not make them difficult"

(Narrated by Muslim)

The Quran's descent and the application of its laws occurred gradually in order to enable mankind's worship. In this regard, the Prophet Muhammad SAW condemned individuals who made Islam so difficult that it caused suffering and difficulty. The saying of the Prophet Muhammad SAW implies:

"Whatever I forbid you from doing, stay away from it. And whatever I command you to do, do it to the best of your ability"

(Narrated by al-Bukhari and Muslim)

Although the notion of convenience is emphasized in Islam, it does not mean leniency in dealing with sections of Islamic texts that clearly state their requirements. This is because the true goal (maqasid) of Shariah is to ensure the safety and well-being of life in this world and the next (al-'Alim, 1994). It is not proper to disobey the rules of Islamic laws that have already been established with the objective of aiding the performance of religious responsibilities, since it fully opposes the principle of allowable leniency and the purpose of human creation.

4.4 Presenting Clear and Rational

Writings on fatwas demonstrate a consensus to formulate fatwas in a brief and condensed way, omitting details such as lawful, impermissible, halal, or haram. However, al-Qaradawi opposes this technique. He believes that a mufti does not only provides answers, but also serves as a teacher, guide, leader, doctor, and enlightener for the community. Therefore, a mufti must explain a fatwa clearly and fully to bring more benefits to the questioner and the community (al-Qaradawi, 1988).

Prophet Muhammad SAW used this strategy while issuing fatwas, even repeating the fatwa to ensure that the inquisitive community grasped the intricacies. The Prophet did not only respond to the precise subject posed, but he also offered related topics indirectly in order to provide his companions with a more complete understanding. This reflects the Prophet's practice of not only delivering straight answers to inquiries, but also including facts and explanations as needed and appropriate. This perspective demonstrates that suitability and necessity determine whether the fatwa response needs to be extensive or brief, as each has its own grounds and bases (Razak, 2013).

In terms of credibility, a fatwa should be clear, engaging, and rational, with supporting arguments and proof. When there are opposing viewpoints on the stated problem, the party delivering the fatwa should explain why a particular opinion was chosen (Kasan 2008). This strategy ensures that the fatwa is fully recognized, especially when dealing with vital and difficult matters. Furthermore, in the modern challenging times where Islam is often viewed as inflexible and impractical, any review, facts, logic, and arguments should be offered to support and enhance the chosen solution.

Furthermore, fatwas can be made more engaging and valuable by presenting the wisdom and *'illah* (reason) behind the determination of a specific ruling (Bakar, 1995). As a result, the choice will be stronger and more easily accepted by the public, as current society appreciates logical thinking when accepting something. This strategy was employed in the Quran itself when Allah SWT instructed the Prophet Muhammad SAW to explain the *'illah* and wisdom behind the restriction of contacting one's wife during menstruation. The words of Allah SWT mean:

“They ask you about menstruation. Say, “Beware of its harm! So keep away, and do not have intercourse with your wives during their monthly cycles until they are purified. When they purify themselves, then you may approach them in the manner specified by Allah. Surely Allah loves those who always turn to Him in repentance and those who purify themselves”

(Al-Baqarah (2): 222)

With such justifications, it is simpler to persuade the community to accept the supply, as everyone is horrified by the impurity. Based on the wisdom of the Quran, it is clear that a mufti's primary priority should be the wisdom of applying psychological ways to bring explanation and understanding to the community. When dealing with relatively unknown legal issues, muftis are encouraged to provide an introduction, which is a short description of the topic that can be used as an opener or introduction to the fatwa presented. This is intended to catch the attention of those who ask, and then accept the fatwa with ease and an open heart.

A mufti is also urged to provide alternatives to fatwas issued, particularly in cases with discrepancies. If it is discovered that the matter raised by the community is forbidden, the mufti must explain it carefully while presenting other possible solutions. In this manner, the Islamic community will be satisfied with the explained solution and convey a positive perception to the larger community that Islam is a practical and ageless faith.

4.5 Using Current Technologies to Spread Fatwa in Malaysia

With the advancement of technology, there are now various modern methods being used to spread fatwas in Malaysia. One of the prominent methods is through the use of online platforms. Online platforms have emerged as a popular and accessible medium for disseminating fatwas to the masses. The use of online platforms for spreading fatwas in Malaysia has revolutionized the accessibility and reach of religious rulings. These platforms not only disseminate fatwas to the masses but also allow for interactive engagement and discussion among the public. Social media, in particular, has become a powerful tool for religious authorities to reach a wide audience and address contemporary issues through fatwas (Saepullah & Muchtar, 2020).

Furthermore, mobile applications specifically designed for accessing fatwas have gained popularity, providing a convenient way for individuals to seek guidance on the go. These applications offer comprehensive databases of fatwas, making it easier for people to access and understand religious rulings in a timely manner.

Moreover, the integration of multimedia content, such as videos and podcasts, has enhanced the engagement and understanding of fatwas, catering to different learning styles and preferences. This multi-faceted approach to spreading fatwas has not only increased accessibility but also facilitated a deeper understanding and interpretation of religious rulings among the Malaysian population. In addition, television and radio programs have played a significant role in the dissemination of fatwas in Malaysia. These programs often feature religious scholars and muftis who present and discuss fatwas on various topics, allowing the audience to learn and engage with religious rulings.

The Federal Territories Mufti Department is one of the mufti departments that actively share fatwas and legal answers with the public via online channels. We can see that the topics provided to the public are current and written in plain language that is easy to understand. Such endeavors should be recognized and expanded upon by mufti

departments and other legal scholars. The Federal Territories Mufti Department (2019) has also explained its methodology which is intriguing for future investigation.

5.0 CONCLUSION

Fatwa is a vital component of Islam. Looking at the overall history of Islamic jurisprudence, numerous schools and approaches have affected the practice of fatwa in each age. Fatwa has been discovered to play an important function in guiding and explaining Islamic regulations to the entire community for both current and future activities. Fatwa is alive, dynamic, and changing, reacting to contemporary society's thinking and intellectualism by providing solutions and reactions to everyday questions from a religious perspective. However, it is not something that can be taken lightly without authority, credibility, and extensive research. As a result, as previously said, established ways of issuing fatwas that are consistent with present circumstances can serve as basic recommendations for muftis and Islamic scholars participating in fatwa matters in order to achieve the goal of harmony and continuity in the practice of Islamic ruling.

REFERENCES

- Abdullah, A.R. (1992). *Gerakan islam tradisional di Malaysia: Sejarah dan pemikiran-Jamaah Tabligh dan Darul Arqam*. Penerbit Kintan.
- Ahmad, Z.A. (1977). *Sejarah Islam dan umatnya sampai sekarang*. c. 1. Bulan Bintang.
- Al-'Alim, Yusuf (1994). *al-Maqasid al-'Ammah li al-Syari'ah al-Islamiyyah*. al-Maahad al-'Ali li al-Fikri al-Islami.
- Al-Badakhshi (1953). *Sharh al-Badakhshi Manahij al-'Uqul*. j. 3, t.p.
- Al-Baidawi (685H). *Minhaj al-Wusul fi Ma'rifah 'Ilm al-Usul*. Mesir: Maktabah wa al-Matba'ah al-Mahmudiyyah.
- Al-Buti, Sa'id Ramadan (1985), *Alla Mazhabiyyah*. Dar al-Farabi.
- Al-Harrani, Ahmad Ibn Hamdan (1380H), *al-Fatwa wa al-Mufti wa al-Mustafti*, j.1.Mansyurat al-Maktab al-Islami.
- Ali, A.K. et. al. (2008). Faktor perubahan pendapat Imam al-Shafi'i dari Qawl Qadim kepada Qawl Jadid. *Jurnal Syariah*, 16 (2), 307-319.
- Al-Mughni, Muhammad ibn 'Ali ibn Hussayn (t.t.), *Dawabit al-Fatwa*. Dar al-Furqan.
- Al-Qaradawi, Muhammad Yusuf (1988). *al-Fatwa Baina al-Indibat wa al-Tasayyub*. Dar al-Sahwah li al-Nasyar wa al-Tauzi'.
- Al-Qaradawi, Muhammad Yusuf (1996). *al-Ijtihad fi al-Syari'ah al-Islamiyyah*. Dar al-Qalm.
- Al-Qaradawi, Muhammad Yusuf (1996). *Fi Fiqh al-Awlawiyyat wa Dirasah al-Jadidah fi Dau' al-Qur'an wa al-Sunnah*. Maktabah Wahbah.
- Al-Qasimi, Jamal al-Din (1986). *al-Fatwa fi al-Islam*. Dar al-Kutub al-'Ilmiyyah.
- Al-Zuhaili, Wahbah (1986). *Usul al-Fiqh al-Islami*. j. 1. Dar al-Fikr.
- Al-Zuhaili, Wahbah (1996). *Usul Fiqh al-Islami*. j. 2. Dar al-Fikr al-Ma'asir.
- Bakar, M.D. (1995). Teori dan amalan Tarjih dalam mazhab Syafi'i. *Jurnal Syariah*, 3 (2), 169.
- Bar, S. (2005). *Jihad ideology in light of contemporary fatwas*. Hudson Institute.
- Buang, A.H. & Khambali, K.M. (2004). Bentuk dan statistik fatwa. In Ahmad Hidayat Buang. (Ed.). *Fatwa di Malaysia*. Jabatan Syariah dan Undang-undang APIUM, 124.
- Buang, A.H. (2000). Analisis fatwa-fatwa semasa di Malaysia. *Seminar Kakitangan Jabatan Syariah dan Undang-undang*. Akademi Pengajian Islam Universiti Malaya.
- Hamid, I. (1985). *Peradaban Melayu dan Islam*. Penerbit Fajar Bakti.
- Hasan, K.R. (1997). *Mu'jam Usul al-Fiqh*. Dar al-Tarabisiy.
- Ibn al-Manzur, Abu al-Fadl Jamal al-Din Muhammad Ibn Mukarram (1956). *Lisan al-'Arab*. j. 15. Dar al-Sadir.
- Ibn Kathir, Isma'il 'Umar (774H). *Tafsir al-Qur'an al-'Azim*. j. 2. Dar al-Fikr.
- Ibn Khaldun (t.t), *Muqaddimah al-'Allamah Ibn Khaldun*. Dar al-Fikr.

- Ibrahim, A. & Joned, A. (1999). *Sistem undang-undang di Malaysia*. Dewan Bahasa dan Pustaka.
- Judli, N.A. (2006). *Manahij al-Fuqaha' al-Arba'ah*. Dar al-Tajdid.
- Kasan, H. (2008). *Institusi fatwa di Malaysia*. Penerbit Universiti Kebangsaan Malaysia.
- Khallaf, 'Abd al-Wahhab. (1943). *'Ilm Usul al-Fiqh*. Maktabah Da'wah al- Islamiyyah.
- Majid, M.Z.A. (2000). Fiqh Malaysia: Konsep dan cabaran. In Paezah Ismail & Ridzwan Ahmad (Eds.). *Fiqh Malaysia*. al-Baian Corporation, 14.
- Mohamad, M. (2017). Contesting Syariah Laws in Malaysia: Religion, human rights and the state's response. *Journal of Politics and Law*, 10 (5), 140-151. [https://doi.org/ 10.5539/jpl.v10n5p140](https://doi.org/10.5539/jpl.v10n5p140).
- Mufti Wilayah Persekutuan.(2019). *Bayan Linnas siri ke-179: Metodologi jawapan hukum dan fatwa mufti Wilayah Persekutuan*.[https://muftiwp.gov.my/ms/ perkhidmatan/artikel-soal-jawab/3440-bayan-linnas-siri-ke-179-metodologi-jawapan-hukum-dan-fatwa-mufti-wilayah-persekutuan](https://muftiwp.gov.my/ms/perkhidmatan/artikel-soal-jawab/3440-bayan-linnas-siri-ke-179-metodologi-jawapan-hukum-dan-fatwa-mufti-wilayah-persekutuan).
- Othman, M.S.A. (1996). *Institut Pentadbiran Undang-undang dan Kehakiman Islam*. Dewan Bahasa dan Pustaka.
- Rahman, M.S.A (2008). *Isu-isu dalam masyarakat majmuk Malaysia*. IBook Publications.
- Rahman, N.N.A. (2001). Fatwa dan realitinya pada zaman Rasulullah. *Jurnal Syariah*, 9, 15-22.
- Rahman, N.N.A. (2003). *Fatwa jemaah ulamak Kelantan tahun 1920an hingga 1990an: Satu analisis*. [Unpublished doctoral theses].Universiti Malaya, Kuala Lumpur, Malaysia.
- Rahman, N.N.A., Ali, A.K & Ahmad, R. (2004). *Keterikatan fatwa kepada Mazhab Syafi'i: Analisis Terhadap fatwa-fatwa jemaah ulama Majlis Agama Islam dan Adat Istiadat Melayu Kelantan* [Paper presentation]. Seminar Kebangsaan Usul Fiqh 2004.Kolej Universiti Islam Malaysia.
- Razak, M.I.A. (2013). *Analisis metode jawapan hukum dalam ruangan soal jawab agama akhbar Harian Metro tahun 2010*. PhD Thesis. University of Malaya.
- Saepullah, U., & Muchtar, K. (2020). E-Dakwah Islam Digest Republika.Co.Id. di Indonesia. *Ilmu Dakwah: Academic Journal for Homiletic Studies*,14 (1), 39-54. [https://doi.org/ 10.15575 /idajhs.v14i1.8678](https://doi.org/10.15575/idajhs.v14i1.8678).
- Uqlah, M. (1991), *Al-Islam Maqasiduhu wa Khasaisuhu*.Maktabah al-Risalah al-Hadisah
- Zaid, M. (2006). *al-Maslahah fi al-Tasyri' al-Islami*. Dar al-Yasar.
- Zameno, A. (2008). The story in the fatwas and the fatwas in history. In. *Baudouin Dupret et.al. (ed.) Narrative of Truth in Islamic Law*. I.B Tauris & co. Ltd, 47.
- Zin, A.A.M. (2005). *Metodologi dakwah*. Penerbit Universiti Malaya.

HALAL COSMETIC CRITICAL INGREDIENTS: AN OVERVIEW OF ANIMAL BASED INGREDIENTS

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ABSTRACT

The halal cosmetics market is rapidly expanding and offers a unique perspective on the beauty and personal care industries. With an emphasis on goods that comply to Islamic principles and values, the market is growing as customers seek halal-certified cosmetics that correspond with their religious and ethical views. Since the production and manufacturing of cosmetics is dominated by non-halal cosmetic manufacturers, there is no guarantee that they use all halal ingredients in the making of cosmetic products. Not all manufacturers will disclose the source of the animal-based ingredients of their cosmetic products. There is a high possibility that the animal-based ingredients in the cosmetic products made of non-halal animal such as pig or its derivatives or from halal animal that is not slaughtered according to Islam. Therefore, this paper summarizes existing literature on critical ingredients used in the manufacturing of halal cosmetics. The identification of the status of critical cosmetic ingredients may provide a technical guideline among manufacturing in complying the raw material control requirements of the Malaysia Halal Management System (MHMS).

Keywords:Animal, Halal Cosmetic, Ingredients, Zooceuticals

1.0 INTRODUCTION

Muslim population began to grow across the year, not only in Malaysia, but also in other country. Based on Kettani (2009) the growth rate of Muslim population has increased to 99% in 2021. Meanwhile, in 2015, it was also found that one of the regions with fastest growing rate for halal market is the Asian market, which has increased to more than US\$70 billion, which is the second highest after the Western European market (M. Hassali et al., 2015). The numbers must have increased over the year because a study shows that the halal cosmetics market reached a value of US\$ 27.31 billion in 2021. The market is projected to reach US\$ 54.06 billion by 2027, which is a very huge number (Group, I., 2022). The growth of the halal market is also due to the increase of awareness on halal products. Muslims has acknowledged the importance of making sure that all the products that they want to consume is made from halal ingredients.

Elsner and Maibach (2005) in their book entitled, Cosmeceuticals and Active Cosmetics, Drugs Versus Cosmetics stated that there is different opinion on the definition of cosmetics between Europe and Japan. Europe defined cosmetic products as any substance or preparation meant to be applied to the skin, hair, nails, lips, external sexual organs, teeth,

and mucous membranes of the oral cavity with the sole purpose of cosmetic enhancement or mostly to washing, perfuming, altering their look, eliminating unpleasant bodily odours, safeguarding, or maintaining their condition, meanwhile Japan defined cosmetic products as any item meant to be used in conjunction with applying anything similar to the human body, such as rubbing or spraying, enhancing attractiveness, fostering cleanliness, and changing look for maintaining the health of the human body, the skin, and the hair, if the article's impact on the human body is minimal. The definition of a cosmetic in Japan barely differs from the definition in Europe. A cosmetic may be mildly active and have medicinal activity according to both definitions. This is in direct contrast to the definition of a cosmetic in the USA.

A cosmetic according to national Pharmaceutical Regulatory Agency, Ministry of Health Malaysia, can be defined as “any substance or preparation intended to be placed in contact with various external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with teeth and the mucous membranes of the oral cavity, with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance and/or correcting body odours and/or protecting them or keeping them in good condition” (NPRA, 2022). Cosmetics can be makeup, skin care, hair care products or body care products that can enhance the beauty and appearance of a person.

Meanwhile, halal cosmetic according to Halal Cosmetics General Requirement (MS2634:2019) can be defined as any cosmetic products that contain only permitted ingredients according to Shariah law and fatwa, and also must fit these criteria:

- i- Does not consist or contain any part of matter of any animal that is prohibited by Shariah law and fatwa for a Muslim to consume, or it has not been slaughtered according to Shariah law;
- ii- Free from anything that is categorized as *najs* according to Shariah law and fatwa;
- iii- Not intoxicating according to Shariah law and fatwa;
- iv- Free from any part of human being or its yield which are not allowed by Shariah law and fatwa;
- v- Not hazardous and poisonous;
- vi- Free from any instrument that is contaminated with *najs* according to Shariah law along the processing line;
- vii- Does not been in contact with, mixed or in close proximity to any materials that fails to satisfy items i and ii, along the preparing, processing line and storing process

Consumers use cosmetics products to enhance their beauty and appearance. They also prefer to have healthy skin and have a better appearance rather than making an effort to know what are the potential side effects of the products that they use. Interestingly, it was also found that most of the Muslims consumers still concern about the ingredients of the cosmetics products they used, whether it has haram ingredients or not. They also agree that halal products have a higher quality ingredient, which make them confident to use the products (Jihan, 2014).

2.0 SOURCE OF COSMETIC INGREDIENTS

Cosmetics may consist of a variety of ingredients such as water, organic solvent, oil, vitamins and others. Some of these ingredients can be made of animals, plants or chemical (NPRA, 2022). Meanwhile, halal ingredients are ingredients that is in accordance with the shariah law, which makes the ingredients to be free from animal-derived ingredients that are from Haram sources, permitted animals that are slaughtered according to Shariah law and free from certain amount of alcohol (Sugibayashi et al., 2019). Ingredients derived from pigs,

carnivorous animals, or animals not slaughtered according to Islamic law are considered haram (forbidden). For example, gelatin from pork or non-halal slaughtered animals is not permissible. Meanwhile, ingredients from permissible animals such as cows, sheep, and chickens, must be slaughtered in a halal manner, which includes specific methods and prayers.

In order to create halal cosmetic products, manufacturer must ensure the ingredients are from the halal source only. Ingredients in cosmetic products are a very complex mixture, hence cosmetic manufacturer need to evaluate the ingredients and their corresponding source before development and production, critically. The quality of halal cosmetics is heavily influenced by the substances used in their production. Manufacturers are responsible for ensuring the safety of halal ingredients. Manufacturers collaborate with suppliers to ensure halal-certified ingredients are delivered. To ensure halal compliance, raw ingredients, actives, and excipients should be sourced from certified suppliers. Ingredients must be both halal and safe for intended use. This section covers common substances used in cosmetic products. These ingredients are classified haram, and critical.

2.1 Animal-Based Cosmetic Ingredients

Animal-based cosmetic ingredients or refers to zoocuticals refer to or zoological materials. The ingredients used in the manufacturing of the cosmetics are made of animal-based ingredients such as collagen, it is either from fish or pig (Cristiano &Guagni, 2022). Biocosmetics, cosmeceuticals, and natural cosmetics are more often used terms due to their ingredients. Ingredients are from natural sources (Fatima et al., 2020). Zoocuticals refers to all cosmetic goods for human use. These goods are not the same as "cosmetics for animals," which are intended for veterinary usage or pet skin/hair maintenance, but the cosmetics will be used by humans.

There are a lot of cosmetics ingredients that are derived from animals, and some of them can be categorized as halal critical ingredients since it can be made from non-halal animal, or from the animal that might not be slaughtered according to Islam (Sugibayashi et al., 2019). These cosmetic ingredients can be made from different kind of animal such as insects such as Snail & Cochineal, land animals such as pig and bovine, and marine animals such as fish (Fatima et al., 2020). There will be no halal issue if the source of animals used in the making of these cosmetics ingredients do not fall in the category of haram animals, which are pig, dog and its derivatives.

Nowadays, plant-based, chemically synthesised, or biotechnologically produced chemicals, such as hyaluronic acid, are increasingly replacing animal derivatives in cosmetics (Fatima et al., 2020). This is due to a lot of concern regarding animal-based cosmetic ingredients such as the increase of awareness on vegan cosmetic ingredients and the differences in religious and cultural belief of using animals in cosmetics (Le, 2019). Apart from that, there is also issue regarding the sustainability of cosmetic ingredients made from animals, compared to plants, because the source is much easier to get. Plus, the cost can be reduced if animal-based ingredients is substitute to plant-based or chemical ingredients.

2.2 Critical Cosmetic Ingredients

Not all animal-based ingredients are categorized as critical for halal cosmetics. There are ingredients that are commonly made from only halal animals, and not usually or suitable from pigs. In this article, several halal cosmetic ingredients that have a high possibility to be made of animals are being discussed. This discussion can be very helpful to manufacturers of halal cosmetic ingredients in choosing suitable ingredients and to be very careful with these ingredients.

2.2.1 Allantoin

Allantoin is a natural component found in plants, that is known for its moisturising, relaxing, and wound-healing effects. Even though allantoin is mostly derived from plants, it can also be derived from animals, and some from the animal urine. Allantoin, sometimes called 5-ureidohydantoin or glyoxyldiureide, is a chemical molecule with the molecular formula $C_4H_6N_4O_3$. It acts as a diuretic of glyoxylic acid. This molecule plays a crucial role in metabolic pathways in mammals, plants, and microbes. Urate oxidase (uricase) enzymatically converts uric acid, a breakdown product of nucleic acids, into this compound. Allantoin occurs naturally as a mineral and in diverse biological situations (Dinica et al., 2021). Allantoin extract that is derived from animals usually made from mammal such as cow while the plant-based allantoin usually made from sugar beet, chamomile and wheat sprouts (Mat Nor et al., 2019).

Allantoin is extensively used in cosmetic and pharmaceutical products to treat burns, skin ulcers, and wounds due to its keratoplasty, healing, calming, and moisturising properties (R Dinica et al., 2021). Although the animal urine has undergone certain process such oxidation and hydrolysis to become allantoin, it is still categorized as najis because the process does not count as the process of *istihalah* (*Istihalah* can be defined as transformation or conversion of material which involves changes in its composition and properties), even though the physical of the products has changed (Mat Nor et al., 2019). So, manufacturers of halal cosmetics might need to verify the status of allantoin either it's from animal or plants before using it as one of their halal cosmetic ingredients.

2.2.2 Collagen

Approximately 2,500 new cosmetic products using collagen as a raw ingredient have been introduced in the last three years, according to a global search of the Mintel database: 12, in shaving and depilatories, 1,472 in skin care, 582 in hair care, 310 in colour cosmetics, 87 in soap and bath goods (Walzel et al., 2022). This shows that collagen is one of the high demand ingredients used in cosmetic products.

Collagen is a structural protein found in animal beings that provides essential structural support. Mammalian and fish skin are the most prevalent sources of extraction (Sionkowska et al., 2020). Collagen's unique qualities as a natural humectant and moisturiser have piqued scholarly and cosmetic interest (Zaman et al., 2022). The major types of collagens include: type I collagen (found in skin, tendon, and bone tissue), type II (found in cartilage), and type III (found in skin and vasculature (Sionkowska et al., 2020). Collagen can be made from variety of animals, including porcine, although it was found that marine collagen has been the most desirable collagen source in the cosmetic field (Jadach et al., 2024). Manufacturer still need to have extra care on the type of collagen that will be used in manufacturing cosmetics.

Collagen is a key component of cosmetic formulations due to its moisturising, regenerating, and film-forming characteristics (Sionkowska et al., 2020). The skin's capacity to retain water helps it stay hydrated throughout the day. The skin is moisturised and softened. Collagen is one of the important proteins for the skin, as it is important for the structure and functioning of the extracellular matrix in the dermis. A study found that Collagen that is manufactured with pig skins approved safe for human consumption. Porcine collagen is one type of collagen that is widely used and has huge demand since it has a lot of health and beauty benefits (Zabidi et al., 2019). In addition, collagen made from animals are much cheaper than collagen made from plants, and it is also having higher availability (Jadach et al., 2024). For instance, Porcine collagen is commonly used in Japanese supplements due to its popularity in the cuisine (Rousselot, 2020). So, collagen can be

categorized of one of the halal critical cosmetic ingredients because of it is a common practice to have collagen derived from porcine.

2.2.3 Gelatin

Gelatin has been widely used in cosmetics as thickener (Rahmandari et al., 2021). It creates an occlusive barrier on skin upon application, preventing water loss from the skin. It can be found in moisturizers, topical treatments, and conditioners for hair that is curly or oily. Gelatin is also applied as gelling ingredients in cosmetics. Since gelatine has anti-aging, wrinkle-reducing, and stretch mark-reducing qualities as well as the ability to replace and rejuvenate the skin, it has become increasingly popular in cosmetics and healthcare goods. One example of this is the collagen found in tropical cosmetics creams.

Gelatin can be derived from animals such as pigs, bovine and fish. The partially hydrolyzed collagen and partially broken collagen crosslinked collagen molecules provide gelatin (Anuar et al., 2023). Because gelatin has so many uses, it comes from a variety of sources and is in greater demand. Porcine skin is the source of the greatest amount of gelatin produced worldwide, making up 46% of total output. After then, 29.4% of the production comes from cow hides, and 23.1% comes from cow bones. Swine gelatin is made from the connective tissues, skin, and bones of pigs. Pig gelatin's affordability, accessibility to supplies, and high breeding rates are its sole advantages. Gelatin is a protein derived from collagen found in pig skin, bones, and tendons. This protein is commonly used as a gelling agent, thickener, and emulsifier in solid and liquid oral dosage forms as well as in food products (Herdiana et al., 2023)

It is safe to categorize gelatin as one of the halal cosmetic critical ingredients since the possibility of gelatin sourcing from pig is high. Manufacturer of halal cosmetic must ensure the gelatin they use for cosmetic production is free from non-halal animals.

2.2.4 Hyaluronic Acid

Hyaluronic acid, which is also known as hyaluronan or hyaluronate (Zile et al., 2023). is a naturally occurring, thick, and transparent component found in all living creatures, including humans. Hyaluronic acid and its sodium and potassium salts are commonly used in skincare products for moisturizing, protection, and anti-aging benefits. HA is used in cosmetics for facial, neck, and eye skin care, including masks, lotions, and tonics, as well as anticellulite and antistrip treatments (Olejnik et al., 2012).

Hyaluronic acid used in cosmetics is usually derived from animals, and it can be from either bovine or porcine. Since HA's discovery in 1930, methods for extracting it from animal tissues have been developed to identify, characterize, and understand its biological potential. It is present in practically all tissues of vertebrates, including the vitreous body of the eye, synovial fluid, pig skin, the rabbit's pericardial fluid, shark cartilage, and other marine creatures (Graciela et al., 2023). Pig umbilical cord was shown to be a rich source of hyaluronic acid, almost as rich as human cord. Hyaluronic acid can be isolated and refined from pig cord using the same processes as human umbilical cord (Follett, 1948).

Using Hyaluronic acid-containing cosmetics, such as creams or lotions, can improve skin hydration, suppleness, and reduce wrinkle depth. When applied to the skin's surface, HA solutions form an occlusive barrier, absorb moisture, moisturise the skin, and fill in wrinkles (Zile et al, 2023). According to Vogue, hyaluronic acid is one of the most popular cosmetic ingredients because of its function that helps to replenish lost moisture. It attracts water molecules, hydrating and plumping skin, making it a go-to for maintaining skin health or addressing indications of ageing (Noble, 2024). So, hyaluronic acid can be categorized as

one of the halal cosmetic critical ingredients due to its common practice which it can be derived from pig.

2.2.5 Fatty Acid

Fatty acid derivatives have been one of animal-based cosmetics ingredients that has been widely used due to its function and properties (Johnson, 1977). Hydrolysis of typical animal and vegetable fats and oils produces fatty acids, which are then fractionated. Fatty acids used in foods, pharmaceuticals, and cosmetics are typically a combination of many fatty acids, with composition varying depending on the source and manufacturing procedure (Burnett, et al., 2019). A study by Garcia and Viera-Aller (2023) shows that fatty acid can be derived from pig.

Lipids found in cosmetics designed to be applied to human skin to protect and improve the appearance of the body, establish a protective barrier on the skin, guard it from exterior hazardous chemicals, and aid to keep it hydrated and soft (Ahmad & Ahsan, 2020). Cosmetic formulations of fatty acid typically contain a combination of saturated and unsaturated fatty acid triglycerides (Bonnet, 2018). Cosmetic-grade Oleic, Lauric, Palmitic, Myristic, and Stearic Acids are fatty acid combinations derived from various sources and manufacturing methods.

Common fatty acid used in cosmetic products are from unsaturated fatty acid families, which are oleic acid, linoleic acid, stearic and palmitic. These fatty acids can be produced by the hydrolysis of common animal and vegetable fat and oils. Oleic acid has the potential of being derived from animal source since it commonly found in animal fat. Palmitic acids can be found in all animal and plants, and have been reported as major component of lard and tallow with 25-30%, palm oil (30-50%) and other vegetables (Okamoto, 1987).

2.2.6 Glycerin/ Glycerol

K. W. Scheele, a Swedish chemist, unintentionally discovered GLYCEROL in 1779. A chemical reaction between olive oil and lead monoxide resulted in the discovery of glycerol, a water-soluble sweet molecule. Scheele coined the term "sweet principle of fat" to describe the first chemical isolation of glycerol (SDA, 1990). Glycerol, often known as glycerin, is a colourless, odourless, and sticky liquid. In the cosmetics sector, glycerol acts as a demulcent and anti-inflammatory. (Azelee et al., 2019). Glycerin occurs naturally in all animals and plants in the form of glycerides in fats and oils, as well as lipids within cells. Natural glycerin can be obtained as a byproduct in the hydrolysis of fats and oils (Becker et al., 2018).

Pork fat is used to produce glycerin, which is used in many modern household items. Glycerin can originate from a variety of animals. The most frequent source is tallow, which is a type of cattle or lamb fat. Pork is also utilised to create more than forty goods, including toothpaste (Ilaje, 2020). Glycerin derived from the fat extracted from animal bones such as pork is less expensive, hence it has been utilised in various toothpaste products to give tooth paste its texture. Today, swine fat is utilised to produce glycerin, which is used in a variety of modern household items.

2.2.7 Non-Critical Animal-Based Ingredients

Apart from critical animal-based ingredients, there are other cosmetic animal-based ingredients that are not critical for halal cosmetic since, it is commonly not derived from pig or other haram animals, such as alpha hydroxy acids, that is derived from milk or plants (Bergfeld, 1997). In addition, there are a lot of cosmetic ingredients nowadays has been replaced with plant-based ingredients, since Consumer awareness of the concept of natural-

based components drives the natural cosmetics business to flourish. A recent study by Mujib (2023) also shows that there are always alternative ingredients for animals-based ingredients for cosmetic products.

For example, fatty alcohols are commonly utilised in items including detergents, cosmetics, and cleaning agents, and it can be made from plants and animals (Munkajohnponget al, 2020) Fatty alcohols have been used in cosmetics such as oil-in-water creams and milky lotion, to improve the appearance and the condition of the skin (Okamoto, et al., 2016). Common fatty alcohol that has been used in cosmetics are cetyl alcohol, stearyl alcohol, cetyl alcohol and behenyl alcohol. Plus, it is also found that, animal-based ingredients might have common side effects to its user.

Table 1. Cosmetic ingredients derived from animal

Ingredients	Remark	Category	Reference
Allantoin	Can be derived from animal urine	Critical	Rathod & Mujariya, 2023
Alpha Hydroxy Acid	Commonly derived from milk (lactic acid)	Non-critical	Bergfeld, 1997
Azelaic Acid	Commonly not derived from pig	Non-critical	Lusianti, et al., 2017
Collagen	Can be derived from pig	Critical	Jadach, et al., 2024
Hyaluronic Acid	Can be derived from pig	Critical	Graciela, et al., 2023
Gelatin	Can be derived from pig	Critical	Sarmiento-Garcia & Viera-Aller, 2023
Fatty Acid	Can be derived from pig	Critical	Okamoto, 1987
Fatty Alcohol	Commonly from plant	Non-critical	Munkajohnpong et al, 2020
Glycerin/ Glycerol	Can be derived from pig	Critical	Ilaje, 2020

Source: Author

3.0 CONCLUSION

The cosmetics industry thrives on science and innovation, making it one of the most profitable and rapidly expanding industries. However, there are few studies analysing scholarly literature on cosmetic items. Academic interest in halal cosmetics is growing, making it an emerging field for future research. Halal cosmetics are categorised into six primary topics: characteristics, customer purchase, buying intention, certification rules, organisation control, and testing methods. A recent study by Bahrinet al. (2023) shows that there are lack of study related to halal cosmetic from the natural science perspective. Halal cosmetic from natural science field involves the study related to ingredients of halal cosmetic and testing or verification method for halal cosmetic.

Halal cosmetics require careful adherence to criteria that ensure products are lawful under Islamic law. One important aspect in this context is the origin and processing of ingredients, particularly those sourced from animals. Animal-based cosmetic compounds, such as fatty alcohols, steryl alcohols, and different types of collagens or gelatin, might make halal certification difficult. To be considered permissible, these items must be derived from halal-certified animals that have been slaughtered according to Islamic traditions. Furthermore, the usage of any byproducts from pigs or non-halal killed animals is absolutely prohibited. In light of these constraints, the cosmetic industry is increasingly turning to plant-based and synthetic alternatives that can provide similar functional benefits while maintaining halal standards. Ingredients such as plant-derived fatty alcohols and synthetic

replacements offer feasible alternatives that meet the stringent requirements of halal compliance while also meeting the growing consumer demand for ethical and religiously acceptable products.

As the market for halal cosmetics grows, manufacturers must be diligent in obtaining and validating their materials. Transparency in supply chains and adherence to halal certification standards are critical for preserving consumer trust and ensuring that products fit religious requirements. In conclusion, while animal-based ingredients can be difficult to incorporate into halal cosmetics due to strict religious regulations, the availability of plant-based and synthetic alternatives presents a viable option. By focusing on these alternatives and adhering strictly to halal standards, the cosmetic sector may effectively meet the needs of Muslim consumers seeking goods that are consistent with their ethical and religious values.

REFERENCES

- (NPRA), N. P. (2020). *Post Market Surveillance Programme*. Official Portal of National Pharmaceutical Regulatory Agency Ministry of Health Malaysia: <https://www.npra.gov.my/index.php/en/component/content/article/147-english/guidelines-cosmetic/1597-4-post-market-surveillance-programme.html?Itemid=1391>.
- Ahmad, A., & Ahsan, H. (2020). Lipid-based Formulations in Cosmeceuticals and Biopharmaceuticals. *Biomedical Dermatology*, 1-10.
- Anuar, N. A., Tukiran, N. A., & Jamaluddin, M. A. (2023). Gelatin in halal pharmaceutical products. *Malaysian Journal of Syariah and Law*, 11(1), 64-78. doi:<https://doi.org/10.33102/mjsl.vol11no1.344>.
- Azelee, N. I., Ramli, A. M., Manas, N. A., Salamun, N., Man, R. C., & Enshasy, H. E. (2019). Glycerol in food, cosmetics and pharmaceutical industries: Basics and new applications. *International Journal of Scientific & Technology Research*, 8(12), 553-558.
- Becker, L. C., Bergfeld, W. F., Belsito, D. V., Hill, R. A., Klaassen, C. D., Liebler, D. C., . . . Heldreth, B. (2018). Safety assessment of Polyether Lanolins as used in cosmetics. *International Journal of Toxicology*, 37(1), 195-275.
- Bergfeld, W. F. (1997). Cosmetic use of Alpha-Hydroxy Acids. *Cleveland Clinic Journal of Medicine*, 64(6), 327-329.
- Bonnet C. 2018. Lipids, a natural raw material at the heart of cosmetics innovation. *OCL* 25(5): D501.
- Burnett, C. L., Boyer, I., Bergfeld, W. F., Belsito, D. V., Hill, R. A., Klaassen, C. D., Liebler, D. C., Marks, J. G., Jr, Shank, R. C., Slaga, T. J., Snyder, P. W., Gill, L. J., & Heldreth, B. (2019). Safety assessment of Fatty Acid Amidopropyl Dimethylamines as used in cosmetics. *International Journal of Toxicology*, 38(1_suppl), 39S–69S. <https://doi.org/10.1177/1091581819836089>.
- Cristiano, L., & Guagni, M. (2022). Zooceuticals and cosmetic ingredients derived from animals. *Cosmetics*, 9(13), 1-14. doi:<https://doi.org/10.3390/>.
- Dinica, R. M., Sandu, C., Dediu Botezatu, A. V., Busuioc, A. C., Balanescu, F., Ionica Mihaila, M. D., . . . Iancu, A. V. (2021). Allantoin from valuable romanian animal and plant sources with promising anti-inflammatory activity as a nutricosmetic ingredient. *Sustainability*, 13. doi:<https://doi.org/10.3390/su131810170>.
- Elsner, P., & Maibach, H. I. (2005). *Cosmeceuticals and active cosmetics: Drugs vs. Cosmetics*. CRC Press.
- Fatima, N., Anwar, S., Jaffar, S., Hanif, A., Hussain, H. M., & Mukhtar, M. W. (2020). An insight into animal and plant halal ingredients used in cosmetics. *International Journal of Innovation, Creativity and Change*, 14(8), 877-899.
- follett A. E. (1948). Preparation and some properties of hyaluronic acid from umbilical cord of the pig. *Journal Of Biological Chemistry*, 176(1), 177–184.

- Graciela, C. Q., Jose Juan, E. C., Gieraldin, C. L., Xochiti Alejandra, P. M., & Gabriel, A. A. (2023). Hyaluronic Acid—extraction methods, sources and applications. *Polymers*, 1-34.
- Group, I. (2022, August 4). *Halal Cosmetics market estimated to exceed US\$ 54.06 Billion globally by 2027*. Digital Journal. <https://www.digitaljournal.com/pr/halal-cosmetics-market-estimated-to-exceed-us-54-06-billion-globally-by-2027>
- Herdiana, Y., Sofia, Sofian, F. F., Shamsuddin, S., & Rusdiana, T. (2024). Towards halal pharmaceutical: Exploring alternatives to animal-based ingredients. *Heliyon*, 1-19.
- Ilaje, K. (2020, December 3). *Is there Pork, Glycerin, or Animal Fat in my Toothpaste?* Sprinjene Natural. <https://sprinjene.com/blogs/news/is-there-pork-glycerin-in-toothpaste>.
- Jadach, B., Mielcarek, Z., & Osmalek, T. (2024). Use of collagen in cosmetic products. *Current issues in molecular biology*, 46(3), 2043–2070. <https://doi.org/10.3390/cimb46030132>
- Jihan, A., & Musa, R. (2014). Factors Influencing attitude towards halal cosmetic among young adult urban muslim women: A focus group analysis. *Procedia - Social and Behavioral Sciences*, 129 – 134.
- Johnson, D. H. (1977). The use of fatty acid derivatives in cosmetics and toiletries. *Journal of the American Oil Chemist Society*, 55, 440-443.
- Kettani, H. (2009). Muslim population in Asia. *Proceedings of the 2009 International Conference on Social Sciences and Humanities*, 9. Singapore.
- Le, T. (2019). *Vegan Trend in Consumer Buying Behaviour*. Oulu University of Applied Sciences.
- Lusianti, E., Wibowo, R., & Hudiyo, S. (2017). The development of analytical method for the determination of Azelaic Acid content in cosmetic cream products. *International Conference on Chemistry and Material Science*, 1-7.
- M Hassali A, AL-Tamimi S K, Dawood O T, Verma A K, & Saleem F. (2015). Malaysian cosmetic market: Current and future prospects. *Pharmaceutical Regulatory Affairs*, an open access journal, 1-3.
- Manual Prosedur Pensijilan Halal Malaysia. (2020).
- Mat Nor, N., Mohd Zaid, S. H., Shamsuddin, M. M., & Jamaluddin, M. A. (2019). Analysis of Allantoin Sources from shariah perspective in cosmetic product. *Al-Qanatr: International Journal of Islamic Studies*, 15(1), 23-37.
- MS2634:2019 Halal Cosmetics - General Requirements (First Revision) (2019).
- Mujib, N. U. (2023). Vegan alternatives as the source of halal cosmetic products: An overview on its potential benefits. *Abstracts of the International Halal Science Conference 2023*, 42-46.
- Munkajohnpong, P., Kesornpun, C., Buttranon, S., J. J., Weeranoppanant, N., & Chaiyen, P. (2020). Fatty Alcohol production: An opportunity of bioprocess. *Biofuels Bioproducts & Biorefining*, 14(5), 986-1009.
- Noble, A. (2024, February 18). *What Is Hyaluronic Acid? understanding skincare's most popular ingredient*. Vogue. <https://www.vogue.com/article/what-is-hyaluronic-acid#:~:text=Hyaluronic acid is one of,that helps restore lost moisture>.
- Okamoto, M. (1987). Final report on the safety assessment of Oleic Acid, Lauric Acid, Palmitic Acid, Myristic Acid and Stearic Acid. *Journal of the American College of Toxicology*, 6(3), 321-401.
- okamoto, t., tomomasa, s., & nakajima, h. (2016). preparation and thermal properties of Fatty Alcohol/Surfactant/Oil/Water Nanoemulsions and Their cosmetic applications. *Journal of oleo science*, 65(1), 27–36. <https://doi.org/10.5650/jos.ess15183>.
- Olejnik, A., Goscińska, J., & Nowak, I. (2012). Significance of Hyaluronic Acid in cosmetic industry and aesthetic medicine. *Chemik*, 66, 129-135.
- Rahmandari, F., Swastawati, F., & Kurniasih, R. (2021). Quality characteristics of body cream with the addition of gelatin from Tilapia (*Oreochromis niloticus*) scales as an emulsifier. *Earth and Environmental Science*, 1-10.

- Rathod, S. S., & Mujariya, R. Z. (2023). Formulation & evaluation of Allantoin Loaded Hydrogel for Skin regeneration and rejuvenation. *International Journal of Creative Research Thoughts*, 11(8), 658-673.
- Rousselot. (2020). *Discover the Power of porcine collagen*. Rousselot: <https://www.rousselot.com/health/media/downloads>.
- Sarmiento-García, A., & Vieira-Aller, C. (2023). Improving Fatty Acid profile in Native Breed Pigs using dietary strategies: A review. *Animals*, 13(10), 1696. <https://doi.org/10.3390/ani13101696>.
- Sionkowska, A., Adamiak, K., Musiał, K., & Gadomska, M. (2020). Collagen Based materials in cosmetic applications: A review. *Materials*, 13, 1-15. doi:doi:10.3390/ma13194217.
- Sugibayashi, K., Yusuf, E., Todo, H., Dahlizar, S., Ssakdiset, P., Arce, F. J., & See, L. G. (2019). Halal cosmetics: A review on ingredients, production, and testing methods. *Cosmetics*, 6(3), 1-17. doi: <https://doi.org/10.3390/cosmetics6030037>.
- The Soap and Dergent Association. (1990). *Glycerine: An overview*. The Soap and Dergent Association, Glycerine & Oleochemical Division.
- Walzel, B., Herrmann, A., Senti, B., Shah, T., & Bänziger, S. (2022). *A collagen alternative from Acacia Trees*. (Step Communications Ltd) .Personal Care Magazine: <https://www.personalcaremagazine.com/story/38380/a-collagen-alternative-from-acacia-trees>.
- Zabidi, A., Fauzi, F.N., Abd Razak, F.N., Rosli, D., Jamil, M.Z.M, Wan Ibrahim, W.K., & Yahaya, N. (2019) Screening porcine DNA in collagen cream cosmetic products. *Food Research*, 4 (1), 151-156.
- Zaman, F., Ishaq, W. M., & Sohail, A. M. (2022). Collagen: An overview from past to future applications. *Albus Scientia*, 1-6. doi:http://doi.org/10.56512/AS.
- Zile, T. S., Choudhari, N. N., Pohane, D. V., Dhawale, T. P., & Mojankar, V. C. (2023). Hyaluronic Acid used in cosmetics and cosmeceuticals: A review. *International Journal of Creative Research Thoughts (IJCRT)*, 11(8), 74-86.

VIEWS OF R.O. WINSTEDT ON INHERITANCE OF PROPERTY IN MALAYA: A COMPARISON OF ISLAMIC LAW AND ADAT PERPATIH

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ABSTRACT

R.O. Winstedt, an orientalist working as a British administrator in Malaya, based his ideas on the philosophy of empiricist positivism. He emphasized the exclusive reliance on reason as the main way of collecting scholarly facts through systematic and thorough research methods. This philosophy rejects the proof of any fact using divine sources as irrelevant to historical evidence. This article focuses on analysing Winstedt's views on property inheritance in Malaya by comparing Islamic law and Adat Perpatih. It also seeks to identify the orientalist approach to assessing Islam and Malay society. The author employs historical, comparative, and content analysis methods to analyze these views. This study reveals that the orientalist viewpoint, specifically Winstedt's, exhibits a skeptical stance and partial considerations when assessing Islam, particularly its legal system. When it comes to property inheritance issues, Winstedt contends it is impractical to simultaneously apply adat and Islamic law. The Orientalist perspective holds that the fundamental principles of Islamic law are not applicable in Malaya due to cultural and residential differences. This is the result of the orientalist's Eurocentric worldview impeding their ability to comprehend Islamic content. This way of thinking esteems European nations above all others and renders them more civilized; consequently, they are referred to as "ambassadors of civilization," the saviors of nations needing civilization.

Keywords: Adat Perpatih, Empiricist Positivist Philosophy, Islamic Law, Malaya, Orientalist

1.0 INTRODUCTION

Orientalism derives from the word "orient" with the addition of "al" and "ism." The term "orient" is a French word meaning east. Geographically, the Orient refers to the Eastern world, while ethnologically, it signifies the peoples of the East (Joesoef, 1985). In English, the term "oriental" refers to things related to the East, and "ism" denotes a belief, doctrine, teaching, system, trend, or attitude (Muin, 1978). Orientalism, as defined by Rahman et al. (2017), is a political ideology that promotes the destruction and colonization of Eastern

cultures, with Islam being particularly targeted while emphasizing the superiority and global dominance of Western civilization. Meanwhile, Said (1977) ascribed Orientalism as an approach to comprehending the Eastern world through the lens of Western observations. Said's perspective comprises three discrete yet interrelated facets:

- 1) Orientalists are scholars, authors, or researchers who specialize in the study of the Eastern world. Anthropologists, sociologists, and philologists comprise this group.
- 2) Orientalism is a system of thought founded on the ontological and epistemological differences between the Western and Eastern cultures.
- 3) The West used Orientalism as a strategy to restructure, control, and dominate Eastern societies. Its primary focus is formulating assertions regarding the Eastern world, with a specific emphasis on matters on religion, and education, and exerting control over and modifying the Eastern world to suit their objectives.

Fadzil (2012) asserts that Western explorers, colonial officers, and orientalist pioneered scholarly writings on the history of the Malay people following the first colonizer occupation during the Malacca Sultanate's reign. These writings took the form of reports and observations on Malay society, rather than adhering to scientific research methods. Orientalist works on the history of the Malay world, especially in Malaya, show many methodological weaknesses laden with negative prejudices and biases, rendering their conclusions unrealistic (Rahman et al., 2019).

One such explanation is property inheritance by Winstedt, a British administrator in Malaya. Winstedt, an orientalist who extensively studied the people of Malaya, particularly Islam, covered areas such as religion, culture, history, and literature (Rahman et al., 2016). Therefore, the present study examines Winstedt's viewpoint regarding the transfer of property in Malaya. This study seeks to accomplish two objectives: initially, to examine Winstedt's viewpoint regarding property inheritance in Malaya through a comparative analysis of Islamic law and Adat Perpatih; and secondly, to identify any orientalist prejudice that may be present in the assessment of Malay society and Islam.

This study is of considerable significance due to its potential to illuminate the misinterpretation of property inheritance issues in Malaya by orientalists, specifically Winstedt, during the British colonial period. By performing a comparative analysis of Winstedt's literary contributions, such as "Kedah Laws," "The Malays: A Cultural History," "A History of Classical Malay Literature," and "A History of Malaya," the author scrutinizes his stances regarding the inheritance of property in Malaya. During his tenure in Malaya, Winstedt made concerted efforts to enact a variety of reforms, which encountered opposition from the Malay society. He advocated for a traditionalist position on Islam, contending that progress in the human race could be attained exclusively through the influence of the West and not Islam.

2.0 RESEARCH METHODOLOGY

This study utilizes three approaches that are considered appropriate for achieving the research objectives: historiography, comparison, and content analysis.

2.1 Historiographical Method

This method refers to studying a problem from its historical perspective (Ferman & Levin, 1975). It utilizes chronology and historical background to trace the origins of a particular development by referring to evidence and historical facts from primary and secondary sources in the field of study. The author employs this method to examine Winstedt's views on property inheritance in Malaya and identify the orientalist approach in evaluating Islam

and Malay society, using his works such as *Kedah Laws*, *The Malays: A Cultural History*, *A History of Malaya*, and *A History of Classical Malay Literature*. Additionally, this method is used to analyze Winstedt's work.

2.2 Comparison Method

This methodology employs an impartial approach to assessing a given topic (Ferman & Levin, 1975). Its objective is to generate a study that is unbiased and equitable. Each piece of information acquired is scrutinized to prevent a skepticism-based approach and to prevent the presentation of errors exclusively on one side. To assess Winstedt's written works concerning his stance on property inheritance in Malaya, the author employs this methodology: a comparison of Islamic law and Adat Perpatih with the perspectives of academic scholars, regardless of their alignment with him. The purpose of this is to remove misconceptions regarding the role of Islamic law in the inheritance of property and its connection to Adat Perpatih in Malaya.

2.3 Content Analysis Method

This method involves scrutinising, analysing, and interpreting the text to ascertain patterns and themes within it. The author employs this method to analyze Winstedt's works on property inheritance in Malaya and identify his views and arguments regarding the superiority of Adat Perpatih over Islamic law in dealing with property inheritance issues. Additionally, this method identifies orientalist approaches to evaluating Islam and Malay society.

3.0 RESULTS AND DISCUSSION

3.1 The Orientalist Approach to Islamic Law

Orientalists, according to Rahman et.al (2020), consider Islam to be a cultural religion that originated in Arab society situated in the Middle East, which is characterized by a blazing climate and is therefore regarded as harsh and aggressive. This faction maintains the view that character development is influenced by climate, which causes them to disregard Islam as a contemporary way of life (Goldziher, 1981). On the contrary, Orientalists adopt a secularist perspective that deviates from any religious limitations in everyday existence and delineates the following procedures for examining Islamic law:

To get started, a rigorous criterion for assessing reference sources in the field of Islamic law is implemented (Goldziher, 1981). Orientalists employ a rigorous process when evaluating the veracity and credibility of sources cited by Islamic scholars. Nevertheless, they cast doubt on this veracity and elect to utilize the reference materials of previous Orientalist scholars, who openly demonstrate prejudice against Islam.

Second, any study of Islamic law must be conducted by the "higher criticism" methodology (Goldziher, 1981). At first, this methodology was employed to unveil inaccuracies within the Christian faith; subsequently, it was expanded to encompass Islam as well. Orientalists employ this methodology to substantiate inaccuracies within the Quran and Hadith, the primary sources venerated by the Islamic community.

The Islamic legal system, according to Goldziher (1981), is static and applicable only in the Middle East. Regarding religious matters such as matrimony, secularism establishes Islamic law as superseding Western law as the supreme form of state governance. The Constitution of Malaya, formulated by the Reid Commission, acknowledges Islam as the designated religion for religious ceremonies; however, it does not confer legislative power (Spuler, 1960). This action unequivocally disregards the invaluable input of academicians who significantly influenced the development of the great civilization of Malaya in its quest

for independence. If the Malay community wishes to advance, it must abandon Islamic law in favor of a Western legal system that is more pragmatic and centered on human interests.

3.2 R.O. Winstedt's Perspective on Islamic Law in Malaya

Winstedt, in "The Malays: A Culture History," compared Islamic law and customary law with an emphasis on the implementation and social approval of each during the period in question. Islamic law, according to al-Attas (1978), is the most equitable legal system because it satisfies every human need. In Malaya, nevertheless, Islamic law and human-made customary law have intertwined to preserve the social standing of specific groups, including the nobility (Rahman et al., 2019). In response to Winstedt's (1969) analysis, the "Undang-undang 99 Perak" was a form of Islamic law that was adopted as the official code of Perak between the 17th and 18th centuries, influenced by regional circumstances.

Moreover, "Undang-undang Adat Perpatih" and "Adat Temenggong" were regarded by Winstedt (1961) as two discrete legal systems in Malaya. The speaker elaborated that "Adat Temenggong" was shaped by Islamic and Hindu principles, while "Adat Perpatih" was classified as Malayan indigenous law devoid of these influences. According to Winstedt (1988), the advent of Islam posed a significant impediment to the advancement of Malay law, particularly in the realm of customs, and was therefore regarded inappropriate for implementation in Malaya. To elucidate the arguments above, the author includes Chee's perspective. Her statement read:

They perceived Islam and Malay adat laws as irreconcilable and conflicting because Islamic laws originated from a different social context, so they could not practically serve the needs of the Malays (Chee 2009, 140).

She also added:

The colonial writers judged Islamic laws as static and arbitrary, and that has a negative impact on the traditional Malay laws (Chee 2009, 140).

Chee's viewpoint provides substantiation for the notion that Orientalists evaluate Islamic matters with a partiality that is shaped by the traditional Orientalist research methodology, which is adamantly opposed to Islam. Orientalists, according to Swettenham (1893), classified religious Eastern societies as rejecting progress and necessitating colonial intervention to usher them into the modern era. Orientalists additionally characterized Islamic law as ruthless, unchanging, and exclusively applicable within the Middle East. Furthermore, according to Swettenham (2005), the Malay community's negative outlook was primarily attributable to their strict adherence to Islamic principles, which included accepting destiny, disregarding the value of time, and rejecting modernity. To rectify this, it is essential to implement Western thought systems, especially legal systems that are considered more adaptable and contemporary.

The signing of the Pangkor Agreement in 1874 and the Federation Agreement in 1895, according to Ibrahim and Jones (2005), extended colonial control over Malaya's governance. The authority of Islamic law as the primary legal authority was restricted to matrimonial affairs exclusively. Mukmin (2009) asserts that after the implementation of these agreements, the British extended their dominion over Malay states by undermining the Islamic governance policies that had been established earlier. The British undermined the harmony and integration of religion and customs within Islamic communities in Malaya, thereby calling into question the sultanate's authority as the guardian of traditions.

3.3 The Status of Islamic Law and Adat Perpatih on Inheritance of Property in Malaya

According to Winstedt (1961), all property inheritance matters were governed by Adat Perpatih law, which was deemed indigenous law in Malaya. The influence of Islamic law on land inheritance within Malay Islamic communities is disregarded by this viewpoint. In this regard, Winstedt (1961) espoused the notion of "wife's relations," which conferred an enhanced status on women about the inheritance of ancestral property. This notion accords precedence to women over males in the resolution of disputes by Adat Perpatih law. According to Winstedt (1961, 95):

Yet if criminal law in Negri Sembilan became British, the law of property remained matrilineal, and was hardly affected even by the Muslim canon. Ancestral property (hartapusaka) devolves from mothers to daughters or to their direct female descendants.

It was found that Winstedt maintains an inclination towards the application of Adat Perpatih law as opposed to Islamic law. In support of Winstedt's assertion, the author cites Chee's (2009) perspective, in which she writes:

In dealing with the issues of Islam and its relationship with Malay adat laws, the colonial writers subscribed to the view that Islam contradicts the Malay adat laws, because the Islamic laws are woven into Arabian or Middle Eastern practices that are different from the Malay cultural context (Chee 2009, 141).

Based on these two statements, the author believes that Winstedt rejects the implementation of Islamic law in the lives of Malay communities due to cultural and geographical differences. Winstedt (1961) believes that Islamic law from the Middle East, characterized as rough, does not resonate with the Malay psyche. He seems to favor using laws based on reasoning, such as Adat Perpatih, over Islamic law based on revelation.

The author believes that Winstedt's perspective demonstrates a deficiency in comprehending the genuine substance of Islamic law. The assertion that Islamic law is unsuited for implementation in Malaya is erroneous. This perspective would oversimplify Islamic law and perceive it as a hindrance to a community that strongly values its traditional roots, thereby marginalizing tradition and giving precedence to Islamic law. Winstedt prioritized Western law over Islamic law in property inheritance matters. He expressed:

It cannot be claimed that the British administered the matrilineal law of succession to property in an informed manner or framed appropriate legislation to carry it into effect. A basic error was the failure to recognize that the law follows not the land but the person. Collectors transferred from other states were swayed by a bias towards the Muslim law of succession, with which they were already acquainted, in preference to the intricacies of a matrilineal law of which they were ignorant. Judges failed to distinguish between the various classes of personal property or, contemptuous of the unwritten, based erroneous decisions on such European anachronisms as the entry of the word "Customary" on a title. (Winstedt 1961, 99).

As per the author's account, Winstedt's explanation aimed to reduce the impact of Islamic law on the resolution of societal challenges in Malaya. Musa (2001) argues that the Western perspective on these matters serves primarily to distance Islamic followers from religious fundamentals and diminish the significance of religion in their daily existence. Furthermore, Winstedt endeavors to sway Malay thought in the direction of Western law admiration, as he explains:

..while a new Ruler or a neighboring chief would prefer some harsh provision of Hindu or Muslim law. Under the British, justice, though often harsh, became everywhere uniform and always honest. (Winstedt 1961, 81)

Winstedt, in his 1928 publication "Kedah Laws," delineated a multitude of concerns of land inheritance rights that emerged as a consequence of British intervention. This group held the belief that to benefit Malay society as a whole, land proprietorship exchange should be regulated following Western land law principles. Winstedt elucidated that Western law was more suitable for all facets of Malay life and extolled the superiority of customary law in comparison to Islamic law.

To quote R.J. Wilkinson, the impact of Islamic law on Malay society, includes matters such as matrimony, criminal activities, property inheritance, and more: To what extent does Islamic law impact Malay society, and to what extent does it function as a supplementary framework to customary law? What he stated was:

Notwithstanding the influence of Muslim law in Malaya, it had not supplanted the local adat in its entirety. It was accepted in religious matters, in family law, and in the law of succession, but in order matters, the adat prevailed, with only some Muslim additions incorporated into it over the course of centuries. (Wilkinson, 1908, 48)

Wilkinson's elucidation provides substantiation against the Orientalist claim that Islamic law in Malaya has a significant impact on the Malays' way of life. Orientalists, in the author's opinion, recognize the veracity that Islam has a substantial impact on Malay thought but refute this by expressing several negative opinions concerning Islamic law, thereby weakening the community's position.

The analysis demonstrates that in Adat Perpatih, the act of bequeathing inheritance to women pertains to the transmission of ancestral land. Ancestral land is transmitted from one generation to the next by the members of a specific family. In the context of property inheritance, to maintain Adat Perpatih and strict adherence to Islamic inheritance law (faraid), it is deemed suitable for the mother to transfer her complete ancestral property to her daughter before her passing. Faraid is a mechanism to determine the distribution of a deceased's property to heirs after death, if the property is distributed before death, it is not called faraid. Several mechanisms can be used such as hibah, grants give property to heirs during the lifetime of the land owner. By performing this action, Adat Perpatih is not only preserved but also brought into conformity with Islamic law. By the daughter's inheritance, the aforementioned ancestral property is now her sole possession and is no longer regarded as an inheritance. In contrast, should the daughter fail to bequeath this property before the demise of the mother, it shall be included in the inheritance as per Islamic inheritance law (faraid) (Gunardi et al., 2017).

4.0 CONCLUSION

Winstedt argues that the incompatibility of Islamic law and Adat Perpatih prevents their simultaneous implementation. He contends that Islamic law is not suitable for Malaya due to cultural and residential differences. His argument stems from the orientalist approach, which views Islam through a Euro-centric lens, considering European nations as superior and more civilized. This approach undermines the relevance and applicability of Islamic law in non-Muslim societies, including Malaya. Winstedt's views on property inheritance in Malaya reflect his bias towards Adat Perpatih and his skepticism towards Islamic law. He believes that Adat Perpatih, being native to the Malay community, is better suited to address property inheritance issues in Malaya compared to Islamic law. However, his argument fails to

acknowledge the diversity within the Malay community and the relevance of Islamic law to Muslim Malays. The orientalist approach adopted by Winstedt in evaluating Islam and Malay society is evident in his preference for Adat Perpatih over Islamic law. This approach reflects a Euro-centric perspective that undermines the contributions and significance of Islamic law to Malay society. By prioritizing Adat Perpatih, Winstedt perpetuates colonial ideologies that seek to marginalize Islamic law and promote Western legal systems.

In summary, Winstedt's perspective on the inheritance of property in Malaya is indicative of his predilection for Adat Perpatih and his skepticism regarding Islamic law. The origin of his inclination towards Adat Perpatih rather than Islamic law is his orientalist perspective, which perceives Islam from a Eurocentric standpoint. This approach erodes the practicality and pertinence of Islamic law in societies that do not adhere to the Islamic faith, such as Malaya. To redress this prejudice, it is critical to acknowledge the multifariousness of the Malay community and the profound importance that Muslim Malays place on Islamic law. Further, academicians and researchers must engage in a discerning assessment of orientalist viewpoints to offer a comprehensive and nuanced comprehension of Malay society and Islam.

REFERENCES

- Al-Attas, S.M.N. (1978). *Islam and Secularism*. ABIM.
- Chee, N.Y. (2009). Colonial Image of Malay adat laws: A critical appraisal of studies on adat laws in the Malay Peninsula during the colonial era and some continuities by Noor Aisha Abdul Rahman. *New Era College Academic Journal*, 6(1), 139-142.
- Fadzil, S. (2012). *Islam dan Melayu: Martabatumat dan daulat rakyat* (3th ed.). Akademi Kajian Ketamadunan, Kolej Dar al-Hikmah.
- Ferman, G.S. & Levin, J. (1975). *Social sciences research*. John Wisley & Sons.
- Goldziher, I. (1981). *Introduction to Islamic theology and law*. In Andras & Ruth, H.(Trans.). Princeton University Press.
- Gunardi, S., Mochammad Sahid, M., Mohd Nor, A. H., Ab. Rahman, A., Abdul Rab, M. A., Ali, M. M., Wardi, F., Nik Wajis, N. R., & Hami, M. I. (2017). Konsep Al-'Adah Muhakkamah dalam pewarisan tanah adat menurut Adat Perpatih di Malaysia. *Malaysian Journal of Syariah and Law*, 5(2), 161–177. <https://doi.org/10.33102/mjsl.vol5no2.67>.
- Ibrahim, A. & Joned, A. (2005). *Sistem undang-undang di Malaysia*. Dewan Bahasa dan Pustaka.
- Joesoef, S.H.M. (1985). *Orientalisme dan Islam*. Bulan Bintang.
- Muin, U. (1978). *Orientalisme dan kaji tentang Islam*. Bulan Bintang.
- Mukmin, M.J. (2009). *Gerakan Islam di Malaysia: Kesenambungan, respons dan perubahan (1957- 2000)*. Pusat Penerbitan Universiti (UPENA) UiTM Shah Alam.
- Musa, H. (2001). *Merekonstruksi Tamadun Melayu Islam: Ke arah pembinaan sebuah tamadun dunia alafketiga*. Dewan Bahasa dan Pustaka.
- Rahman, M.F.A., Aziz, N.H., Anas, N., & Rahim, R.A.A. (2019). Research approach R.O. Winstedt on Islam and its influence on the Malay community in Malaya: An analysis. *Jurnal Sultan Alauddin Sulaiman Shah*, 6(1), 82-94. <https://jsass.kuis.edu.my/index.php/jsass/article/view/77>.
- Rahman, M.F.A., Aziz, N.H., Kadir, N.A.A., & Aris, N.M. (2017). Orientalist studies verge on Islam: Early history. *International Journal of Academic Research in Business and Social Sciences*, 7(12), 1246-1256. <http://dx.doi.org/10.6007/IJARBS/v7-i12/3760>.
- Rahman, M.F.A., Rahim, R.A.A., Kadir, N.A.A., Razak, M.I.A., & Ahmat, A.C. (2016). Orientalis dan masyarakat Melayu: Analisis Terhadap karya pilihan R.O. Winstedt. *Prosiding Language, Education & Civilization International Conference (LECIC2016)*. Akademi Pengajian Islam Kontemporari & Akademi Pengajian Bahasa, Universiti Teknologi MARA Cawangan Perak.
- Rahman, M.F.A., Razak, M.I.A., Noor, A.F.M., Basir, M.K.A., & Khalid, N.K. (2020). Pengaruh Hinduisme dalam kehidupan masyarakat Melayu: Rujukan khusus karya pilihan

- R.O. Winstedt. *Ideology Journal*, 5(1), 140-148.
<https://doi.org/10.24191/idealogy.v5i1.186>.
- Rahman, M.F.A., Razak, M.I.A., Noor, A.F.M., Basir, M.K.A., & Khalid, N.K. (2019). KedudukanperundanganjenayahIslam dan adat ke atas masyarakatMelayu di Tanah Melayumenurutpandanganorientalis: Rujukan khusus terhadap R.O. Winstedt. *Jurnal 'Ulwan*, 4(1), 86-99. <https://kuim.edu.my/journal/index.php/JULWAN/article/view/495>.
- Said, E.W. (1977). *Orientalism*. Penguin.
- Spuler, B. (1960). *The Muslim World: A Historical Survey*. E.J. Brill.
- Swettenham, F. (1893). *About Perak*. Straits Times Press.
- Swettenham, F. (2005). *Perihal Orang Melayu* (2th ed.). In Zubaidah (Tran.). PenerbitUniversiti Malaya.
- Wilkinson, R.J. (1908). *Papers on Malay Subjects: Law Part 1*. Government of the Federated Malay State.
- Winstedt, R.O. (1961). *The Malays: A Cultural History*. Routledge & Kegan Paul Ltd.
- Winstedt, R.O. (1969). *A History of Classical Malay Literature*. Oxford University Press.
- Winstedt, R.O. (1988). *A History of Malaya*. Marican& Sons.

THE POLITENESS STRATEGIES EMPLOYED BY ASIAN AND WESTERN SOCIAL MEDIA INFLUENCERS

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ABSTRACT

Politeness strategies play a vital role in communication in order to avoid any conflicts or offending other people's feelings. Showing good manners and uttering good words are extremely important in Islam. This is in line with the Prophet Muhammad's teaching for his followers to be kind and speak compassionately. In communication, conflicts may occur due to misunderstanding and misinterpreting especially when communicating inter-culturally. The Prophet Muhammad advised us to speak beneficently or keep silent (Muslim & Bukhari). Therefore, the use of politeness in communication is important to bridge good social communication between speakers. However, different cultures may have different strategies and different interpretations of the concepts of politeness strategy in communication. Hence, this study aimed to identify the types of politeness strategies as well as the most dominant strategies employed by ten selected Asian and Western social media influencers. This study also highlighted the differences and similarities of politeness strategies between two different cultures in social media. The data - the influencers' Instagram captions were analysed using qualitative method and classified according to Brown and Levinson's (1987) politeness theory. The results indicated that positive politeness strategies are the most dominant strategies employed by Asian and Western social media influencers compared to negative politeness strategies, off-record strategies and bald on-record strategies. Hence, this study showed that the influencers practised good manners and kind words in their online communication with the public as preached by the Prophet Muhammad. This research hopes to highlight the importance of politeness strategies and the effects of the strategies on communication.

Keywords: Communication, Influencers, Instagram, Politeness strategies, Social media

1.0 INTRODUCTION

Politeness is an important aspect in communication, as it helps the interlocutor to retain interpersonal relationship during the interaction (Kadar, 2017). With politeness, issues like misunderstanding, misinterpretation and ambiguous language can be avoided (Najeeb, 2012). It shows that being aware and respectful of other people's feelings will minimize the conflicts. Therefore, politeness should be applied in both verbal and non-verbal communication to create a harmonious situation.

Social media is a platform that helps people to communicate with one another in different languages (Ortiz-Ospina, 2019). By applying politeness in language, it helps influencers to build respect and rapport from their followers. Besides, the right choice of language also helps to understand the messages that are being conveyed precisely. At this point, social media influencers play an important role as their content may impact the followers' decision and character (Veirman et al., 2019). Next, languages used on social media also vary based on different cultures which have different ways to interpret and understand the meaning when communicating with cross-cultural interlocutors.

1.1 Background of The Study

1.1.1 Politeness

The rationale of politeness is not just about maintaining a good relationship, but also minimizing the degree of rudeness and conflicts (Hammood, 2016). As stated by Lakoff (1973), one of the linguists that invented politeness theory defined politeness as a form of behaviour that drives speakers to have a good interaction in order to avoid threatening other people's feelings. Politeness may be viewed differently based on different cultural influences. What is considered polite in one culture may not be the same for other culture (Huang, 2008). Therefore, understanding other cultures will bridge the gap between the interlocutors from different cultural background (Marsih, 2010).

1.1.2 Online Communication

Nowadays, online communication has become a part of people's lives. It helps people to communicate with friends and families around the world via various types of online communication features like emails, instant messaging, and social media applications. The absence of facial expression and body language in online communication allow the users to use words to express their messages (Markus, 2011). Therefore, it is very important to choose the right choice of words before sending or posting the messages on communication platforms to avoid any conflicts or miscommunications.

1.1.3 Social Media

The rapid development of technology has totally changed the way people interact, communicate, and engage with one another (Arora et al., 2019). In the past, people communicated through phone calls, letters, and faxes. However, the revolution of social media has changed everything as it plays a vital role in the purpose of communication and influence (Baruah, 2012).

1.1.4 Social Media Influencers (SMIs)

In this era, social media influencers (SMIs) give a huge impact on online activities. Due to their popularity, they have a huge role in influencing the public through social media. The content that they create can affect their followers' behaviours, beliefs, and opinions. According to Nouri (2018) the influence from people who have a great reputation in this industry give a tremendous impact on the society. Chatzigeorgiou (2017) supported that the followers trusted the influencers based on their reputation, predictability and competence.

Lim et al. (2017) added that SMIs build better rapport with the audience on social media compared to television celebrities. Television celebrities appear more on traditional platform like television, magazines and newspaper.

1.2 Definition of Terms

1.2.1 Politeness

Lakoff (1973) defined politeness as a form of behaviour that drives people to have a good interaction with people. Politeness is not just about having a good manner but also involves the right word choice in a language. Lakoff (1973) also highlighted on the importance of language since it acts as a medium to transmit the information. Therefore, the use of politeness strategies lessen the potential threat in communication.

1.2.2 Social Media Influencer

Social media influencer is defined as third-party endorser who has the power and knowledge on a certain topic which helps to shape the audience attitudes and influence their decisions through social media platform for instance, Instagram, Twitter and Blog (Freberg et al., 2010). As an online celebrity, it is a good platform for them to share about their lifestyle and branded themselves.

1.2.3 Culture

Hofstede (2011) defines culture as the collective programming of the mind that distinguishes the members of one group or category of people from others. It is about a custom and social behaviour that a person has based on how they were raised and grew up. Every culture has their own uniqueness and cultural practices.

1.2.4 Intercultural Communication

Intercultural communication refers to communications that take place between people of different cultures or backgrounds (Denomme, 2023). It is inclusive of both verbal and nonverbal forms of communication. Communication is the related process which messages are produced and interpreted in order to obtain a response (Griffin, 2011).

1.3 Problem Statement

It has become a norm for the social media influencers (SMIs) to share their thoughts and ideas on the social media platform. Their postings on social media can generate conversation and drive engagement with many people out there. They play an important role in guiding and shaping the follower's attitude. The purpose of politeness strategies in social media is to avoid face-threatening acts (FTA) as it may lead to consequences such as misunderstanding (Maros & Rosli, 2017).

However, some cultures may perceive politeness differently because different cultures may have different interpretations on the concept of politeness in communications (Tawalbeh & Al-Oqaily, 2012). What is considered polite in one culture can be rude in another culture. In Chinese culture, it is considered rude to stare at people over a long period but the Westerners believe that maintaining eye contact with the speaker's eyes during the interaction is to show respect for the speakers (Akeshi et al., 2013).

Therefore, this research investigates and compare politeness strategies between Asian and Western social media influencers. It will also investigate the types of politeness strategies that are frequently used by the influencers from two different cultures.

1.4 Research Objectives

1. To identify the types of politeness strategies employed by Asian and Western social media influencers.
2. To identify the differences and similarities of politeness strategies employed by Asian and Western social media influencers.

1.5 Significance of Study

This research would be beneficial for the influencers in applying the politeness strategies in their social media updates. By knowing the different types of politeness strategies, it helps the influencers to prevent miscommunication and face-threatening acts in social media. Next, it benefits them to become more aware of courtesy used in social media to avoid from offending other people's feelings.

This study is hoped to raise the consciousness among social media influencers themselves on how different types of politeness strategies convey different meaning based on their social media content. With better understanding on the concepts of politeness strategies, both the influencers as well as the followers can avoid from threatening other people's face.

1.6 Scope and Limitations of the Study

This study was conducted to identify the types of politeness strategy used by Asian and Western social media influencers. It focused on the 4 types of politeness strategies by Brown and Levinson (1987), which consists of positive politeness, negative politeness, bald on record and off record strategy. The study identified the differences and similarities of politeness strategies used by the influencers from different cultural background. The influencers' Instagram captions were selected as samples of the study.

There were also limitations to consider when conducting this study. The first one was due to the limited number of reknown influencers. In this study, only five Asian influencers and five Western influencers were selected. The least number of influencers may not represent all aspects of politeness from each culture. These limitations may affect the reliability of the results of the study.

2.0 LITERATURE REVIEW

2.1 Concept of Face

Goffman (1967) described face as a self-image that people wanted to be seen. The degree level of face is also different from one country to another. For example, the Chinese are more sensitive towards face issues compared to Westerners. In their culture, it is very important to save other people's face (Wang & Walker, 2011). Brown and Levinson (1987) defined "face" as something that is emotionally invested and can be lost, preserved and has to be constantly looked after in interaction. There are two types of face that were introduced by Brown and Levinson which are positive face and negative face. Positive face involves the desire to be esteemed, admired, looked up to and respected. Meanwhile, negative face occurs when people want to be free from imposing on their freedom, on ability to make choices and on their decisions.

2.2 Face Threatening Acts

Face-threatening act (FTA) is an act that can damage the speaker's or hearer's face by doing something that opposite to their desire or wants. Apart from threatening the face from both side, Brown and Levinson (1987) also highlighted that FTA may threaten either positive face or negative face. For instance, the acts of criticising, disagreeing and bumping into can threaten the faces from both sides. Normally, the consequences of face threat cause feelings on shame, embarrassment, confusion, and defensiveness.

2.3 Politeness Strategies

According to Brown and Levinson (1987), politeness strategies is used to prevent violation and save the hearer's face during the interaction. Brown and Levinson described four types of politeness strategies in their theory:

- a. Negative politeness strategy
- b. Positive politeness strategy
- c. Off-record strategy
- d. Bald on-record strategy

2.4 Effects of Culture on Politeness

The application of politeness is different from one culture to another as every culture has different views on politeness based on their norms and values. What the Asian people considered to be polite may not be true according to Western culture. These two cultures have their own perspectives on viewing the concept of politeness. In order to be polite, Leech (1983) highlights that politeness helps to lessen the degree of rudeness.

2.5 Politeness in Social Media

The concept of politeness is considered as fundamental for human in order to avoid conflicts and misunderstanding during the interaction on social media. With politeness, the speakers can maintain a comfortable communication (Markus, 2011). In online conversation, Markus (2011) stated that the omission of gestures and facial expression force the speakers to use other strategies in order to avoid misinformation that can lead to misunderstanding. Online conversation is different from offline because speakers rely on what is being said and what is written in order to deliver the messages. Therefore, the language used by the speaker plays a major role in online conversation. The theory of politeness by Brown and Levinson (1987) emphasizes on face theory that any language or expression that breaks the laws of politeness in communication can be a face threat.

2.6 Previous Studies

Researchers have conducted various studies on politeness from different perspectives. Maros and Rosli (2017) conducted a research on female Malaysian undergraduates doing English language studies to identify the politeness strategies used in Twitter updates. The researchers employed Brown and Levinson (1987) theory to analyse the findings. The results showed that all participants applied all four Brown and Levinson's politeness strategies in their twitter updates. The researchers revealed that positive politeness is the most frequently used strategy as it lessens the gap between the speakers and the hearer by displaying a good relationship.

Another study done by Nurfarida (2016) focused on the politeness strategy used by the netizen's comment on Instagram. The researcher chose to analyse the comments on

Instagram post from one a politician's comments from Indonesia, Basuki Tjahaja Purnama. The findings revealed that most of the comments from netizen depicts positive politeness. Based on the previous studies above, Asian culture applies positive politeness the most in communication.

In the Western culture context, Ammaida (2018) has conducted a research on politeness strategies of the comments toward International Women's day. This study analyzed Donald Trump's Instagram post on social media. The researcher also used Brown and Levinson politeness theory in order to identify the types of politeness used by the user's comments. The findings showed that positive politeness was being used the most by most people who commented on Trump's Instagram post.

3.0 METHODOLOGY

This study adopted a qualitative content analysis method as a research design. According to Hsieh and Shanon (2005), qualitative content analysis is one of the various research methods used to analyse text- based data. Hence, this method is an appropriate choice to answer the research questions about the differences and similarities of politeness strategies used in different culture and types of politeness strategies used by social media influencers in their social media updates.

3.1 Research Design

This study adopted a qualitative content analysis method as a research design. According to Hsieh and Shanon (2005), qualitative content analysis is one of the various research methods used to analyse text- based data. Hence, this method is an appropriate choice to answer the research questions about the differences and similarities of politeness strategies used in different culture and types of politeness strategies used by social media influencers in their social media updates.

3.2 Participants

For this study, a purposive sampling technique was applied to select 10 social media influencers from two different cultures. Palinkas (2015) stated that this method is able to compare and contrast, to identify similarities and differences in the phenomenon of interest. The participants of this study were selected from two different cultures who 5 influencers are Asians and the other 5 influencers are Americans. The influencers were selected from different backgrounds which are beauty influencer, parenting influencer, fitness and health influencer, cooking influencer and lifestyle influencer. This research also focused on the influencers' English language postings as a medium to interact with their followers on Instagram.

The reason why Instagram was chosen because Instagram has a younger audience compared to Twitter and Facebook. Famemass website stated that 71% of Instagram users are under the age of 35 and the percentage of social media influencers on Instagram are around 78% (Savla, 2019). To ensure the homogeneity among the influencers, the postings were selected from January 2021 to May 2021.

3.3 Instrument

The coding method applied for this study was adapted from Bryman (2011) coding method to analyse the types of politeness strategies employed by the influencers in their Instagrams. Coding is a systematic process of classifying the research data into the relevant

categories for data analysis and interpretation purposes. The influencers' Instagram posts were analysed using content analysis based on four types of politeness strategies by Brown and Levinson (1987) which are positive politeness, negative politeness, bald on record and off record.

3.4 Data Collection

The data collection for this study focused on the Asian and Western social media influencers' postings on Instagram. First, 10 social media influencers from two different cultures were selected as research samples. The influencers were divided into two groups which consists of five influencers from Asian countries; Malaysia, the Philippines and India, and five western influencers from the United States of America. The influencers were chosen based on five criteria which are the number of followers, frequency of postings, engagement with the followers, produce a good content and gives an inspiration. The data were taken from the influencers' captions which consist of text, phrases, words and clauses. The analysis began with selecting the captions from the influencers' Instagram posts starting from January 2021 to May 2021.

3.5 Data Analysis

The captions from the influencers' postings were analysed according to Brown and Levinson's politeness theory. Firstly, the influencer's captions on Instagram was gathered and observed on how each influencer used politeness in their social media using the Bryman and Bell (2011) coding schemes in order to determine the types of politeness strategies used by the influencers. Each of the strategies found in the caption will be highlighted with four different colours to differentiate the types of politeness strategy used by the influencers, which then tabulated into table forms based on Brown and Levinson's (1987) politeness strategies. The utterances from both groups were compared and contrasted to identify the effects of culture on the use of politeness in communication.

4.0 FINDINGS

Based on Brown and Levinson (1987) politeness theory, there are four types of politeness strategies which are positive politeness, negative politeness, bald on record and off record strategies. Alan Bryman and Emma Bell's coding schemes (2011) were used to identify the types of politeness strategies used by the influencers in their Instagram captions.

The tables below show the categorization of politeness strategies employed by Asian and Western social media influencers.

Table 1. Positive Politeness Strategies Employed by Asian and Western Social Media Influencers on Instagram

Types	Strategies	Asian Influencers	Western Influencers
Positive politeness	Include both S and H in the activity	1	0
	Notice, attend to hearer's needs and wants	1	0
	Exaggerate	7	5
	Give gifts to H (goods, sympathy, understanding, cooperation)	4	6
	Use in-group identity markers	3	3
	Assert or pre-suppose the S's knowledge of and concern for H's wants	2	4
	Joke	1	1
	Presuppose/ raise/ assert common ground	2	

Offer/promise	2	1
Intensify interest to H	3	1
Be optimistic	1	0
TOTAL	27	21

Table 2. Negative Politeness Strategies Employed by Asian and Western Social Media Influencers on Instagram

Types	Strategies	Asian Influencers	Western Influencers
Negative politeness	Apologize	1	1
	Be pessimistic	3	0
	Being conventionally indirect	0	2
	Question/ hedges	0	1
	TOTAL	4	4

Table 3. Bald on Record Strategies Employed by Asian and Western Social Media Influencers in Instagram

Types	Strategies	Asian Influencers	Western Influencers
Bald on record	The act of urgency	4	0
	Being rude without risk of offending	0	1
	Sympathetic advice/ warning	0	3
	Overcoming channel noise	0	1
	Complaint/ criticism	0	2
	TOTAL	4	7

Table 4. Off Record Strategies Employed by Asian and Western Social Media Influencers in Instagram

Types	Strategies	Asian Influencers	Western Influencers
Off Record	Metaphor	2	0
	Overstatement	2	1
	Be vague	2	0
	Tautologies	1	0
	Use rhetorical question	0	2
	TOTAL	7	3

Based on the data in Table 1, positive politeness was employed the most by Asian social media influencers. "Exaggerate" has the highest frequency which consists of 7 total counts then followed by "Give gifts to H" with 4 total counts. Meanwhile, "Use in group-identity markers" and "Intensify interest to H" strategies were categorized as the third highest positive politeness strategies used by Asian social media influencers.

Similar to Asian influencers data, positive politeness strategies were also frequently used by Western social media influencers in Instagram. However, the western influencers employed "Give gift to H" as the highest frequency, followed by "Exaggerate". Only 7 strategies from positive politeness strategies were used by 5 selected Western social media influencers in their Instagram caption compared to the Asian influencers using 11 positive politeness strategies.

In Table 2, only two negative politeness strategies were found in Asian social media influencer's Instagram captions which "Apologizing" and "be pessimistic" are the most frequently used by Asian influencers, which in contrast to the Western influencers who employed three negative politeness strategies which are "being conventionally indirect", "question/ hedges" and "apologize".

Besides, the result in Table 3 indicates that bald on record strategy is rarely used by Asian influencers in their Instagram's caption. There is only one subtype found in the data which is "The act of urgency". However, surprisingly, there are 4 bald on record strategies used by Western social media influencers which are "being rude without risk of offending", "sympathetic advice/ warning", "overcoming channel noise" and "complaint/criticism".

As for off record strategy is the second highest politeness strategy found in Asian influencer's Instagram captions. There are four subtypes of off record strategies used by the influencers which are "metaphor", "overstatement", "be vague" and "tautologies" as depicted in Table 4. In contrast, off record strategies were the least strategy used by Western social media influencers.

5.0 DISCUSSION

5.1 Types of Politeness Strategy Employed by Asian and Western Social Media Influencers

It was found that all the influencers used positive politeness in many situational cases such as to deliver exaggerated expressions, give promises, give gifts to H, notice/ attend to H wants and others. By using this strategy, it helps the influencers to avoid giving any offence towards their followers. At the same time, the influencers can create friendliness with their followers.

From the analysis, "Exaggerate" is the highest subtypes of positive politeness used by Asian influencers in their Instagram's captions to deliver their feelings by showing interest, compliment, approval and sympathy towards people. The exaggerated expressions can be shown by using exaggerated intonation, stress and empathic words or particles (Pratiknyo, 2016). The Western social media influencers, in contrast, used "Give gifts to H" strategy to satisfy their followers' positive face by giving appreciation, showing some sympathy and any action of gift-giving human relation. The word "gift" in this strategy does not refer to an object that is given willingly for someone, instead it is one of the forms of gratitude, sharing, wanting to be liked and also understanding which can enhance friendliness (Maros & Rosli, 2017).

5.2 The Differences and Similarities of Politeness Strategies used by Asian and Western Social Media Influencers

The findings of the study revealed that Asian and Western social media influencers similarly employed positive politeness strategies the most in their Instagram captions. It is identified that positive politeness strategies were used 27 times by Asian influencers, while Western influencers employed this strategy as many as 21 times. This indicates that the influencers preferred to use positive politeness strategy in their captions to give compliments and demonstrate the friendliness and rapport relationship with their followers.

The results are similar to Maros and Rosli (2017) research whereby they agree that positive politeness strategies are the most frequently used strategies used by the participants because this strategy provides various communicative purposes and most importantly to highlight friendliness. They also emphasize that it is common to find positive politeness in twitter updates. People tend to use jokes, seeking for agreement, shared common ground and use in-group identity in their social media.

The differences between Asian and Western social media influencers is that off-record strategies were less used by Western influencers compared to Asian influencers. From the findings, off-record is the second highest strategy used by Asian influencers while it is the least strategy used by Western influencers in their Instagram caption. In Western, there are only two subtypes of off-record strategy used by the influencers which are "use rhetorical questions" and "overstate". Conversely, there are four subtypes with seven utterances of off-record strategies found in Asian social media influencer's captions. It is identified that off-record strategy is the most indirect strategy used by the influencers in order to minimize the pressure on the followers.

5.3 Recommendations

It is recommended that future researchers can analyse newspaper articles, blogs, advertisements and script interviews as samples of the study. These materials are reachable and contain a variety of comments can be analysed for politeness which will make the research more attractive. Furthermore, future researchers can conduct a study on other specific country and region. This will help them to study in-depth about the culture and gain a new knowledge about other cultures from different perspectives. Last but not least, future researchers can consider conducting a study on politeness strategies used in gender differences. It helps people to understand how women and men use politeness strategies on social media.

6.0 CONCLUSION

As presented, the similarities of Asian and Western social media influencers are that all the influencers recorded the highest frequency for positive politeness. Meanwhile the differences found from the analysis is that off-record strategy is the least used by Western influencers, however bald on record strategy is less used by Asian influencers. This shows that Asian influencers are more comfortable using specific strategies in delivering their messages in social media compared to Western influencers. The use of politeness strategy in communication is vital to show concerns for other people and at the same time to save the face of the followers in order to save their face as well as the face of the influencers.

REFERENCES

- Akechi, H., Senju, A., Uibo, H., Kikuchi, Y., Hasegawa, T., & Hietanen, J. K. (2013). Attention to eye contact in the west and east: Autonomic responses and evaluative ratings. *PLoS ONE*, 8(3). doi:10.1371/journal.pone.0059312.
- Ammaida, Y. (2018). Politeness strategies of the comments toward international women's day [Doctoral dissertation, IAIN Surakarta].
- Arora, A., Bansal, S., Kandpal, C., Aswani, R., & Dwivedi, Y. (2019). Measuring social media influencer index-insights from facebook, twitter and instagram. *Journal of Retailing and Consumer Services*, 49, 86-101. <https://doi.org/10.1016/j.jretconser.2019.03.012>.
- Brown, P. & Levinson, S. (1987). *Politeness: Some Universals in Language Usage*. Cambridge University Press.
- Bryman, A. & Bell, E. (2011). *Business research methods*. Oxford University Press.
- Chatzigeorgiou, C. (2017). Modelling the impact of social media influencers on behavioural intentions of millennials: The case of tourism in rural areas in Greece. *Journal of Tourism, Heritage & Services Marketing*, 3(2), 25-29. <https://mp.ra.ub.uni-muenchen.de/87916/>.
- Denomme, D. (2023). Written communication: Definition, types and examples. *Study Com*. <https://study.com/academy/lesson/what-is-written-communication-in-business-definition-types-examples.html>.

- Freberg, K., Graham, K., McGaughey, K., & Freberg, L. (2010). Who are the socialmedia influencers? A study of public perceptions of personality. *Researchgate*. https://www.researchgate.net/profile/Laura_Freberg/publication/251582746_Who_are_the_social_media_influencers_A_study_of_public_perceptions_of_personality.
- Griffin, E. (2011). *At First look at communication theory*. McGrawHill.
- Hammood, A. (2016). Approaches in linguistic politeness: A critical evaluation. *International Journal of Linguistics, Literature and Culture*, 3(3), 1-20..
- Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1). <https://doi.org/10.9707/2307-0919.1014>.
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative contentanalysis. *Qualitative Health Research*, 15(9), 1277-1288. <https://doi.org/10.1177/1049732305276687>.
- Huang, Y. (2008). Politeness principle in cross-culture communication. *English Language Teaching*, 1(1).
- Kádár, D. Z. (2017). Politeness in pragmatics. *Oxford Research Encyclopedia of Linguistics*. doi:10.1093/acrefore/9780199384655.013.218.
- Lakoff, R. 1973. The logic of politeness or minding your P's and Q's. *Chicago Linguistics Society*, 9(1), 292-305.
- Lim, X. J., Radzol, A. R. M., Cheah, J. H., Wong, M. W. (2017). *The impact of social media influencers on purchase intention and the mediation effect of customer attitude*. OA.mg. <https://oa.mg/work/10.14707/AJBR.170035>.
- Markus, M. (2011). Politeness in interaction. *Diva Portal*. <https://www.divaportal.org/smash/get/diva2:447675/FULLTEXT01.pdf>.
- Maros, M., & Rosli, L. (2017). Politeness strategies in Twitter updates of female Englishlanguage studies Malaysian undergraduates. *The Southeast Asian Journal of EnglishLanguage Studies*, 23(1), 132-149. doi:http://doi.org/10.17576/3L-2017-2301-10132.
- Marsih, L. (2010). Linguistic politeness in different cultures. *PARAFRASE: Jurnal Kajian Kebahasaan & Kesastraan*, 10(01).
- Najeeb, Z. M. (2012). Politeness in e-mails of Arab students in Malaysia. *GEMA OnlineJournal of Language Studies*, 12(1).
- Nouri, M. (2018). The power of influence: Traditional celebrity vs social media influencer. *Scholar Commons*. https://scholarcommons.scu.edu/cgi/viewcontent.cgi?article=1032&context=engl_176.
- Nurfarida, I. (2016). Analysis of politeness communication in Instagram: Study of language use in social media. In *Proceedings of International Conference on Language, Literary and Cultural Studies (ICONLATERALS)*, 779-791. doi:10.217716/ub.icon_laterals.2016.001.1.53.
- Ortiz-Ospina, E. (2019). The rise of social media. *Our World in Data*. <https://ourworldindata.org/rise-of-social-media>.
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2013). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533-544. doi:10.1007/s10488-013-0528-y.
- Savla, D. (2019). Instagram v/s other social media platforms. *Medium*. <https://blog.synclarity.in/marketing/instagram-v/s-other-social-media-platforms>.
- Tawalbeh, A., & Al-Oqaily, E. (2012). In-directness and politeness in American English and Saudi Arabic requests: A cross-cultural comparison. *Asian Social Science*, 8(10), 85. doi:10.5539/ass.v8n10p85.
- Veirman, M. D., Hudders, L., & Nelson, M. R. (2019). What is influencer marketing and how does it target children? A review and direction for future research. *Frontiers in Psychology*, 10. doi:10.3389/fpsyg.2019.02685.

Wang, X. & Walker, G. (2011). The effects of face concerns on university students' leisure travel: A cross-culture comparison. *Journal of Leisure Research*. doi:10.1080/00222216.2011.11950229.

INNOVATIVE PROSPECTIVE APPROACHES TO FUTURE ISLAMIC EDUCATION

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ABSTRACT

Islamic education encompasses the instruction and acquisition of knowledge pertaining to Islam, including its values, beliefs, and rites. However, the future of Islamic education encounters several substantial obstacles, including a dearth of innovation, limited curricula, and an inability to adjust to global transformations. This study aims to review innovative prospective approaches to future Islamic education. This study used content analysis as a methodological approach to examine and assess the prevailing patterns and obstacles encountered in Islamic education. This study has identified several prospective approaches to Islamic education that can be innovative and relevant. Some of these approaches include: (a) placing emphasis on critical thinking; (b) incorporating technology; (c) adopting personalised learning; (d) promoting cooperation and inclusivity; and (e) acquiring skills for the future. In conclusion, the innovative prospective approaches to Islamic education require a great deal of rethinking, collaboration, and investment in research that can produce practical and effective methods of learning and teaching.

Keywords: Future, Inclusivity, Islamic Education, New Methods, Technology Integration, 21st-Century Skills

1.0 INTRODUCTION

Islamic education encompasses the instruction and acquisition of knowledge pertaining to Islam, including its values, beliefs, and rites. The curriculum involves imparting pupils with a comprehensive understanding of the Quran, Hadith, Seerah, and several other Islamic disciplines, including Islamic law, theology, and ethics. The primary objective of Islamic education is to cultivate students' spiritual, intellectual, physical, and social capacities in accordance with Islamic principles and convictions. Furthermore, this approach underscores the need to develop practical skills that empower learners to make meaningful contributions to their own communities. The history of Islamic education is extensive and has seen significant changes throughout time. It is necessary to modify it in order to cater to the requirements of contemporary learners and address the issues they face. Islamic education assumes a pivotal position in the formation of individuals, the establishment of communities, and the facilitation of the advancement of a fair and impartial society.

However, the future of Islamic education encounters several substantial obstacles, including a dearth of innovation, limited curricula, and an inability to adjust to global transformations. Instructional approaches frequently fail to integrate contemporary pedagogical trends, technological breakthroughs, and the cultivation of critical thinking and

problem-solving abilities. Furthermore, Islamic education occasionally has a deficiency in inclusiveness, which hinders the ability of a variety of people to get an education. In order to bridge the existing disparity in Islamic education, it is imperative to use inventive strategies that incorporate technology, individualised instruction, and contemporary pedagogical techniques that foster inclusiveness, analytical reasoning, and equip students with skills relevant to the 21st century.

This study aims to review innovative prospective approaches to future Islamic education. There are various advantages associated with a review of novel potential methods for future Islamic education. First and foremost, it may foster inclusion and equality in education, facilitating the opportunities for a wide range of learners to participate in the education system. Additionally, the integration of contemporary pedagogical methodologies, technological advancements, and the cultivation of students' readiness for the dynamic global labour market can enhance the overall standard of education. Furthermore, it has the potential to facilitate student-centred learning by placing emphasis on the unique needs, talents, and capabilities of every student. Additionally, it can foster the development of critical thinking, creativity, and the cultivation of crucial problem-solving and decision-making skills in kids. The examination of novel potential methodologies for forthcoming Islamic education can significantly contribute to the advancement and maturation of Islamic education, facilitating its ability to cater to the requirements of learners and sustain its pertinence in an ever-evolving global landscape.

1.1 General Concept of Islamic Education

Islamic education is based on the Quran and Hadith, with the goal of equipping individuals with a comprehensive comprehension of Islamic beliefs (Dawi & Harahap, 2022). Academics in Malaysia and other regions engage in the examination of the idea, philosophy, and goals of Islamic education, with a particular focus on the amalgamation of Islamic principles with indigenous knowledge and ethical standards (Sidek et al., 2023; Wahyudiati, 2022). In Islamic education, the curriculum places significant emphasis on traditional ideas such as aqidah, syariah, and akhlak (Hanafi, 2020). Islamic education plays a multifaceted role, encompassing dynamic preservation, active participation in the sustainability of civilization, and the preparation of future generations (Malik & Maslahah, 2021). The administration of Islamic education is informed by the Quran and Hadith, serving as a robust basis for the creation of curricula that are in accordance with Islamic principles (Riinawati, 2022; Wajdi, 2022).

Islamic education has a crucial role in improving human ethics and sense of self, especially in higher education environments (Febriansyah et al., 2019; Husein et al., 2022). To effectively tackle the difficulties in Islamic education during the period of globalisation, it is necessary to adopt a comprehensive strategy that safeguards Islamic culture and civilization (El-Mubarak & Hassan, 2021; Aini et al., 2022). According to Yunus et al. (2021), the incorporation of Islamic ideas into public health education and the incorporation of Islamic teachings to meet contemporary difficulties while promoting innovation align with Islamic ideals. The examination of authority, autonomy, and selfhood within the context of Islamic education is a significant factor in the development of a dialogical Muslim self (Ahmed, 2021).

The development of Islamic education in Malaysia and Indonesia demonstrates a government focus on curriculum and philosophy that are heavily influenced by Islamic principles (Mas'ud et al., 2019). Lovat (2022) highlights the convergence of gifted education and Islamic educational philosophy, showcasing tangible involvement in values education grounded in Islamic beliefs. The reevaluation of Islamic philosophy to promote the sustainable development of vocational education highlights the extensive knowledge

elements included in Islamic teachings (Sokolovskaya et al., 2021). Kuttab, an educational concept in Indonesia, idealises ancient Islamic institutions and civilization, placing emphasis on a historical viewpoint in Islamic education (Sofanudin et al., 2021). Asmuni (2021) provides a comprehensive analysis of the use of Al-Farabi's philosophy in non-Islamic higher education institutions in Indonesia, offering valuable insights into the intellectual underpinnings of Islamic education.

2.0 LITERATURE REVIEW

Recent studies have investigated many potential methods for future Islamic education. Previous studies have looked into many areas of Islamic education, such as new ways to make the curriculum (Sewang, 2023), using neuroscience to help teach the needs of the millennial generation (Suyadi & Widodo, 2019), combining Islamic design principles with cognitive theory to improve Islamic education for preschoolers (Idris et al., 2019), and planning for Islamic education during the Fourth Industrial Revolution. Studies have also highlighted the difficulties and preparedness of Islamic education instructors in implementing innovative teaching and learning methods (Suhid et al., 2021), the adaptation of Islamic education in various educational environments (Sholikhin, 2023), and the use of digital learning tools to improve literacy and innovation in Islamic education (Hamdi et al., 2022). These studies underscore the significance of modifying Islamic education to align with contemporary innovations and societal demands in order to guarantee its continued relevance and efficacy in the forthcoming years.

Moreover, there has been an increasing interest in novel methods of Islamic education in order to address the future's issues. Multiple research studies have emphasised the significance of innovation in Islamic education as a means to adjust to contemporary breakthroughs and societal transformations. Imamuddin et al. (2022) underscore the imperative of using inventive approaches in Islamic education to guarantee its long-term viability, such as the incorporation of technology and literacy. Sewang (2023) and Idris et al. (2019) conducted research that specifically examined the advancements in curriculum creation and the incorporation of Islamic design principles and cognitive theory in preschool Islamic education, respectively.

In addition, the research conducted by Suyadi and Widodo (2019) examines the incorporation of neuroscience into Islamic education, highlighting a transition towards modern teaching methods. The significance of employing effective learning methodologies and incorporating new technology to facilitate creative teaching and learning in Islamic education is emphasised by Suhid et al. (2021). The importance of character education and digital learning media in improving Islamic education and promoting global competitiveness has been emphasised in studies conducted by Syaifullah and Surawardi (2020) and Hamdi et al. (2022).

Moreover, scholarly investigations conducted by Sholikhin (2023) and Huda et al. (2022) delve into the significance of Islamic education in fostering ethical principles and enhancing competitiveness within the context of Society 5.0. These studies propose the integration of Islamic education into the holistic development of humans, fostering not just knowledge acquisition but also innovation and competitiveness. Kejora (2021) conducted a study that highlights the importance of public relations and efficient administration in enhancing the reputation and attracting students to Islamic educational institutions.

In summary, recent scholarly investigations regarding novel potential methodologies for forthcoming Islamic education emphasise the necessity for advancements in curriculum development, the incorporation of technology and character education, efficacious pedagogical techniques, and the advocacy of ethical principles to ensure the pertinence and durability of Islamic education amidst changing societal demands and technological progress.

3.0 METHODOLOGY

This study used content analysis as a methodological approach to examine and assess the prevailing patterns and obstacles encountered in Islamic education. In order to uncover pertinent academic publications, books, and reports, the research will employ search terms such as "new methods," "future," "Islamic education," "technology integration," "inclusivity," and "21st-century skills." The databases used for reference in this study encompass Google Scholar, JSTOR, Ebscohost, and ProQuest. The content analysis will scrutinise the material to ascertain prevalent themes, deficiencies, and inconsistencies and generate novel perspectives on inventive potential strategies for enhancing Islamic education. The research aims to offer pragmatic suggestions, derived from the analysis, for modifying Islamic education to align with contemporary trends and difficulties. The goal is to equip students with the necessary skills to thrive in a swiftly evolving world, all while upholding the core principles of Islam.

4.0 RESULTS AND DISCUSSION

This study has identified several prospective approaches to Islamic education that can be innovative and relevant. Some of these approaches include: (a) placing emphasis on critical thinking; (b) incorporating technology; (c) adopting personalised learning; (d) promoting cooperation and inclusivity; and (e) acquiring skills for the future.

4.1 Placing Emphasis on Critical Thinking

The significance of critical thinking is progressively growing in contemporary society. Islamic education fosters the development of critical thinking abilities by prompting students to challenge assumptions, scrutinise material, and contemplate a wide range of viewpoints. The enhancement of critical thinking abilities among students can greatly contribute to the development of innovative prospective methods in future Islamic education. Hadi (2022) stated that real-life examples show that teaching both traditional and modern Islamic views in schools might help Muslim students learn how to think critically, make moral decisions, and participate in democratic debate. Moreover, research has shown that incorporating STEM curriculum from an Islamic standpoint may significantly improve students' critical thinking abilities (Al-Hidabi & Abu-Owda, 2019). Nevertheless, it has been observed that certain cases exhibit a deficiency in prioritising the cultivation of critical thinking skills within non-formal Islamic education, hence constraining the potential for meaningful engagement, inquiry, and deliberation within educational environments (Altinyelken, 2021).

The significance of Islamic philosophy in the field of education has been emphasised as a pivotal factor that might facilitate the development of critical thinking abilities among students, hence empowering them to engage in critical analysis across diverse courses (Nurhalisa et al., 2022). Khairiyah and Faizah (2019) demonstrated that incorporating Islamic principles into educational curricula significantly enhances students' critical thinking skills. Furthermore, the development of novel cognitive frameworks, such as the UlulAlbabThinking model, has the potential to facilitate the cultivation of critical thinking abilities among students in higher education institutions (Adnan, 2021). Within the context of the problems presented by the Industrial Revolution 4.0, there is an increasing imperative to undertake a critical examination of the function of science in the realm of Islamic education, with the aim of facilitating the progression of knowledge in this domain (Hapidin et al., 2022). The sustainability of Islamic education in the period of Industrial Revolution 4.0 necessitates the implementation of strategies such as the development of creative Islamic education, the enhancement of technical capacities, and the integration of educational ideas (Imamuddin et al., 2022).

The adaptation of future Islamic education to modern paradigms, the empowerment of students with essential skills, and the maintenance of the relevance and effectiveness of Islamic educational systems can be achieved through the emphasis on critical thinking skills, the integration of Islamic perspectives, and the utilisation of innovative teaching methodologies. By allocating the necessary resources to these approaches, forthcoming Islamic education has the potential to provide students with a strong foundation, endowing them with the requisite information, competencies, and dispositions to navigate an ever more intricate global landscape. Ultimately, this will help in the establishment of a society that is more wealthy, inclusive, and sustainable.

4.2 Incorporating Technology

Technology has revolutionised the methods by which we acquire knowledge and exchange information. Integrating technology into Islamic education can facilitate students' access to instructional materials, engagement in virtual conversations, and worldwide collaboration. The integration of technology into Islamic education is vital for its progression in the contemporary historical context. Experts have suggested several approaches to ensure the long-term viability and relevance of Islamic education. According to Imamuddin et al. (2022), the tactics encompassed in this study include the development of novel Islamic educational approaches, the reformation and revitalization of Islamic educational methodologies, the augmentation of technical capacities and literacy levels, and the integration of Islamic education with contemporary technology. Furthermore, a growing demand exists for the incorporation of Islamic design principles and the cognitive theory of multimedia learning in order to create multimedia learning tools for preschool Islamic education. Employing instructional design strategies tailored to meet the evolving needs of Islamic education is crucial (Idris et al., 2019).

Furthermore, the application of teaching management strategies in private Islamic schools located in the southernmost region of Thailand highlights the significance of incorporating information and communication technology into educational methodologies. This integration also emphasises the recognition of individual variations and the incorporation of contemporary evaluation techniques to improve the overall quality of Islamic education (Assalihee & Boonsuk, 2023). Efforts aimed at cultivating proficient graduates in the field of Islamic education encompass a range of innovative approaches, including the development of Islamic education programmes, designs, procedures, and models that demonstrate a steadfast dedication to delivering high-quality education (Sholikhin, 2023). According to Resufle and Rofiki (2022), the administration of Islamic education must adapt to the difficulties presented by Society 5.0 by integrating science and technology in order to align with social progress. Moreover, the incorporation of blended learning in Islamic education programmes at institutions such as IAIN Samarinda showcases the favourable prospects of inventive educational methods in the era of industrialization 4.0 (Setiawan, 2019).

The future direction of Islamic education hinges upon the adoption of technological breakthroughs, the implementation of novel pedagogical approaches, and the creation of curricula that are congruent with the demands of contemporary society. Islamic education can effectively meet the needs of the 21st century and maintain its commitment to delivering high-quality education based on Islamic values by using technology, instructional design principles, and contemporary evaluation methodologies. Accepting these developments may allow Islamic education to maintain its relevance and competitiveness in the global educational scene. Moreover, it can have a substantial impact on cultivating a fresh cohort of intellectually astute and socially conscientious individuals who can make constructive contributions to their communities.

4.3 Adopting Personalised Learning

Personalised learning is an instructional technique that customises teaching methods to cater to the unique requirements, preferences, and objectives of each learner. The adoption of this strategy in Islamic education can effectively accommodate the different learning skills, pace, and preferences exhibited by pupils. In the context of prospective Islamic education, the incorporation of personalised learning as a novel methodology exhibits considerable potential. The implementation of personalised learning, which involves tailoring educational experiences to meet the unique needs and preferences of each individual, is becoming increasingly acknowledged as a revolutionary approach in the field of education (Veld & Nagenborg, 2019). This methodology utilises advanced technologies such as big data, learning analytics, and adaptive learning systems in order to customise education to cater to the distinct requirements and preferences of learners. Personalised learning is in accordance with the changing educational landscape and the requirements of the 21st century, since it involves tailoring education and individualising learning experiences (Veld & Nagenborg, 2019).

The field of Islamic education is increasingly acknowledging the need for inventive approaches to ensure the long-term viability and pertinence of educational methodologies (Imamuddin et al., 2022). The evolution of Islamic education in the era of Industrial Revolution 4.0 necessitates the implementation of various strategies, including the design of innovative Islamic education, the reform and renewal of Islamic education, the enhancement of technological capabilities, and the integration of Islamic education with modern concepts (Imamuddin et al., 2022). Furthermore, the concept of 'cradle-to-grave learning' in Islamic education aligns with the principles of Education 4.0, which prioritises continuous learning and the development of constructive roles in modern work settings and society (As'ad, 2021).

Incorporating personalised learning concepts into Islamic education can provide a means to modernise and make educational methods more relevant (Suyadi & Widodo, 2019). Researchers have observed the prevalence of conventional mono-disciplinary techniques in Islamic education. However, there is a growing need for the modernisation of Islamic education to include interdisciplinary and transdisciplinary approaches. Learners and society as a whole drive this shift (Suyadi & Widodo, 2019). According to Ananda and Hayati (2022), the integration of personalised learning approaches in Islamic education enables educators to effectively address the different needs of learners, foster active participation, and improve overall learning results.

The integration of personalised learning as a novel and promising strategy in forthcoming Islamic education has the potential to transform pedagogical methods, ensuring that education remains flexible, captivating, and efficacious in addressing learners' needs in a rapidly changing global landscape. Personalised learning has the potential to assist educators in effectively addressing the varied learning requirements of an expanding and heterogeneous student body through the provision of customised teaching and assistance. Incorporating personalised learning into Islamic education has the potential to significantly enhance student results and contribute to the objective of cultivating individuals who are well-rounded and actively engaged in society.

4.4 Promoting Cooperation and Inclusivity

Communication is crucial in a society that is becoming increasingly interconnected. It enables students to acquire knowledge from their peers, exchange concepts, and participate in collaborative problem-solving. Inclusivity is crucial in establishing a nurturing and accepting educational setting that values and embraces diversity. Recent research has identified several key strategies and models for promoting cooperation and inclusivity as

innovative prospective approaches to future Islamic education. The integration of Islamic education with modern concepts such as technology, literacy, and interdisciplinary connections is crucial for sustaining its relevance (Imamuddin et al., 2022). Experts encourage implementing an integrated Islamic education model to enhance the effectiveness of Islamic educational institutions (Muhlisin & Syaifuddin, 2020). Researchers have highlighted the importance of theological foundations in Islamic education to strengthen faith, increase optimism, and foster creativity within Islamic educational settings (Aflisia et al., 2021).

Furthermore, the development of an inclusive-pluralistic Islamic religious education model has been proposed as an alternative to instilling values of religious moderation and inclusivity (Mizani, 2022). This model aims to provide a comprehensive and tolerant approach to Islamic education, fostering a more open and accepting educational environment. Scholars have suggested multicultural inclusive education as a means to deradicalise Islamic education in Indonesia, emphasising consistency, openness, and appreciation of diverse perspectives (Fatoni et al., 2021). Moreover, research has shown that Islamic education plays a significant role in promoting positive outlooks and personalities among students, indicating the value of Islamic education in shaping moral values and character development (Mesfer Alwadai & Mohammed Alhaj, 2023). Emphasising collaboration among various stakeholders, including teachers, parents, and mental health professionals, optimises religious instruction outcomes, especially for students with special needs such as autism (Hakiman et al., 2021).

By embracing innovative strategies, integrating modern concepts, fostering inclusivity, and promoting collaboration, Islamic education can adapt to the evolving educational landscape and effectively prepare students for the future while upholding Islamic values and principles. To attain this objective, it is imperative to perceive Islamic education as a progressive and fluid domain that embraces adaptability and ingenuity. It is imperative for educators and politicians to maintain a steadfast commitment to providing optimal education to learners, all the while upholding the tenets and ideals of Islam. Through this approach, Islamic education has the potential to emerge as a prominent catalyst for cultivating future leaders who possess the requisite competencies, expertise, and ethical principles necessary for thriving in an ever-evolving and globally linked society.

4.5 Acquiring Skills for the Future

Given the dynamic nature of employment resulting from technological progress and demographic transformations, it is imperative to provide students with the necessary competencies to effectively navigate the forthcoming challenges. The talents encompassed in this set are creativity, invention, problem-solving, adaptation, and communication. To develop innovative techniques for future Islamic education, it is important to have a thorough understanding of the dynamic educational environment. The importance of integrating Islamic design principles and cognitive theories into preschool multimedia learning. Several studies have underscored the importance of Islamic education (Idris et al., 2019). Teachers in Islamic education face difficulties when using new teaching approaches to successfully engage students. This poses problems for teachers in the field of Islamic education (Suhid et al., 2021). Islamic education, as observed in several educational contexts, seeks to foster beneficial transformations and provide significant contributions to society (Sholikhin, 2023; Sewang, 2023; Mursalim & Hatta, 2020). It is essential to incorporate digital advancements and creativity into the design of Islamic religious education instruction in order to meet the future's requirements (Ramli, 2022; Haidir et al., 2021).

Simultaneously, the development of future abilities encompasses more than just Islamic education. The importance of soft skills for students in teacher education and the need to develop personal competences for future information workers have been emphasised in

research (AlHouli & Al-Khayatt, 2020; Yatim et al., 2019). Stefan et al. (2023) recommend that students acquire information and skills relevant to their sector to enhance their future employment prospects. STEM education is of utmost importance in equipping individuals with the necessary skills and knowledge to navigate the future, hence demonstrating a nation's preparedness for forthcoming obstacles (Gyasi et al., 2021). Furthermore, the cultivation of critical thinking abilities and proficiencies is imperative for prospective members of society, underscoring the imperative for educators to proficiently transmit these proficiencies (Welter et al., 2023).

In addition, the development of employability abilities and transferable soft skills has significant importance in ensuring students' prospective professional achievements (Giancaspro & Manuti, 2021; Mainga et al., 2022). Granado-Alcón et al. (2020) suggest that project-based learning empowers learners to effectively tackle current and future challenges through innovative approaches. According to Mayombe (2023), experiential learning and workplace-based training play a crucial role in improving the abilities of young people for their future professional endeavours. Moreover, the significance of higher education in facilitating sustainable change and fostering leadership cannot be overstated, as it requires the acquisition of novel proficiencies to effectively address the requirements of the forthcoming labour market (Loureiro et al., 2022).

The amalgamation of these studies highlights the complex and diverse aspects involved in the acquisition of skills for the future, which include Islamic education, soft skills, field-specific competences, and critical thinking abilities. It is imperative for educators and policymakers to embrace these novel methodologies in order to guarantee that pupils possess the necessary skills and knowledge to properly handle the forthcoming problems. With the growing interconnectedness and complexity of the globe, there is an urgent demand for a comprehensive education that equips learners with the necessary skills and knowledge for the future. By incorporating Islamic principles, interpersonal skills, specialised knowledge, and analytical reasoning capabilities into the educational system, we may establish a framework that enables learners to effectively tackle the demands of the modern day.

5.0 CONCLUSION

In conclusion, the innovative prospective approaches to Islamic education require a great deal of rethinking, collaboration, and investment in research that can produce practical and effective methods of learning and teaching. Islamic education should constantly adapt to meet society's changing needs and equip learners with skills that prepare them for a rapidly changing world. This study examined the prevailing patterns and highlighted the obstacles encountered in Islamic education, while also suggesting novel approaches that might enhance the calibre of education and equip students with the necessary skills for the labour market. The study suggests that in order to prepare students for success in the complex and varied global context, future Islamic education should integrate technological progress, promote inclusion among various groups, and provide personalised learning. This will enable students to develop the essential 21st-century skills and critical thinking abilities required for success. This study presents a comprehensive framework for establishing an inclusive, sustainable, and egalitarian approach to Islamic education, while also identifying potential avenues for further research. The study's research leads to the conclusion that implementing innovative techniques has the potential to completely transform Islamic education. These methods can effectively tackle significant challenges and equip the upcoming generation to become catalysts for change, leaders, and problem solvers within their communities.

To improve future research, it is advisable to conduct empirical investigations to examine the efficacy and viability of novel methodologies in the realm of Islamic education, such as the integration of technology, personalised learning, and inclusion. Examining the distinct

requirements and obstacles encountered by various learners, including students with special needs, students hailing from economically disadvantaged backgrounds, refugees, and marginalised communities, holds significant academic significance. Researchers can use quantitative and qualitative research methods like surveys, interviews, and observations to collect data and evaluate the effectiveness of the proposed modalities in the realm of Islamic education. Examining the current global utilization and adaptation of these new methods can help determine their practical effectiveness and potential applications. In order to enhance the effectiveness of Islamic education within the educational system, it is imperative to establish robust institutional support and engage in educational policy formulation. This will enable the integration of contemporary methodologies with fundamental Islamic principles and values, resulting in optimal advantages for both learners and their communities.

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REFERENCES

- Adnan, A. A. Z. (2021). The ulul albab thinking model for student development in institutions of higher education. *Turkish Journal of Computer and Mathematics Education*, 12(3), 469-475. <https://doi.org/10.17762/turcomat.v12i3.752>.
- Aflisia, N., Ahmad, N., & Suhartini, A. (2021). The urgency of theological foundations in Islamic education in the industry era 4.0 towards the society era 5.0. *International Journal of Education Research and Development*, 1(1), 60-77. <https://doi.org/10.52760/ijerd.v1i1.4>.
- Ahmed, F. (2021). Authority, autonomy and selfhood in Islamic education – theorising shakhsyah Islamiyah as a dialogical Muslim-self. *Educational Philosophy and Theory*, 53(14), 1520-1534. <https://doi.org/10.1080/00131857.2020.1863212>.
- Aini, D., Shofi, M., & Zuhriya, L. (2022). The portrait of educational philosophy through an analysis of Indonesian movie based on pesantren theme. *Pedagogik: Jurnal Pendidikan*, 9(1), 42-53. <https://doi.org/10.33650/pjp.v9i1.3104>.
- Al-Hidabi, D., & Abu-Owda, M. (2019). The effect of STEM curriculum based on Islamic perspective on 9th grade talented female students' critical thinking in Gaza. *International Journal of Elementary Education*, 8(4), 80-85. <https://doi.org/10.11648/j.ijeedu.20190804.11>.
- AlHouli, A., & Al-Khayatt, A. (2020). Assessing the soft skills needs of teacher education students. *International Journal of Education and Practice*, 8(3), 416-431. <https://doi.org/10.18488/journal.61.2020.83.416.431>.
- Altinyelken, H. (2021). Critical thinking and non-formal Islamic education: Perspectives from young Muslims in The Netherlands. *Contemporary Islam*, 15(3), 267-285. <https://doi.org/10.1007/s11562-021-00470-6>.
- Ananda, R., & Hayati, F. (2022). Influence of learning strategy and independence learning on the learning outcomes of Islamic education. *Journal of Education and Teaching Learning*, 4(2), 140-149. <https://doi.org/10.51178/jetl.v4i2.599>.
- As'ad, M. (2021). Adaptation into Islamic education 4.0: An approach to redesigning a sustainable Islamic education in the post pandemic era. *Akademika Jurnal Pemikiran Islam*, 26(1), 19-42. <https://doi.org/10.32332/akademika.v26i1.3122>.
- Asmuni, A. (2021). A critical study of al-Farabi philosophy implementation at education non Islamic higher education in Indonesia. *Dinamika Ilmu*, 491-500. <https://doi.org/10.21093/di.v21i2.3913>.
- Assalihee, M., & Boonsuk, Y. (2023). Teaching management strategies on 21st century islamic education for southernmost thai private islamic schools. *Anatolian Journal of Education*, 8(1), 13-28. <https://doi.org/10.29333/aje.2023.812a>.

- Dawi, M., & Harahap, A. (2022). Orientation and formulation of Islamic education philosophy learning materials in higher education in the context of the disruption era. *Al-Fikru Jurnal Ilmiah*, 16(2), 239-252. <https://doi.org/10.51672/alfikru.v16i2.132>.
- Fatoni, F., Susanto, I., Pratama, H., & Julaihah, S. (2021). Multicultural inclusive education in the deradicalization of Islamic education in Indonesia. *Tadris: Jurnal Keguruan dan Ilmu Tarbiyah*, 6(2), 401-408. <https://doi.org/10.24042/tadris.v6i2.10246>.
- Febriansyah, F., Daroini, A., & Widowati, W. (2019). The role of Islamic education in student organizations to realize human resources in the review of higher education law perspectives. *Al-Hayat Journal of Islamic Education*, 3(1), 61-67. <https://doi.org/10.35723/ajie.v3i1.51>.
- Giancaspro, M. L., & Manuti, A. (2021). Learning to be employable through volunteering: A qualitative study on the development of employability capital of young people. *Frontiers in Psychology*, 12, 574232. <https://doi.org/10.3389/fpsyg.2021.574232>.
- Granado-Alcón, M. D. C., Gómez-Baya, D., Herrera-Gutiérrez, E., Vélez-Toral, M., Alonso-Martín, P., & Martínez-Frutos, M. T. (2020). Project-based learning and the acquisition of competencies and knowledge transfer in higher education. *Sustainability*, 12(23), 10062. <https://doi.org/10.3390/su122310062>.
- Gyasi, J. F., Zheng, L., & Zhou, Y. (2021). Perusing the past to propel the future: A systematic review of STEM learning activity based on activity theory. *Sustainability*, 13(16), 8828. <https://doi.org/10.3390/su13168828>.
- Hadi, N. (2022). Critical reasoning Islamic religious education and the challenges of national democracy in pluralist countries. *Journal of Social Research*, 1(2), 69-80. <https://doi.org/10.55324/josr.v1i2.20>.
- Haidir, H., Arizki, M., & Fariz, M. (2021). An innovation of Islamic religious education in the era of the industrial revolution 4.0 in elementary school. *Nazhruna: Jurnal Pendidikan Islam*, 4(3), 720-734. <https://doi.org/10.31538/nzh.v4i3.1688>.
- Hakiman, H., Sumardjoko, B., & Waston, W. (2021). Religious instruction for students with autism in an inclusive primary school. *International Journal of Learning Teaching and Educational Research*, 20(12), 139-158. <https://doi.org/10.26803/ijlter.20.12.9>.
- Hamdi, Rizal, S. U., Anshari, M. R., & Hikmah, N. (2022). Utilization of digital learning media in Islamic education to increase literacy and innovation in the era of modern technology. In *Proceeding of Saizu International Conference on Transdisciplinary Religious Studies*, 48-55. <https://doi.org/10.24090/icontrees.2022.228>.
- Hanafy, Y. (2020). The changing of Islamic education curriculum paradigm in public universities. *Al-Ta'lim*, 26(3), 243-253. <https://doi.org/10.15548/jt.v26i3.552>.
- Hapidin, A., Natsir, N., & Haryanti, E. (2022). The challenge of science in Islamic education in era 4.0. *Jurnal Alwatzikhoebillah Kajian Islam Pendidikan Ekonomi Humaniora*, 8(1), 41-57. <https://doi.org/10.37567/alwatzikhoebillah.v8i1.995>.
- Huda, S., Ahid, N., Tortop, H., Lestari, F., & Prasetyo, A. (2022). The role of Islamic education as the first step moral education in era society 5.0: Implications for Indonesian and Turkish education systems. *Jurnal Iqra*, 7(1), 77-87. <https://doi.org/10.25217/ji.v7i1.1947>.
- Husein, S., Abdullah, N., & Al-Hidabi, D. (2022). Enhancing the development of students' Islamic identity in Islamic higher education. *Progresiva: Jurnal Pemikiran dan Pendidikan Islam*, 11(02), 87-103. <https://doi.org/10.22219/progresiva.v11i02.23094>.
- Idris, W. I. S., Razak, R. A., Halili, S. H., Rahman, S. S. A., & Hamzah, H. (2019). Revamping the design of preschoolers Islamic education by integrating Islamic design principles and cognitive theory of multimedia learning: A needs assessment study. *Sains Humanika*, 11(3). <https://doi.org/10.11113/sh.v11n3.1353>.
- Imamuddin, M., Zaharuddin, M., Andryadi, A., Isnaniah, I., & Artika, F. (2022). The era of industrial revolution 4.0 and the existence of Islamic education. *Tadris: Jurnal Pendidikan Islam*, 17(1), 198-210. <https://doi.org/10.19105/tjpi.v17i1.5178>.
- Ishaaq El-Mubarak, A. M. O., & Hassan, I. (2021). Challenges of Islamic education in the era of globalization: A proposed holistic solution. *International Journal of Academic*

- Research in Progressive Education and Development*, 10(3), 337-349. <https://doi.org/10.6007/ijarped/v10-i3/10748>.
- Kejora, S. (2021). Strategic management of public relations in Islamic education institutions to build public image and increase public interest. *Jurnal Manajemen Pendidikan Islam*, 5(2), 112-120. <https://doi.org/10.18860/jmpi.v5i2.9011>.
- Khairiyah, U., & Faizah, S. (2019). The effectiveness of using the Islamic integration module on the critical thinking ability of madrasah ibtidaiyah students. *Prisma Sains: Jurnal Pengkajian Ilmu dan Pembelajaran Matematika dan IPA IKIP Mataram*, 7(2), 180-191. <https://doi.org/10.33394/j-ps.v7i2.1780>.
- Loureiro, P., Dieguez, T., & Ferreira, I. (2022). Higher education as a driver for sustainable transformation and leadership. *International Journal of Multidisciplinary Research and Growth Evaluation*, 3(4), 270-277. <https://doi.org/10.54660/anfo.2022.3.4.13>.
- Lovat, T. (2022). Gifted education and Islamic educational philosophy: A neat convergence. *Gifted Education International*, 39(1), 47-60. <https://doi.org/10.1177/02614294221125555>.
- Mainga, W., Murphy-Braynen, M. B., Moxey, R., & Quddus, S. A. (2022). Graduate employability of business students. *Administrative Sciences*, 12(3), 72. <https://doi.org/10.3390/admsci12030072>.
- Malik, M., & Maslahah, M. (2021). Revitalization of the concept of educational axiology: Perspectives of Islamic philosophy. *Belajea Jurnal Pendidikan Islam*, 6(2), 121-134. <https://doi.org/10.29240/belajea.v6i2.2590>.
- Mas'ud, A., Fuad, A., & Zaini, A. (2019). Evolution and orientation of Islamic education in Indonesia and Malaysia. *Journal of Indonesian Islam*, 13(1), 21-49. <https://doi.org/10.15642/jiis.2019.13.1.21-49>.
- Mayombe, C. (2023). Promoting youths' skills acquisition through experiential learning theory in vocational education and training in South Africa. *Higher Education, Skills and Work-Based Learning*, 14(1), 130-145. <https://doi.org/10.1108/heswbl-10-2022-0216>.
- Mesfer Alwadai, M. A., & Mohammed Alhaj, A. A. (2023). Investigating the role of the Islamic culture course syllabi in infusing Islamic tolerant moral values among university students: Staff members' perspectives at King Khalid University. *Technium Social Sciences Journal*, 40, 71-83. <https://doi.org/10.47577/tssj.v40i1.8426>.
- Mizani, Z. M. (2022). Inclusive-pluralistic Islamic religious education model as an alternative to investing the values of religious moderation. *Muslim Heritage*, 7(2), 487-504. <https://doi.org/10.21154/muslimheritage.v7i2.5018>.
- Muhlisin, M. and Syaifuddin, M. (2020). The implementation of integrated islamic education model at man insan cendekia pekalongan. *Edukasia Islamika*, 68. <https://doi.org/10.28918/jei.v5i1.2559>.
- Musalim & Hatta. (2020). Inovasi pengembangan kurikulum PAI di Sekolah Menengah Pertama Raudatut Tholabah berbasis pesantren. *Journal of Islamic Education Research*, 1(02), 1-14. <https://doi.org/10.35719/jier.v1i02.23>.
- Nurhalisa, S., Musayadah, A., Syarifah, N., Puspitasari, A., Nasikhin, N., & Junaedi, M. (2022). The urgency of Islamic philosophy for education in elementary school. *Jasna: Journal for Aswaja Studies*, 2(2), 31-40. <https://doi.org/10.34001/jasna.v2i2.3707>.
- Ramli, M. (2022). Designing Islamic religious education teaching based on digital innovation creativity at Universitas Islam Negeri Antasari Banjarmasin. *Jurnal Iqra*, 7(1), 344-354. <https://doi.org/10.25217/ji.v7i1.1573>.
- Resufle, A., & Rofiki, M. (2022). Management of Islamic education in the challenges of society 5.0. *Edukatif Jurnal Ilmu Pendidikan*, 4(3), 4578-4588. <https://doi.org/10.31004/edukatif.v4i3.2820>.
- Riinawati, R. (2022). The concept of Islamic education management from the perspective of the Qur'an and al-hadith. *Tafkir Interdisciplinary Journal of Islamic Education*, 3(2), 148-162. <https://doi.org/10.31538/tijie.v3i2.124>.

- Setiawan, A. (2019). Implementation of Islamic education study program learning based on blended learning in the industrial era 4.0 at IAIN Samarinda. *Dinamika Ilmu*, 305-321. <https://doi.org/10.21093/di.v19i2.1781>.
- Sewang, A. (2023). Curriculum development innovations of islamic education subject at SMA Negeri 3 Parepare. *Ta'dib*, 27(2), 121-131. <https://doi.org/10.19109/td.v27i2.14331>.
- Sholikhin, A. (2023). Innovation of Islamic education (multisite study at Madrasah Aliyah Pesantren Al-Amin and Madrasah Aliyah Darul Hikmah, Mojokerto Regency). *Journal of World Science*, 2(1), 84-98. <https://doi.org/10.58344/jws.v2i1.114>.
- Sidek, L., Taat, M., & Shariff, S. (2023). Islamic education in Malaysia: Concept, philosophy and objectives. *International Journal of Academic Research in Progressive Education and Development*, 12(1), 1527-1533. <https://doi.org/10.6007/ijarped/v12-i1/16697>.
- Sofanudin, A., Fanani, A., & Prihastuty, R. (2021). Islamic education and Islamic revivalism in Indonesia: A case study of Kuttub Al-Fatih Purwokerto. *Analisa: Journal of Social Science and Religion*, 6(01), 113-128. <https://doi.org/10.18784/analisa.v6i01.1291>.
- Sokolovskaya, I., Zekrist, R., & Shagapov, A. (2021). Reconstruction of Islamic philosophy as a perspective for sustainable development of vocational education. *SHS Web of Conferences*, 128, 05013. <https://doi.org/10.1051/shsconf/202112805013>.
- Ştefan, S., Popa, I., & Mircioiu, C. (2023). Lessons learned from online teaching and their implications for students' future careers: Combined PLS-SEM and IPA approach. *Electronics*, 12(9), 2005. <https://doi.org/10.3390/electronics12092005>.
- Suhid, A., Naser, M., Ahmad, A., Abah, N., Jusoh, R., & Zaremohzzabieh, Z. (2021). Challenges and readiness of Islamic education teachers in innovative teaching and learning. *Jurnal Ilmiah Peuradeun*, 9(2), 293-308. <https://doi.org/10.26811/peuradeun.v9i2.588>.
- Suyadi, S., & Widodo, H. (2019). Millennialization of Islamic education based on neuroscience in the third generation university in Yogyakarta Indonesia. *Qudus International Journal of Islamic Studies*, 7(1), 173-202. <https://doi.org/10.21043/qijis.v7i1.4922>.
- Syaifullah, A., & Surawardi, S. (2020). Wasaka concept implementation in Islamic education towards Banjar society of South Kalimantan in 4.0 era. *Khalifa: Journal of Islamic Education*, 4(1), 32-48. <https://doi.org/10.24036/kjie.v4i1.53>.
- Veld, I., & Nagenborg, M. (2019). It's getting personal: The ethical and educational implications of personalised learning technology. *Journal of Philosophy in Schools*, 6(1), 44-62. <https://doi.org/10.21913/jps.v6i1.1567>.
- Wahyudiati, D. (2022). Implementation of Islamic education concept in ethnochemistry. *Jurnal Tarbiyatuna*, 13(1), 19-28. <https://doi.org/10.31603/tarbiyatuna.v13i1.5310>.
- Wajdi, M. (2022). Philosophy of Islamic education in the context of pesantren; An analytical study. *EduTec Journal of Education and Technology*, 6(2), 556-568. <https://doi.org/10.29062/edu.v6i2.583>.
- Welter, V. D. E., Emmerichs-Knapp, L., & Krell, M. (2023). Are we on the way to successfully educating future citizens?—a spotlight on critical thinking skills and beliefs about the nature of science among pre-service biology teachers in germany. *Behavioral Sciences*, 13(3), 279. <https://doi.org/10.3390/bs13030279>.
- Yatim, N., Nasharudin, N., Samsudin, N., Said, S., & Tarsik, N. (2019). Recognizing the personal competencies of future information professionals. *Acta Informatica Malaysia*, 3(1), 21-23. <https://doi.org/10.26480/aim.01.2019.21.23>.
- Yunus, R., Hasan, M., & Esa, N. (2021). Rethinking public health pedagogy in Muslim countries postcolonially. *Bangladesh Journal of Integrated Thoughts*, 17(1), 43-55. <https://doi.org/10.52805/bjit.v17i1.190>.

THE ELEMENTS OF EXEMPLARY BEHAVIOUR AMONG EXCELLENT LECTURERS OF ISLAMIC EDUCATION IN POLYTECHNICS

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ABSTRACT

This article discusses the elements of exemplary behaviour among the Islamic Education Lecturers (IELs) in teaching and learning (TnL) in polytechnics. This study was fully conducted through qualitative method via case study. Six IELs were selected as participants and willing to be interviewed, and the data from the interview were supported by three Heads of Islamic Education Unit, 12 lecturers and 12 students. Then, the data were triangulated with the data obtained through observation and document analysis. This study has used N'Vivo software to generate a pattern of themes and characteristics of the exemplary behaviour in TnL in polytechnics. The result found that there were six elements of exemplary behaviour practised by the IELs in TnL. All elements formed a pattern. That five elements were; reminding people about religion, establishing good relationship, lecturers as role model, avoid slandering and contolling lust, oberving words and be responsible towards parents and spouses.

Keywords: Exemplary Behaviour, Excellent Lecturers of Islamic Education, Polytechnics

1.0 INTRODUCTION

Islamic teachings place morality as one of the pillars in establishing religion (Khadijah & Tengku Norhayati, 2011; Ramli et al., 2012). Islam also outlines specific moral and etiquette characteristics that must be demonstrated by educators teaching religion, such as Islamic Education teachers or lecturers. According to Sapie et al. (2011), personality or character represents the individual's personal traits, which include tendencies to behave in a certain manner. From the perspective of Islamic Education, Hasbullah et al. (2020) state that the role of teachers is very important because Islamic Education is the foundation for character development and human construction. The duties and responsibilities of educators today extend beyond merely delivering education; they are also responsible for shaping the character of their students (Suhaili & Siti Syuhada, 2011; Noornajihan & Ab. Halim, 2012; Sarimah et al., 2012; Karso, 2019; Afifah & Muhammad, 2021) and creating a balanced

generation in terms of physical, emotional, spiritual, and intellectual aspects (Syahirah et al., 2022).

Generally, since stepping into the realm of schooling, students heavily depend on the guidance of teachers (Mohamad Khairi & Asmawati, 2010; Noornajihan & Ab. Halim, 2012; Alif Lukmanul Hakim, 2022). This is because a significant amount of their time is spent with teachers both in and out of school (Sarimah et al., 2012).

From the perspective of society, the tasks of religious educators are unbearable as they are responsible for bringing the community back to true religious practices (Tengku Sarina Aini & Faridah, 2008; Rizki Zamzari, 2021). This is supported by many researchers (Zaharah, 2005; Ab. Halim & Mohamad Khairul Azman, 2010; Abdull Sukor, 2010; Sapie Sabilan et al., 2011; Sarimah et al., 2012). According to Syafiqah Solehah and Tengku Sarina Aini (2018), educators in society are considered role models for workers. The good personality or character of educators will have a significant impact and bring about great change (Sapie et al., 2011; Noornajihan & Ab. Halim, 2012). This change leads to the formation of intellectuals who are skilled, dynamic, progressive, innovative, and balanced in terms of their intellectual, physical, and spiritual aspects.

Moreover, they should be able to appreciate their profession as an act of worship towards achieving success. Overall, the character and personality of Excellent Islamic Education Lecturers (IELS) in polytechnics are crucial as reference individuals, particularly in religious matters and generally in social issues for fellow lecturers and students.

2.0 PROBLEM STATEMENT

Various efforts have been undertaken to strengthen the capability and credibility of excellent academic staff in polytechnics. However, several issues still need addressing. The demands of religious teachings that urge the community to strive towards goodness, the threats of secularism, the onslaught of globalization, the turmoil of social issues, and the identity crisis among students underscore the critical need for excellent Islamic Education Lecturers (IELs). These excellent lecturers can become close role models for their peers and students in terms of attitudes and personalities.

Furthermore, the problems that arise have become burdens and challenges to the teaching profession. It is crucial for educators to resolve all occurring issues to ensure that the planned teaching and learning processes can be executed in the best possible manner. This situation requires the presence of an excellent educator, as stated by Nur Hafizoh and Rohana (2013), "quality teachers can produce quality individuals."

Following this, an educator should provide high-quality services and possess a broad and deep range of skills (Saipo 2005; Ahmad Firdaus et al. 2017; Andrew Emparan et al. 2019). This is also stated by Abdul Jalil (2007), Ishak Abdul Rahman & Ainul Afzan Ramli (2021), that the need for quality educators is crucial in producing quality students. However, Chee (2008) study contradicts these requirements. He found that the failure of trained educators to demonstrate that they are truly professional is not achieved because they cannot control the problems faced in the classroom. Common issues include difficulty in controlling students, negative student attitudes, lack of interest in learning, passivity, and failure to understand the lessons taught. This leads educators to adopt an indifferent stance. This is supported by Syed Najmuddin et al. (2009) and Norfarahi Zulkifli et al. (2021), who found that some Islamic Education Lecturers engage in misconduct such as neglecting duties, lack of commitment to work, lack of dedication, and insufficient religious leadership skills.

3.0 RESEARCH OBJECTIVES AND QUESTIONS

This study was conducted to evaluate and determine the elements of exemplary behaviour demonstrated by Excellent Islamic Education Lecturers (EIELs) inside and outside the classroom. Therefore, the research question is:

What are the elements of exemplary behaviour demonstrated by Excellent Islamic Education Lecturers (EIELs) inside and outside the classroom?

4.0 RESEARCH METHODOLOGY

To meet the objectives and answer the research question, the researcher chose a case study using a qualitative approach. The researcher selected a case study design with a fully qualitative method. Many researchers have used case studies in their research designs (Kamarul Azmi, 2010; Abdul Razaq et al., 2010; Ahmad Yunus & Ab. Halim 2010; Faridah & Mohini 2012; Kamarul Azmi & Nazirah, 2012; Rozita Radhiah & Abdul Rasid, 2012; Mohamad Ziyad & Izuddin, 2012; Jennifer & Robert, 2012).

To support the data, observations were made on the research samples and document analysis was conducted on relevant documents. To further strengthen the data, field notes and diaries were used. The field note method has also been utilized by Kamarul Azmi (2010), Inglis and Cook (2011), Lee (2012), and Mohd. Azhar (2012) in their research. Through a qualitative approach and the methods used, the researcher will comprehensively examine all the characteristics and elements of intrapersonal skills within the Excellent Islamic Education Lecturers (IELS).

This study selected six participants for interviews. The selected participants met the following criteria: (1) over seven years of teaching experience, (2) qualifications at least at the master's level, (3) promotion received through the polytechnic lecturer excellence criteria evaluation process, (4) holding a position of at least grade DH 44, (5) selected by the Head of the Islamic and Moral Education Unit, (6) recipients of the Excellent Service Award (APC). The results of these interviews were transcribed for thematic analysis using the N'Vivo 7.0 software.

5.0 FINDINGS AND DISCUSSION

The following Table 1 illustrates the findings from thematic analysis.

Table 1. Exemplary Behaviour IELS1-IELS6

No.	Exemplary Behaviour	IELS1	IELS2	IELS3	IELS4	IELS5	IELS6
1.	Giving Religious Reminders	x	x	x	x	x	x
2.	Good Interactio	x	x	x	x	x	x
3.	Lecturers as Role Models	x	x	x	x	x	x
4.	Good Speech	x	x	x	x	x	x
5.	Avoiding Slander and Controlling Desires	x	x	x	x	x	x
6.	Responsibility Towards Parents and Spouses	x	x	x	x	x	x

Based on Table 1, it is shown that all these exemplary behaviours reach saturation level. The following exemplary behaviours are organised from the highest level of saturation to the lowest.

4.1 Giving Religious Reminders

The highest level of exemplary behaviour as emphasized by IELS is 'giving religious reminders'. This is acknowledged by IELS students: "She's like a religious teacher, gives a lot of religious values, gives advice" (P2IELS2: 254). According to Ariyanto (2019), among the things that Islamic Education teachers can do is to provide good guidance and advice, encourage congregational prayers, self-reflection programs, remembrance, and religious activities as a way to approach students.

4.2 Good Interaction

Followed by 'good interaction', IELS student mentioned, "we male students are quite close to ustaz. If we meet at the café, we eat together with the ustaz as usual, hehe" (P2IELS4: 125). This practice is highly appreciated by the students and can shape their behavior. This statement has been mentioned by Moskowitiz et al., (2022) that positive effects on students' behavior can be formed through the friendly attitude of teachers towards students.

4.3 Lecturers as Role Models

According to Sofiah et al. (2016), to face today's challenging life, suitable role models to follow are teachers or lecturers. Indeed, lecturers are the closest individuals to students and should demonstrate exemplary personalities and characters that can be emulated by students and even fellow lecturers. This is acknowledged by IELS colleagues, stating "and he also sets an example and for me, he's a role model that can be emulated" (RP2IELS: 59).

4.4 Good Speech

This exemplary behaviour of 'good speech' as mentioned by IELS students, "Ustaz's speech is always courteous, never harsh or hurtful to the students' feelings" (P1IELS6: 210). This is in line with Nur Hidayyah's (2019) view that to develop pure values in line with Islamic teachings towards students, good communication and polite speech are needed to shape noble morals among students.

4.5 Avoiding Slander and Controlling Desires

Next is 'avoiding slander and controlling desires'. This behavior acts as a shield for IELS from falling into bad and futile matters. This simultaneously shapes an individual with noble character (Kamarul Azmi et al., 2017). This attitude is described by a IELS colleague who admires the qualities present in IELS, stating: "As far as I know, she's a polite person, and she can control herself from desires, because, as I say, for example, when we go out when the salary comes, we go out and look at scarves or something, if she buys, she doesn't buy a lot, she restrains herself from desires, can determine what is good and bad" (RP2IELS2: 71)

4.6 Responsibility Towards Parents and Spouses

The final exemplary behaviour demonstrated by IELS is 'responsible towards parents and spouses'. IELS needs to manage time wisely between work demands, family, and parents. This is stated by IELS: "Dad has passed away, only mum is left in the village, sometimes in a month, I have a Sunday that I set aside to go back, if I'm not well, I go back by bus, once a month or so" (IELS4: 523). This is in line with Zaiton & Mohd Roslan's (2019) statement, based on the family life context, the quality of life will be affected when an individual fails to manage themselves well. Allah S.W.T. has emphasized that being good to parents and family members is a primary religious demand. Allah's saying: "Serve Allah, and join not any

partners with Him; and do good to parents, kinsfolk, orphans, those in need, neighbours who are near, neighbours who are strangers, the companion by your side, the wayfarer (ye meet), and what your right hands possess: For Allah loveth not the arrogant, the vainglorious." (Surah al-Nisa', 4: 36)

5.0 IMPLICATION AND SUGGESTION

Based on the research findings, the researcher has developed a model called the Model of Outstanding Moral Demands (MTACIELS). This model is depicted as shown in the Figure.



Fig. 1 Model of Exemplary Behaviour for Islamic Education Lecturers

Based on Figure 1, all the elements of exemplary behaviour listed can be practiced within and outside the Teaching and Learning Process (TLP) for Islamic Education lecturers in polytechnics. The understanding and practice ideally among IELS will reflect the values and dignity of religious teachers among lecturers and students in polytechnics.

6.0 CONCLUSION

Based on this study, the researcher has discussed the objectives, methodology, findings, and discussion of the case study of the excellent moral demand elements of Outstanding Islamic Education Lecturers (IELS) in polytechnics. The results of the study's findings successfully produced the Model of Exemplary Behaviour for Islamic Education Lecturers which is found within the implications of this study. Therefore, Islamic Education lecturers need to pay attention so that their personalities and commendable morals can be highlighted, thus elevating the dignity of religious teachers and setting an example for other staff members.

REFERENCES

- Ariyanto. (2019). Strategi guru pai dalam menanggulangi dampak pergaulan bebas siswa di smp negeri 28 seluma. *An-Nizom*,4(3).
- Ab. Halim & Mohamad Khairul Azman. (2010). Amalan pengajaran guru pendidikan Islam berkesan berteraskan konsep Mu'allim. *Journal of Islamic and Arabic Education*, 2(1), 43-56.
- Abd. Shukor Shaari .(2000). Tingkah laku pengajaran dan kualiti peribadi pensyarah universiti. *Seminar Penyelidikan UUM 2000*. Pusat Penyelidikan dan Perundingan, Universiti Utara Malaysia, Sintok, 438-453.
- Abdul Jalil Othman. (2007). Quality teachers for today and tomorrow. *Jurnal Masalah Pendidikan*,30(2), 169-173.
- Abdul Razaq Ahmad, Anisa Saleha, Zaliza Mohd Jelas & Ahmad Ali Seman. (2010). Kepelbagaian Pelajar dan sekolah: satu kajian kes di negeri Pahang. *Jurnal Pendidikan Malaysia*, 35(2),87-95.
- Afifah Fatihakun Ni'mah Wahidah & Muhammad Alfatih Suryadilaga.(2021). Urgensi Pendidikan anak usia dini dalam perspektif hadits di masa pandemi coronavirus. *Journal of Early Childhood Education and Development*, 3(1), 1-14.
- Ahmad Firdaus Mohd Noor, Kamarul Azmi Jasmi, Khairunnisa A Shukor.(2017). Elemen kemahiran pensyarah cemerlang pendidikan islam di politeknik premier: Satu kajian rintis. *O-JIE The Online Journal of Islamic Education*,2(2), 96-106.
- Ahmad Yunus Kasim & Ab.Halim Tamuri.(2010). Pengetahuan Pedagogikal Kandungan (PPK) pengajaran akidah: Kajian kes guru cemerlang pendidikan Islam. *Journal of Islamic and Arabic Education*,2(2), 23-30.
- Alif Lukmanul Hakim. (2022). *Memadukan nilai kehidupan: Antologi essai kehidupan dan berbangsa*. Pemimpi SEGAP Pustaka.
- Andrew Emparan, Rozita Radhiah Said & Roselan Baki .(2019). Meneroka penggunaan teknik flipped classroom dalam pengajaran kemahiran menulis. *International Journal of Education and Training (InJET)*, 5(1),1-8.
- Chee, K.M. (2008). Kualiti guru permulaan keluaran sebuah institut perguruan: Satu tinjauan dari perspektif pentadbir sekolah. *Jurnal Pendidik dan Pendidikan*,23, 49-67.
- Faridah Sulaiman & Mohini Mohamed. (2012). Kerangka pengetahuan guru cemerlang matematik dan bagaimana ia digunakan bagi memilih contoh dalam pengajaran matematik. *Asia Pacific Journal of Educators and Education*,27,69-86.
- Hasbullah Mat Daud, Ahmad Yussuf&Fakhrul Adabi Abdul Kadir. (2020). Pembentukan akhlak dan sahsiah pelajar melalui pembelajaran sosial menurut perspektif Islam. *e-Bangi Journal of Social Sciences and Humanities*, 17(9),75-89.
- Inglis, P. & Cook, T. (2011). Ten top tips for effectively involving people with a learning disability in research. *Journal of Learning Disabilities and Offending Behaviour*,2(2), 98 - 104.
- Ishak Abd Rahman & Ainul Afzan Ramli. (2021). isu dan cabaran dalam pelaksanaan pendidikan peringkat rendah dan menengah: Pendekatan Malaysia semasa pandemik covid-19. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 6(9),1 – 13.
- Jennifer L. J.,& Robert St. H. (2012). Creating significant learning experiences: A case study in the college religion classroom. *The Journal of Effective Teaching*,12(3), 34-43.
- Kamarul Azmi Jasmi.(2010). *Guru cemerlang pendidikan Islam sekolah menengah di Malaysia: Satu kajian kes*[Doctoral theses,Universiti Kebangsaan Malaysia].
- Kamarul Azmi Jasmi & Nazirah Hamdan. (2012). Sifat keperibadian guru cemerlang Pendidikan Islam (GCPI) kepada rakan setugas dan pihak atasan di sekolah: Satu kajian kes. *Proceedings World Conference On Islamic Thought: 2012(WCIT 2012)*.
- Kamarul Azmi Jasmi, Siti Fauziyani Md Saleh @ Masrom&Siti Suraini Razali. (2017). Peranan

- Islam dalam membentuk peribadi remaja cemerlang. *Remaja Hebat: Akhlak Sebagai Dasar Pembangunan Remaja Muslim*, 2, 1-18.
- Karso. (2019). Keteladanan Guru dalam proses pendidikan di sekolah. *Prosiding Seminar Nasional Pendidikan Program Pascasarjana*, 382-397.
- Khadijah Abdul Razak & Tengku Norhayati Tengku Othman. (2011). Profesionalisme guru Pendidikan Islam: Konsep dan amalan. *Proceeding International Conference and Exhibition on Research in Islamic and Arabic Language Education 2011 (ICERIALE 2011)*, 453-462.
- KUIELS3. (2014). *Teks temu bual bersama KUIELS3*. Temu bual diadakan pada jam 04.15 petang bertarikh 12.03.2014 di Bilik Ketua Kursus Unit Agama dan Moral.
- KUIELS5. (2014). *Teks Temu bual bersama KUIELS5*. Temu bual diadakan pada jam 11.00 pagi bertarikh 10.09.2014 di Bilik Ketua Kursus Unit Agama dan Moral.
- KUIELS5. (2014). *Teks temu bual bersama KUIELS5*. Temu bual diadakan pada jam 11.00 pagi bertarikh 10.09.2014 di Bilik Ketua Kursus Unit Agama dan Moral.
- Lee, Y.L. (2012). *A qualitative study of out-of-class learning opportunities among first year ESL freshmen in a college town* [Theses]. <https://etd.ohiolink.edu/> pada 5 Oktober 2015.
- Mohd. Azhar Abd. Hamid. (2012). *Pengalaman transformasi perspektif individu Cina Muslim terhadap Agama Islam di Johor Bahru* [Doctoral theses, Universiti Teknologi Malaysia].
- Mohamad Khairi Othman & Asmawati Suhid. (2010). Peranan sekolah dan guru dalam pembangunan nilai pelajar menerusi penerapan nilai murni: Satu sorotan. *MALIM-SEA Journal of General Studies*, 11.
- Mohamad Ziyad Mukhtar & Izuddin Muhammed. (2012). Penguasaan asas bahasa arab dalam kalangan pelajar program persediaan Ijazah Sarjana Muda Perguruan (PPISMP) Guru Sandaran Tidak Terlatih (GSTT)-Pendidikan Agama Islam (PAI): Satu kajian kes. *Persidangan Kebangsaan Pendidikan Islam 2012 (PKPI 2012)*, 1-22.
- Moskowitz, S., Dewaele, Jean-Marc & Resnik, P. (2022). Beyond the boundaries of the self: applying relational theory towards an understanding of the teacher-student relationship as a driver of motivation in foreign language learning. *Journal for the Psychology of Language Learning*, 4 (2), 1-17.
- Nur Hidayyah Sanni Putri. (2019). *Implementasi komunikasi efektif (Teknik 5s Senyum, Salam, Sapa, Sopan, Santun) guru Pendidikan Agama Islam dalam membentuk akhlak islami siswa di SMP Muhammadiyah 01 Program Khusus Boyolali* [Degree theses, Universitas Muhammadiyah Surakarta].
- Noornajihan Jaafar & Ab. Halim Tamuri. (2012). Efikasi sendiri: Satu keperluan guru Pendidikan Islam sebagai Murabbi. *Proceeding of International Conference on Research in Islamic and Arabic Language Education 2012 (ICERIALE 2012)*, 303-314.
- Norfarahi Zulkifli, Mohd Isa Hamzah & Khadijah Abdul Razak. (2021). Kemahiran pensyarah Pendidikan Islam Dalam proses pengajaran dan pembelajaran di politeknik. *ASEAN Comparative Education Research Journal on Islam and Civilization (ACER-J)*, 4(2), 1-15.
- Nur Hafizoh Idris & Rohana Hamzah. (2013). Nilai profesionalisme bakal guru berteraskan indikator Standard Guru Malaysia (SGM). *Jurnal Teknologi*, 60, 31-37.
- P1IELS1. (2014). *Teks Temu Bual Bersama P1IELS1 dan P2IELS1*. Temu bual diadakan pada jam 09.00 pagi bertarikh 06.01.2014 di Bilik Perbincangan Perpustakaan PO1.
- P1IELS3. (2014). *Teks Temu Bual Bersama P1IELS3 dan P2IELS3*. Temu bual diadakan pada jam 03.00 petang bertarikh 11.03.2014 di Bilik Perbincangan Perpustakaan PO2.
- P2IELS2. (2014). *Teks Temu Bual Bersama P1IELS2 dan P2IELS2*. Temu bual diadakan pada jam 09.30 malam bertarikh 07.01.2014 di Surau Kamsis PO1.
- P2IELS4. (2014). *Teks Temu Bual Bersama P1IELS4 dan P2IELS4*. Temu bual diadakan pada jam 02.30 petang bertarikh 13.03.2014 di Bilik Perbincangan Perpustakaan PO2.

- P1IELS6. (2014). *Teks Temu Bual Bersama P1IELS6 dan P2IELS6*. Temu bual diadakan pada jam 11.30 pagi bertarikh 05.09.2014 di Bilik Perbincangan Perpustakaan PO3.
- IELS1. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. Dalam Ahmad Firdaus Mohd Noor, Kajian Lapangan Ph.D. Bilik Pensyarah, Politeknik Sultan Azlan Shah Tanjung Malim: FTI, UTM. 1-18.
- IELS2. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. Dalam Ahmad Firdaus Mohd Noor, Kajian Lapangan Ph.D. Bilik Pensyarah, Politeknik Sultan Azlan Shah Tanjung Malim: FTI, UTM. 1-18.
- IELS3. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. Dalam Ahmad Firdaus Mohd Noor, Kajian Lapangan Ph.D. Bilik Pensyarah, Politeknik Sultan Azlan Shah Tanjung Malim: FTI, UTM. 1-18.
- IELS4. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. Dalam Ahmad Firdaus Mohd Noor, Kajian Lapangan Ph.D. Bilik Pensyarah, Politeknik Sultan Azlan Shah Tanjung Malim: FTI, UTM. 1-18.
- IELS5. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. Dalam Ahmad Firdaus Mohd Noor, Kajian Lapangan Ph.D. Bilik Pensyarah, Bilik Pensyarah, Politeknik Sultan Salahuddin Abdul Aziz Shah Shah Alam: FTI, UTM. 1-18.
- IELS6. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. Dalam Ahmad Firdaus Mohd Noor, Kajian Lapangan Ph.D. Bilik Pensyarah, Politeknik Sultan Salahuddin Abdul Aziz Shah Shah Alam: FTI, UTM. 1-19.
- Ramli Awang, Mohd Nasir Ripin & Zulkiflee Haron. (2012). *Kemahiran Generik Menurut Perspektif Islam*. Penerbit Universiti Teknologi Malaysia.
- Rizki Zamzari (2021) *Usaha guru pendidikan agama Islam dalam pembinaan akhlak siswa di SMPN 1 Samadua Aceh Selatan* [Theses,UIN Ar-raniry].
- RP1IELS1. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. In Ahmad Firdaus Mohd Noor [Case study, Politeknik Ungku Omar Ipoh], 1-15.
- RP2IELS1. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. In Ahmad Firdaus Mohd Noor [Case study, Politeknik Ungku Omar Ipoh], 1-15.
- RP1IELS2. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. In Ahmad Firdaus Mohd Noor [Case study, Politeknik Ungku Omar Ipoh], 1-15.
- RP2IELS2. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. In Ahmad Firdaus Mohd Noor [Case study, Politeknik Ungku Omar Ipoh], 1-15.
- RP1IELS3. (2014). *Teks Temu bual Bersama RP1IELS3*. Temu bual diadakan pada jam 03.00 petang bertarikh 12.03.2014 di Bilik Ketua Kursus Unit Bahasa.
- RP1IELS4. (2014). *Teks Temu bual Bersama RP2IELS4*. Temu bual diadakan pada jam 11.00 pagi bertarikh 13.03.2014 di Kafetaria PO2.
- RP2IELS4. (2014). *Teks Temu bual Bersama RP2IELS4*. Temu bual diadakan pada jam 11.00 pagi bertarikh 13.03.2014 di Kafetaria PO2.
- RP2IELS6. (2014). Ciri-ciri Kecemerlangan Pensyarah Pendidikan Islam Politeknik. Dalam Ahmad Firdaus Mohd Noor, Kajian Lapangan Ph.D. Bilik Pensyarah, Politeknik Sultan Salahuddin Abdul Aziz Shah Shah Alam: FTI, UTM. 1-15.
- Rozita Radhiah Said & Abdul Rasid Jamian.(2012). Amalan pengajaran karangan guru cemerlang di dalam bilik darjah: Kajian Satu kes pelbagai lokasi. *Asia Pacific Journal of Educators and Education*,27, 51-68.
- Sofiah Mohamed, Kamarul Azmi Jasmi&Muhammad Azhar Zailani. (2016). Akhlak Guru dalam pengajaran dan pembelajaran Pendidikan Islam. *Akademika*, 86(2),31-42.
- Saipo Ayub (2005). Guru menghadapi perubahan. *Jurnal Institut Perguruan Islam*.
- Sapie Sabilan, Mohamad Fuad Ishak, Suhana Mohamad Kip & Mohd. Shahril Ahmad Razimi.(2011). Membangun Personaliti insan guru dan hubungannya dengan kepuasan kerja. *Proceeding International Conference and Exhibition on Research in Islamic and Arabic Language Education (ICERIALE) 2011*, 913-920.
- Sarimah Mokhtar, Ab. Halim Tamuri, Mohd Kashfi Mohd Jailani, Mohd Aderi Che Noh & Muhammad Mursyid Mohd Kashfi. (2012). Kajian pengaruh amalan guru Pendidikan Islam Terhadap penghayatan akhlak pelajar sekolah menengah. *Proceeding of*

- International Conference on Research in Islamic and Arabic Language Education 2012 (ICRIALE 2012)*,419-432.
- Suhaili Md. Shamsudin & Siti Syuhada Abd Rahman. (2011). Pembangunan modal insan cemerlang: Peranan guru dan tekanan kerja. *Proceeding 2nd International Conference on Islamic Education 2011 (ICIED 2011)*,727-744.
- Syafiqah Solehah Ahmad & Tengku Sarina Aini Tengku Kasim. (2018). Personaliti guru pendidikan islam dan kesannya terhadap akhlak pelajar: Satu tinjauan awal di sekolah menengah daerah Marang, Terengganu. *International Journal of Education, Psychology and Counseling*, 3(14), 59-75.
- Syahirah Rosli, Siti Fairuz Mahmud& Mohd Edyazuan Azni. (2022). Mengintegrasikan Falsafah Pendidikan Kebangsaan (FPK) dalam membangunkan modal insan bersepadu. *Jurnal Dunia Pendidikan*, 4(1),86-103.
- Syed Najmuddin Syed Hassan, Ab. Halim Tamuri, Isahak Othaman & Mohd. Sabri Mamat .(2009). Kajian persepsi pelajar terhadap tahap profesionalisme guru pendidikan Islam MRSM. *Journal of Islamic and Arabic Education*, 1(2),31-50.
- Tengku Sarina Aini Tengku Kasim & Faridah Che Husain. (2008). Pendekatan individu dalam pengajaran Pendidikan Islam sebagai wahana melahirkan modal insan bertamadun. *Jurnal Usuluddin*, 27, 141-156.
- Zaharah Hussin (2005). Mendidik generasi berakhlak mulia: Fokus peranan guru Pendidikan Islam. *Jurnal Masalah Pendidikan*, 28, 79-94.
- Zaiton Mustafa & Mohd Roslan Mohd Nor. (2019). Peranan keluarga muslim dalam membina masyarakat sejahtera: Satu sorotan awal terhadap pemikiran kekeluargaan Ibn Sina (980m-1037m). *Jurnal Islam Dan Masyarakat Kontemporari*,20 (3),89-96.